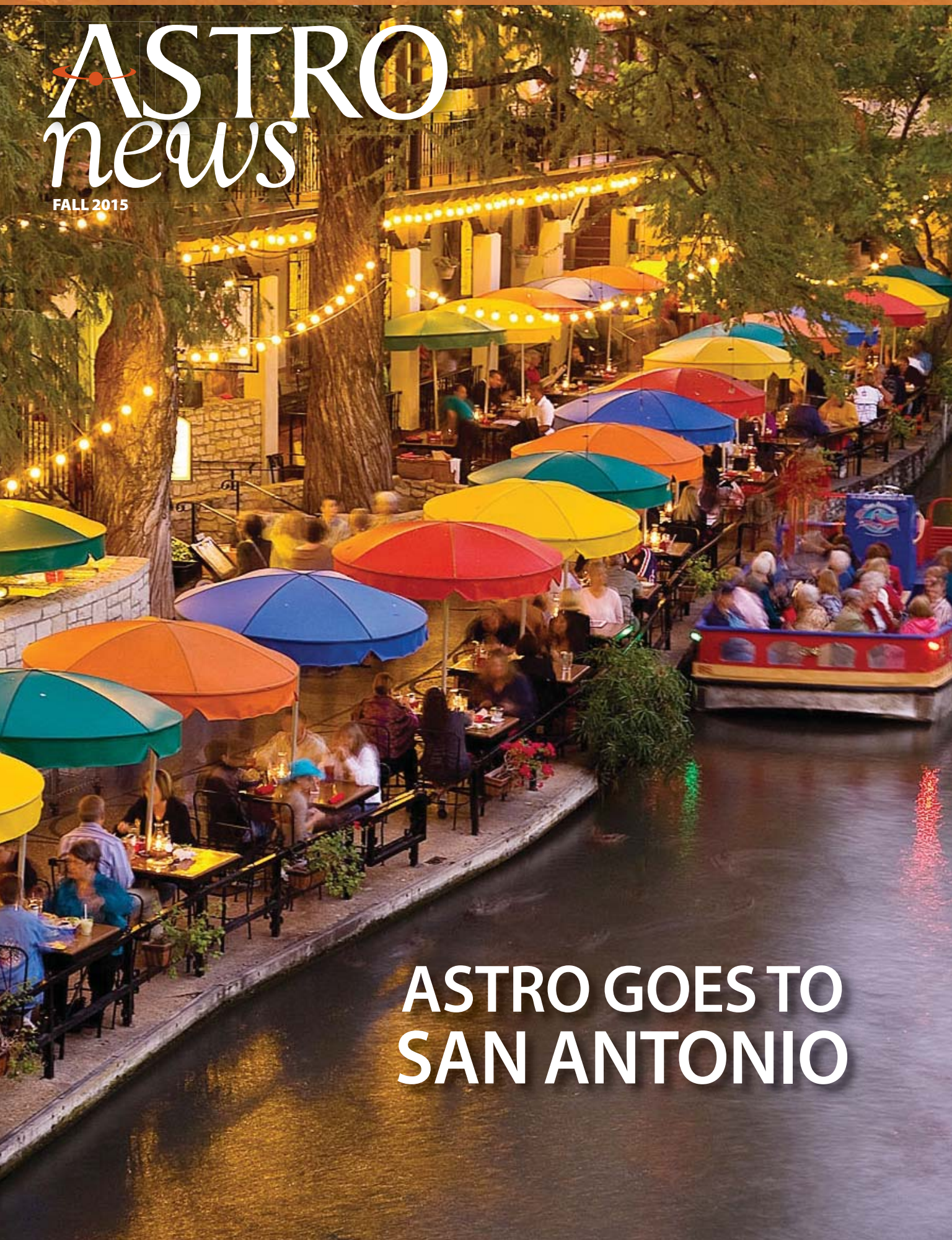
ANNUAL MEETING SPECIAL EDITION 2015

ASTRO news

FALL 2015



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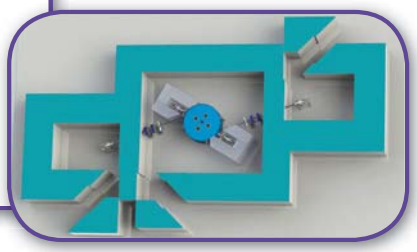

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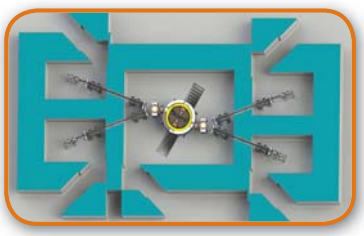

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The famous River Walk, or Paseo del Rio, on the San Antonio River in San Antonio is the largest urban ecosystem in the U.S. The River Walk stretches for 15 miles of sidewalks and paths with access to restaurants, hotels, stores, museums, the King William Historic District and more. It's also a short walk to the Alamo.

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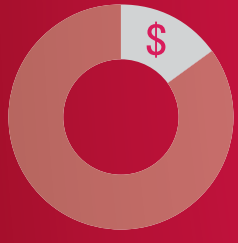

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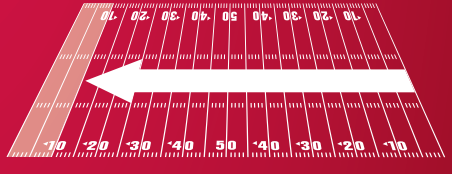

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ASTRO

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BY LISA A. KACHNIC, MD, FASTRO

EDITOR'S*notes*



SAN ANTONIO: THEN AND NOW

WELCOME TO THE SPECIAL ANNUAL MEETING EDITION of *ASTROnews!* This issue is almost entirely devoted to ASTRO's 57th Annual Meeting at the Henry B. González Convention Center in San Antonio. Be sure to read the "Welcome to San Antonio" story (see pages 24-27) by one of my cooperative group colleagues, Chul S. Ha, MD, FASTRO, to learn more about this city's rich American history and Mexican culture.

Remember the Alamo! Well I certainly do. My first visit to San Antonio was during ASTRO's 41st Annual Meeting in 1999. I may actually come across some ancient hard copy photographs of the Alamo, the vast Catholic missionary sites and having a drink or two with my colleagues along the River Walk as I clean out my Boston home in prep for my move next month to a two-bedroom apartment in Nashville.

My visits to San Antonio always correspond to dramatic changes in my life. In 1999, at the Massachusetts General Hospital's evening gathering during the ASTRO Annual Meeting, Herman Suit, MD, FASTRO, announced to the celebrants that Lisa Ann would be returning to the Boston fold as chief of the Boston Medical Center/Boston University Radiation Oncology Program. Well, this was news to me! I was quite happy with my life and position at the Medical College of Virginia/Virginia Commonwealth University in Richmond. Yet, my interviews at Boston Medical Center (BMC) were transformative. BMC appeared to be an extraordinary community of health care providers all devoted to the proposition that every person, regardless of his or her social or economic circumstances, deserved the best health care. The mission was simple and akin to the work of the Catholic missionary sites that I visited in San Antonio. Of course, I ended up accepting this BMC position and remained there for the next 15 years.

As we return to San Antonio for the 57th Annual Meeting, I am preparing for another huge career move. This time I will be joining Vanderbilt University's Department of Radiation Oncology faculty as their new Chair. While I am very excited about the many opportunities that exist for collaborative research within Vanderbilt's Cancer Center, I am a bit concerned about my lack of fondness for country music. I have to admit that before I committed to this new role, I Googled the upcoming concert listings for Nashville, and I am delighted to report that all genres of music are represented, similar to this year's ASTRO meeting

Continued on Page 6

In addition to the more than 350 oral scientific sessions, 50 educational sessions, 26 panel discussions, 19 *e*Poster sessions and 1,610 paper posters, the Annual Meeting is a prime opportunity for networking.

EDITOR'S*notes*







Three outstanding keynote speakers will emphasize this year's ASTRO theme. Pictured left to right: *Keynote Address I*, Arul M. Chinnaiyan, MD, PhD, *Keynote Address II,* Francisco G. Cigarroa, MD, and *Keynote Address III*, Gerald B. Hickson, MD.

in San Antonio. While Dr. Ha did mention that UB40 (for those '80s music aficionados) will be in town, he failed to note that one of my favorites from my teenage years, Jackson Browne, will be playing at the Majestic Theatre on Tuesday night. So for those of you who wish to buy me a congratulatory gift for my new position in Nashville—front row tickets to Mr. Browne would be most appreciated.

Now on to the meeting highlights. This year's theme is "Technology Meets Patient Care," chaired by ASTRO President Bruce D. Minsky, MD, FASTRO, which will emphasize the many advances in radiation delivery technology and their impact on outcomes and quality of life for the patients we care for.

This year's Presidential Symposium, which opens the meeting on Sunday, October 18, is focused on "Multidisciplinary Management of Esophageal and Rectal Cancers." The session moderated by two senior experts in the field of gastrointestinal radiation oncology, Leonard L. Gunderson, MD, MS, FASTRO, and Joel Tepper, MD, FASTRO, will include discussion and debate on several recent landmark studies and ongoing clinical trials for these malignancies.

Three outstanding keynote speakers will emphasize this year's ASTRO theme. Arul M. Chinnaiyan, MD, PhD, S.P. Hicks Endowed Professor of Pathology and Director of the Michigan Center for Translational Pathology, will deliver *Keynote Address I* on how cancer biology is integral to radiation oncology; Francisco G. Cigarroa, MD, Director of Pediatric Transplantation at the University of Texas Health Science Center in San Antonio, will examine the importance of maintaining clinical acumen in *Keynote Address II*, and Gerald B. Hickson, MD, Senior Vice-President for Quality, Safety and Risk Prevention at Vanderbilt University Medical Center, will provide *Keynote Address III* on safety and quality as it relates to his work on PARS (Patient Advocacy Reporting System).

This year marks another banner year of abstract submissions with 2,833 received. With such a great amount of research to present during the meeting, I am excited to report that scientific sessions have been added to the Monday through Wednesday morning time slots. The revamped poster discussion sessions were extremely popular last year and will continue at this meeting with more time being allotted to the author presentations. Importantly, the Sunday Clinical Trials Session and the guidelines/clinical practice sessions will all be held unopposed by other sessions, and if you are running around as I typically do, we have added 30-minute breaks between sessions. Please check out the "Plenary and Clinical Trials Sessions offer top-rated abstracts" story on page 15 for a quick overview of some of the highly rated abstracts being presented. Several of these abstracts will challenge and/or change our current standard of care for a variety of malignancies.

In addition to the more than 350 oral scientific sessions, 50 educational sessions, 26 panel discussions, 19 *e*Poster sessions and 1,610 paper posters, the Annual Meeting is a prime opportunity for networking. Whether it is visiting the Exhibit Hall to learn more about novel technologies in radiation oncology (see the full list on page 45), or discussing potential novel research designs with both national and international colleagues, the overarching goal of our ASTRO meeting is to advance patient care.

Lastly, our Annual Meeting is the culmination of a full year's worth of planning on the part of many ASTRO staff and physicians. My sincere thanks to all involved in what promises to be an extraordinary week.

Now it is time for me to return to packing—see you all in San Antonio!

Dr. Kachnic is Professor and Cornelius Vanderbilt Chair of the Department of Radiation Oncology at Vanderbilt University School of Medicine. She welcomes comments on her editorial, as well as suggestions for future ASTROnews topics, at astronews@astro.org.

BRUCE G. HAFFTY, MD, FASTRO
CHAIR, BOARD OF DIRECTORS

CHAIR'S*update*



HOW CAN I GET MORE INVOLVED IN ASTRO? UNDERSTANDING OUR ORGANIZATIONAL AND COMMITTEE STRUCTURE

ONE OF THE MOST COMMON QUESTIONS I have received over the past two years as ASTRO president, and now chair of the Board, from a broad spectrum of dedicated ASTRO members eager to serve their profession in whatever way possible, is: "How can I get more involved in ASTRO?" It is comforting and refreshing to know that our membership is eager to contribute to moving radiation oncology forward through volunteering in the leading radiation oncology society.

Of course people want to get involved in those areas that they are most passionate and knowledgeable about. In the very early years of ASTRO, the organization's activities were limited to a few presentations and sessions at an annual scientific meeting and informal discussions among our founding fathers about the future of the specialty. Over the nearly 60 years since its inception in 1958, ASTRO has evolved to the point where our activities cover a broad range of issues including but not limited to education, research, science, patient advocacy, practice management, government relations, corporate relations, clinical guidelines and practice statements, health policy, practice accreditation, safety, quality, information technology, communications, publications, training, career planning, mentoring, international outreach and others. This broad spectrum of activities ASTRO is involved in provides an opportunity to engage the interest of every member, wherever his or her interests or passions lie.

For the ASTRO member who wants to get involved in the organization, it helps to understand the organizational and committee structure to see what appeals to you in preparing to get involved. Our website has recently been updated so the organizational structure and committees are readily available for membership to review (www.astro.org/councilstructure) *(See Figure on page 8).*

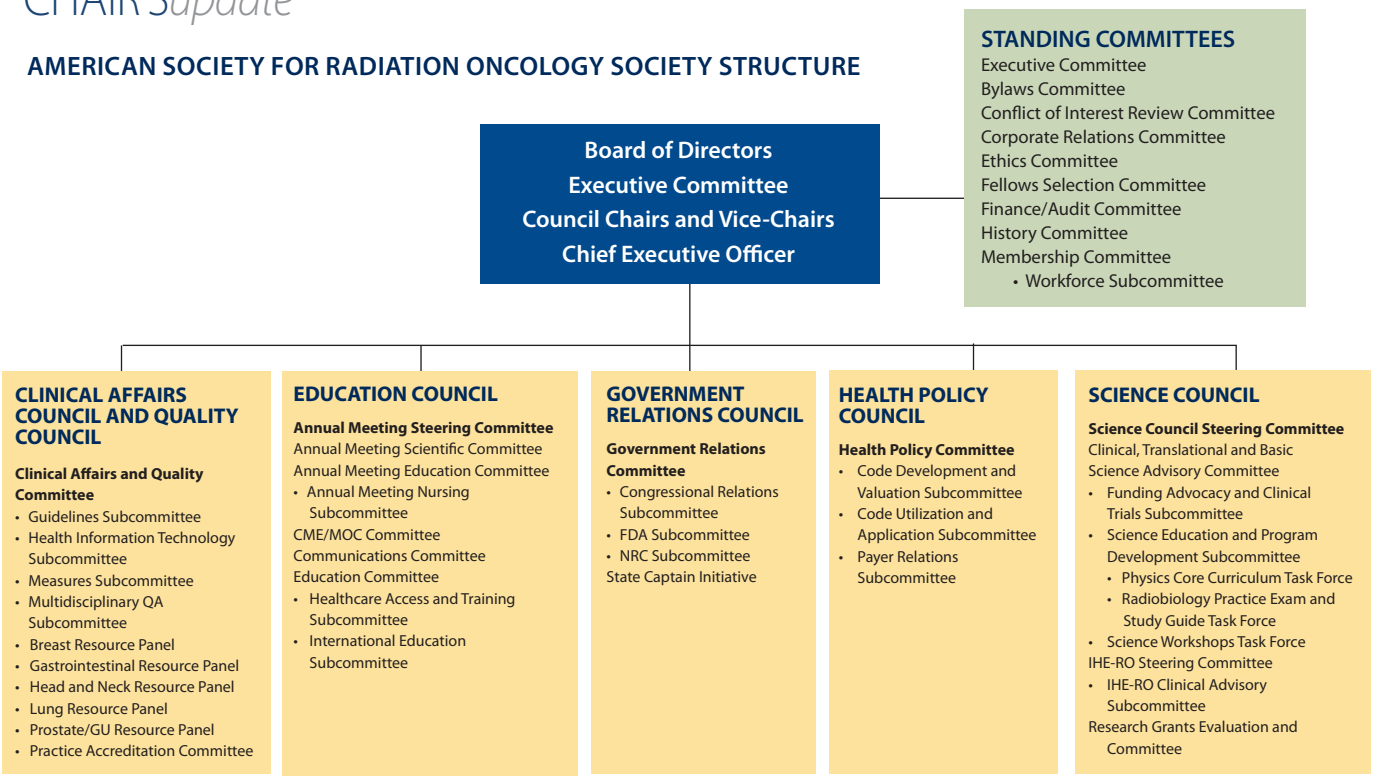
ASTRO is governed by its elected Board of Directors, who work in close collaboration with the chief executive officer and ASTRO staff in carrying out our mission. The Board of Directors is composed of the elected presidential track members (president-elect, president, chair of the Board and immediate past chair of the Board), treasurer, and chair and vice-chair of each of the five councils. There are a number of standing committees that report directly to the Board of Directors to carry out ongoing responsibilities essential to our operations.

ASTRO is structured organizationally into five councils with a designated portfolio of committees and activities within each council. Each council is headed by an elected chair and vice-chair, who sit as voting members on the Board of Directors. While there is often overlap and substantive communication between councils, this structure has evolved to cover the broad range of ASTRO activities. The committees and subcommittees that comprise the various councils are supported by ASTRO staff as they carry out the important work of supporting and promoting the mission of ASTRO. The current organizational structure of ASTRO evolved to meet our current needs and is likely to continue to evolve over time as the needs of the specialty change.

The Education Council oversees ASTRO's educational portfolio, including our Annual Meeting and specialty meetings, CME, MOC and other educational activities; Science Council oversees research and science issues related to our specialty; Government Relations Council is responsible for our congressional relations and other governmental interactions important to ASTRO, our patients and our specialty; Health Policy Council deals

Continued on Page 8

AMERICAN SOCIETY FOR RADIATION ONCOLOGY SOCIETY STRUCTURE



with coding, billing and reimbursement, payer relations, and other health policy issues; and our newest council, Clinical Affairs and Quality, oversees guidelines and practice statements, practice accreditation, health information technology, measures, quality assurance and other clinical operations issues.

ASTRO volunteer members, with the support of ASTRO staff, conduct all of the work that these committees accomplish, to achieve ASTRO's mission, which is "to improve patient care through education, clinical practice, advancement of science and advocacy." It is evident that whatever aspect of ASTRO's broad range of activities or committees inspires you, there is a meaningful and appropriate place for your contribution to our organization and specialty.

Typically committee appointments begin at the end of the Annual Meeting, are made for one year and can be renewed for up to five years. New committee members are added as others rotate off. Committees may be expanded, and can be sunset if work is complete. As the need arises, new committees are created, and the committees and council structure are periodically reevaluated to assure that the important work that ASTRO must carry out is being done in the most efficient and effective way possible, and that appropriate coordination and communication among councils and committees are in place.

Every year in the spring, there is an opportunity for members to volunteer for committees directly on ASTRO's website. Generally, individuals are given up to two choices in the order of their preference and efforts are made to accommodate their top choice. Unfortunately, not everyone can be accommodated the first time around; however, volunteer records are tracked and over time, members can usually find a suitable committee where they can make a valuable contribution.

This coming spring, watch for announcements in ASTROgrams of the committee volunteering period, which will remain open for approximately one month. Review the committee structure to determine where you might best fit in, and sign up for those committees that interest you.

ASTRO could not function without the valuable contribution of its volunteers, and we look forward to your participation. Thank you for being part of ASTRO and contributing to the future of our specialty. And thank you for allowing me to serve as president, and now chair of the Board, of this fabulous organization.

Dr. Haffty is professor and chair of the Department of Radiation Oncology at Rutgers-Robert Wood Johnson Medical School and New Jersey Medical School and associate director of the Rutgers Cancer Institute of New Jersey. He welcomes comments on this column at astronews@astro.org.

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FOCUS ON SOFTWARE. The development of linear accelerators has historically led to significant improvements in radiation therapy but they are now becoming a commodity. There are many reasons to believe that a stronger focus on software will help clinics achieve greater efficiency and improved patient care.

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Check out concrete clinical examples of how RayStation is driving innovation in radiation therapy at www.raysearchlabs.com/RayStation/Software and make sure to get a demo at booth #467 at ASTRO.



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SOCIETY NEWS

ASTRO member named Officer of the Order of Canada

Mary K. Gospodarowicz, MD, medical director of the Princess Margaret Cancer Centre, Toronto, was named an Officer of the Order of Canada for her work in advancing cancer radiotherapy and global leadership in the field.

The Order of Canada is Canada's highest civil honor. It was established in 1967 as a three-tiered order to recognize outstanding achievement, dedication to the community and service to the nation. Since its start, more than 6,000 people have been invested in the Order of Canada.

"Throughout my career and my roles as clinician, researcher, teacher, administrator and leader, I have focused on promoting radiation therapy as an integral tool for treating cancer patients worldwide," Dr. Gospodarowicz said in a release on the topic.

Last year, Dr. Gospodarowicz was selected as an ASTRO Gold Medal winner. She has had a major impact on several areas of radiation oncology, including the treatment of malignant lymphomas and genitourinary cancers, global health and the use of radiation treatment worldwide and the mentoring of trainees. She is a 34-year member of ASTRO and past-president of the Union for International Cancer Control (UICC).



ASTRO continues collaboration with *Consumer Reports* to produce patient flyer about radiation therapy for gynecologic cancers

Choosing Wisely®

An initiative of the ABIM Foundation

As part of ASTRO's participation in the *Choosing Wisely*® campaign, an initiative of the American Board of Internal Medicine (ABIM) Foundation, ASTRO continues to partner with *Consumer Reports* to produce patient materials. A new patient flyer for gynecologic cancers details the benefits and risks of radiation therapy for breast and endometrial cancers, as well as breast cancer screening recommendations. *Consumer Reports* will be distributing the flyer through its publications and online resources. The flyer is available at www.astro.org/toolsandtemplates and can be downloaded and printed free of charge.

The *Choosing Wisely* campaign was developed by the ABIM Foundation as an initiative to "promote conversations between providers and patients by helping patients choose care that is supported by evidence, not duplicative of other tests or procedures already received, free from harm and truly necessary."

ASTRO has released two *Choosing Wisely* lists, in September 2013 and 2014, at the 55th Annual Meeting in Atlanta and the 56th Annual Meeting in San Francisco, respectively. The lists were created following "careful consideration and thorough review, using the most current evidence about management and treatment options."

For more information, visit www.astro.org/ChoosingWisely.

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Robert C. Miller, MD, MBA, named founding editor of *Advances in Radiation Oncology,* ASTRO's new open-access journal

BY KATHERINE EGAN BENNETT, MANAGING EDITOR, SCIENTIFIC PUBLICATIONS, KATHERINE.BENNETT@ASTRO.ORG



When ASTRO's new open-access journal, *Advances in Radiation Oncology*, begins accepting submissions this summer at http://ees.elsevier.com/advancesradonc, Robert C. Miller, MD, MBA, will be at the helm of this exciting new endeavor. Dr. Miller has been a radiation oncologist at the Mayo Clinic in Rochester, Minnesota, since 1994 when he started as a resident, rising to become a full professor and medical director at the flagship hospital in Minnesota as well as a full professor at the Mayo Clinic in Jacksonville, Florida, where he currently practices. Dr. Miller is the medical director for Mayo Clinic operations in Northfield and Lakeville, Minnesota, and brings experience in care delivery across the spectrum of medical specialities to this role. In addition, Dr. Miller is editor-in-chief of *Rare Tumors*, an open-access journal he founded six years ago.

"We're excited for Robert to launch this new journal for ASTRO. He has spent his career studying gastrointestinal malignancies with an interest in proton radiation, normal tissue toxicity and rare cancers. That combined with his unique experience as an open-access journal editor make him the perfect candidate to lead this new initiative," said Bruce G. Haffty, MD, FASTRO, chair of ASTRO and a professor and chair of radiation therapy at Rutgers Cancer Institute of New Jersey, Robert Wood Johnson Medical School in Newark, New Jersey.

Dr. Miller was selected by an eight-member task force representing a cross section of ASTRO's membership. Theodore DeWeese, MD, vice-chair of ASTRO's Science Council and a radiation oncologist at Johns Hopkins University in Baltimore, led the task force, which met via conference call on several occasions to establish

WHAT DOES IT MEAN THAT *ADVANCES IN RADIATION ONCOLOGY* IS AN OPEN-ACCESS JOURNAL?

Open-access means that the journal and all the articles in it are free for anyone to read, download and share. With traditional subscription journals, universities and individuals pay for subscriptions to the journals. If you're outside of a large university or doing research outside of your field (like a general surgeon, for example), you may not have access to all the articles you want. This access also impacts patients who may have to pay $35 or more to download a single article. With open-access, the authors, their institutions and/or funding bodies pay an article processing charge (APC) to the journal. These fees cover the costs of peer review, indexing, typesetting and online hosting in perpetuity. For *Advances,* these fees will range from $750 for ASTRO members for a case report to $2,000 for a non-member for an original report.

Just because *Advances* is open-access does not mean the journal accepts everything. Rather, *Advances* and its editorial board have established acceptance criteria to ensure that only well-written studies with solid methodology, statistics and within scope are accepted.

criteria for the new position and created benchmarks for success. Ten individuals applied for the position and four were invited to interview in person to present their vision for the new journal.

"This isn't a normal position as the journal doesn't exist yet, so it required a special candidate. Robert really impressed us with his plans for *Advances in Radiation Oncology.* We are confident he is the person to lead this initiative," said Dr. DeWeese.

When it launches this summer, *Advances in Radiation Oncology* will be an official ASTRO journal and a natural complement to the Society's other journals, the *International Journal of Radiation Oncology • Biology • Physics* (Red Journal) and *Practical Radiation Oncology (PRO)*.

Advances in Radiation Oncology will distinguish itself from ASTRO's two other journals by publishing original reports focusing on novel retrospectives, hypothesis-generating series, institutional series, natural history of disease, data analytics and systems innovations. The journal will also publish teaching cases as well as brief communications to capture innovations in the field.

When the journal starts evaluating manuscripts late this summer, it will have a cascade function from the Red Journal and *PRO*, allowing Anthony Zietman, MD, and W. Robert Lee, MD, MS, MEd, FASTRO, editors of the Red Journal and *PRO,* respectively, to be able to triage papers that fit the scope of *Advances in Radiation Oncology*. This will be done with the author's consent. If the author accepts the transfer, the original paper along with any reviews will be carried over to *Advances*. This saves the researchers' time as they will not have to reformat their paper to fit another journal's style.

The platform is available at www.advancesradonc.org, and the first issue is due to be published in late fall of 2015.

2015 ANNUAL MEETING PROMOTIONAL SUPPORTERS

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Highlights and key sessions of ASTRO's 57th Annual Meeting

BY CRISTIN WATSON, ASSISTANT DIRECTOR OF EDUCATION, CRISTINW@ASTRO.ORG

ASTRO's 57th Annual Meeting, set for October 18-21 at the Henry B. González Convention Center in San Antonio, will enhance attendees' knowledge of the radiation oncology field through scientific and clinical educational sessions. Several new features, as well as the continuation of successful past changes, will enrich this year's meeting experience. Highlights of the Annual Meeting include:

- Scheduling changes of concurrent sessions made in 2014 will continue. Scientific sessions have been added to the Monday, Tuesday and Wednesday morning time slots. In the past, the morning time slots only included educational sessions. Now these time slots will have five educational sessions and five scientific sessions, all for 75 minutes each. The scientific sessions will highlight seven abstracts, instead of the typical nine, in 90-minute scientific sessions.
- The revamped poster discussion sessions (*e*Posters), an overwhelmingly popular feature with attendees, presenters and faculty, will continue this year, with a few additional changes. Author presentations have been increased to six minutes from last year's four minutes. Poster viewing with authors will now be held at the end of the session, instead of at the beginning, as was done previously.
- The Clinical Trials Session will be held on Sunday afternoon and will again be unopposed.
- There will be two unopposed guidelines/clinical practice sessions:
  - One held after the Plenary Session (Monday, 3:25 p.m.)
  - One held after the Keynote Session (Wednesday, 10:00 a.m.)
- The 2015 program will include 30-minute breaks between sessions to give attendees more time between sessions to visit the Exhibit Hall or network.

This year's meeting theme, "Technology Meets Patient Care," will be explored in the Keynote Addresses. Arul M. Chinnaiyan, MD, PhD, S.P. Hicks Endowed Professor of Pathology and director of the Michigan Center for Translational Pathology, and a professor of urology and investigator at the Howard Hughes Medical Institute, will deliver the *Keynote Address I* on cancer biology as it relates to radiation oncology (Monday, 9:15 a.m.). Francisco G. Cigarroa, MD, will look at the importance of maintaining clinical acumen in the *Keynote Address II* (Tuesday, 9:15 a.m.). Gerald B. Hickson, MD, senior vice-president for Quality, Safety and Risk Prevention, assistant vice-chancellor for Health Affairs, and Joseph C. Ross Chair in Medical Education and Administration at Vanderbilt University Medical Center, will give the *Keynote Address III*, on safety and quality as it relates to his work on PARS (Patient Advocacy Reporting System) and the relationship to radiation oncology (Wednesday, 9:15 a.m.).

The 2015 Presidential Symposium, "Multidisciplinary Management of Esophageal and Rectal Cancers" will be moderated by two senior experts in the field of GI oncology, Leonard L. Gunderson, MD, MS, FASTRO, and Joel E. Tepper, MD, FASTRO. The symposium will highlight the multidisciplinary approach to both esophageal and rectal cancers by a group of speakers who will review current approaches and future treatment strategies.

This year's educational sessions, special sessions and scientific panels will cover a variety of topics, several of which directly connect with the 2015 meeting theme. These sessions include (all room locations and times are subject to change):

- Health Policy Socioeconomic Luncheon – This program will provide attendees with information regarding CPT coding and reimbursement changes that become effective January 1, 2016 (Room 217 C/D, Sunday, 12:15 p.m.).
- Educational Session 19 – Payment Reform Initiatives in Radiation Oncology (Room 008 A/B, Monday, 4:15 p.m.).
- Joint Session 1 (Live SA-CME) – Maintenance of Certification Becomes Simpler: New Initiatives from the ABR, Joint Session with the ABR (Room 103 A/B, Monday, 4:15 p.m.).
- Educational Session 39 – Patient Centered Care: Cancer Care from the Patient's View. A panel of cancer survivors will describe the unique needs of the cancer patient, during treatment and beyond (Room 005, Tuesday, 4:45 p.m.).
- Joint Session 2 – When High-Tech Meets Low-Tech: Integrating Radiation Oncology and Spiritual Care, Joint Session with the Healthcare Chaplaincy Network. This session, held for the first time this year, will offer an understanding of spiritual care (Room 004, Tuesday, 4:45 p.m.).

- Panel 5 – Appropriate Customization of Radiation Therapy for Stage II and III Rectal Cancer: An ASTRO Best Practice Statement Using the RAND/UCLA Appropriateness Method (Room 217 A/B, Monday, 10:45 a.m.).
- Panel 14 – *Target Safely:* ASTRO's Accomplishments in Five Years. An important update on ASTRO's *Target Safely* initiative (Room 007 C/D, Tuesday, 2:45 p.m.).
- Panel 16 – Incident Learning and Building a Culture of Safety. The focus of this session is to educate existing and prospective RO-ILS: Radiation Oncology Incident Learning System® users (Room 006, Tuesday, 4:45 p.m.).
- Panel 18 – Radiation Therapy for Glioblastoma: ASTRO Practice Guideline Evidentiary Base (Room 007 A/B, Wednesday, 10:45 a.m.).
- Panel 19 – Joint Session 3 – Radiation and Immunity Meet the Clinic Joint Session with SITC (Room 008 A/B, Wednesday, 10:45 a.m.).

Plenary and Clinical Trials Sessions offer top-rated abstracts

BY BENJAMIN MOVSAS, MD, FASTRO, ANNUAL MEETING SCIENTIFIC COMMITTEE CHAIR

ASTRO's 57th Annual Meeting is set to give attendees a varied offering of top-rated abstracts in cutting-edge clinical and research-based medicine. This year, the Annual Meeting program will also offer attendees more scientific panels (26) and more than 50 educational sessions, eight workshops/special sessions, as well as more than 350 oral scientific presentations.

On the poster side, this year's meeting will feature 1,610 paper posters and more *e*Poster sessions (19) with 171 abstracts, covering all the major disease sites.

So far, here is a snapshot of several key abstracts to be highlighted in either the Plenary or Clinical Trials Sessions, both of which run unopposed. These abstracts cover randomized clinical trials, radiomics, quality of life and immunology, among other topics.

- **Supriya Chopra, MD,** of the ACTREC Tata Memorial Centre, Navi Mumbai, India, is the lead author and will discuss the interim results of a phase III randomized clinical trial comparing conventional RT (3-D CRT) versus image-guided IMRT for reducing late bowel toxicity in cervical cancer.
- **Jiahua Lv, MD,** Sichuan Cancer Hospital and Institute, Chengdu, China, is the lead author and will present the results of a randomized clinical trial comparing involved field irradiation (IFI) versus elective nodal irradiation (ENI) for locally-advanced thoracic esophageal squamous cell carcinoma.
- **Thomas Merchant, DO, PhD,** St. Jude Children's Research Hospital, Memphis, Tennessee, is the lead author of a phase II Children's Oncology Group study examining the role of conformal radiation therapy for pediatric patients with localized ependymoma.
- **Baderaldeen Altazi, MS,** Moffitt Cancer Center and Research Institute/USF, Tampa, Flordia, is the lead author and will share the results of a study on the comparison of radiomics features and SUV in predicting the outcome for cervical cancer treatment.
- **Sree Rodda, MD,** PHSA-BC Cancer Agency, Vancouver, is the lead author of a study looking at the quality of life outcomes of the ASCENDE-RT trial, a randomized clinical trial of RT for prostate cancer.
- **Bhisham Chera, MD,** University of North Carolina School of Medicine, Chapel Hill, North Carolina, is the lead author and will discuss the results of a prospective phase II trial looking at deintensified chemoradiation therapy for low risk HPV-associated oropharyngeal squamous cell carcinoma.
- **Stephen Chun, PhD,** University of Texas Southwestern Medical Center, Dallas, is lead author of a NRG/RTOG analysis for locally advanced non-small cell lung cancer, comparing 3-D CRT versus IMRT.
- **Andrew Minn, MD, PhD,** University of Pennsylvania, Philadelphia, is the lead author and will present the results of a study assessing the response and biomarkers for radiation and immune checkpoint blockade.

Late-breaking abstracts may be added to these sessions. The Plenary Session will take place on Monday, October 19, at 2:15 p.m. The Clinical Trials Session will take place on Sunday, October 18, at 3:15 p.m.

All other scientific sessions will occur Sunday through Wednesday. This year the Annual Meeting also has several 75-minute scientific sessions that will be held in the early morning concurrently with the educational sessions and panels, so attendees can choose either scientific or educational sessions throughout the meeting.

Cutting edge abstracts featured in physics, biology tracks at Annual Meeting

BY INDRIN J. CHETTY, PHD, MS, PHYSICS TRACK CHAIR, AND FELIX Y. FENG, MD, BIOLOGY TRACK CHAIR

At this year's Annual Meeting, the theme of "Technology Meets Patient Care" will be explored extensively in both the physics and biology tracks. Researchers were encouraged to submit abstracts addressing this theme. The Best in Physics Session features abstracts that provide excellent examples of high quality, innovative science among the variety of central topics that have an important impact in radiation oncology clinical practice. These abstracts are highlighted below:

In the Physics track:

- **Yi Cui, PhD,** of the Global Station for Quantum Medical Science and Engineering, Global Institution for Collaborative Research and Education (GI-CoRE), Hokkaido University, Sapporo, Japan and Department of Radiation Oncology, Stanford University, Stanford, California, is the lead author and will discuss the identification of novel prognostic imaging biomarkers in locally advanced pancreatic cancer patients treated with SBRT through radiomic analysis of FDG-PET.
- **Nan Li, PhD,** of the Department of Radiation Medicine and Applied Sciences, University of California San Diego, La Jolla, California, is the lead author and will present results of a knowledge-based automated planning system in cervical cancer as a clinical trial quality system.
- **Elizabeth Weiss, MD,** of Virginia Commonwealth University, Richmond, Virginia, is the lead author and will discuss the results of a pilot study examining the response assessment with serial diffusion weighted magnetic resonance imaging in chemoradiation therapy for non-small cell lung cancer.
- **Jan P. Schuemann, PhD,** of Massachusetts General Hospital, Boston, is the lead author and will present the results of a study examining gold nanoparticles for enhancement of radiation dose deposition in tumors.
- **Ross Bland, MD,** of The University of Texas Southwestern Medical Center, Dallas, is the lead author of a study on the dose response relationship for stereotactic ablative body radiotherapy (SABR)-associated airway collapse.

Additionally within the physics track, a new session called "Cutting Edge Technologies" was created to include the most innovative and top scoring abstracts related to the field of radiomics, which involves the extraction of quantitative imaging features/textures from images (e.g. CT, PET, MRI) used in radiation oncology for planning and/or assessment of response. Radiomics is a novel area of research, bringing together expertise from physics, biology, imaging and the computational sciences to quantitatively analyze images, assess trends and ultimately build models to predict outcomes. Abstracts in the radiomics session are featured below:

In the Radiomics Session:

- **Baderaldeen Altazi, MS,** of Moffitt Cancer Center and Research Institute/USF, Tampa, Florida, is the lead author and will present the results of a study that compares radiomics features and SUV as predictors of outcomes in cervical cancer treatment.
- **Sarah Mattonen, BS,** of the University of Western Ontario, London, Ontario, Canada, is the lead author and will present a study on automated texture analysis for recurrence prediction after stereotactic ablative radiotherapy (SABR) for lung cancer.
- **Catherine Coolens, PhD,** Princess Margaret Hospital, Toronto, is the lead author and will share results on the early detection of tumor response with volumetric DCE-CT and DCE-MRI in metastatic brain patients who are treated with radiosurgery.
- **Hua Li, PhD,** of Washington University School of Medicine, St. Louis, will present on a study examining the robust optimal feature selection in lung tumor recurrence prediction using PET imaging.
- **Martin Valliéres, MS,** of McGill University Health Centre, Montreal, Canada, is lead author and will discuss a study evaluating early assessment of tumor aggressiveness using joint FDG-PET/MRI textural features.

Within the biology track, many studies also utilized novel technologies or approaches to study the underlying radiobiology of tumors and to develop novel therapeutic strategies involving radiation. The top ranked abstracts will be

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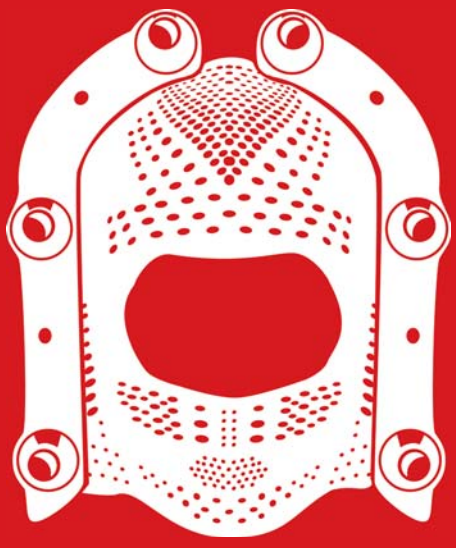

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Continued from Page 16

featured in five oral presentation sessions and will address a wide range of topics spanning many disease sites. Some of the top abstracts are highlighted below:

In the Biology track:

- **Andrew Minn, MD, PhD,** of the University of Pennsylvania, Philadelphia, will present results from a phase I trial of radiation and a form of immunotherapy (an anti-CTLA4 antibody), which was conducted in parallel with laboratory studies using genomic and immune profiling studies to discover markers and determinants of response and resistance to this immunotherapy-based regimen.
- **Shuang Zhao, MD, MSE,** of the University of Michigan, Ann Arbor, Michigan, is the lead author on a study using transcriptomic profiling to identify differences in potential biological drivers of prostate cancer in older versus younger men, and will discuss the therapeutic implications of these findings.
- **Jean Nakamara, MD, PhD,** of the University of California at San Francisco, will present results from a study using genomic sequencing approaches to identify mutational profiles of tumors caused by radiation, and will discuss the potential importance of this work in developing assays to screen cancer survivors for risk of secondary malignancies.
- **Mohamed Abazeed, MD, PhD,** of the Cleveland Clinic Foundation, Cleveland, will present results from a study in which his team developed a high-throughput method for profiling radiation sensitivity in cancer cell lines, and then applied this approach to characterize genetic alterations driving radiation resistance across 22 tumor types.
- **David Azria, MD, PhD,** of Institut du Cancer de Montpellier, Montpellier, France, will present results from a prospective, multicenter French trial evaluating a novel biomarker (radiation-induced CD8-lymphocyte apoptosis) as a predictor of late toxicity after radiation therapy for breast cancer.

In total, these studies, as well as numerous other exciting studies within the physics and biology sessions, highlight the confluence of technological advances with patient care that will be featured at the Annual Meeting. For more information about the Annual Meeting, visit www.astro.org/annualmeeting.



Ask ASTRO: Information and Member Services Booths

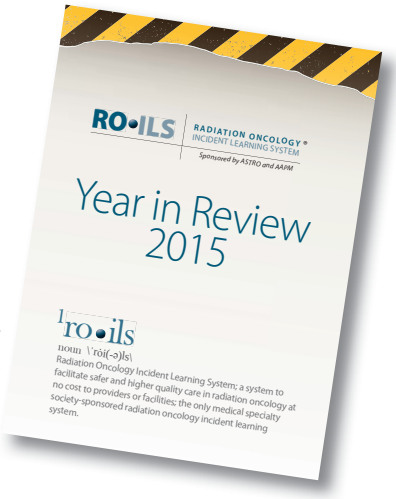
At this year's Annual Meeting in San Antonio, ASTRO will provide two Information and Member Services Booths to assist attendees and provide information about ASTRO's products and services. ASTRO staff will be available on-site to answer questions and provide information on topics including:

- Technical questions related to the meeting app and Online Conference Planner.
- Membership questions including membership renewals, how to join and benefits of membership.
- Information on APEx®, ASTRO's accreditation program; RO-ILS: Radiation Oncology Incident Learning System®; upcoming specialty meetings and other ASTRO offerings.
- General information about the Annual Meeting.

The booths will be located in the Henry B. González Convention Center in the Main Lobby area on the street level and in the Park View Registration area on the concourse level.

RO-ILS: Radiation Oncology Incident Learning System® Year in Review 2015

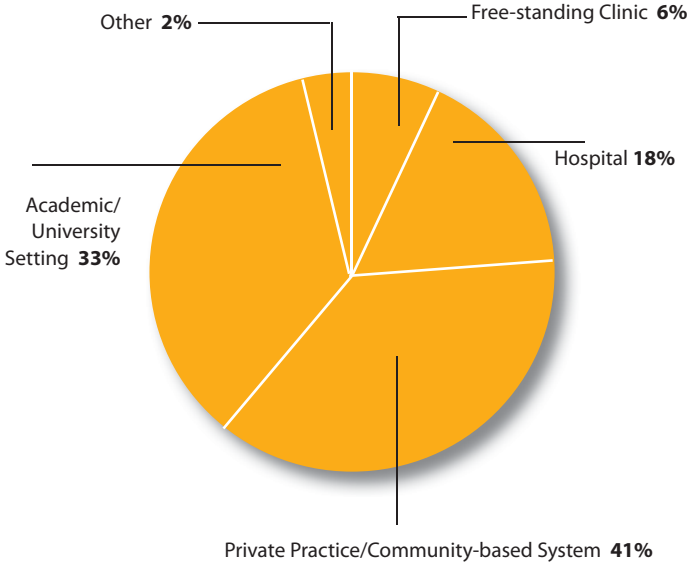
BY CINDY TOMLINSON, SENIOR MANAGER FOR SECURITY AND SAFETY, CINDY.TOMLINSON@ASTRO.ORG
AND KSENIJA KAPETANOVIC, QUALITY IMPROVEMENT SPECIALIST, KSENIJA.KAPETANOVIC@ASTRO.ORG



RO-ILS: Radiation Oncology Incident Learning System®, sponsored by the American Society for Radiation Oncology (ASTRO) and the American Association of Physicists in Medicine (AAPM) is a key milestone in ASTRO's *Target Safely* campaign, a comprehensive plan to improve safety and quality for radiation oncology. The mission of RO-ILS is to facilitate safer and higher quality care in radiation oncology by providing a mechanism for shared learning in a secure and non-punitive environment.

ASTRO contracted with Clarity PSO, one of the earliest organizations to be federally qualified as a Patient Safety Organization (PSO), to build the online interface and provide the affiliated patient safety services outlined in the Patient Safety and Quality Improvement Act of 2005 (PSQIA). The PSQIA authorizes the creation of PSOs to address the needs identified in the 1999 Institute of Medicine (IOM) report "To Err is Human: Building a Safer Health System [1]."

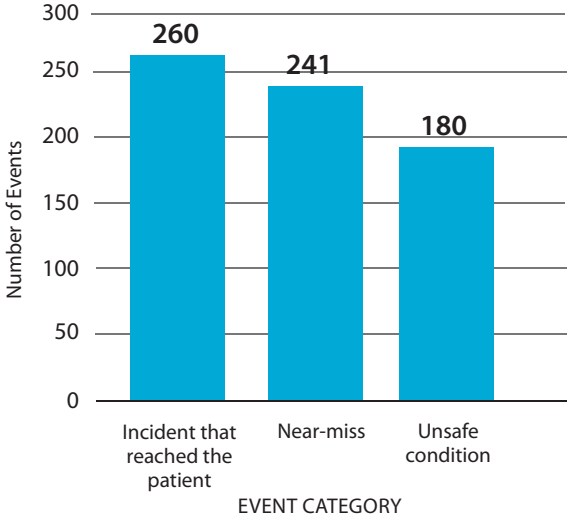
FIGURE 1:
Practice setting distribution for participating facilities



Participation

In the first year, RO-ILS participation grew to 130 facilities. RO-ILS participants are geographically dispersed and practice in various settings including hospital, academic and private practice/community-based systems (see Figure 1).

FIGURE 2:
What is being reported?



Data

Since the launch of RO-ILS in June 2014, a total of 681 events have been reported to the PSO. As noted in Figure 2, more "incidents that reached the patient" with or without harm were entered compared to "near misses" and "unsafe conditions." Further analysis indicates that the vast majority of the incidents that reached the patient are of minor or no clinical consequence and the result of 3-D radiotherapy.

Continued on Page 20

1 To Err is Human: Building a Safer Health System. Institute of Medicine (US) Committee on Quality of Health Care in America; Kohn LT, Corrigan JM, Donaldson MS, ed. Washington, DC: National Academies Press (US); 2000.

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Reports

RO-ILS has issued three quarterly aggregate reports since the 2014 launch. All aggregate reports can be found at www.astro.org/roilsreports. A recent report outlined safe practice recommendations including:

1. **Use checklists:** As reflected by the data, checklists appear to help prevent errors; 34 percent (25 of 73) of Quarter 4, 2014 events were submitted as near misses that were identified through checklists, time-outs and patient vigilance. It is vital that providers use checklists and time-outs to prevent errors and protect patients.
2. **Identify common sources of interruption:** Interruptions and distractions at the treatment console are a recipe for errors. Consider asking dosimetrists and other providers about common sources of interruption and implement a tracking system to assess how often those interruptions occur.
3. **Create no interruption zones:** Identify processes with the highest risk for actual/potential harm and/or steps that require complete attention/concentration. Consider creating "no interruption zones" to prevent distractions that can lead to errors.
4. **Establish emergency protocols:** Consider defining what constitutes an emergency and instituting a protocol that brings in extra staff to handle patient workload.
5. **Conduct peer review prior to treatment:** Assess whether performing peer review of treatment plans to help identify potential errors or opportunities for improvement would be a benefit to the department.

A recently published "Year in Review: 2015" Report provides a detailed first year assessment of operation. RO-ILS will continue leveraging lessons learned from the initial year to promote ongoing quality improvement and patient safety in radiation oncology. For more information on RO-ILS, visit www.astro.org/roils. At the Annual Meeting, attendees can learn more about RO-ILS by attending Panel 16 – Incident Learning and Building a Culture of Safety. The focus of this session is to educate existing and prospective RO-ILS users (Room 006, Tuesday, 4:45 p.m.).

APEx facility visits underway; learn more at Annual Meeting

BY ANGELA KENNEDY, ASSISTANT DIRECTOR, ACCREDITATION PROGRAM FOR EXCELLENCE (APEX), ANGELAN@ASTRO.ORG

Learn more about ASTRO's Accreditation Program for Excellence (APEx®) at this year's 57th Annual Meeting on October 18-21 in San Antonio at the Henry B. González Convention Center. APEx is part of the 2010 *Target Safely* initiative, which is celebrating its fifth anniversary this year. APEx was created to support quality improvement in radiation therapy practices. The program establishes standards of performance derived from white papers and consensus practice guidance for radiation oncology. Facilities that obtain practice accreditation will have the systems, personnel, and policies and procedures that are needed to meet the APEx standards for high-quality patient care.

Several sessions will be held at the Annual Meeting for attendees to learn more about APEx. These include a Surveyor Training session on Saturday, October 17, 2:00 p.m. to 3:30 p.m. The interactive session is designed to provide case-based scenarios of the program and guidance on the surveyor's role. The target audience for this session is approved surveyors for ASTRO's practice accreditation program. Registration for currently approved surveyors is required.

On Monday, October 19, from 12:00 p.m. to 1:30 p.m., the APEx Luncheon will feature an overview of the practice accreditation program. This luncheon will provide the necessary information needed to understand the process, from application to successful accreditation. Those attending will be able to understand the expectations, steps, resources and tools to complete the process. The panel will consist of APEx participants who will share their experience with the program. Registration is required.

The APEx program is fully up and running, and practices can begin the application process through the ASTRO website at www.astro.org/apex. ASTRO launched the APEx facility application in December 2014, the self-assessment in February 2015 and began conducting facility visits in July 2015.



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ASTRO 2015 Educational Courses: News from the International Education Subcommittee (IES)

BY ZHONGXING LIAO, MD, VICE-CHAIR OF THE INTERNATIONAL EDUCATION SUBCOMMITTEE

Following the success and impressive attendance at the International Education Subcommittee (IES) ASTRO Educational Refresher course last year, IES committee members have worked hard to put together a series of outstanding educational sessions again for this year's 2015 Annual Meeting in San Antonio.

Two 90-minute sessions are slated for the Annual Meeting this year, and will follow up on the 2014 course, but with a clinical focus on how to make the best use of radiotherapy resources for breast, gynecology, head and neck and lung cancer. This year's two-part course, "Transitioning from 2D to 3D to Advanced Techniques: Promises and Perils," will highlight integration of advanced technologies with those currently utilized in low to medium income countries (LMIC). Both courses will again be led by Jatinder Palta, PhD, FASTRO, who will partner with Manjeet Chadha, MD, Bhadrasain Vikram, MD, and Nina Mayr, MD, FASTRO, as well as a radiation oncologist from Turkey to discuss breast/gynecology cancers in one course. This course will be held from 12:45 p.m. to 1:15 p.m. on Monday, October 19. In the other, Dr. Palta, Kenneth Hu, MD, and I will discuss head and neck/lung malignancies. The objectives are to tailor U.S. treatment guidelines, advanced radiotherapy techniques, treatment processes, clinical workflow, quality assurance and safety issues to those in LMIC's. The course will be held from 4:15 p.m. to 5:45 p.m. on Monday, October 19.

The IES will also be coordinating refresher courses with panel discussions on Sunday, October 18 in Mandarin and Spanish. The courses were well received in 2014 and are popular among international attendees. Beatriz Amendola, MD, FASTRO, and I have organized the courses. The Chinese Society of Therapeutic Radiology and Oncology (CSTRO) is enthusiastic about continued collaboration with IES, particularly regarding education on quality/assurance and safety. Four outstanding faculty members from CSTRO, including the current President of CSTRO, Jingyi Lang, PhD, have been invited for the refresher course.

For the Spanish courses, a panel of experts from Latin America and Spain have been invited.

Target Safely: Five years out



In 2010, ASTRO launched the *Target Safely* initiative, a patient protection plan to improve the safety and quality of radiation oncology. Since then, ASTRO has made significant investments in resources to provide guidance on how to provide safe care. One example is the publication of quality assurance white papers and updated practice recommendations found in *Safety is No Accident: A Framework for Quality Radiation Oncology and Care.* Other examples are programs to measure and improve quality/safety in the care provided in radiation oncology clinics, including the start of the RO-ILS: Radiation Oncology Incident Learning System®, which released "A Report from the First Year of Experience," this summer, available online on the *Practical Radiation Oncology* website (www.practicalradonc.org) and the launch of APEx®, ASTRO's practice accreditation program.

At ASTRO's 57th Annual Meeting, a session will examine the accomplishments thus far in the initiative at Panel 14 – *Target Safely*: ASTRO's Accomplishments in Five Years (Henry B. González Convention Center, Room 007 C/D, Tuesday, 2:45 p.m.). The purpose of this session is to educate practicing physicians and physicists about these resources and programs broadly. Attendees are encouraged to go to this session to learn more about how the *Target Safely* goals have been implemented in the last five years.

The full list of key goals for the *Target Safely* program (from the website www.astro.org/targetsafely) is:

1. Supporting the development of a national medical error reporting system and a patient safety database for radiation oncology (RO-ILS, for more information, visit www.astro.org/roils).

2. Testing the compatibility of different radiation oncology equipment vendors through an ASTRO-sponsored initiative dedicated to improving the integration of equipment used in radiation treatment (the Integrating Healthcare Enterprise-Radiation Oncology, or IHE-RO, for more information, visit www.astro.org/ihero).
3. Strengthening radiation oncology practice accreditation with more robust and meaningful measures (APEx, the Accreditation Program for Excellence, for more information, visit www.astro.org/apex).
4. Providing cancer survivors, patient support groups and other medical organizations with a list of questions that patients should ask physicians and cancer centers when considering radiation therapy as a treatment for their disease.
5. Incorporating quality and safety educational content into ASTRO meetings to ensure attendees have the resources necessary to provide safe and effective patient care.

ARRO program to highlight the resident experience

BY NIMA NABAVIZADEH, MD, ARRO EDUCATION OFFICER, ARRO EXECUTIVE COMMITTEE, ON BEHALF OF THE ARRO EXECUTIVE COMMITTEE

The Association of Residents in Radiation Oncology (ARRO) Executive Committee is excited about the upcoming events at the ASTRO Annual Meeting in San Antonio. The ARRO Executive Committee has worked hard to develop a program that will enrich the resident experience while providing valuable information that can be utilized during residency and beyond.

The ARRO Annual Seminar will take place on Saturday, October 17, from 10:00 a.m. to 5:00 p.m. The morning will begin with presentations from our Global Health Scholars, who will share their experiences abroad and their perspectives on how radiation therapy and cancer care are delivered internationally. Then, Tim R. Williams, MD, FASTRO, medical director of radiation oncology at Boca Raton Regional Hospital in Boca Raton, Florida, and prior ASTRO chair, will present "Economics I Wish I Knew as a Resident." This will be followed by a keynote address by Eli Glatstein, MD, FASTRO, of the Department of Radiation Oncology at the University of Pennsylvania in Philadelphia. Following the keynote will be the jobs panel, which has always been a highlight of the ARRO Annual Seminar. Lisa Kachnic, MD, FASTRO, Professor and Cornelius Vanderbilt Chair of the Department of Radiation Oncology at Vanderbilt University School of Medicine in Nashville, Tennesse, will moderate in hopes of answering more of the questions trainees face as they seek employment after residency.

The panel features an excellent group of early-career physicians, including:

- Sravana Chennupati, MD, Sutter Health, San Francisco
- Chance Matthiesen, MD, University of Oklahoma, Oklahoma City
- Gita Suneja, MD, University of Utah, Salt Lake City
- Alex Spektor, MD, PhD, Dana-Farber Cancer Institute, Boston

After the jobs panel will be an educational session led by two thought-leaders in image-guided radiation therapy (IGRT), Laura Dawson, MD, and David Jaffray, PhD, of Princess Margaret Hospital in Toronto. IGRT is becoming ubiquitous in radiation oncology practice; however, many residents lack practical understanding of its daily usage. Drs. Dawson and Jaffray will lead a discussion on the practicalities of IGRT and best implementation in practice. Following the IGRT session, as part of the Resident Wellness series, Anthony D'Amico, MD, PhD, FASTRO, will discuss work-life balance within our specialty. Finally, Terry Wall, MD, JD, FASTRO, will end the day with the Practice Entry Survey Results Session.

The Meet the Professor Breakfast will occur on Monday, October 19 from 7:30 a.m. to 9:00 a.m. The breakfast will allow for roundtable discussions with faculty on various topics related to radiation oncology. There will be audience interaction throughout the event.

Also, don't forget about the ARRO Medical Student Meet and Greet. Held during the poster reception from 5:45 p.m. to 6:45 p.m. on Monday, the Meet and Greet event allows residents to connect with medical students interested in radiation oncology. Program directors are also invited to attend. Spread the word to your fellow residents, your program director and any medical students in attendance.

We are incredibly excited for the ASTRO Annual Meeting and look forward to an outstanding program of ARRO events.

Welcome to

BY CHUL S. HA, MD, FASTRO

It's a great pleasure and privilege for me to welcome you to San Antonio!

San Antonio is a city rich in history and diverse in culture. It is the seventh most populous city in the U.S. However, it may not feel like a typical large city, probably because it is so spread out. Some of my colleagues live on ranches and are still able to come to work at the medical center within 15 minutes. It is a feat achievable only in a few metropolitan cities in the country. Though the city is rich in Mexican culture, thanks to history and geography, you will also see a rich infusion of Spanish, Native American, Latin American, German, Czech and other European cultures.

When you arrive at the San Antonio International Airport, you will notice the "Military City U.S.A." signs. The city is well known for having a large concentration of military bases. More than 100,000 new soldiers are trained in San Antonio each year. San Antonio is also home to the Department of Defense's largest medical center at the Joint Base San Antonio Fort Sam Houston. Tourism has an even higher economic impact than the military sector here (and in terms of economic impact, heath care and bioscience have a much bigger impact than tourism in San Antonio). There are numerous historical sites, museums, theaters, shopping malls, theme parks and even wineries scattered around the city. Many of them are right in the middle of the city, downtown, where the Henry B. González Convention Center is located.

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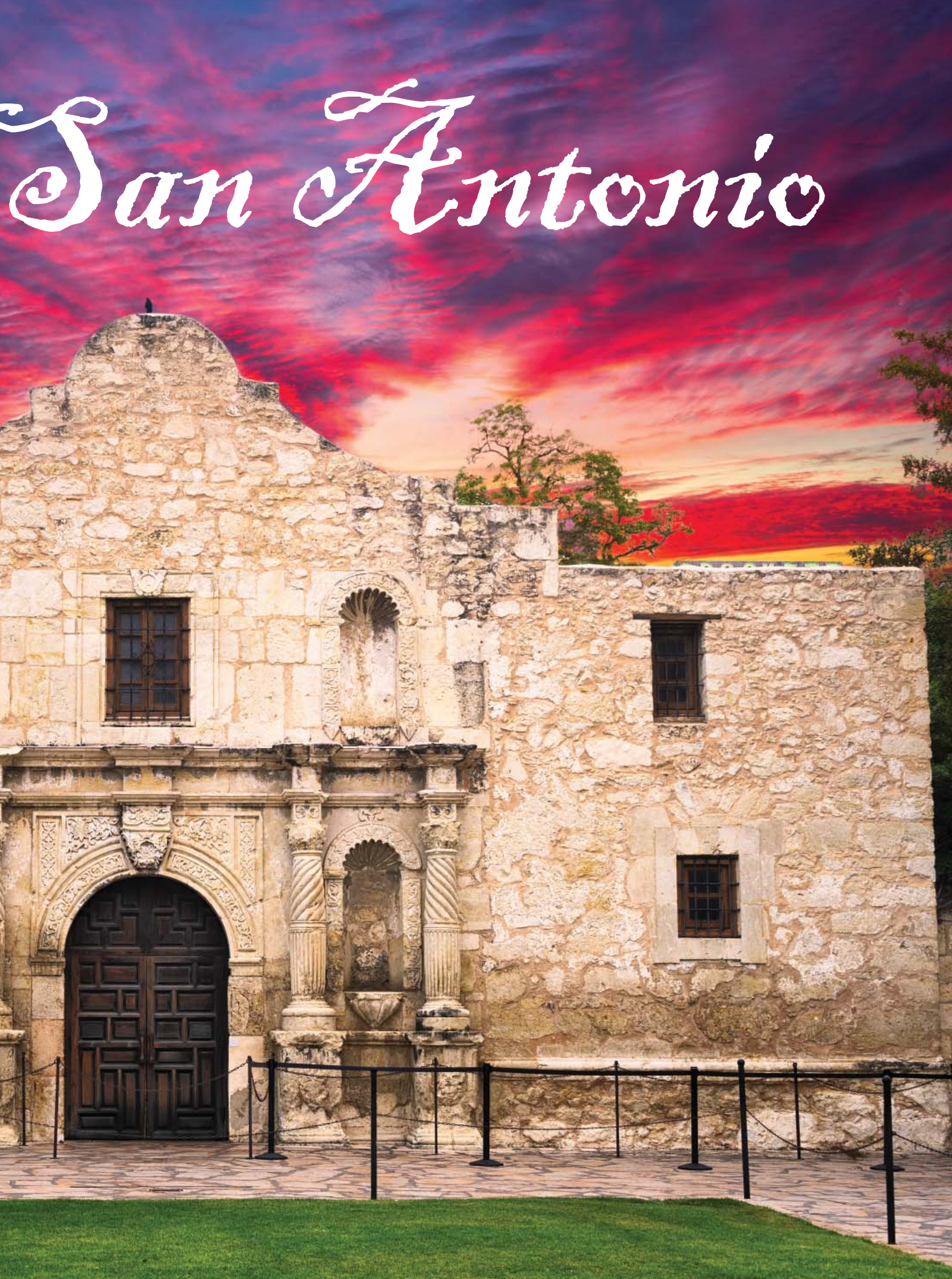
San Antonio



Welcome to San Antonio

Of course, the number one attraction in the city is the Alamo. It was the first of five Catholic missions that Spanish settlers built along the San Antonio River in the 18th century. Later it served as a residential area and then a military fortress at the time of the Texas Revolution. The five mission complexes were just approved as a UNESCO world heritage site in July this year. The Alamo is within walking distance of almost every hotel in downtown. Everyone (well, at least in Texas) is familiar with the rally cry "Remember the Alamo." However, the story behind the Alamo is well beyond that fateful fight and signifies the spirit of Texas. This spirit of independence and liberty from tyranny eventually lead to the foundation of the Republic of Texas. No wonder Texans have so much pride in their state!

Visit the Alamo IMAX movie theater at the Rivercenter Mall to take you through the history on your way to the Alamo. Also on your way to the Alamo stop by Buckhorn Saloon and Museum and Texas Ranger Museum. The Buckhorn collection is known for being one of the largest and most unique collections of horns and antlers in the world. The Saloon features many locally brewed beers. The next most popular attraction is the River Walk. It stretches 15 miles, and its recent expansion has been hailed as the largest urban ecosystem restoration project in the U.S. Even the small segment of the river around the Rivercenter Mall has many historical landmarks and attractions. You can enjoy many of them by taking a river cruise barge trip, which takes about half an hour. Once you go down to the River Walk from the street level near the Rivercenter Mall, you will notice the heart-shaped Marriage Island where several hundred weddings are performed each year. This is the spot where a Spanish priest, Father Damian Massanet, performed the first Catholic mass in 1691. There is a sculpture commemorating this event there. The River Walk is also lined with numerous restaurants, bars, shops and live entertainment. It is hard to imagine a better place to kick back and relax with a margarita and sizzling fajitas than the River Walk. If you want to "drink in history" with your beverage, consider visiting the Esquire Tavern (the oldest bar at the River Walk) or Pearl Brewery (a landmark established



The San Antonio River Walk stretches 15 miles, and its recent expansion has been hailed as the largest urban ecosystem restoration project in the U.S. You can enjoy many of the sites by taking a river cruise barge trip, which takes about half an hour. **Opposite top:** You can also take the River Walk Museum Reach to the San Antonio Museum of Art, the largest among more than 25 museums in San Antonio. **Opposite bottom:** At the Main Plaza is the San Fernando Cathedral. Founded in 1731, it is the oldest cathedral sanctuary in the nation and still holds masses.

in 1883). If you have time, take a bike ride along the River Walk Mission Reach to visit four other Spanish Colonial missions. All of them still serve as active Catholic parishes. You can also take the Museum Reach section of the River Walk to the San Antonio Museum of Art, the largest among more than 25 museums in San Antonio. A short walking distance from the Rivercenter Mall is the historic Main Plaza, which is also known as the heart of the city. It has been named as one of the "10 Great Public Spaces in the U.S." At the Main Plaza is the San Fernando Cathedral. Founded in 1731, it is the oldest cathedral sanctuary in the nation and still holds masses.

You don't need to go far to walk through the history and culture of the city. Immediately west of the Convention Center is La Villita. It is the oldest neighborhood in San Antonio and features many art galleries, interesting shops and restaurants. Immediately southeast of the Convention Center is the HemisFair Park. The park features the Tower of the Americas and The University of Texas at San Antonio's Institute of Texan Cultures. You can enjoy a panoramic view of San Antonio from the revolving Chart House Restaurant at the top of the Tower or the observation deck. You can also take an exciting Skies over Texas 4-D Theater Ride at the Tower. South of the Convention Center is the King William District (in honor of King Wilhelm I of Prussia of the mid-19th century). This was the first designated historic district in Texas. This area was settled by German immigrants in the mid-19th century and is known for its large impressive houses designed in the Greek revival, Victorian and Italianate styles. Three houses are open to the public: the Guenther House, Steves Homestead and Villa Finale. They serve as a restaurant, shop and/or museum. Brunch in the garden of the Guenther House Restaurant is known for its long line but is well worth the wait.

If you are a lover of authentic Tex-Mex, visit the Market Square, the largest traditional Mexican Market in the nation. It is within walking distance west of the Convention Center. You will understand why a *New York Times* Dining and Wine reviewer once wrote, "San Antonio is arguably the (Tex-Mex) cuisine's Paris."

Along the River Walk in downtown you will see the new spectacular Tobin Center for the Performing Arts and the Majestic Theater. The Tobin Center is home to the San Antonio Symphony, Ballet San Antonio, Opera San Antonio and Youth Orchestra of San Antonio. UB40 will perform on October 21 (www.tobincenter.org). The Majestic Theater features the best of Broadway shows and other live events. "Beauty and Beast" is scheduled to run October 16-18 (www.majesticempire.com).





If you have a car, you can enjoy the Texas Hill Country, which is known for its scenic beauty. You may want to follow the Texas Wine Month Trail in October to sample some of the award-winning vintages produced by regional wineries in the Hill Country.

The Natural Bridge Wildlife Ranch offers an opportunity to see over 500 animals from 40 exotic, native and endangered species worldwide in safari style. The Natural Bridge Cavern is a vast limestone cavern carved over millions of years by underground water and leaves a long-lasting impression on visitors.

For the shopper in you, the Outlet Mall at San Marcos is only one hour from downtown San Antonio.

I hope this overview has helped you get ready for an exciting visit to the great city of San Antonio—and see you in October!

Dr. Ha is the CTRC Foundation Distinguished Chair in Radiation Oncology, Professor and Chair, Department of Radiation Oncology, The University of Texas Health Science Center at San Antonio and Cancer Therapy and Research Center.

HENRY B. GONZÁLEZ CONVENTION CENTER

200 East Market Street
San Antonio, TX 78205
www.sahbgcc.com

All activities take place at the Henry B. González Convention Center unless otherwise stated.

All information is correct as of the press date August 25, 2015 and is subject to change.

ATTENDEE REGISTRATION

East Registration – Street Level

Attendee Registration Hours

Saturday, October 17	7:30 a.m. – 5:00 p.m.
Sunday, October 18	6:30 a.m. – 5:00 p.m.
Monday, October 19	7:00 a.m. – 6:00 p.m.
Tuesday, October 20	7:00 a.m. – 5:00 p.m.
Wednesday, October 21	7:00 a.m. – 2:00 p.m.

EXHIBITOR REGISTRATION

East Registration – Street Level

Exhibitor Registration Hours

Thursday, October 15	8:00 a.m. – 5:00 p.m.
Friday, October 16	8:00 a.m. – 5:00 p.m.
Saturday, October 17	8:00 a.m. – 5:00 p.m.
Sunday, October 18	7:00 a.m. – 5:00 p.m.
Monday, October 19	8:00 a.m. – 5:00 p.m.
Tuesday, October 20	8:00 a.m. – 5:00 p.m.

ABSTRACTS AND EMBARGO POLICY

The full text of the abstracts selected for oral, *e*Poster and poster presentation are available on the Annual Meeting Online Conference Planner and ASTROmobile beginning Saturday, October 17. All abstracts are published in a supplement to the October 1, 2015 issue of the *International Journal of Radiation Oncology • Biology • Physics* (www.redjournal.org).

All abstracts are embargoed and remain confidential until the date and time of presentation at the Annual Meeting. If you have any questions about the embargo policy, please contact ASTRO's Media Relations Manager, Michelle Kirkwood, at 703-286-1600 or press@astro.org.

AFFILIATED MEETINGS

39TH ASRT RADIATION THERAPY CONFERENCE

October 18-20, 2015
Marriott Rivercenter San Antonio

The 39th Annual ASRT Radiation Therapy Conference will take place at the Marriott Rivercenter San Antonio. ASTRO registered attendees may attend ASRT sessions by paying a reduced registration fee of $195. Proof of registration (registration confirmation or badge) is required to receive this reduced rate. If you have not registered to attend the ASRT conference, but would like to do so, please register on-site at the Marriott Rivercenter San Antonio.

32ND SROA ANNUAL MEETING

October 18-21, 2015
Hyatt Regency San Antonio Riverwalk

The 32nd SROA Annual Meeting will take place at the Hyatt Regency San Antonio Riverwalk. ASTRO registered attendees may attend the SROA general session by paying a reduced registration fee of $210. Proof of registration (registration confirmation or badge) is required to receive this reduced rate. If you have not registered to attend the SROA conference, but would like to do so, please register on-site at the Hyatt Regency San Antonio Riverwalk.

ASK ASTRO: INFORMATION AND MEMBER SERVICES BOOTH

Main Lobby – Street Level
River View Registration, Concourse Level

ASTRO representatives are available to answer questions about the Annual Meeting, membership in ASTRO and your member benefits. Assistance with ASTRO 2015 technology tools, such as ASTROmobile and the Online Conference Planner, is also available.

Connect with attendees.
Tweet #ASTRO15

ASTRO CAREER CENTER

Private Interview Rooms

Take advantage of a private interview room to connect with candidates for employment.

These interview rooms are ideal if you have multiple interviews to conduct or would prefer to interview applicants in a private setting. A limited number of private interview rooms are available to rent for three-hour periods, Saturday, October 17 through Tuesday, October 20. For more information, stop by one of the Ask ASTRO booths.

ASTRO CONNECT

Park View Registration - Concourse Level

ASTRO Connect is the perfect place to RECHARGE, RELAX and REVIVE.

Need a break between sessions and visits to the Exhibit Hall? Stop by ASTRO Connect! This networking lounge offers an area to charge your devices, network with colleagues, have informal meetings, check in on social media sites or just take a few minutes to relax.

Funded in part by Elekta.

Connect with your ASTRO colleagues.

#ASTRO15



ASTRO PAC LOUNGE

Park View Registration – Concourse Level

ASTRO's political action committee (PAC) is offering access to an exclusive lounge for all ASTRO members who have donated to the ASTRO PAC in 2015. The PAC lounge will feature Internet access, coffee and beverages, food and a place to rest between sessions. Members who have not made their contribution yet will be able to donate on-site. ASTRO PAC provides ASTRO with the opportunity to more fully participate in government and ensure our members' voices are being heard by key policy makers on Capitol Hill. Be sure to stop by the lounge to get the most recent legislative and election updates. For more information, please email shandib@astro.org or visit www.astro.org/ASTROPAC.

Hours of Operation:

Sunday, October 18	9:30 a.m. – 5:00 p.m.
Monday, October 19	9:30 a.m. – 5:30 p.m.
Donor Happy Hour (Concourse Level Patio)	*4:30 p.m. – 5:30 p.m.*
Tuesday, October 20	9:30 a.m. – 5:00 p.m.

BUSINESS CENTER

A UPS Store is conveniently located inside the Lobby at the Henry B. González Convention Center on Street Level. Here you can ship, mail, fax, photocopy or create a last-minute presentation. To contact the business center, please dial 210-258-8950, fax to 210-258-8951 or email store4180@theupsstore.com.

UPS Store Hours of Operation:

Saturday, October 17	8:00 a.m. – 5:00 p.m.
Sunday, October 18	Closed
Monday, October 19	9:00 a.m. – 5:00 p.m.
Tuesday, October 20	9:00 a.m. – 5:00 p.m.
Wednesday, October 21	9:00 a.m. – 5:00 p.m.

The UPS Store at the Henry B. González Convention Center is closed on Sunday. If you have business center needs on Sunday, you may use the FedEx Office Print and Ship Center located nearby at the Grand Hyatt San Antonio.

ASTRO ONLINE CONFERENCE PLANNER

YOUR ANNUAL MEETING GUIDE

Start planning your Annual Meeting experience with the Online Conference Planner. Build your personalized "My Plan" with your customized schedule.

- Search sessions by day, track or speaker.
- Search and view the full abstracts.
- Search exhibitors by name, booth number or product/service category.
- Set up your personal Annual Meeting Schedule: "MyPlan."
- Take notes on sessions or exhibitors.
- Exchange messages with meeting colleagues using "Find a Friend."
- The Online Conference Planner is fully integrated with ASTROmobile15, the official app for the 2015 Annual Meeting.

NEW **Access the CE Evaluation tool to complete session evaluations and receive CE Credits.**

Go to www.astro.org/conferenceplanner to start using the Online Conference Planner.

FedEx Store Hours of Operation:

Sunday, October 18 10:00 a.m. – 5:00 p.m.
Location: 600 East Market Street
Contact: 210-212-7133 or usa5046@fedex.com

BUSINESS MEETING AND LUNCH

Tuesday, October 20, 2015
11:30 a.m. – 1:00 p.m.
Room 103 A/B – Street Level

ASTRO voting members (Active, Affiliate and International members) are invited to attend the Annual Business Meeting. Leaders of the Society will discuss topics of interest to ASTRO members. Lunch will be served.

CE CENTRAL

Park View Registration – Concourse Level

Staff from ASTRO and the ABR will be on hand during the meeting to answer your individual questions about continuing education and MOC requirements, including:

- Current MOC participation status.
- My ABR attestation and documentation guidance.
- Transferring credits between ASTRO and the ABR.
- How to complete an evaluation.

CE Central computer stations provide access for you to:

- Complete your continuing education and meeting evaluation.
- View/print a session tracking form.
- Search abstracts.
- Search exhibitors.
- Update your Online Conference Planner.

Hours of Operation:

Saturday, October 17	8:00 a.m. – 6:15 p.m.
Sunday, October 18	7:15 a.m. – 6:30 p.m.
Monday, October 19	7:15 a.m. – 6:00 p.m.
Tuesday, October 20	7:15 a.m. – 6:30 p.m.
Wednesday, October 21	7:15 a.m. – 4:45 p.m.

CYBER CAFÉ

East Registration – Street Level
Near Room 208 – Concourse Level

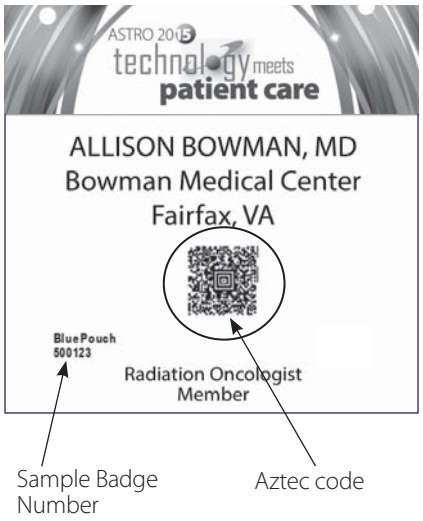
ASTRO attendees can check email, browse the Internet, print a boarding pass or registration receipt and much more at one of several Cyber Cafés located in the East Registration area and near Room 208.

Hours of Operation:

Saturday, October 17	7:30 a.m. – 5:00 p.m.
Sunday, October 18	6:30 a.m. – 5:00 p.m.
Monday, October 19	7:00 a.m. – 6:00 p.m.
Tuesday, October 20	7:00 a.m. – 5:00 p.m.
Wednesday, October 21	7:00 a.m. – 4:30 p.m.

EXHIBITOR PRODUCT INFORMATION

Your registration badge will include an aztec code that contains your contact information. This code can be scanned by exhibitors in the Exhibit Hall, so that you may request information on products and services offered by the company. Your contact information will include your email address, unless you opted not to include it during the registration process. Please stop by Attendee Registration in the East Registration area if you would like to change your contact information.



FACULTY/VIP OFFICE

Room 206 A/B – Concourse Level

Faculty members and VIPs should check in at the Faculty/VIP Office to pick up registration materials and receive last-minute updates and program changes. The Faculty/VIP Office is conveniently located next to the Speaker Ready Room. Faculty and VIPs are welcome in the Faculty/VIP Office throughout the meeting.

Faculty members include:

- Educational Session speakers
- Panel moderators and presenters
- Scientific Program moderators and discussants
- *e*Contouring Learning Lab presenters
- Presidential Symposium speakers
- Keynote speakers and introducers
- Nurses' Program speakers
- International Symposium speakers

Note: Presenters of abstracts are not classified as faculty and should follow attendee registration instructions.

Hours of Operation:

Saturday, October 17	6:45 a.m. - 6:00 p.m.
Sunday, October 18	6:45 a.m. - 6:15 p.m.
Monday, October 19	6:45 a.m. - 5:45 p.m.
Tuesday, October 20	6:45 a.m. - 6:15 p.m.
Wednesday, October 21	6:45 a.m. – 4:30 p.m.

Connect with attendees.

Tweet #ASTRO15



FIRST AID

Room H-35 – Street Level (behind Exhibit Hall C, near the escalators)

In an emergency, please dial 210-582-7027 or ext. 7027 from a house phone, contact First Aid or go to ASTRO Registration and have a staff person contact security.

Hours of Operation:

Monday, October 12	8:00 a.m. – 5:00 p.m.
Tuesday, October 13	8:00 a.m. – 5:00 p.m.
Wednesday, October 14	8:00 a.m. – 5:00 p.m.
Thursday, October 15	8:00 a.m. – 8:00 p.m.
Friday, October 16	8:00 a.m. – 8:00 p.m.
Saturday, October 17	7:00 a.m. – 8:00 p.m.
Sunday, October 18	6:30 a.m. – 6:00 p.m.
Monday, October 19	7:00 a.m. – 7:00 p.m.
Tuesday, October 20	7:00 a.m. – 10:00 p.m.
Wednesday, October 21	7:00 a.m. – 8:00 p.m.
Thursday, October 22	8:00 a.m. – 12:00 p.m.

Continued on Page 34

Visit us at ASTRO 2015 in booth #832.



DYNAMIC VISUALIZATION WITH INSIGHTIVE ANALYTICS.

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Now you can move beyond standard reporting with InSightive™ analytics, a solution that lets you visualize and explore data fluidly. InSightive is a real-time informatics solution that helps you understand the story behind the numbers in your radiation oncology practice, so you can make better-informed, data-driven decisions. Prebuilt, intuitive dashboards help you uncover important patterns and trends for real-time insights into your patient data.

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InSightive™ analytics is currently available for the ARIA® oncology information system (OIS) for Radiation Oncology (RO). It is not yet available for the ARIA® OIS for Medical Oncology (MO). Varian Medical Systems' analytics software products are for operational and clinical data visualization and are to be used solely for informational purposes. InSightive™ analytics is not a substitute for customer's primary data source and is not for use for the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease. Varian Medical Systems is not authorized or qualified to engage in activities that may be construed or deemed to constitute the practice of medicine.

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INDUSTRY-EXPERT THEATER

Hall B – Back right corner of the Exhibit Hall

This activity allows companies to present their noteworthy products and services through a live presentation. Seating is available on a first-come, first-served basis. The Industry-Expert Theater content and views expressed therein are those of the exhibitor and not of ASTRO. Unless otherwise indicated, food will be available for purchase prior to the start of the event, in the Hall B concession area conveniently located near the Industry-Expert Theaters.*

SUNDAY, OCTOBER 18

12:15 p.m. - 1:15 p.m.
Title: INNOVATIONS IN INFORMED THERAPY GUIDANCE
Location: Theater 1
Company: Philips
Contact: Sara Randall
Phone: 608-301-7739

12:15 p.m. - 1:15 p.m.
Title: TOMOTHERAPY TODAY AND TOMORROW: AN ACCURAY-AERO SYMPOSIUM
Location: Theater 2
Company: Accuray
Contact: Diane Hobaugh
Phone: 408-789-4265

2:45 p.m. - 3:15 p.m.
Title: BREAKING THE MYTH OF THE SINGLE VENDOR
Location: Theater 1
Company: RaySearch
Contact: Dayna Bodensteiner
Phone: 605-787-2450

MONDAY, OCTOBER 19

10:15 a.m. - 10:45 a.m.
Title: ADVANCING RADIATION THERAPY THROUGH SOFTWARE INNOVATION
Location: Theater 1
Company: RaySearch
Contact: Dayna Bodensteiner
Phone: 605-787-2450

12:30 p.m. - 1:30 p.m.
Title: SPACING ORGANS AT RISK - SPACEOAR® - IS IT A GAME CHANGER?
Location: Theater 1
Company: Augmenix Inc.
Contact: Eileen Gardner
Phone: 508-944-8015

**Lunch will be provided by Augmenix, which may subject you to reporting under the Federal Sunshine Act (the "Open Payments Program") or other state laws.*

12:30 p.m. - 1:30 p.m.
Title: INTRODUCING LEKSELL GAMMA KNIFE® ICON™: THE SYSTEM THAT KNOWS NO BOUNDARIES
Location: Theater 2
Company: Elekta
Contact: Doris AuBuchon
Phone: 770-670-2592

3:45 p.m. - 4:15 p.m.
Title: MRI-GUIDED RADIATION THERAPY
Location: Theater 1
Company: ViewRay
Contact: Meredith Johnson
Phone: 408-396-2355

TUESDAY, OCTOBER 20

11:45 a.m. - 12:45 p.m.
Title: TUMOR TREATING FIELDS: UNDERSTANDING TREATMENT WITH OPTUNE
Location: Theater 1
Company: Novocure
Contact: Tracey Hanover
Phone: 212-767-7535

11:45 a.m. - 12:45 p.m.
Title: CYBERKNIFE: EXPANDING SOLUTIONS FOR "PRECISION RADIATION THERAPY": AN ACCURAY-AERO SYMPOSIUM
Location: Theater 2
Company: Accuray
Contact: Diane Hobaugh
Phone: 408-789-4265

INDUSTRY SATELLITE SYMPOSIA

ASTRO has reviewed and approved these symposia as appropriate for presentation.
These symposia represent the content and views of the sponsors and are not part of the official ASTRO Annual Meeting.

MONDAY, OCTOBER 19
6:45 p.m. – 9:00 p.m.

CHALLENGES AND BEST PRACTICES IN THE USE OF RADIONUCLIDE THERAPY IN METASTATIC CRPC

Marriott Riverwalk San Antonio
Dinner will be provided.

Accreditation: Medscape is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.
CME Credits: Medscape designates this live activity for a maximum of 1.5 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
Target Audience: This educational activity is designed for radiation oncologists, medical oncologists, nuclear medicine specialists and other interested physicians with expert perspective.

Learning Objectives:
- Evaluate available and emerging clinical trial data on the use of radionuclide therapy alone or in combination with other agents in men with CRPC and bone metastases.
- Formulate evidence-based treatment strategies for men with CRPC and bone metastases.
- Recognize the risks associated with an incomplete radionuclide therapy regimen in men with CRPC and bone metastases and strategies the care team can take to mitigate these risks.
- Identify strategies to optimize quality of life in men with CRPC and bone metastases.

This activity is hosted by Medscape and is supported by a grant from Bayer Healthcare.

MONDAY, OCTOBER 19
6:45 p.m. – 11:30 p.m.

ENHANCING PATIENT ACCESS TO PROTON THERAPY: OPPORTUNITIES AND CHALLENGES

Visit the IBA booth (1342) for the venue location
A networking reception and dinner will follow presentations.

IBA cordially invites radiation oncologists, medical physicists and hospital administrators to attend the Proton Therapy Symposium, which will cover the following aspects of cancer treatment:
- The future and potential of proton therapy.
- Case studies of thoracic tumors treatment with proton therapy.
- The success story of Willis-Knighton Cancer Centre.
- Penn Medicine Roberts Proton Therapy Center experience of Cone Beam CT and Pencil Beam Scanning solutions.

Space is limited. Pre-registration is required. No CME is offered for this program.

More information and registration form: www.iba-astro2015.com.

This activity is hosted by IBA.

MONDAY, OCTOBER 19
7:00 p.m. – 9:00 p.m.

NEW THERAPEUTIC STRATEGIES FOR GLIOBLASTOMA IN 2015

Grand Hyatt San Antonio
Dinner will be provided.

Accreditation: prIME Oncology, LLC is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.
CME Credits: prIME Oncology, LLC designates this live activity for a maximum of 1.75 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
Target Audience: This educational activity is designed for radiation oncologists and other health care professionals interested and/or involved in the treatment of patients with glioblastoma (GBM).

Learning Objectives:
- Identify recommended treatment options for the management of newly diagnosed GBM.
- Integrate disease biomarkers into the selection of treatment for newly diagnosed GBM.
- Evaluate recent data from clinical trials studying novel treatment modalities in recurrent GBM.
- Describe new radiation strategies under investigation for treatment of newly diagnosed and recurrent GBM and identify patients for whom these strategies may be appropriate.

This activity is hosted by prIME Oncology, LLC, and is supported by a grant from Novocure.

TUESDAY, OCTOBER 20
6:30 p.m. – 8:00 p.m.

DCIS TUMOR BOARD: COMPLEXITIES IN THE MANAGEMENT OF DCIS – A MULTIDISCIPLINARY PERSPECTIVE

Grand Hyatt San Antonio
Heavy appetizers and beverages will be available prior to the tumor board.

Target Audience: This non-CME informational/educational activity is designed for radiation oncologists treating DCIS. No CME is offered for this program.

Learning Objective:
- Discuss how DCIS patients are being managed in the community setting from surgery, pathology and radiation oncology perspectives.

This activity is hosted by Genomic Health, Inc.

LOST AND FOUND

Main Lobby – Street Level

To report a missing item, to check to see if an item has been turned into security or to turn in a lost item, please stop by the Ask ASTRO booth located in the Main Lobby.

Hours of Operation:

Saturday, October 17	7:30 a.m. – 5:00 p.m.
Sunday, October 18	6:30 a.m. – 5:00 p.m.
Monday, October 19	7:00 a.m. – 6:00 p.m.
Tuesday, October 20	7:00 a.m. – 5:00 p.m.
Wednesday, October 21	7:00 a.m. – 4:00 p.m.

LUGGAGE/COAT CHECK

West Registration – Street Level

Luggage and coat check will be available in the Henry B. González Convention Center at West Registration on the Street Level for $2 per coat and small handbag and $3 per luggage item.

Hours of Operation:

Saturday, October 17	7:30 a.m. – 6:00 p.m.
Sunday, October 18	6:00 a.m. – 6:30 p.m.
Monday, October 19	7:00 a.m. – 7:00 p.m.
Tuesday, October 20	7:00 a.m. – 6:30 p.m.
Wednesday, October 21	7:00 a.m. – 5:00 p.m.

LUNCH VOUCHERS

All attendees receive a $10 lunch voucher with their registration materials. The lunch voucher can be used in the Exhibit Hall Concession areas located in Halls B and D. We will be offering a number of sandwich, salad and wrap food combos with a drink that can be redeemed with the lunch voucher. Daily lunch specials are also available with the lunch voucher. These combos and daily specials are only available inside the Exhibit Hall. The lunch vouchers will not be accepted at food outlets outside of the Exhibit Hall. Lost vouchers will not be replaced.

Connect with attendees.

Tweet #ASTRO15

PARKING

The Henry B. González Convention Center does not have a public parking facility. Listed below are public parking garages in close proximity to the facility, each of which provide certain spaces reserved for use by authorized, handicapped individuals. **Please note that ASTRO does not validate for parking.**

The City of San Antonio recently launched a new downtown parking locator app provided by Pango Mobile Parking. This free parking locator app helps motorists find a parking space using their smartphone's location. The app includes parking rate data and current availability for all downtown parking locations. The app is available for iPhone and Android users and is free and secure. Download it now at www.mypango.com/solutions/smartphone-application.

Grand Hyatt Parking Garage

Bowie and Market Streets
Phone: 210-451-6464
Flat rate: $9 for up to 3 hours, $15 for 3-4 hours, $21 for 4-5 hours, $27 for 5+ hours and overnight (per day)
Closest parking to Convention Center and Lila Cockrell Theatre.

Marina Garage

Bowie and Commerce Streets
Phone: 210-207-8266
Daily flat rate: $9
Event flat rate: $11
Across the street from the main entrance to the Convention Center and Lila Cockrell Theatre.

Riverbend Garage

Alamo and Market Streets
Phone: 1-877-717-0004
Daily rates: 0-2hrs - $10
2-4hrs - $12
4-24hrs - $15
Overnight rate: $15

Tower of the Americas Parking

801 Cesar Chavez Blvd.
Phone: 210-223-3101
Daily flat rate: $8
Event flat rate: $11

Please note that parking rates are subject to change at any time. Please contact the parking facility directly for the most current rate information.



*e*POSTER CHECK-IN

Outside of Room 101 and 102 – Street Level

*e*Poster presenters must check-in at the *e*Poster Check-in booth located between the *e*Poster session rooms at least two hours prior to your presentation. Staff will be available to assist you with uploading any last-minute changes and to help you prepare for your oral presentation. Presenters are required to stand by their poster for the last 10 minutes of the session. Once the session begins, each presenter should sit in the front row and wait for the discussant to call you up to the podium for your presentation.

*e*POSTER DISCUSSION

Room 101 and 102 – Street Level

The *e*Poster discussion sessions have been reformatted to allow more time for oral presentations. The sessions will take advantage of touch-screen technology to present more in-depth information, and the monitor structure allows for easy viewing and discussion with colleagues.

Sessions will be formatted as follows:

55 minutes – Each of the nine authors have six minutes each to present their poster at the podium.

25 minutes – Discussants provide additional information to compare and contrast the abstracts, highlight key points and moderate questions and answers.

10 minutes – *e*Poster viewing and author interaction.

POSTER PICKUP OFFICE

Hall A – Street Level

For those poster presenters who chose to use ASTRO's poster printing service, there is a special pickup location in Exhibit Hall A.

Hours of Operation:

Saturday, October 17	12:00 p.m. – 5:00 p.m.
Sunday, October 18	7:30 a.m. – 5:00 p.m.
Monday, October 19	10:00 a.m. – 5:00 p.m.
Tuesday, October 20	10:00 a.m. – 5:00 p.m.

POSTER SETUP, REMOVAL

Hall A – Street Level

Setup and removal times for paper posters are below.

Poster Setup Hours

Saturday, October 17	12:00 p.m. – 5:00 p.m.
Sunday, October 18	7:30 a.m. – 10:00 a.m.

Poster Removal Hours

Tuesday, October 20	5:00 p.m. – 7:00 p.m.

PASSPORT PROGRAM

Be sure to get your passport stamped at all the Survivor Circle Passport Program participant exhibit booths listed on your ASTRO Passport. Drop off your completed passport at the Ask ASTRO: Information and Member Services Booth in the Park View Registration area for a chance to win a great prize. Prize drawings will occur at 3:00 p.m. on Sunday, Monday and Tuesday at the Ask ASTRO booth in the Park View Registration area.

The generous donations from the following participating companies help fund the Survivor Circle grants to help support cancer survivors in Texas.

As of August 1, 2015.

21st Century Oncology

Revenue Cycle Inc℠

Your Expert Oncology Resource



POSTER VIEWING

Hall A – Street Level

*e*Posters and paper posters will be on display during the poster viewing hours below. Please note that *e*Posters will not be available for viewing during *e*Poster discussion session times as the screens will be used for these sessions. See the schedule of events or use the Online Conference Planner or ASTROmobile for the *e*Poster session schedule.

Poster Viewing Hours

Sunday, October 18	10:00 a.m. – 5:00 p.m.
Monday, October 19	10:00 a.m. – 6:45 p.m.
Tuesday, October 20	10:00 a.m. – 5:00 p.m.

Posters in the following categories will be on display:

- Biology
- Breast
- CNS
- Gastrointestinal
- Genitourinary
- Gynecologic
- Head and Neck
- Health Services Research
- History/Education
- Informatics/Bioinformatics
- Lung
- Lymphoma/Hematologic/Leukemia
- Non-malignant
- Nursing
- Palliative Care
- Patient Reported Outcomes
- Patient Safety
- Pediatrics
- Physics
- Sarcoma/Cutaneous Tumors

POSTER VIEWING SESSION AND RECEPTION

Exhibit Hall A – Street Level

Monday, October 19
5:30 p.m. – 6:45 p.m.

All conference attendees are invited to attend this poster viewing session and reception. During this time, poster presenters will be available by their poster to answer questions and discuss their research. Drinks will be available for purchase. You must be 21 or older to purchase alcoholic beverages.

POSTER AWARD WINNERS

Exhibit Hall A – Street Level

Poster award winners will receive their awards at the beginning of this session, and will provide a short oral presentation of their abstract in the poster presentation area within the hall.

PRESS OFFICE AND NEWS BRIEFINGS

Room 210 A/B and 212 A – Concourse Level

Accredited journalists are provided with press kits and access to cover ASTRO's 57th Annual Meeting. For more information about ASTRO's Press Program and Policies, please contact ASTRO's on-site Press Office at 210-258-8104 or email press@astro.org or visit www.astro.org/AMpress.

Hours of Operation:

Sunday, October 18	8:00 a.m. – 4:00 p.m.
Monday, October 19	8:00 a.m. – 4:00 p.m.
Tuesday, October 20	8:00 a.m. – 4:00 p.m.
Wednesday, October 21	8:00 a.m. – 12:00 p.m.

For ASTRO press information and policies, please visit www.astro.org/AMPress.



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SHUTTLE SERVICE TO THE HENRY B. GONZÁLEZ CONVENTION CENTER

This is preliminary information only, which is subject to change at any time without notice.

HOURS OF OPERATION

SATURDAY, OCTOBER 17	**7:30 A.M. – 6:30 P.M.**
SUNDAY, OCTOBER 18	**6:30 A.M. – 7:00 P.M.**
MONDAY, OCTOBER 19	**6:30 A.M. – 7:30 P.M.**
TUESDAY, OCTOBER 20	**6:30 A.M. – 7:00 P.M.**
WEDNESDAY, OCTOBER 21	**7:00 A.M. – 5:00 P.M.**

HOTELS AND BOARDING LOCATIONS

All travel times are approximate pending time of day, day of week and traffic conditions.

ROUTE	HOTEL	BOARDING LOCATION AT HOTEL	APPROXIMATE ONE-WAY TRAVEL TIME	FREQUENCY IN MINUTES
1	Crockett Hotel, The Hyatt Regency San Antonio Menger Hotel, The	At The Menger Hotel Curbside in front, on Losoya St. Curbside on Crockett St.	8-12 minutes	10-15 peak 15-20 non peak
2	Emily Morgan Hotel (A DoubleTree by Hilton) Fairfield Inn & Suites San Antonio Downtown/Alamo Plaza Hampton Inn San Antonio Downtown, a Riverwalk Area Hotel Hotel Indigo Downtown-Alamo Residence Inn San Antonio Downtown Springhill Suites San Antonio Downtown/ Alamo Plaza	Curbside in front At Residence Inn San Antonio Downtown At Residence Inn San Antonio Downtown At Emily Morgan Hotel Curbside in front At Residence Inn San Antonio Downtown	8-12 minutes	10-15 peak 15-20 non peak
3	Courtyard Riverwalk Hotel Drury Inn & Suites Riverwalk Drury Plaza Hotel Riverwalk Embassy Suites Riverwalk Holiday Inn San Antonio Riverwalk Mokara Hotel & Spa Omni La Mansion del Rio Wyndham San Antonio Riverwalk	At Holiday Inn San Antonio Riverwalk At Holiday Inn San Antonio Riverwalk Curbside on St. Mary's St. Curbside on Soledad St. Curbside in front, on St. Mary's St. At Holiday Inn San Antonio Riverwalk At Holiday Inn San Antonio Riverwalk Curbside on Soledad St.	13-18 minutes	10-15 peak 15-20 non peak
4	Hotel Contessa *(Luxury Suites on the Riverwalk)* Springhill Suites by Marriott Downtown Westin Riverwalk, The	At Westin Riverwalk Curbside on St. Mary's St. Curbside in front, on Market St.	7-11 minutes	10-15 peak 15-20 non peak
WALK	Grand Hyatt San Antonio Hilton Palacio del Rio La Quinta Inn & Suites San Antonio Riverwalk/ Convention Center Marriott Plaza San Antonio Marriott Rivercenter, San Antonio (ASRT Headquarters) Marriott Riverwalk, San Antonio		**No shuttle service provided**	

Funded in part by Elekta and Varian.



THIS IS WHAT RECURRENT GBM THERAPY CAN LOOK LIKE TODAY

Optune delivers efficacy with fewer treatment-related toxicities[1]

- In a large, phase 3 clinical trial of 237 patients with recurrent GBM, Optune provided overall survival comparable to physician's choice of chemotherapy, including bevacizumab[1]
- Patients experienced fewer of the systemic side effects associated with chemotherapy. The most common device-related side effects were skin reactions beneath the device's transducer arrays[1]

Optune is approved for the treatment of adult patients (22 years or older) with recurrent GBM.

GBM, glioblastoma.



Learn more at Optune.com

OPTUNE™

Please see Summary of Important Safety Information on the following page. For full prescribing information, refer to the Instructions for Use at Optune.com/Safety.

novocure™

Reference: 1. Optune Instructions for Use. Novocure 2014.

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For full prescribing information, refer to the IFU at Optune.com/Safety

SUMMARY OF IMPORTANT SAFETY INFORMATION

Indications for Use

Optune™ is intended as a treatment for adult patients (22 years of age or older) with histologically confirmed glioblastoma multiforme (GBM), following histologically- or radiologically-confirmed recurrence in the supra-tentorial region of the brain after receiving chemotherapy. The device is intended to be used as a monotherapy, and is intended as an alternative to standard medical therapy for GBM after surgical and radiation options have been exhausted.

Contraindications

Do not use Optune if you have an active implanted medical device, a skull defect (such as, missing bone with no replacement), a shunt, or bullet fragments. Examples of active electronic devices include deep brain stimulators, spinal cord stimulators, vagus nerve stimulators, pacemakers, defibrillators, and programmable shunts. Use of Optune together with implanted electronic devices has not been tested and may theoretically lead to malfunctioning of the implanted device. Use of Optune together with skull defects, shunts, or bullet fragments has not been tested and may possibly lead to tissue damage or render Optune ineffective.

Do not use Optune if you are known to be sensitive to conductive hydrogels like the gel used on electrocardiogram (ECG) stickers or transcutaneous electrical nerve stimulation (TENS) electrodes. In this case, skin contact with the gel used with Optune may commonly cause increased redness and itching, and rarely may even lead to severe allergic reactions such as shock and respiratory failure.

Warnings and Precautions

Use Optune only after receiving training from qualified personnel, such as your doctor, a nurse, or other medical personnel who have completed a training course given by the device manufacturer (Novocure).

All servicing procedures must be performed by qualified and trained personnel.

Do not wet the device or transducer arrays.

Do not use any parts that do not come with the Optune Treatment Kit, or that were not sent to you by the device manufacturer or given to you by your doctor.

Optune commonly causes skin irritation beneath the transducer arrays and in rare cases can lead to headaches, falls, fatigue, muscle twitching, or skin ulcers.

Please see the Optune Instructions for Use for complete information regarding the device's indication, contraindications, warnings and precautions at Optune.com/Safety.

RADIATION ONCOLOGY INSTITUTE (ROI) BOOTH

Park View Registration – Concourse Level



Please plan to visit the Radiation Oncology Institute (ROI) booth, located in the Park View Registration area on the Concourse Level, to learn more about the ROI's research initiatives, current projects and how to get involved.

Hours of Operation:

Sunday, October 18	**8:00 a.m. – 5:00 p.m.**
Monday, October 19	**8:00 a.m. – 5:00 p.m.**
Tuesday, October 20	**8:00 a.m. – 5:00 p.m.**
Wednesday, October 21	**8:00 a.m. – 12:00 p.m.**

REGISTRANT LOCATOR – FIND A FRIEND

Looking to connect with an attendee at the Annual Meeting? Use our Find a Friend service with ASTROmobile, the official Annual Meeting app. Find a Friend allows you to search for an attendee and send messages while at the Annual Meeting.

SAN ANTONIO TRAVEL INFORMATION

Attendees can stop by the San Antonio Travel Information areas to receive travel assistance and information.

Guest Relations Desk
Outside of Hall A – Street Level

Guest Relations provides general assistance for the convention center and overall San Antonio.

Hours of Operation:

Sunday, October 18	9:00 a.m. - 5:00 p.m.
Monday, October 19	9:00 a.m. - 5:00 p.m.
Tuesday, October 20	9:00 a.m. - 5:00 p.m.

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Visitor Information Center
Between Lila Cockrell Theatre and Business Center/UPS Store – Street Level

The Visitor Information Center has restaurant, attraction and discounted information as well as computers available for printing boarding passes.

Hours of Operation:

Sunday, October 18	9:00 a.m. - 5:00 p.m.
Monday, October 19	9:00 a.m. - 5:00 p.m.
Tuesday, October 20	9:00 a.m. - 5:00 p.m.

SMOKING

The Henry B. González Convention Center is a non-smoking facility.

SPEAKER READY ROOM

Room 207 A/B – Concourse Level

Faculty members and abstract presenters must upload their PowerPoint presentation in advance of their session in order to have it pre-loaded onto the ASTRO conference network. To ensure presentations have been properly uploaded, faculty members and abstract presenters are asked to check in at the Speaker Ready Room to review the information and make any last minute edits.

Speakers should plan to save their presentation on a portable device and bring it to the Speaker Ready Room at least 24 hours in advance of their presentation, or upon arrival at the Henry B. González Convention Center.

Hours of Operation:

Saturday, October 17	6:45 a.m. – 6:00 p.m.
Sunday, October 18	6:45 a.m. – 6:15 p.m.
Monday, October 19	6:45 a.m. – 5:45 p.m.
Tuesday, October 20	6:45 a.m. – 6:15 p.m.
Wednesday, October 21	6:45 a.m. – 4:30 p.m.

SURVIVOR CIRCLE

Near Ask ASTRO booth in Park View Registration Area

In 2003, ASTRO created the Survivor Circle as a way to honor cancer survivors. Each year, ASTRO awards two grants to patient support organizations located in or near the city hosting the Annual Meeting. Grants are made possible through generous donations from exhibitors. This year ASTRO is proud to recognize Dan's House of Hope, Houston, and Thrive Well Cancer Foundation, San Antonio, for their work with cancer patients and their families. Please stop by the Survivor Circle located near the Ask ASTRO: Information and Member Services booth in the Park View Registration area to learn more.

TRANSPORTATION

San Antonio offers a number of convenient transportation options to help attendees easily get around the city. For more information on transportation service, visit www.visitsanantonio.com/2015ASTRO.

Transportation to and from the Airport

The San Antonio International Airport is approximately 8.5 miles from the downtown business district with a travel time of approximately 15 minutes by car.

Taxi Service

Approximate fares from the airport to the downtown business district, based on traffic and not including tip, range from $25-$29. Taxi cabs are available at the airport on the lower level curbside, outside of baggage claim at Terminal A and B.

Shuttle Service

Shuttle service from the airport to the downtown area is $19 one-way or $34 round-trip. Shuttle service kiosks are located in both terminals near baggage claim. You may also reserve shuttle service in advance and receive a discount at www.goairportshuttle.com.

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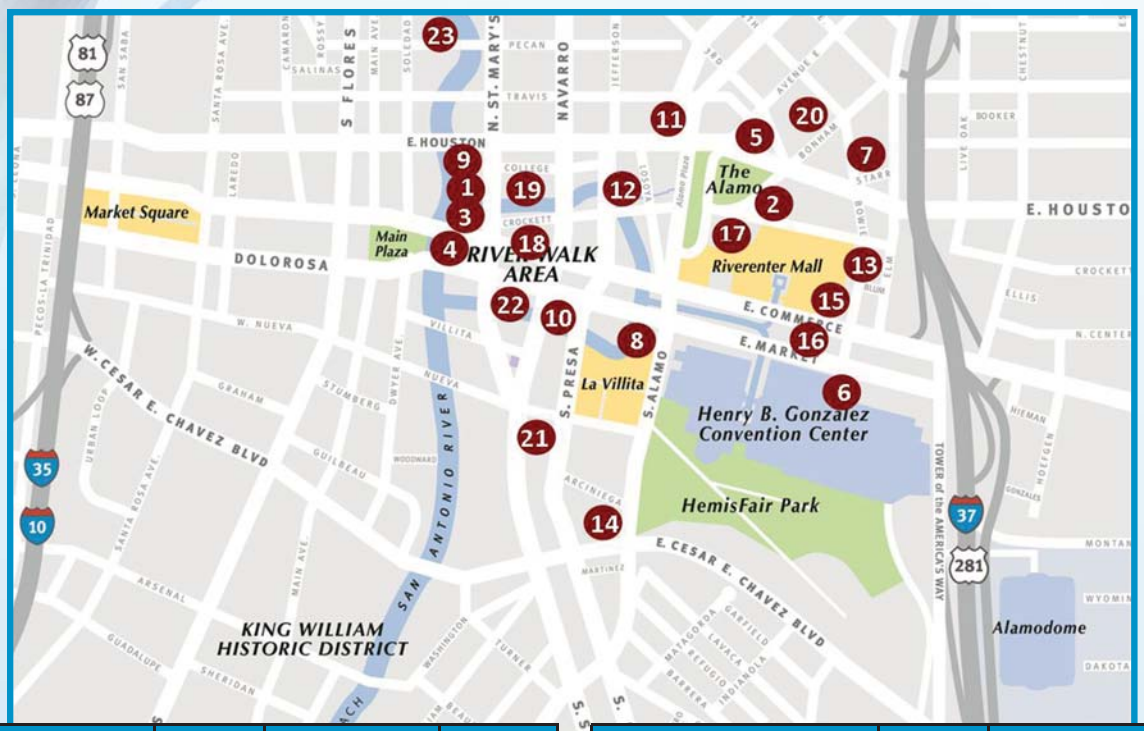
HOTEL MAP

technology meets patient care



Hotels	Map Location	Single (King Bed) / Double (Two Double Beds)	Distance to Henry B. González Center
Courtyard Riverwalk Hotel	1	$179	5 blocks
Crockett Hotel, The	2	$169	3 blocks
Drury Inn & Suites Riverwalk	3	$174	4 blocks
Drury Plaza Hotel Riverwalk	4	$174	4 blocks
Emily Morgan Hotel, The (A DoubleTree by Hilton)	5	$235	3 blocks
Grand Hyatt San Antonio (Co-Headquarter & Premier Hotel)	6	$289	Adjacent
Hampton Inn San Antonio Downtown Riverwalk Area Hotel	7	$149	3 blocks
Hilton Palacio del Rio	8	$269*/$279	1 block
Holiday Inn San Antonio-Riverwalk	9	$185	5 blocks
Hotel Contessa (Luxury Suites on the Riverwalk)	10	$235	2 blocks
Hotel Indigo Downtown-Alamo	11	$169	8 blocks
Hyatt Regency San Antonio Riverwalk (Premier Hotel)	12	$285	3 blocks

Hotels	Map Location	Single (King Bed) / Double (Two Double Beds)	Distance to Henry B. González Center
La Quinta Inn & Suites San Antonio Riverwalk	13	$189	2 blocks
Marriott Plaza San Antonio	14	$219	2 blocks
Marriott Rivercenter, San Antonio (Co-Headquarter & Premier Hotel)	15	$274	1 block
Marriott Riverwalk, San Antonio (Co-Headquarter & Premier Hotel)	16	$274	Across the Street
Menger Hotel, The	17	$165	2 blocks
Mokara Hotel & Spa	18	$349	5 blocks
Omni La Mansion del Rio Hotel	19	$289	6 blocks
Residence Inn San Antonio Downtown/Alamo Plaza	20	$189	4 blocks
SpringHill Suites by Marriott-San Antonio Downtown	21	$164	5 blocks
Westin Riverwalk, The (Premier Hotel)	22	$254 (City Side) $274 (River Side)	3 blocks
Wyndham San Antonio Riverwalk	23	$195	9 blocks

All room rates quoted are for a king bed (Single) or two double beds (Double), unless otherwise noted. Rates quoted are for one night and exclude taxes and additional fees. Rates may increase if more than two people share a room. All ASTRO official hotels are between 8 and 10 miles from the San Antonio International Airport (SAT).
**Rate is for a king bed (Single) with 1 person/1 bed only. Rate for a king bed (Single) with 2 people/1 bed is $279 per night.*

TRAVELING AROUND SAN ANTONIO

The E – Free Downtown Bus Circulator

This free downtown bus circulator provides frequent service from many of downtown's best restaurants and hotels to entertainment venues and the convention center. The E operates Tuesday-Saturday, 6:00 a.m. to midnight and runs every 10 minutes. Passengers can board at any VIA stop with the E logo. Visit www.viainfo.net/BusService/EMain.aspx for a route map and stop locations.

Streetcar

If you're in town for a few days and want to take advantage of the streetcar, your best deal is to buy a One Day Pass for $4. Order your pass online at www.viainfo.net/BusService/Downtown.aspx or stop by the Visitor Information Center located across from the Alamo, 317 Alamo Plaza, to purchase your pass. All three streetcar routes connect you to the convention center.

River Taxi

The River Taxi stops at 39 locations on the River Walk. Purchase a one-way pass for $5, 24-hour pass for $10 or a 3-day pass for $25. Look for the river cruiser with the black and yellow checkered flag or black and red checkered flag (prices vary).



Sightseer Special Bus

The Sightseer Special (Bus 7) runs daily between the city's favorite sites. You can travel to all of the sites for one price. Locations visited by the Sightseer Special include: River Walk Streetcar Station, Henry B. González Convention Center, Alamo, San Antonio Museum of Art, Japanese Tea Garden, Brackenridge Park, San Antonio Zoo, Trinity University, University of Incarnate Word, Witte Museum and San Antonio Botanical Garden.

Taxi

For travel within the downtown area, there is a minimum charge of $5. Two to six people ride for the price of one.

VIRTUAL MEETING

Extend your learning experience with access to the 2015 ASTRO sessions long after the meeting is over. All full conference attendees receive the Virtual Meeting with their registration at no additional cost. You will receive streaming content that has been digitally recorded live and published as audio synchronized to the speaker presentations.* Within two weeks after the meeting, full conference attendees will receive an email with a link providing access to the Virtual Meeting.

**Presentations are included in the Virtual Meeting as approved by faculty.*



WIRELESS INTERNET ACCESS

Complimentary wireless Internet access is provided in all common areas and session rooms throughout the Henry B. González Convention Center. Please note that this does not include the Exhibit Hall. Attendees can bring their laptop to check email, complete the evaluation or access the Internet. Laptops must have a Wi-Fi card to connect.

JOIN US FOR A TWEET UP

Connect with attendees.

Tweet #ASTRO15

Monday, October 19, 5:00 p.m.

ASTRO CONNECT

Park View Registration-Concourse Level

EXHIBITOR LIST *(As of August 3, 2015)*

For the most current exhibitor information or to view the floor plan of the Exhibit Hall, please visit www.astro.org/exhibithall.

21st Century Oncology*
A2J Healthcare
ABL Medical
Acceletronics
AccuBoost
Accuray Inc.*
Accuthera
AEP Linac
Aktina Medical Corporation
Alliance Oncology*
AME Publishing Company
American Medical Accounting and Consulting (AMAC)*
American Society of Clinical Oncology (ASCO)
Anatom-e XRT Information Systems, Ltd.
Ancer Medical
Anzai Medical Co. Ltd.
AQUILAB*
architection
Augmenix
Bard Medical
Bayer Healthcare Pharmaceuticals Inc.
Beekley Medical
Beijing Top Grade Medical Equipment Co., Ltd.
Best Medical International, Inc.*
Bionix Radiation Therapy
BK Ultrasound
Bogardus Medical Systems, Inc.*
Boiron
Brainlab*
Buck Engineering & Consulting GMBH
C4 Imaging LLC
Cancer CarePoint, Inc.*
Cancer Treatment Centers of America
Carbon Medical Technologies
Carl Zeiss Meditec, Inc.*
CDR Systems, Inc.*
Churchill Consulting, Inc.*
Cianna Medical
CIRS
CivaTech Oncology*
CIVCO Medical Solutions*
Cleveland Clinic Taussig Cancer Institute
Cold Shot Chillers*
C-RAD Inc.*
CYRPA International SPRL
D3 Oncology Solutions*
Dara BioSciences
Demos Medical Publishing
Depomed, Inc
Desert Harvest
DIACOR
DOSIsoft
e+CancerCare
e2v
Eckert & Ziegler BEBIG, Inc.*
Elekta*
Elsevier
Equicare Health Inc.*
Everson Tesla Inc.
Focal Therapeutics
Foss Therapy Services Inc.
Full Circle PR
Galena Biopharma
GE Healthcare
GenomeDx Biosciences
Genomic Health, Inc.
Gold Anchor*
GuangZhou Raydose Software Technology, LLC
H&H Design-Build*
Hermes Medical Solutions, Inc.
Hitachi Aloka Medical
Hologic, Inc.*
humediQ GmbH
HyperDrive Medical
IBA SA
Imaging Technology News
ImpediMed, Inc.
IMT
INSYS Therapeutics, Inc.
IntraOp Medical
IOP Publishing
Iron Medical Systems, Inc.
iRT Systems
IsoAid*
IsoRay Medical, Inc.*
JAMA Network
James L. Davis*
Klarity Medical Products*
Kobold Medical*
KUKA
Kunshan GuoLi Vacuum Electric Co., Ltd
Landauer, Inc.*
LAP of America Laser Applications*
Leoni CIA Cable Systems S.A.S.
Liberty Medical Inc.*
LifeLine Software, Inc.*
LinaTech, LLC
Linbeck Group, LLC
MACROMEDICS BV
MagnetTx Oncology Solutions
Math Resolutions, LLC
Mayo Clinic
Mevion Medical Systems*
Miaderm at Aiden Industries*
Micropos Medical AB*
MIM Software
Mirada Medical
Mission Search*
Mitsubishi Electric*
Mobius Medical Systems
Modus Medical Devices Inc.
Monteris Medical
MPM Medical Inc.*
MuCheck-Oncology Data Systems*
Nanovi Radiotherapy A/S
NELCO*
Neusoft Medical Systems Import & Export Co. Ltd.
Novocure*
Oncology Services International*
Oncology Systems Limited
Oncura, a GE Healthcare Company
OpenTempo
Orfit Industries America*
Oxford Instruments Services
PalabraApps
Panacea Medical Technologies Pvt. Ltd.
Patient Relationship Management (PRM)
P-Cure Ltd.
Perseon*
Phantom Laboratory
Philips
Pitts Little Corp.
Precisis Euromechanics GmbH
Preferred Healthcare
ProNova Solutions
ProtechSure Scientific, Inc.
ProTom International, Inc.*
Prowess, Inc.
PTW-New York
Pyrexar Medical
Qfix*
QGenda, Inc.
QLRAD Inc.
RAD Technology Medical Systems
RadiaDyne
Radiation Business Solutions
Radiation Products Design, Inc.*
Radiological Imaging Technology – RIT*
Radiological Society of North America (RSNA)
Radiology Oncology Systems, Inc.
RaySearch Laboratories AB
Remetronix
Revenue Cycle, Inc.*
RS&A, Inc.
RTOG Foundation
RTsafe P.C.
S+S Par Scientific
Samsung
ScandiDos
Sensus Healthcare*
Shandong Xinhua Medical Instruments Co., Ltd.
Sheffield Hallam University
Shenzhen Tengfei Yu Technology Co., Ltd.
Shielding Construction Solutions, Inc.*
Siemens Medical Solutions USA, Inc.
Siris Medical
Sirtex Medical Inc.*
Sky Factory
Spec-Med
Spectrum Pharmaceuticals, Inc.*
Springer
Standard Imaging*
Sumitomo Heavy Industries, Ltd.
Sun Nuclear Corporation*
Suremark Company
Synergen Health
Theragenics Corporation*
Toshiba Medical Systems
TRG Oncology Equipment*
Vantage Oncology
Varian Medical Systems*
Veritas Medical Solutions*
Vertual, Ltd.
ViewRay, Inc.*
Vision RT, Ltd.*
VisionTree Software Inc.
Water-Jel International
Wolters Kluwer
Xcision Medical Systems, LLC
Xecan
Xoft-a subsidiary of iCAD, Inc.*
Xstrahl Limited

EXHIBIT HALL

Halls B-D – Street Level

Learn about the latest products in cancer treatment and care in the Exhibit Hall. More than 200 companies will be displaying the latest products and technologies. To find an exhibitor, use the WayFinders conveniently located throughout the convention center or ASTRO's Online Conference Planner at www.astro.org/conferenceplanner.

Hours of Operation:

Sunday, October 18	10:00 a.m. – 5:00 p.m.
Monday, October 19	10:00 a.m. – 5:00 p.m.
Tuesday, October 20	10:00 a.m. – 5:00 p.m.

***Enhanced ROMarketplace listing**
Ambassadors are in Bold

ASTRO elects new leadership

Three new officers have been elected to serve on ASTRO's Board of Directors, and three members have been elected to serve on ASTRO's Nominating Committee. The new officers' terms will begin at the Annual Business Meeting at ASTRO's 57th Annual Meeting in San Antonio. For more information, visit www.astro.org/vote.

The new Board of Directors' members are:



President-elect
BRIAN D. KAVANAGH, MD, MPH, FASTRO
University of Colorado, Aurora, Colorado





Health Policy Council Vice-chair
MICHAEL R. KUETTEL, MD, PHD, MBA, FASTRO, *Roswell Park Cancer Institute, Buffalo, New York*

Science Council Vice-chair
DANIEL LOW, PHD, *University of California Los Angeles, Los Angeles*

The new Nominating Committee members are:







Nominating Committee Academic Physician
QUYNH-THU LE, MD, FASTRO, *Stanford University, Stanford, California*

Nominating Committee Community Practice Physician
JOHN W. RIEKE, MD, *MultiCare Regional Cancer Center, Tacoma, Washington*

Nominating Committee Physicist
INDRIN J. CHETTY, PHD, MS, *Henry Ford Hospital/Wayne State University, Detroit*

2015 ANNUAL MEETING UNRESTRICTED EDUCATIONAL GRANT SUPPORTERS

ASTELLAS
GENOMIC HEALTH
LILLY
MERCK
PFIZER

As of August 18, 2015

Leading surgeon receives Honorary Membership

BY ERIN L. BOYLE, COMMUNICATIONS MANAGER, ERIN.BOYLE@ASTRO.ORG



JACK A. ROTH, MD, a pioneering surgeon and researcher, has been selected as ASTRO's 2015 Honorary Member. Dr. Roth will receive this honor during the Awards Ceremony at ASTRO's 57th Annual Meeting on Tuesday, October 20, 2015. The Ceremony will be held in conjunction with the Keynote Address in Ballroom C of the Henry B. González Convention Center in San Antonio from 9:15 a.m. to 11:30 a.m.

Honorary Membership is the highest honor ASTRO awards to distinguished cancer researchers and leaders in disciplines other than radiation oncology, radiobiology and radiation physics. Candidates must be nominated by one Active member of ASTRO and receive letters of support from two additional Active members. One individual is selected each year for Honorary Membership by ASTRO's Board of Directors.

Dr. Roth is professor, Department of Thoracic and Cardiovascular Surgery, Division of Surgery, MD Anderson Cancer Center, Houston, and chief, Section of Thoracic Molecular Oncology, Department of Thoracic and Cardiovascular Surgery, Division of Surgery, MD Anderson Cancer Center, Houston.

He has received numerous grants and awards, including an NCI SPORE Grant in lung cancer, published more than 560 articles in peer-reviewed journals and 116 book chapters, and has 59 issued and 22 pending U.S. and foreign patents.

In his renowned career, Dr. Roth has demonstrated leadership and commitment to multidisciplinary approaches for treating lung cancer. He led the first randomized trial comparing preoperative chemotherapy followed by surgery to surgery alone for stage III non-small cell lung cancer (NSCLC) and showed a survival benefit for the investigational arm. He was an early innovator in the development of gene therapy for cancer, and led the first tumor suppressor gene therapy clinical trials approved by the National Institutes of Health Recombinant DNA Advisory Committee and the U.S. Food and Drug Administration. The approval for the protocols came from his demonstration of the feasibility and efficacy through laboratory and preclinical studies. His work was the first gene therapy in cancer approved for human use.

"His team showed that restoration of function for a single normal tumor suppressor gene could mediate regression of human cancers *in vivo*, helped identify and characterize a number of novel tumor suppressor genes on chromosome 3, and found that systemic delivery of tumor suppressor genes using a nanoparticle vector could effectively treat disseminated human lung cancer in animal models," his online biography stated.

"Cancer is a disease of dysfunctional genes," Dr. Roth said in an interview with *ASTROnews*. "A direct way to address this is to correct the genetic abnormalities through gene transfer. The first tumor suppressor gene therapy patient was treated by our group in 1995. This has been a long journey as well with many technical challenges. However, during the past five years, real progress has been made in systemic gene delivery."

When asked what his career highlight was—in his long and storied research and surgical career—he cited a study published this summer with colleagues.

"My most recent career highlight was the publication of 'Stereotactic ablative radiotherapy [SABR] versus lobectomy for operable stage I non-small-cell lung cancer: A pooled analysis of two randomized trials' in *Lancet Oncology* [1] in May 2015," he said. "This was the culmination of 10 years of work from many international multidisciplinary groups and showed that SABR may improve outcomes for stage I lung cancer patients compared to standard lobectomy."

He said the topic caught his interest in 2005, when he attended presentations by Robert Timmerman, MD, and Hiroshi Onishi, MD, PhD, on the first SABR clinical trials in stage I lung cancer at the International Association for the Study of Lung Cancer (IASLC) World Conference in Barcelona.

"The potential to reduce treatment-related morbidity and mortality and for organ preservation was obvious," he said.

He organized a workshop sponsored by the IASLC in 2006 to discuss the feasibility of a clinical trial comparing SABR to lobectomy for operable clinical stage I NSCLC. "Implementation faced many obstacles, including rejection of the protocol by the RTOG, lack of funding, and the refusal of thoracic surgeons at academic medical centers around the world to participate," Dr. Roth said. "A turning

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Three renowned physicians and researchers to receive ASTRO's Gold Medal

BY MICHELLE KIRKWOOD, MEDIA RELATIONS MANAGER, MICHELLE.KIRKWOOD@ASTRO.ORG

ASTRO has chosen three acclaimed radiation oncology physicians and researchers to receive ASTRO's highest honor, the ASTRO Gold Medal: Carl R. Bogardus, Jr., MD, FASTRO, Carl M. Mansfield, MD, ScD (Hon.), FASTRO, and James B. Mitchell, PhD, FASTRO. They will receive the ASTRO Gold Medal during the Awards Ceremony on Tuesday, October 20, 2015, at ASTRO's 57th Annual Meeting, October 18-21, 2015 at the Henry B. González Convention Center in San Antonio.

The ASTRO Gold Medal is the highest honor bestowed upon revered members of ASTRO who have achieved outstanding lifetime contributions in the field of radiation oncology, including in research, clinical care and teaching efforts, as well as through their dedicated service to ASTRO. First awarded in 1977, the ASTRO Gold Medal has been conferred on only 78 of ASTRO's more than 10,000 members, including this year's three awardees.

"It is with great appreciation, admiration and respect that I congratulate my esteemed colleagues, Drs. Bogardus, Mansfield and Mitchell," said ASTRO Chair Bruce G. Haffty, MD, FASTRO. "The impact of their work, collectively and individually, provided the firm foundation for radiation oncology's integral role in the triad of cancer care. The clinical, biologic and technologic advances we have achieved as a specialty are due in large part to their impressive and important work."

Carl R. Bogardus Jr., MD, FASTRO



Carl R. Bogardus Jr., MD, FASTRO, has been an ASTRO member since he attended his first meeting of the American Club of Therapeutic Radiologists (ACTR) during the Radiological Society of North America (RSNA) annual meeting as a resident-in-training in 1960, and is professor, clinical director and vice-chair of the Department of Radiation Oncology at the University of Oklahoma Health Sciences Center in Oklahoma City. He is the only person to have served as both president of ASTRO (1989-1990) and the American College of Radiology (1991-1992). Since beginning his service to ACTR, then the American Society for Therapeutic Radiologists (ASTR) and now ASTRO, Dr. Bogardus has been an instrumental member of numerous ASTRO committees including the Medical Economics Committee and the Committee on Practice Regulation, as a representative on the CPT Advisory Panel, and as treasurer of the Board of Directors prior to his term as president. He led countless meetings with policy leaders and colleagues to develop the process of care for radiation oncology services and the subsequent treatment planning, simulation, treatment devices, dosimetry calculations and physics procedure codes that are billed today as separate and distinct clinical services. His concepts of care and reimbursement, as detailed in his "User's Guide for Radiation Oncology," provided the stepping stones that have created the documentation for many of the technical and scientific advances in the field. Dr. Bogardus was recognized as a Fellow of ASTRO in 2006.

"In 1959, between my second and third year of medical school, I stumbled upon the research lab of Dr. Patrick Cavanaugh, the first trained radiation oncologist at the University of Louisville, and he had a binary counter ticking away. I was intrigued and had to learn what he was doing. He introduced me to the field of radiation therapy and, subsequently, to Juan del Regato, one of radiation oncology's founding fathers, who arranged for me to go to Colorado Springs and become a resident in the Penrose Cancer Hospital therapeutic radiology residency program. The rest is history; my enthusiasm and admiration for the science of radiation oncology has never wavered," said Dr. Bogardus. "I have loved every day of my career—the science and the patients continue to teach me something new. I am extremely proud to receive ASTRO's Gold Medal, to be recognized by my peers for my years of work, however, I still have more work to do!"

Continued on Page 64

Carl M. Mansfield, MD, ScD (Hon.), FASTRO



Carl M. Mansfield, MD, ScD (Hon.), FASTRO, has been a member of ASTRO since 1970. When he retired from a nearly 50-year medical career in 2002, he was associate director of the Greenebaum Cancer Center and chair of the Department of Radiation Oncology at the University of Maryland. His career included the positions of professor and chair of the Department of Radiation Oncology at the University of Kansas Medical Center in Kansas City; professor and chair of the Department of Radiation Oncology and Nuclear Medicine at Thomas Jefferson University Hospital in Philadelphia; and associate director of the Division of Cancer Treatment, Diagnosis and Treatment Centers Radiation Research Program at the National Cancer Institute (NCI). Dr. Mansfield was recognized as a Fellow of ASTRO in 2007.

Dr. Mansfield is considered a pioneer in intraoperative radiation therapy (IORT) for early stage breast cancer. He produced a seminal 1983 report comparing perioperative and intraoperative (Iridium -192) breast implants that laid the groundwork for much of the continuing research in this field today. His work also led to advances in the conservative management of breast cancer through breast irradiation and local brachytherapy; this method of treatment excised the tumor without removing the entire breast. Dr. Mansfield served as primary or co-author on more than 200 original publications and more than 30 original abstracts. He has also written a book on breast cancer and was editor of two radiation therapy textbooks.

Thinking about the genesis of his work, Dr. Mansfield credits the inspiration of his mentor, Simon Kramer, MD. "My mentor, Dr. Kramer, revealed the amazing world of radiation oncology science to me through his leadership, guidance and support. He arranged a year's study for me at the Middlesex Hospital in London, where I continued and fortified my education. My experiences there revealed the endless possibilities for radiation in the treatment of cancer," said Dr. Mansfield.

Dr. Mansfield earned an undergraduate degree in chemistry from Lincoln University in Oxford, Pennsylvania, a medical degree from Howard University in Washington, D.C., and an Honorary Doctor of Science degree from

Continued on Page 64

James B. Mitchell, PhD, FASTRO



James B. Mitchell, PhD, FASTRO, has been an ASTRO member since 1985 and is currently branch chief of the Radiation Biology Branch of the National Cancer Institute at NIH. Dr. Mitchell was recognized as a Fellow of ASTRO in 2009 and served as the vice-chair of the Radiation Biology Committee and on ASTRO's Scientific Committee, among numerous other roles. His more than 40-year career as a preeminent radiobiologist includes work in the Department of Radiation Oncology at Vanderbilt University Hospital in Nashville, Tennesse, the Department of Radiology and Radiation Biology at Colorado State University, Fort Collins, Colorado and the National Cancer Institute at NIH. Dr. Mitchell advanced in his roles at the NCI, beginning in the Radiobiology Section of the Radiation Oncology Branch (ROB). He became branch chief of the Radiation Biology Branch in 1993, and he has served as administrative acting branch chief of ROB on three occasions, a total of six years, during his distinguished NCI tenure.

Dr. Mitchell's achievements include his role as a teacher and leader in the field of tumor biology and the development of novel radiation protectors and sensitizers. He also assisted in the development of Photodynamic Therapy for clinical cancer treatment in the ROB at the NCI. Together with his colleague Murali Krishna, PhD, he has worked toward the development and testing of novel *in vivo* imaging platforms for the non-invasive determination of tissue hypoxia and metabolism.

Continued on Page 64

Seventeen ASTRO members awarded Fellow designation

ASTRO HAS SELECTED 17 DISTINGUISHED MEMBERS to receive the ASTRO Fellow designation. The 2015 class of Fellows will receive the recognition during the Awards Ceremony at ASTRO's 57th Annual Meeting on Tuesday, October 20 at 10:15 a.m. in Ballroom C of the Henry B. González Convention Center in San Antonio.

The Fellows Program, started in 2006, honors those that have been an Active or Emeritus member of ASTRO for at least 15 years, have given the equivalent of 10 years of service to ASTRO and have made significant contributions to the field of radiation oncology in the areas of research, education, patient care or service and leadership. Including the 2015 class of Fellows, 259 ASTRO members have received the FASTRO designation.

Candidates must be nominated by a current ASTRO Fellow, accompanied by three letters of support from a selected subset of ASTRO members, which includes past or present members of ASTRO's Board of Directors, ASTRO Gold Medalists, ASTRO Fellows and former or current departmental chairs. A nine-member Fellows Selection Committee reviews all of the nominations and presents a slate of recommended Fellows to ASTRO's Board of Directors for final approval.

The members of the 2015 Fellows class are:

- May Abdel-Wahab, MD, PhD, *International Atomic Energy Agency, Vienna*
- Kaled M. Alektiar, MD, *Memorial Sloan Kettering Cancer Center, New York*
- Manjeet Chadha, MD, *Mount Sinai Beth Israel, New York*
- A. Bapsi Chakravarthy, MD, *Vanderbilt University, Nashville, Tennessee*
- Eric L. Chang, MD, *Keck School of Medicine of USC, Los Angeles*
- Joel M. Cherlow, MD, PhD, *Long Beach Radiation Oncology Medical Group, Long Beach, California*
- Martin Colman, MD, *University of Texas Medical Branch Galveston, Galveston, Texas*
- Carol A. Hahn, MD, *Duke Cancer Institute, Raleigh, North Carolina*
- James M. Larner, MD, *University of Virginia, Charlottesville, Virginia*
- Robert C. Miller, MD, MBA, *Mayo Clinic Florida, Jacksonville, Florida*
- Arnold dela Cruz Paulino, MD, *MD Anderson Cancer Center, Houston*
- Rachel Rabinovitch, MD, *Radiation Oncology, University of Colorado Denver, Denver*
- C. Leland Rogers, MD, *Virginia Commonwealth University, Richmond, Virginia*
- David I. Rosenthal, MD, *MD Anderson Cancer Center, Houston*
- Richard Kenneth Valicenti, MD, MA, *UC Davis Department of Radiation Oncology, Sacramento, California*
- Julia White, MD, *The Ohio State University Comprehensive Cancer Center, Columbus, Ohio*
- Yan Yu, PhD, MBA, *Thomas Jefferson University, Philadelphia*



2014 CLASS OF ASTRO FELLOWS

Annual Report | 2014

JEFF M. MICHALSKI, MD, MBA, FASTRO | *ASTRO SECRETARY/TREASURER*

TREASURER'S REPORT

ASTRO continues to be financially robust, as well as educationally sound. In 2014, ASTRO returned numerous successful program achievements including the Annual Meeting, online learning, advocacy, RO-ILS: Radiation Oncology Incident Learning System®, and Accreditation Program for Excellence® (APEx). The society has been meeting its mission of providing educational and professional development opportunities to members while promoting excellence in patient care.



In April 2015, Raffa, an independent auditing company, conducted an audit of ASTRO's 2014 financial statements. The auditors expressed an unmodified "clean opinion," the highest opinion available. ASTRO's Finance/Audit Committee, which meets regularly to discuss investment and other financial matters, reviewed the report in detail with the auditors. The report was submitted to ASTRO's Board of Directors at the June 2015 meeting.

PROFIT AND LOSS STATEMENT

ASTRO's total operating revenue for 2014 was $19 million. The major revenue sources include the Annual Meeting at $8.8 million, with 11,970 registered attendees representing 47 percent of revenue; specialty meetings at $3 million representing 16 percent; individual, corporate membership dues and subscriptions at $3.4 million representing 18 percent; journal royalties at $2.2 million representing 11 percent and online learning at $742,000 representing 4 percent. Changes by the ABR created increased demand for SA-CME credits, resulting in higher journal revenue. The *International Journal of Radiation Oncology • Biology • Physics* courses had 2,874 registrations at $58,170, and the *Practical Radiation Oncology* courses accumulated 1,370 registrants at $27,765. Revenue from webinars was $47,688. ASTRO had a $2.4 million loss from activities for the year, as it is investing in its future with programs such as APEx, registry activities and payment reform. It also continues to support radiation oncology's research in new and existing radiation therapy treatments.

BALANCE SHEET

As of the December 2014, ASTRO has a net worth of $28.7 million with a debt-to-equity ratio of 0.27, meaning that the total debt is 27% of equity. Investments had a good absolute performance net of fees resulting in a year-end balance of $30.2 million. They make up the majority of ASTRO's assets. Deferred revenue ($3.8 million), which makes up the majority of ASTRO's liabilities, has increased as members take advantage of ASTRO's multiple year membership dues payment options and Annual Meeting exhibitor's pre-purchase for the following year's booth registrations.

In 2014, ASTRO's Board of Directors designated a portion of reserves to be reinvested into critical programs, such as the ROI Campaign Matching Program, APEx and RO-ILS. As of December 31, 2013, the balance of those designated reserves was $6 million.

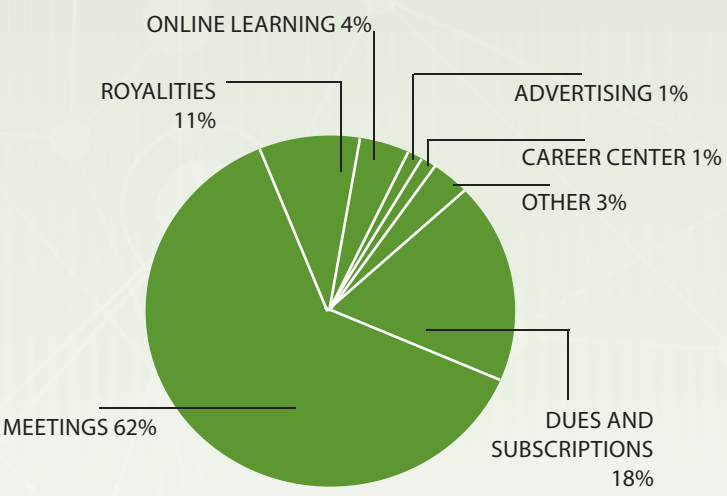
ASTRO makes the necessary adjustment to achieve the goals of the strategic plan to better serve members of the organization, the specialty and cancer patients worldwide, which positions ASTRO as a leader in the industry.

JEFF M. MICHALSKI, MD, MBA, FASTRO
ASTRO Secretary/Treasurer

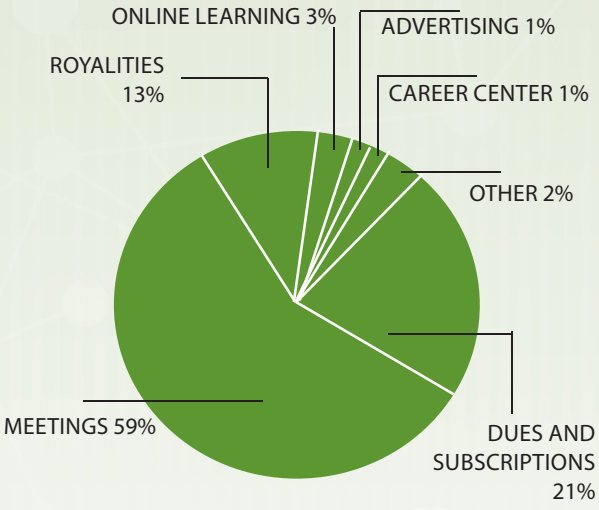
	DECEMBER 31, 2014		DECEMBER 31, 2013	
ASSETS				
ASSETS:				
Cash and cash equivalents	3,735,134		2,414,184	
Certificates of deposit	1,170,659		2,529,693	
Long-term investments (and percentage allocation)				
Large Cap Equity	11,096,836	38%	10,097,522	35%
Small Cap Equity	2,038,032	7%	2,002,968	7%
International Equity	5,833,602	20%	6,460,552	22%
Intermediate Fixed Income	4,595,116	16%	5,876,343	20%
Alternatives	5,426,949	19%	4,315,111	15%
Accounts receivable	791,059		679,146	
Due from Affiliate	19,021		831,936	
Prepaid expenses	403,266		466,139	
TOTAL CURRENT ASSETS	$35,109,674		$35,673,593	
PROPERTY AND EQUIPMENT, NET:	$866,114		$1,166,685	
OTHER ASSETS:				
Investments - deferred compensation	$272,288		$233,411	
Deposits	165,203		84,422	
TOTAL OTHER ASSETS	$437,491		$317,833	
TOTAL ASSETS	$36,413,279		$37,158,111	
LIABILITIES AND NET ASSETS				
CURRENT LIABILITIES:				
Accounts payable	2,590,251		637,825	
Accrued salaries and benefits	793,478		930,715	
Deferred revenue	3,841,335		3,534,186	
Due to Affiliate(s)	-		120	
TOTAL CURRENT LIABILITIES	$7,225,064		$5,102,845	
OTHER LIABILITIES:				
Deferred compensation	272,288		233,411	
Deferred rent	209,862		199,489	
TOTAL LONG-TERM LIABILITIES	$482,150		$432,900	
TOTAL LIABILITIES	$7,707,214		$5,535,746	
NET ASSETS:				
Unrestricted				
Undesignated	22,699,497		18,838,090	
Board designated - program	6,006,568		12,784,276	
TOTAL NET ASSETS	$28,706,065		$31,622,366	
TOTAL LIABILITIES AND NET ASSETS	$36,413,279		$37,158,111	

	FOR YEARS ENDED DECEMBER 31, 2013	2012
OPERATING INCOME		
Dues and subscriptions	$3,400,156	$3,330,996
Meetings	11,843,983	9,440,153
Journal Royalties	2,171,074	2,158,757
Online Learning	742,411	523,012
Leadership Training Program	61,010	-
Advertising	225,376	175,393
Patient Safety Organization	102,760	120,000
PQRS Registry	53,011	20,123
Career Center	135,739	124,679
Coding Guide	81,673	52,131
Patient Materials	57,521	48,295
Other	107,646	106,487
TOTAL OPERATING INCOME	$18,982,359	$16,100,025
OPERATING EXPENSE		
PROGRAMS		
Meetings	$8,117,312	$6,294,376
Online Learning	286,794	346,897
Advocacy and Clinical Affairs	408,981	544,456
Registries	541,630	-
Clinical Practice/Measures	622,457	703,562
Patient Safety Organization	370,933	372,586
Lobbying	823,089	809,514
State Activity	47,292	47,651
Medicare	536,316	349,680
Coding	523,072	409,853
Coverage	86,487	83,426
Awards	703,249	606,110
Public Relations	594,700	712,260
Total Programs and Departments	$13,662,314	$11,280,371
GENERAL AND ADMINISTRATION		
Operations	$111,148	$246,897
Membership	1,938,412	1,773,061
Corporate Relations	195,557	181,631
Finance	1,223,585	1,034,752
Information Technology	867,074	829,289
Human Resources	387,358	319,349
Executive	639,147	548,866
Board of Directors	679,561	641,816
ARRO	27,678	43,079
SCAROP	16,341	5,642
ADROP	7,598	6,026
Total General and Administration	$6,093,457	$5,630,407
COMMITTEES	$607,090	$617,075
TOTAL OPERATING EXPENSES	$20,362,862	$17,527,853
OPERATING PROFIT/(LOSS)	$(1,380,502)	$(1,427,828)
OTHER INCOME		
Practice Accreditation	3,510	3,390
Investment Income	1,355,225	4,377,610
OTHER EXPENSE		
Practice Accreditation	1,237,820	507,585
ROI Campaign Matching Program	277,541	292,305
ROI Debt Forgiveness	841,672	-
PROFIT/(LOSS)	$(2,378,801)	$2,153,283

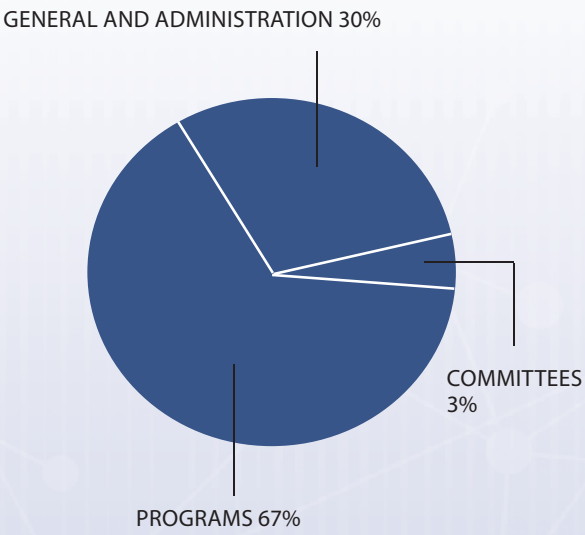
2014 Revenue



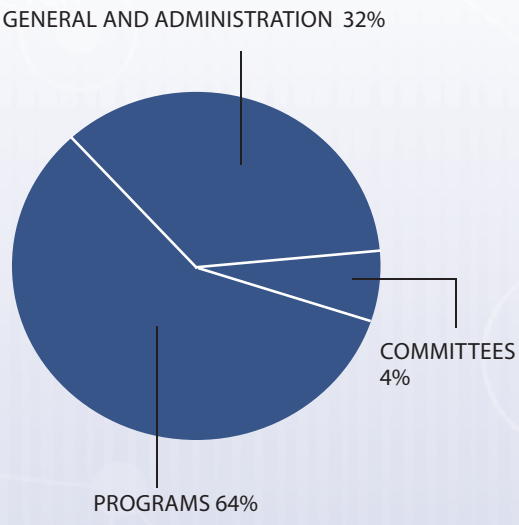
2013 Revenue



2014 Expenses



2013 Expenses



RESEARCH

COMPILED BY STEPHANIE STEVENS, MPH, SENIOR MANAGER, RESEARCH AND EVALUATION, STEPHANIES@ASTRO.ORG

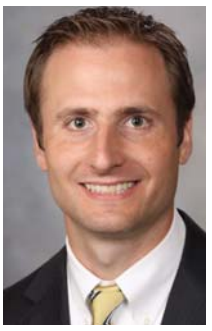
ASTRO AWARDS $675,000 IN GRANTS TO ADVANCE RADIATION ONCOLOGY

The American Society for Radiation Oncology (ASTRO) has selected seven prominent researchers to receive a total of $675,000 in awards and grants to advance the field of radiation oncology. This includes two ASTRO Junior Faculty Career Research Training Award winners, three ASTRO Resident/Fellows in Radiation Oncology Research Seed Grant winners and two ASTRO/ROI Comparative Effectiveness Research Award winners. These projects will focus on a wide variety of studies including radiation oncology, biology, radiation physics, translational research, outcomes/health services research and comparative effectiveness research within radiation oncology. All winners will be recognized at ASTRO's 57th Annual Meeting, October 18-21, at the Henry B. González Convention Center, San Antonio.

The Junior Faculty Career Research Training Award gives junior physicians the opportunity to develop their careers and focus on research relevant to radiation oncology, biology, physics or outcomes/health services. Recipients must be board-eligible physicians or physicists in radiation oncology or radiobiologists within the first three years of their junior appointment. Two junior faculty are selected for this award, which provides $100,000 annually for two years. The two 2015 grant recipients are:



Kent William Mouw, MD, PhD, of Dana-Farber Cancer Institute in Boston. Dr. Mouw will be investigating genomic determinants of chemoradiotherapy response in anal carcinoma. The aim of his project is to map the genetic landscape of a large number of anal tumors in an effort to better understand anal cancer biology and identify therapeutic targets.



Robert Mutter, BA, MD, of the Mayo Clinic in Rochester, Minnesota. Dr. Mutter will be studying comprehensively characterized chemoresistant triple negative breast cancer xenograft models established from patients with high risk breast cancer on a preoperative chemotherapy clinical trial. He will investigate whether chemoresistance predicts radioresistance, and test new DNA repair targeting strategies aimed at overcoming resistance.

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The ASTRO Residents/Fellows in Radiation Oncology Research Seed Award is designed to support residents or fellows who are planning a career in basic science or clinical research in radiation oncology. Three researchers are selected for this award, which provides $25,000 for one year. The three 2015 grant recipients are:



Ariel Marciscano, MD, of Johns Hopkins University in Baltimore. Dr. Marciscano will be researching immuno-PET as a non-invasive biomarker to characterize the tumor microenvironment and the implications for combining stereotactic radiotherapy with immune checkpoint blockade.

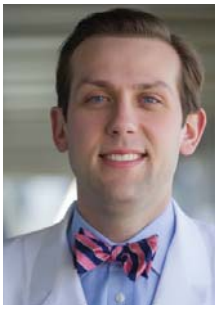


David Mayhew, MD, PhD, of the University of Alabama at Birmingham, in Birmingham, Alabama. Dr. Mayhew will be researching the role of a non-canonical form of mRNA translation, termed internal ribosome entry (IRES) translation in the cellular stress response and its subsequent impact on treatment resistance in multiple breast cancer cell lines *in vitro* as well as tumor xenografts *in vivo*.



Jennifer Shah, MD, of Stanford University in Palo Alto, California. Dr. Shah will be investigating the feasibility of performing serial perfusion CT scans in patients undergoing lung tumor stereotactic body radiation (SABR) therapy with the goal of characterizing the post-SABR vascular changes and correlating these changes with tumor response.

The ASTRO/ROI Comparative Effectiveness Research Award provides CER leaders the ability to conduct research focused on evaluating the effectiveness, complication profile, cost and cost-effectiveness of various radiation therapy treatments. Two researchers are selected for this award, which provides $50,000 annually for two years. The two 2015 grant recipients are:



Timothy Zagar, MD, of the University of North Carolina at Chapel Hill in Chapel Hill, North Carolina. Dr. Zagar will be researching the comparative effectiveness of endocrine therapy and radiation therapy regimens for elderly breast cancer patients with suboptimal adherence.



Mark Mishra, MD, of the University of Maryland Medical Center in Baltimore. Dr. Mishra will be comparing patient-reported outcomes following treatment with 3-D CRT and intensity-modulated radiation therapy with and without adjustments for patient preference weights in order to reduce patient-relevant adverse events following prostate irradiation.

2015 Annual Meeting Abstract Award Recipients

ASTRO has selected 41 researchers to receive the 2015 Annual Meeting Abstract Awards. These individual awards recognize the top-rated abstracts in seven categories and showcase the high quality of research from around the world that is presented at ASTRO's Annual Meeting, in addition to demonstrating ASTRO's continued commitment to promoting and advancing cancer research. The winners will be recognized during ASTRO's 57th Annual Meeting in San Antonio. For more information about each award, visit www.astro.org/AbstractAwards.

BASIC/TRANSLATIONAL SCIENCE ABSTRACT AWARD

Radiation and Cancer Biology

David Azria, MD, PhD
Mohamed Abazeed, MD, PhD
Zachary Morris, MD, PhD

Clinical Practice

Encouse Golden, MD, PhD
Frank Giordano, MD
Sungjune Kim, MD, PhD

Radiation Physics

Nan Li, PhD
Stephen Yip, PhD
Baderaldeen Altazi, MS
Yi Cui, PhD

ANNUAL MEETING TRAVEL AWARD

Radiation and Cancer Biology

Andrew Sharabi, MD, PhD
Susan Hiniker, MD
Christina Speirs, MD, PhD
Vikram Jairam, BS

Clinical Practice

Israel Fortin, MD, MS
Rahul Parikh, MD
Talha Shaikh, MD
Lindsay Burt, MD
Zabi Wardak, MD

Radiation Physics

Nichole Maughan, MS
Wu Liu, PhD, DABR
Ross Bland, MD
Chunhao Wang, MS
Sarah Mattonen, BS

RESIDENT CLINICAL/BASIC SCIENCE RESEARCH AWARD

Shuang Zhao, MD, MSE (Radiation and Cancer Biology)
Shariq Khwaja, MD, PhD (Clinical Practice)
Alec Block, MD (Radiation Physics)

INTERNATIONAL ANNUAL MEETING SCIENTIFIC ABSTRACT AWARD

Shuanghu Yuan, MD, PhD

ANNUAL MEETING NURSE ABSTRACT AWARD

Bridgett Harr, MSN, APRN, AOCNP

RESIDENT *e*POSTER RECOGNITION AWARD

Chad Tang, MD (Radiation and Cancer Biology)
Henry Park, MD, MPH (Clinical Practice)
Michael Repka, MD (Radiation Physics)

RESIDENT POSTER VIEWING RECOGNITION AWARD

Radiation and Cancer Biology

Jordon Torok, MD
Darrion Mitchell, MD, PhD
Alexei Polishchuk, MD, PhD

Clinical Practice

James Melotek, MD
Rupesh Kotecha, MD
Ajeet Gandhi, MD

Radiation Physics

Christopher Wilke, MD, PhD
Zhilei Shen, PhD
Alan Lee, MD

BY PAUL E. WALLNER, DO, FASTRO, AND DAVID LASZAKOVITS, MBA

PUBLIC REPORTING OF PHYSICIAN CERTIFICATION AND DISCIPLINARY STATUS

IN AN ERA OF INCREASING PUBLIC and policymaker expectations for transparency, there are many sources for information related to physician background and credentials, disciplinary actions and board certification status. Some of these sources are widely known and generally available, while others require a greater level of knowledge regarding their more obscure sources, and in some instances, require payment of an access fee. The Internet has significantly increased access to these data sources.

FEDERAL REPORTING SOURCES

In 2010, as mandated by the Patient Protection and Affordable Care Act (ACA)[1], the Centers for Medicare and Medicaid Services (CMS) launched the Physician Compare website[2]. Users may query the site by zip code and specialty to determine if specific providers participate in the Medicare program, but at this time, no other information is available. Other CMS ". . . Compare" websites, such as Hospital Compare[3], currently allow users to compare hospitals based on a number of selected metrics, but no such functionality is yet available for physicians. CMS does link to a database on other Medicare quality programs that has access to specific physician performance metrics, especially those ultimately selected as CMS "quality measures"[4].

In 2014, also as mandated by the ACA, the federal government began publishing information about relationships physicians and teaching hospitals have with drug and device manufacturers through the Open Payments Program[5]. The published information is reported by manufacturers and includes transfers of value from manufacturers to physicians and teaching hospitals, either as payment for activities such as speaking or consulting, or the provision of meals, travel or other in-kind support. Manufacturers and group purchasing organizations also report their owners or investors who are physicians. As part of this program, CMS is required to provide an annual report to Congress on the activities.

Both Physician Compare and Open Payments are aimed at providing Medicare beneficiaries and other health care consumers with more information about their health care providers. Neither program reports any specific disciplinary investigations or actions. For example, if the Physician Compare site indicates that a physician or provider group is not participating in the Medicare program, the reason for that lack of participation is not provided. Information regarding federal disciplinary or criminal investigations may be available on the Department of Justice website, the federal entity that is charged with these actions[6]. In addition to legal actions, the Department of Health and Human Services, through its Office of Inspector General (OIG), has the authority to exclude a provider from participation in the Medicare and Medicaid programs. Information that a provider has been excluded is not reported to other credentialing agencies at the state or national level though. Medicaid agencies and any entities enrolled in the Medicare program are responsible for ensuring their providers are not on the OIG's List of Excluded Individuals/Entities. Excluded individuals are not listed on the Physician Compare website[7].

The National Practitioner Data Bank (NPDB) was established following passage of the Health Care Quality Improvement Act of 1986. It was initially available for paper query in 1990, and then converted to electronic query capability in 1992. The NPDB is a centralized repository for information on medical malpractice payments and other specific adverse actions related to health care practitioners, entities, providers and suppliers. Federal law specifies the types of actions reported to the NPDB, who submits the reports and who queries to obtain copies of the reports. Only authorized organizations may query the data, which is confidential and not available to the public. Providers who believe that the data is incomplete or inaccurate may have the ability to add what they believe is relevant information. As with other similar sources of information, adverse events not recorded in the public domain may not appear in the NPDB[8].

STATE REPORTING SOURCES

The Federation of State Medical Boards (FSMB)[9] represents the 70 medical boards of the United States and its territories. The organization is a not-for-profit entity that provides a range of services to its constituent members, including assessment tools, credentialing and disciplinary

alert services, educational content and model policy documents. While the FSMB does provide a web-based list of disciplinary actions taken by its constituent state medical boards, the information may lack timeliness and is not available without cost to the inquiring individual or agency[10].

Almost all individual state medical boards provide some web-based data regarding individual credentialing and disciplinary information about licensed providers, but in some, the information is limited to active or inactive licensure and presence or absence of disciplinary actions. Various states charge for additional information, and many remain opaque regarding the nature of listed actions. In addition, they often are significantly delayed in posting public notice of decisions and penalties[11].

CERTIFICATION STATUS

The American Board of Medical Specialties (ABMS), the umbrella organization for its 24 member boards, including the American Board of Radiology (ABR), maintains a central data file on physician board certification status; the data is provided directly from the member boards[12]. Access to the available information is free, but registration is required. Available individual physician information, if provided by the member board, includes name, education, practice location, current certification status (limited to certified or not certified), and the name of the appropriate member board. The site also gives a "yes or no" response related to Maintenance of Certification (MOC), but then provides additional clarification regarding that somewhat sensitive issue: "For some ABMS Member Boards, physicians who achieved Board Certification before those Boards established their MOC programs are not required to participate in MOC. To obtain information regarding whether a specific physician is required to participate in MOC please contact the pertinent ABMS Member Board." A link to the member board is provided[13].

Any inquiry regarding a radiation oncologist, diagnostic radiologist, interventional radiologist or medical physicist also can be made directly to the ABR[14]. No fee or registration is required. Available data includes the provider's name, location of practice and current certification status. Participation in MOC will be indicated, either if required or voluntary. For providers with non-time-limited certification not participating in MOC, there is a clarification that the individual "is not required to participate in Maintenance of Certification." Individuals holding ABR certification may lose that certification based on disciplinary actions enforced by various state medical boards and based on information provided by them to the ABR. When certification is lost in this manner, neither the ABMS nor the ABR report the reason for the lost certification, but simply indicate that the provider is not certified. Individuals who are not yet certified but remain eligible for initial certification are reported as "board eligible." If initial certification eligibility is lost, they are reported as "not certified, not board eligible."

Greater interest in provider credentials and increasing awareness of access to this information has introduced a new era in provider transparency. It is incumbent on providers to periodically review these various data sites to ensure that their personal information is correct and up-to-date.

Paul E. Wallner, DO, FASTRO, is senior vice-president for medical affairs, 21st Century Oncology, Inc., and associate executive director for radiation oncology, the American Board of Radiology. David Laszakovits, MBA, is division director, Maintenance of Certification, the American Board of Radiology.

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SCIENCE*bytes*

BY HUGO J.W.L. AERTS, PHD

RADIOMICS MINES HIDDEN INFORMATION FROM MEDICAL IMAGES



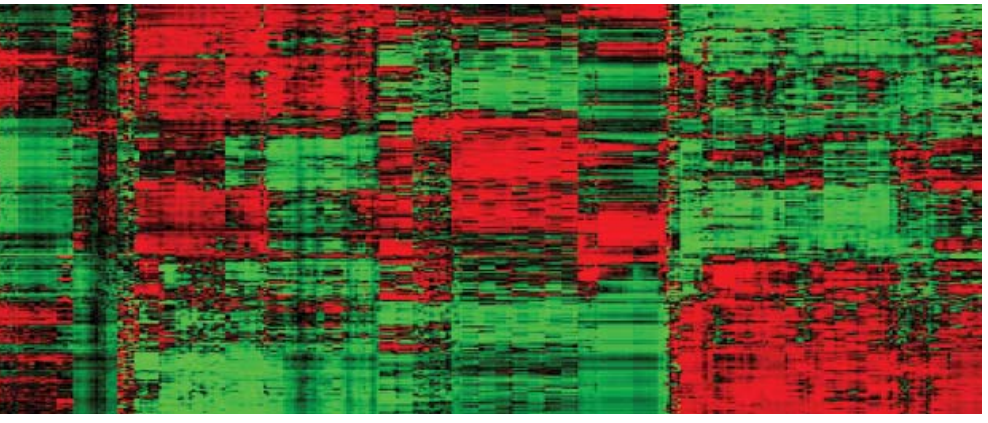
CANCER PATIENTS ROUTINELY UNDERGO MEDICAL IMAGING, CT and MRI scans, for example, throughout the course of treatment, enabling physicians to track changes and therapy response in tumors.

Scientists at Dana-Farber Cancer Institute/Harvard Medical School are investigating these routine, noninvasive images using machine learning and computational imaging techniques. With a new image analysis approach, referred to as "radiomics," scientists are able to extract a wealth of "hidden" information, much more than meets the eye. Radiomics is necessary to complete the picture about the tumor phenotype (physical characteristics) and is expected to play an important role in personalized medicine.

The term "radiomics" reflects a combination of radiology and computer science. My team and I at Harvard have published several reports on research using radiomics methods to examine CT and MRI images across cancer types, such as lung cancer, head and neck cancers and glioblastomas[1-3]. The scientists used radiomics to identify tumor phenotype characteristics in the images that correlated with their likelihood of survival, as well as their association with the underlying driving biology. Features such as texture showed that some of the tumors were highly heterogeneous—meaning that they were likely made up of a variety of cell types having different molecular abnormalities. These characteristics predicted that these patients would have poorer chances of survival than those whose tumors were more homogeneous—likely composed of similar cell types.

The researchers compared those predictions to outcomes contained in the patients' clinical records. They found that radiomics outperformed the standard methods, such as lung cancer staging. Therefore, one of the strengths of radiomics is its ability to create a comprehensive picture of a tumor's heterogeneity, an important piece of data because cancers made up of many different cell types are harder to treat and more likely to develop resistance to therapy. Radiomics techniques measure hundreds of different features in the scan and use algorithms to construct data that assesses the entire three-dimensional tumor phenotype.

Tumor Heterogeneity: By contrast, standard needle biopsies extract only a small sample of tumor cells in one part of the tumor and do not provide an overall assessment of its heterogeneity. Therefore, radiomics can provide crucial complementary information for precision medicine that can guide treatment. In a report in *Nature Communications*, the scientists described radiomics analyses of CT scans of over 1,000 patients with lung or head and neck cancer. When computer algorithms were applied to the large amount of data in the images, the scientists found that four characteristics of the tumors formed a "signature" that was able to capture intra tumor heterogeneity, and could predict how a tumor would behave in an individual patient.



A heat map of radiomics features.

They also found that the predictive signatures correlated with measurements of gene activity in the tumors. A strong correlation was found between the heterogeneity of the tumor and the activation of genes that fueled the cancer's growth.

The authors concluded that "radiomics identifies a general prognostic phenotype existing in both lung and head and neck cancer." They suggest that this signature, in fact, may be a general predictive marker present in a variety of cancers. We are currently working to extend radiomics analysis to medical imaging data of other cancers, including glioblastomas, the deadliest brain tumors.

Driving Biology: To prove the hypothesis that radiomics is driven by tumor biology, Patrick Grossmann, a bioinformatician at Harvard, lead a recent study investigating the mechanistic connections between radiomics and genomics. In this study, researchers integrated whole-genome expression profiles with radiomics data of 351 patients with lung cancer, for which clinical outcomes have also been recorded. By inferring activity of biological pathways in patients from these gene expression data, the researchers were able to describe radiomics in terms of underlying biological traits. They found that different radiomics features were associated with a large panel of biological processes. Furthermore, the scientists discovered that radiomics could also predict whether known cancer pathways were activated or deleted in a patient. Based on these results, the scientists have strong evidence that radiomics is connected to the same biological traits that have been shown to drive clinical outcomes, such as overall survival, staging or histology. In a follow-up study, they demonstrated that radiomics provides crucial potential to predict cancer progression, and can improve existing genomic technologies and complements clinical information.

Personalized Medicine: The pharmaceutical industry also noticed the power of radiomics analysis for predicting and monitoring drug response. If detailed information about the tumor phenotype, which is related to treatment resistance, is available before treatment, it is possible to adapt the treatment toward an individual patient. This is referred to as "personalized medicine" and is expected to improve cancer treatments. Therefore, radiomics could provide an essential role in the development of personalized treatments by the pharmaceutical industry. These integrative approaches are the core of precision medicine, and radiomics has an important potential role.

Dr. Aerts is director of Computational Imaging and Bioinformatics Laboratory (CIBL), Radiation Oncology and Radiology, Dana-Farber Cancer Institute/Harvard Medical School. *This research was financed by the National Cancer Institute of the U.S. National Institutes of Health.*

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CLASSIFIED POSITION

Radiation oncologist clinical position

The Department of Radiation Medicine at the University of Kentucky College of Medicine seeks a person with MD/DO degree and certification (preferable) or eligibility in radiation oncology by the American Board of Radiology for a faculty position at the assistant or associate professor level. This position will involve duties at the main campus as well as regular coverage of an off-site affiliated practice in Morehead, Kentucky. The Department of Radiation Oncology is a vital part of the UK Markey Cancer Center, an NCI-designated cancer center. The department has a vibrant clinical practice with outstanding technology, facilities and medical physics support as well as active translational and clinical research programs. In addition, it houses full accredited residency programs in radiation oncology and medical physics, as well as a Masters Program in Medical Physics.

Inquiries, letters of interest and CV's should be sent to: Dr. Marcus Randall, Chairman of Radiation Medicine, University of Kentucky Hospital, 800 Rose St., C114D, Lexington, Kentucky, 40536-0293. The University of Kentucky is an AA/EOE/ADA employer.

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Interested parties attending the 2015 ASTRO Annual Meeting in San Antonio may contact Dr. Mahesh Kudrimoti at 502-836-3855 or mkudrO@email.uky.edu.

JOURNALS

ARTICLE HIGHLIGHTS FROM ASTRO'S JOURNALS



Highlights from the May-June 2015 issue of *Practical Radiation Oncology (PRO)*

Measurable Improvement in Patient Safety Culture: A Departmental Experience With Incident Learning

By Kusano et al

Rigorous use of departmental incident learning is integral to improving patient safety and quality of care. This study quantified the impact of a high-volume, departmental incident learning system on patient safety culture.

Clinical Outcomes of Palliative Radiation Therapy for Children

By Rahn III et al

The authors performed a retrospective review of all pediatric patients referred to their radiation oncology department over a five-year span from January 1, 2007, to December 31, 2011. The authors concluded that palliative radiation therapy is safe and highly effective in the pediatric population and proposed the need for additional prospective longitudinal and multi-institutional studies.

Highlights from the *International Journal of Radiation Oncology • Biology • Physics*

APRIL 1, 2015

Gynecologic Oncology Scan

By Yashar et al

The Gynecologic Cancers editorial team scanned the literature for current articles of interest to radiation oncologists with a focus on endometrial and cervical cancer.

Around the Globe—Lebanon

By Zeidan and Geara

The authors describe the development of radiation oncology in Lebanon, giving a fascinating account of the practice of radiation oncology during times of civil war, refugee migrations and peace.

RT With EPO for Control of Anemia in Patients With Head and Neck Squamous Cell Carcinoma

By Shenouda et al

Erythropoietin (EPO) is a biological agent used to reverse anemia in cancer patients. These authors report the long-term results of the RTOG 9903 protocol of radiation therapy (RT) with or without EPO in moderately anemic patients with head and neck squamous cell carcinoma.

Additional Evidence for Chemotherapy Plus Radiation in Locally Advanced Head and Neck Cancer

By Budach et al

This report by Budach and colleagues provides additional high-quality evidence on the role of chemotherapy in addition to radiation in locally advanced head and neck cancer.

Long-Term QOL After Swallowing and Salivary Organ-Sparing Chemo-IMRT

By Vainshtein et al

Vainshtein and colleagues report the long-term outcome from the longitudinal study of patients with locally advanced human papillomavirus-associated oropharyngeal cancer treated on two prospective studies of swallowing and salivary organ-sparing chemo–intensity modulated radiation therapy.

Very-Low-Density and High-Density Lipoproteins Have Opposite Effects in IBC Radiation Treatment

By Wolfe et al

Studies have suggested that cholesterol-lowering statins taken by inflammatory breast cancer (IBC) patients may improve survival. The *in vitro* component of this study investigated mediators in cholesterol transport and lipoproteins and their influence on IBC cancer cells.

Higher Linear Energy Transfer to Reduce Radiation Dose Without Loss of Clinical Effectiveness

By Fager et al

Studies have shown that relative biological effectiveness increases with higher Linear Energy Transfer (LET). The authors investigated whether or not dose per fraction can be traded with

an increase in LET within the target while keeping the clinical effectiveness the same.

Spinal Cord and Cauda Equina Motion in Supine Patients With Spinal Metastases Planned for SBRT

By Tseng et al

When it comes to spine stereotactic body radiation therapy (SBRT), accurate assessment of spinal cord and cauda equina motion is critical in order to safely plan organ-at-risk margins. The authors found that physiologic motion is minor relative to random bulk motion, which reinforces the importance of controlling patient motion during spine SBRT.

Critical Review: Radium-223 in Treatment of Osteoblastic Metastases

By Humm et al

This review article by Humm and colleagues describes the history of the element Radium and the uses of its high-energy alpha particles and the more penetrating gamma emissions. Its highly efficient bone localization suggested a potential therapeutic role for osteoblastic bone metastases, and a series of phase 1, 2 and 3 clinical trials was undertaken to explore this possibility.

MAY 1, 2015

Fifty Years From Paris: The Remarkable Story of the Lymphomas

By Zietman

The Editor-in-Chief of the Red Journal, Zietman, provides an excellent overview of key pioneers in the history of lymphoma, including Thomas Hodgkin, Dorothy Reed Mendenhall and Vera Peters. Zietman also introduces the exemplary collection of articles included in the special lymphoma edition, which document radiation oncology's approach to treatment design and delivery, unique therapeutic combinations and the incorporation of modern imaging.

JUNE 1, 2015

Philip Rubin MD, FASTRO: Reflections on a Radiation Oncology Pioneer

By Constine and Chen

One of the great thinkers and innovators of the infant specialty of radiation oncology has passed away. He was the founder and first editor of the Red Journal and thus we celebrate his life with a tribute from his colleagues Constine and Chen. In addition, we feature the first ever cover of the Red Journal on this edition's cover.

Around the Globe: The Expanding Role of Radiation Oncology in Japan

By Shibamoto

In this Around the Globe article, we visit Japan, where Shibamoto leads us through the many fascinating and unique aspects of radiation oncology practice in that country and answers many intriguing questions.

Cultivating Tomorrow's Clinician Scientists

By Vapiwala et al, Formenti et al and Wallner et al

In this discussion, which is presented as three separate editorials, the junior investigators challenge the chairs to find a way to protect time, offer support and nurture their ambitions as they represent the "seed corn" of our specialty.

Human Papillomavirus and Head and Neck Cancer

By Kimple and Sher

In this Oncology Scan, Head and Neck section Associate Editors Kimple and Sher take us into the new world of oropharyngeal cancers, which are now divided according to Human Papillomavirus (HPV) status. The long-term outcomes from the RTOG oropharynx trials show that while HPV positivity is favorable, it is not yet clear that it is safe to dose de-escalate.



Acupuncture-like Transcutaneous Electrical Nerve Stimulation Versus Pilocarpine in Treating Radiation-Induced Xerostomia: Results of RTOG 0537 Phase 3 Study

By Wong et al

Radiation-induced xerostomia is a miserable consequence of head and neck radiation therapy and there are few options for its treatment. RTOG 0537 was a multicenter randomized study that compared acupuncture-like transcutaneous stimulation with pilocarpine for the relief of radiation-induced xerostomia.

Honorary Membership

Continued from Page 47

point was the suggestion by Suresh Senan, MRCP, FRCR, PhD, that the data from our two trials [STARS and ROSEL] be combined, which resulted in the *Lancet Oncology* publication.[1]"

Dr. Roth has not only worked on the research and surgical sides himself, but he has also trained the next generation of surgical oncologists and laboratory researchers.

"I hope my legacy will be that physicians of all oncologic disciplines will work together to improve outcomes for cancer patients with the understanding that the best way to achieve this is through rigorous scientific investigation," he said.

He said he was honored to be chosen as ASTRO's 2015 Honorary Member.

"It is always a great feeling to be recognized by your peers," Dr. Roth said. "My first thought was that this is a tribute to all the outstanding colleagues that I have been privileged to work with over the years."

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ASTRO's Gold Medal

Continued from Page 48–49

Carl R. Bogardus Jr., MD, FASTRO

Dr. Bogardus' commitment to radiation oncology's process of care includes his efforts as the inventor and senior developer of the ONCOCHART electronic medical record (EMR), a first-of-its-kind, full-featured EMR that documents the cognitive and procedural work for appropriate billing of radiation oncology services and also provides decision support and interoperability with other electronic systems. He joined the University of Oklahoma Health Sciences Center as assistant professor of radiology and associate radiation therapist in 1964. During his more than 50-year-tenure at the University, Dr. Bogardus served in numerous roles. Most notably, he was the founding director of the university's originally three-year resident training program in the Department of Radiological Sciences from 1964 to 1995, and again as the director from 2007 to 2008 when the program grew to become a four-year residency program within the newly created Department of Radiation Oncology.

Dr. Bogardus earned his Bachelor of Arts degree from Hanover College, Hanover, Indiana, and his medical degree at the University of Louisville School of Medicine, Louisville, Kentucky. He served his residency in therapeutic radiology at Penrose Cancer Hospital in Colorado Springs, Colorado. His fellowship in radiation therapy and radiation physics was at the Mallinckrodt Institute of Radiology at Washington University School of Medicine, St. Louis.

Carl M. Mansfield, MD, ScD (Hon.), FASTRO

Lincoln University. In addition to his post-doctoral fellowship at Middlesex Hospital, he was the Chernicoff Fellow in Pediatric Radiation Therapy at Jefferson Medical College Hospital from 1964-66 and served another year at the Meyerestein Institute of Radiotherapy at Middlesex Hospital Medical School in 1972-73.

"I am grateful to be recognized by members, peers and colleagues with the ASTRO Gold Medal. I encourage today's medical students, researchers and residents to continue the wonderful progress being made in the elimination of cancer."

James B. Mitchell, PhD, FASTRO

"I am grateful to have had the many opportunities to be immersed in both research and teaching at the NCI. It is truly an inspiration and a joy to work with bright, young minds energized by the many questions still to be explored," said Dr. Mitchell. "I owe much of my success to my revered mentors, Drs. Joel Bedford and Eli Glatstein; their exceptional influence is reflected in my work each day. I am deeply honored and humbled to be awarded the ASTRO Gold Medal."

Dr. Mitchell earned his Bachelor of Science degree from Austin Peay State University in Clarksville, Tennessee, a Master of Arts in Biology from the George Peabody College in Nashville, Tennesse, and his PhD in Cellular Radiation Biology from Colorado State University.

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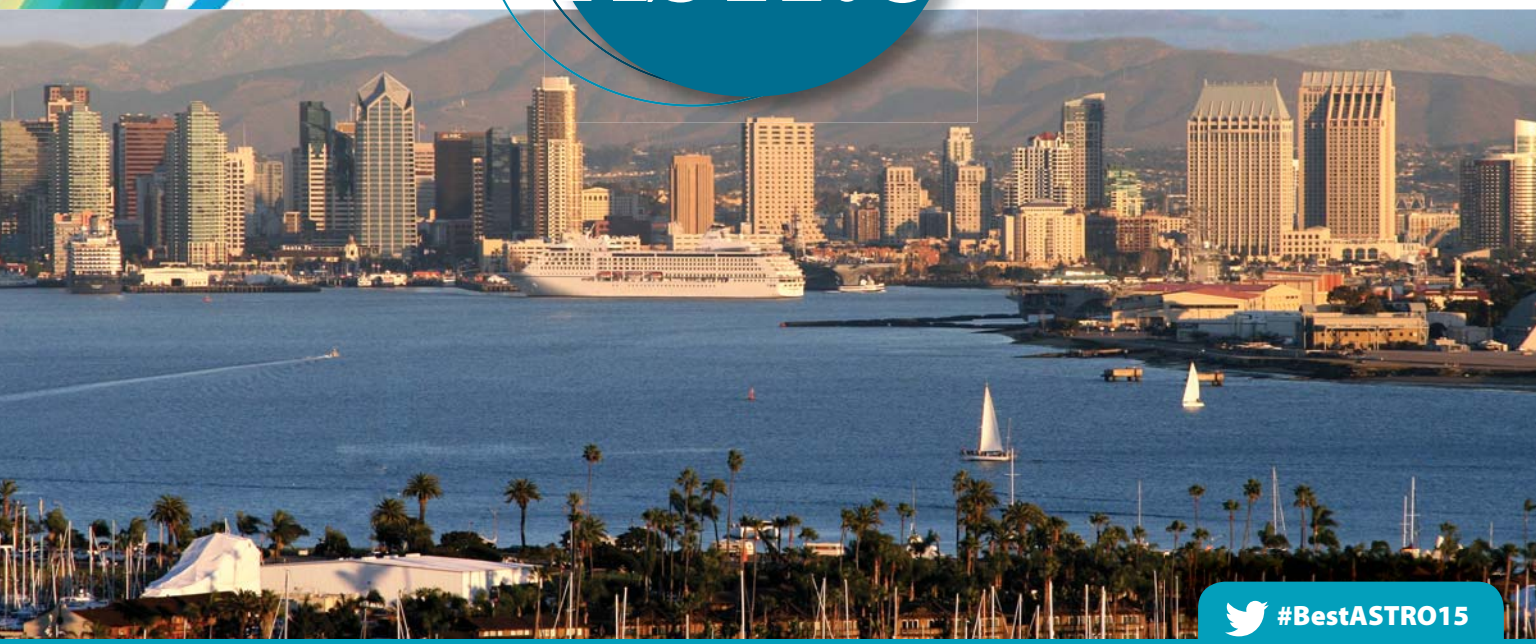

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