

SUMMER 2017

ASTROnews

PAVING THE WAY

Increasing access to radiation therapy around the globe

Inside This Issue

Page 13

Bringing radiotherapy to the world

An update from the Global Task Force on Radiotherapy for Cancer Control

Page 16

Radiation oncology in the trenches

What U.S. institutions are doing overseas to respond to the need for RT

Page 20

Coloring outside the lines

ASTRO's eContouring program lends technical expertise to other countries

AND MORE



ASTRO Coding and Coverage Seminar

Register now for ASTRO's first Coding and Coverage Seminar!

December 8-9, 2017
ASTRO Headquarters
Arlington, Virginia

All seminar registrants will receive a print and electronic version of the 2018 ASTRO Coding Resource – an \$800 value!

Taught by the writers of the ASTRO Coding Resource, this two-day seminar will address the many factors that affect this complex and ever-changing aspect of clinical practice, making clinical coding easier to understand and apply for your practice.

Attend this seminar and learn:

- Coverage and coding policies specific to the field of Radiation Oncology.
- How codes for Radiation Oncology are developed.
- How to assign accurate coding to a clinical case study.
- How to apply coding for radiation oncology by modality.
- How ongoing changes in health care policy may affect coding and coverage.
- What health care reforms are on the horizon, and how they will affect RO reimbursement.
- How ASTRO advocates on behalf of Radiation Oncology.



Space is limited, so register now!

www.astro.org/codingseminar

Best[®] Cyclotron Systems

Best Cyclotron Systems provide turnkey systems that not only include a cyclotron specific to your isotope requirements, but also targets, automated radiochemistry, infrastructure, operations, and maintenance support.

- 2 Simultaneous extractions
- Multiple beam line configurations as per customer design
- Currents from 400uA up to 1000uA depending on model
- Best 28u is fully upgradeable to 35 MeV in the field

Best Cyclotron Capabilities Summary

Cyclotron	Energy (MeV)	Isotopes Produced
Best 15	15	F ¹⁸ , Tc ^{99m} , C ¹¹ , N ¹³ , O ¹⁵ , Cu ⁶⁴ , Ga ⁶⁷ , I ¹²⁴ , Pd ¹⁰³
Best 20u/25	20-15, 25-15	Best 15 + I ¹²³ , In ¹¹¹ , Ge ⁶⁸ /Ga ⁶⁸
Best 28u (Upgradeable)	28-15	Best 15 + I ¹²³ , In ¹¹¹ , Ge ⁶⁸ /Ga ⁶⁸
Best 35	35-15	Greater production of Best 15, 20u/25 isotopes plus Tl ²⁰¹ , Rb ⁸¹ /Kr ⁸¹
Best 70	70-35	Sr ⁸² /Rb ⁸² , I ¹²³ , Cu ⁶⁷ , Kr ⁸¹ + research

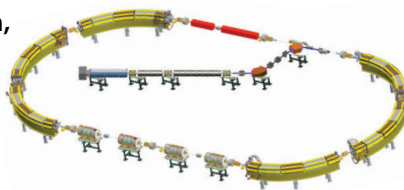
Best Particle Therapy is developing a Proton-to-Carbon therapy system to deliver energetic particle beams of protons and carbon ions to achieve a high level of precision to treat deep-seated as well as radiation-resistant tumors.

ion Rapid Cycling Medical Synchrotron (iRCMS) is planned to have:

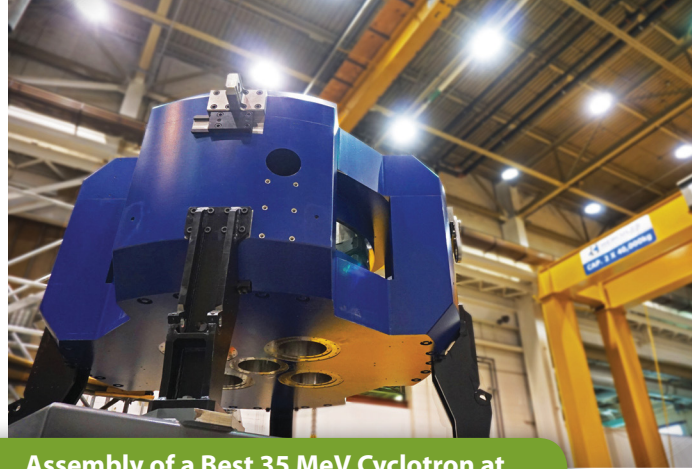
- Intrinsically small beams facilitating beam delivery with precision
- Small beam sizes – small magnets, light gantries – smaller footprint
- Highly efficient single turn extraction
- Efficient extraction – less shielding
- Flexibility – protons and/or carbon, future beam delivery modalities

Best/BNL ion Rapid Cycling Medical Synchrotron (iRCMS)

Best Medical is collaborating with Brookhaven National Laboratory (BNL) under a DOE-CRADA program.



Specifications within are subject to change.

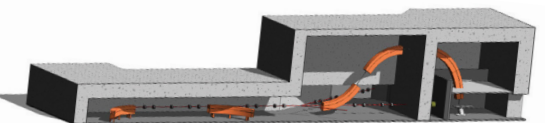


Assembly of a Best 35 MeV Cyclotron at Best Theratronics facility, Ottawa, Ontario, CA



Installation of Best 70 MeV Cyclotron at Italian National Laboratories (INFN), Legnaro, IT

Best[®] Particle Therapy



healthcare for everyone

TeamBest[®]

Your True Partner

www.bestcyclotron.com www.bestproton.com

www.teambest.com

Confident in your Care Confident in our Couchtop

NEW! 5 Year Warranty on Universal Couchtop™



Visit CivcoRT.com for NEW Linac & CT compatibility and warranty information.

info@CivcoRT.com | www.CivcoRT.com

COPYRIGHT © 2017. CIVCO RADIOTHERAPY IS A REGISTERED TRADEMARK OF CIVCO MEDICAL SOLUTIONS. UNIVERSAL COUCHTOP IS A TRADEMARK OF CIVCO. ALL PRODUCTS MAY NOT BE LICENSED IN ACCORDANCE WITH CANADIAN LAW. 2017A1292 REV. A

CIVCO[®]
Radiotherapy
a better way

In This Issue



13

Features

- 13** **Bringing radiotherapy to the world**
Pivoting from evidence to action, the Global Task Force on Radiotherapy for Cancer Control aims to close the equity gap in access to radiation therapy
- 16** **Radiation oncology in the trenches**
Universities in the United States are responding to the global need for training and resources in radiation oncology
- 20** **Coloring outside the lines**
The ASTRO eContouring Ambassador Program shares technological expertise around the globe
- 23** **Opinion: "Sorry, but it can't be done!"**
A piece from interested stakeholders in global cancer care on how to best address the need for better care overseas
- 25** **How does she do it?**
Q&A with Surbhi Grover, a U.S. radiation oncologist based in Botswana
- 26** **Climbing higher with Radiating Hope**
Nonprofit aims to expand access to radiation therapy in developing countries

Society News

- 9** **ASTRO Ballot**
- 10** **Best of ASTRO Licensing Program**
- 11** **Spanish language patient videos and brochures**
- 12** **Advocacy Day wrap-up**
- 12** **In memoriam**

Departments

- 4** **Editor's Notes**
- 6** **Chair's Update**
- 7** **Special Report: Annual Meeting Sneak Peek**
- 28** **ARRO: Resident interest in global health**
- 30** **History: The Patterns of Care studies**
- 32** **From the ABR: Global radiation oncology**

VOLUME 20 • NUMBER 2

ASTRO news

AMERICAN SOCIETY FOR RADIATION ONCOLOGY

ASTROnews (ISSN 1523-4185) is published quarterly at 251 18th Street South, 8th Floor, Arlington, VA 22202. Dues for individual membership in the American Society for Radiation Oncology are \$580 (U.S.), which includes \$38 for an *ASTROnews* subscription. Periodicals Postage Paid at Arlington, 22210-9998 and at additional mailing offices.

Copyright © 2017 ASTRO. All rights reserved.

POSTMASTER: Send address changes to *ASTROnews*, 251 18th Street South, 8th Floor, Arlington, VA 22202. Telephone: 703-502-1550; Fax: 703-502-7852; Website: www.astro.org/astronews
Printed in the U.S.A., by Quad Graphics in Midland, MI

ASTRO accepts paid advertising. Although we make every effort to accept advertising only from reputable sources, publication of such advertising does not constitute an endorsement of any product or claim.

For all of the most recent news from ASTRO, please visit www.astro.org.

SENIOR EDITOR:

Najeeb Mohideen, MD, FASTRO

PUBLISHER:

Laura I. Thevenot

EDITORIAL DIRECTOR:

Anna Arnone

MANAGING EDITOR:

Leah Kerkman Fogarty

DESIGN/PRODUCTION:

Kevin Tseng

ADVERTISING:

Gene Conselyea
Triple Threat Media
732-598-3232
gene@triplethreatmedia.com

CONTRIBUTING EDITORS:

Tyler Beck, PhD, MS
Josephine Debrah
Todd Karstaedt
Johanna VanArsdall

EDITORIAL BOARD:

H. Joseph Barthold, MD, FASTRO
Sushil Beriwal, MD
Amato J. Giaccia, PhD
Geoffrey S. Ibbott, PhD, FASTRO
Carol Hahn, MD, FASTRO
Simon N. Powell, MD, PhD, FASTRO
George Rodrigues, MD, PhD
Alexander Spektor, MD, PhD
Sewit Teckie, MD
Paul E. Wallner, DO, FASTRO



EDITOR'S *notes*

BY NAJEEB MOHIDEEN, MD, FASTRO

BRIDGING THE HOPE GAP

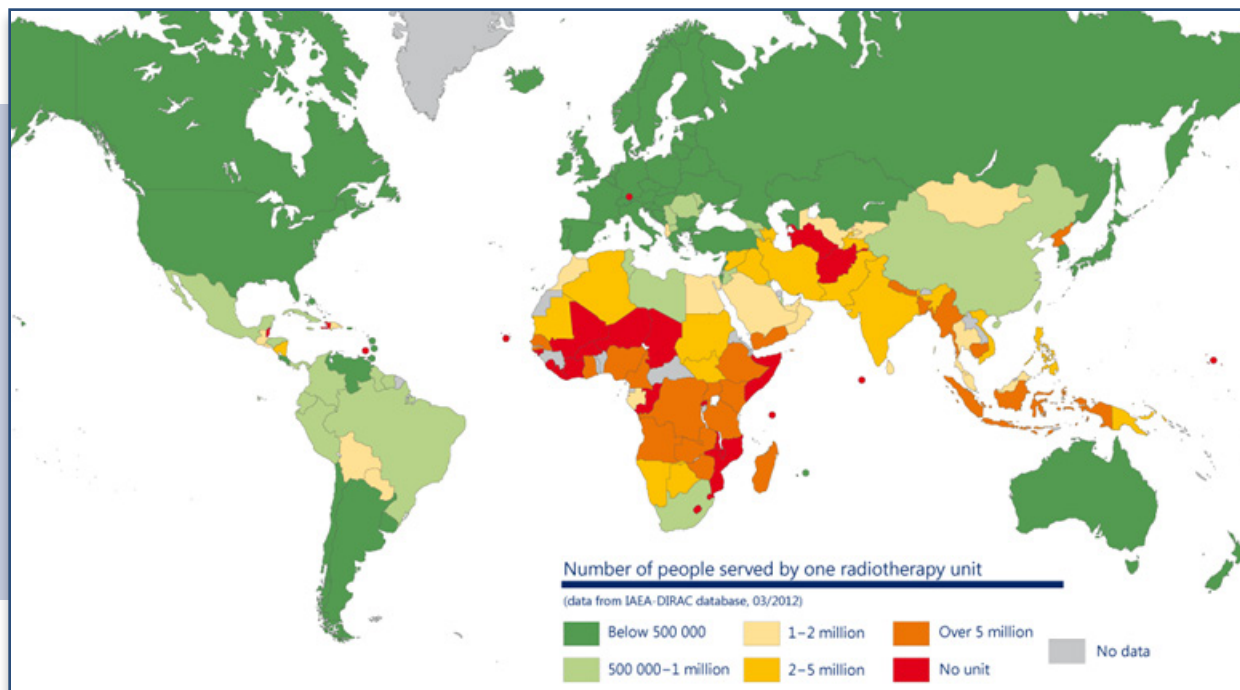
WINSTON CHURCHILL ONCE SAID THAT HISTORY WOULD TREAT HIM KINDLY because, after all, he intended to write it. But how will history treat the

events of May 4, 2017? That's the day that the U.S. House of Representatives passed the American Health Care Act. Interestingly, we at ASTRO had a great vantage point of this potentially historic occasion as many of us were in Washington, D.C., on May 2 for ASTRO's annual Advocacy Day.

There, hours before the vote, we learned firsthand from leading health policy staff about the state of deliberations on Capitol Hill and on the possibility of new health care legislation. While the prevailing wisdom seemed to be that the votes just weren't there, that proved to be wrong as Republicans in the House and the President won the day, succeeding in their long-promised plan to replace Obamacare, weeks after the original replacement bill came up short.

Advocacy Day was also a great time to catch up with colleagues. There I ran into Shilpen Patel, MD, who was looking trimmer than ever having just trekked to the base camp of Mount Everest, which boasts an elevation of 17,600 feet. Demonstrating the collegiality that defines our organization, he was kind enough to say that I could do it too—one can hope! Speaking of which, Shilpen went as part of the Radiating Hope team to raise money for cancer care in an underserved part of the world. Nepal currently has two linacs and one HDR machine to take care of the needs 28 million people. See story on page 26 for more.

For some context, I had our physicists check the Illinois Emergency Management Agency (IEMA) database for the number of linacs in our state—167 for a population of around 12.9 million, or one linac per 77,245 Illinoisans. The map below¹ from the International Atomic Energy Agency's Advisory Group on increasing access to Radiotherapy Technology in low- and middle-income countries (AGaRT) visualizes the staggering disparity across the globe. It's something that we, as physicians, must not only take note of, but try and ameliorate—and this a principle held dear by



the ASTRO leadership. Our counterparts in Europe at ESTRO recently announced an initiative along these lines—the Global Impact of Radiation in Oncology (GIRO) partnership to tackle the global problem of inequitable access to radiation therapy.

This issue is filled with narratives of how organizations and individuals are trying to make this very kind of difference. It has personally been a humbling experience to read these stories of our colleagues and I consider it a privilege to have had the chance to help bring their work to the attention of the larger radiation oncology community. Each one of them is well worth reading.

David Jaffray, PhD, and Mary Gospodarowicz, MD, bring to our attention the work of the Global Task Force on Radiotherapy for Cancer Control, which showcases the global scale of the problem and includes a “call to action” list and the need for strategic engagement in partnerships and advocacy. Paul Wallner, DO, writes about U.S. institutions with international radiation oncology programs and debates the sustainability of these within the rapidly changing American health care landscape with its ever-evolving list of priorities.

ASTRO eContouring workshops and the eContouring Ambassador Program have helped many hundreds of radiation oncologists and planning teams narrow the educational gap in low- and middle-income countries (LMIC), helping implement the safe use of modern tools and technology in these areas. It is inspiring indeed to see the progress ARRO has made with projects such as the Global Health Scholars Program, the Mentorship Program and the Global Health Rotation Initiative, all sterling examples of how they have prioritized the mission of closing the global cancer gap. Also in this issue, with all the focus on quality these days, a very timely reminder on the contributions of the Patterns of Care Studies initiated in 1973 with the goal to improve the quality and accessibility of radiation care in the United States.

Returning to the new health care bill, details will no doubt emerge over the next few weeks and months that will shed light on whether it will make sweeping changes to the nation's health care system. The bill now heads to the Senate. For ASTRO's Advocacy Day, one of our asks was to protect patients in health care reform by ensuring that affordable, quality coverage is provided for all, a point that can't be emphasized enough. As Norm Coleman's opinion piece highlighting the work of the International Cancer Expert Corps (ICEC) explains, their work covers not just LMIC but also

geographically isolated indigenous populations in upper income countries, too. Disparities in health care in upper-income countries can occur across many dimensions, including race/ethnicity, socioeconomic status, age, location, gender, disability status and sexual orientation.

Any health bill that comes through to become law without proper protections for patients will create an expanding population of the disadvantaged who will present with more advanced diseases while having less access to the best care. This—access to proper care—is something we can all rally around regardless of ideology or party affiliation. Our government relations staff led by Dave Adler does an amazing job arguing on behalf of our patients and us on the Hill, but it is a powerful advocacy strategy to have a team of radiation oncology professionals walk into the office of your Congressperson or Senator, sit down with the staff and reiterate this message. I hope next time we can ensure that the vast panoply of views among our membership is fully reflected.

Let me end with Surbhi Grover, a radiation oncologist from Penn who works full time in an international public health role. Her determination and perspective on her profession are, to me, instructive for any young physician. Surbhi is a true standard bearer for taking her superior talents, education and training directly back to where some of the greatest need lies. This sort of global vision is not only laudable, but also necessary when it comes to dealing with cancer as a society. We should always continue to argue for that broader perspective, as the health of our global citizenry should be our utmost priority.

Dr. Mohideen is the senior editor of ASTROnews and attending physician of the Department of Radiation Oncology at Northwest Community Hospital in Arlington Heights, Illinois. He welcomes letters to the editor at astronews@astro.org. 

References

1. International Atomic Energy Agency. Advisory Group on increasing access to Radiotherapy Technology in low and middle income countries (AGaRT) Map. Available from: <http://cancer.iaea.org/agart.asp>. Accessed May 7, 2017



THE INTERNATIONAL FACE OF ASTRO

TOGETHER, WE ARE THE AMERICAN SOCIETY OF RADIATION ONCOLOGY. About 77 percent of ASTRO's membership is just that—American. But our impact goes much wider than 50 states, and so does our membership.


On the face of it, it may seem unusual that a U.S. medical society has much to say about radiation oncology in other countries. After all, ASTRO's health policy efforts don't affect our international members and attendees too much. A significant amount of resources, time and effort have been directed at helping U.S. radiation oncologists navigate the ever-changing reimbursement systems in which we find ourselves. The shift from volume to value that defines many of the changes in Medicare over the past few years is a distinctly American issue. Accountable care organizations (ACOs) empowered by the Affordable Care Act and the many changes in quality reporting, alternative payment models (APMs) and the Merit-based Incentive Payment System (MIPS) are all unique to the U.S. health care system.

But there is much that unites radiation oncologists across the globe. We all face many of the same challenges in cancer biology, radiation physics and oncologic medicine. The lessons learned in treating a cancer of the lung or breast, for example, are universal. And that is where the international face of ASTRO is most important. ASTRO has always advocated for cancer research, education of practitioners and dissemination of the best results in clinical cancer care. To do that, we have ASTRO members from 87 different countries and all continents (except, of course, Antarctica). That number has been growing, reflecting the shared needs of radiation oncologists, physicists and biologists around the world. We may never have all 193 countries that are represented at the United Nations, but we already count among our members many of the world's leading professionals, from Albania to Zimbabwe.

We also see the value of this international reach at our Annual Meeting each autumn. Reviewing submitted abstracts to that meeting for the past seven years, we have seen anywhere from 36 to 41 percent of submissions coming from the international community. Most of these represent high-quality science; many

have been selected for Plenary Session presentations and have helped inform changes in how we practice. As you may expect, some countries are represented more than others, with more than 100 submissions each year from Canada, Japan and China. Yet we have seen work submitted from 65 different countries. Each has its own politics and its own payment system, yet each has significantly contributed to the safe and effective treatment of cancer patients worldwide. This takes us one step closer to our goal of establishing the ASTRO Annual Meeting as the premier international scientific assembly in radiation oncology.

Many of the advances reported at the Annual Meeting could be soon forgotten if not published in peer-reviewed literature. Once again, ASTRO has worked hard over many years to publish the premier journal—now journals—in radiation oncology. And again, the results of high-quality international research play a large role in our success. No fewer than 59 countries are represented with submissions of papers to ASTRO journals. This accounts for almost half the studies we regularly read as part of our own ongoing learning. Insightful work is being done in large and small countries alike. Some of these authors have benefitted from the decision by the ASTRO Board of Directors to waive submission fees for those nations classified as low- or middle-income countries (LMIC)—a decision made to reduce financial barriers for the researchers in these developing countries. But all the authors and all ASTRO members benefit from the inclusion of the entire international community of radiation oncology.

Whether you are reading this in the United States or elsewhere around the world, the American Society for Radiation Oncology sees you as an important stakeholder in the ongoing evolution of the specialty. 

Dr. Beyer is the chair of the ASTRO Board of Directors. He is the medical director at Cancer Centers of Northern Arizona in Sedona, Arizona. He welcomes letters to the editor at astronews@astro.org.

SNEAK PEEK AT ASTRO'S 59TH ANNUAL MEETING

The Pacific Ocean breathes life into ASTRO's 59th Annual Meeting from the time it awakens under the azure skies of San Diego on September 24, 2017, until a golden sunset over the water on September 27. The theme for this year's gathering is "The Healing Art and Science of Radiation Oncology," and the natural splendor of the surroundings should energize mindful intellectual exchange and inspire appreciation for the beauty of what we can do in the service of our patients.

Bob Timmerman, MD, kicks off the three-part Presidential Symposium on Sunday by moderating "The Scientific State of the Art." Here, we will highlight cutting-edge clinical investigations, presented by some of our field's brightest rising stars. In the coming era of value-driven alternative payment models, we will be asked to quantitate the quality of care we give to patients—an elusive metric that can be more difficult to capture than a Venusaur in Pokémon Go. We must identify for ourselves the measurable hallmarks of excellence in our clinical practice or else risk having others define them for us. Najeeb Mohideen, MD, FASTRO, will moderate part two of the symposium, "The Art of Quality," in which we focus on the hurdles of implementing and monitoring quality standards.

The hardest time to give the finest care is when patients are struggling the most. Yet helping patients through stressful times remains the *raison d'être* for health professions. "The Quality of Mercy," part three of the symposium moderated by Stephen Lutz, MD, FASTRO, will offer insights into patients' feelings in the final stages of illness and perspectives on how best to address their needs during this sensitive time. Along the way, look for cameo appearances from some familiar faces. I also hope the next day's Presidential Address, "Effort's Bounty and Other Imaginings of Past and Future," will surprise and entertain.

On Monday, Richard Zane, MD, chief innovation officer for UCHealth, will discuss how disruptive new technology has begun to restructure front-line patient-doctor relationships and what we might expect in the future as our environment shifts toward more of a population health-based framework.


As part of a "fireside chat," Stanford's Heather Wakelee, MD, and Lucy Kalanithi, MD, the widow

of the late Paul Kalanithi, MD, who authored the national best-seller, "When Breath Becomes Air," will speak on Tuesday. Dr. Wakelee, who plays a prominent role in the book, and Dr. Kalanithi will reflect on Paul's introspective journey through lung cancer treatment. While reading the book ahead of time is not mandatory, it is highly encouraged!

Finally, on Wednesday, one of the fresh voices in oncology takes the podium. Vinay Prasad, MD, MPH, co-author of "Ending Medical Reversal," will dissect the problems at hand and offer visions for a future in which all patients have access to high-value cancer care at a price we can afford.

The Annual Meeting Scientific and Education Committee's Benjamin Movsas, MD, FASTRO, Lisa Kachnic, MD, FASTRO, Brian Czito, MD, and George Rodrigues, MD, PhD, along with ASTRO volunteers and staff, have organized an impressive array of sessions featuring new scientific presentations, didactic lectures and panel discussions of challenging cases and controversies. There will also be the enduringly popular Plenary and Clinical Trials Sessions, in which we spotlight the most impactful studies reported along with commentary from thought leaders on the topic.

New features this year include daily "Science Highlights" offered each morning by Annual Meeting Scientific Committee volunteers; several "ASTRO Connect" areas in the Exhibit Hall, where disease site experts will be available for networking and open dialogue; and extended Poster Q&A sessions with the authors. We encourage everyone in attendance to participate in our social media outreach efforts and tweet with #ASTRO17, and a redesigned ASTROmobile app will be available for download.

Registration for the meeting is now open, and I hope to see you in San Diego! 



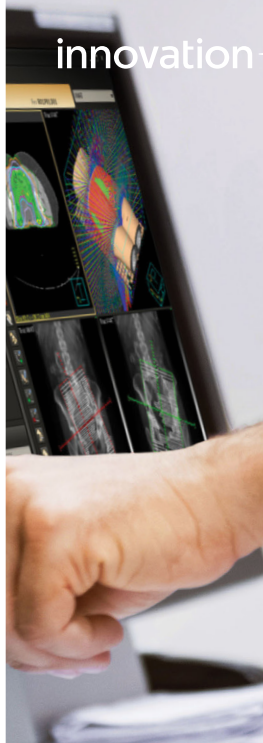


Proven, powerful, precise

Philips Integrated Radiation Oncology Solutions

As cancer care continues to rapidly evolve, it's important to find a partner who can help seamlessly integrate tools, systems, and software. With our legacy of innovation in radiation oncology, we'll give you the confidence to deliver the best possible treatment to each and every patient.

innovation ✦ you



Discover the path to confident cancer care
at www.philips.com/radiationoncology

PHILIPS

SOCIETY NEWS

ASTRO 2017 Board of Directors Ballot

Now open for 2017-2018

The ballot is now open for eligible members to cast votes in the 2017 Board of Directors elections. With input from the membership-at-large, the Nominating Committee developed a list of candidates for each open position and reviewed their service to ASTRO and participation in ASTRO activities. The Nominating Committee considered the criteria for each position, the strategic goals of the Society and current and future challenges facing health care and radiation oncology. Following deliberations and approval, the slate was presented to the Board of Directors.

President-elect

Theodore L. DeWeese, MD, FASTRO, Johns Hopkins University, Baltimore

Jeff Michalski, MD, MBA, FASTRO, Washington University School of Medicine, St. Louis



DR. THEODORE L. DEWEESE



DR. JEFF MICHALSKI

Health Policy Council Vice-chair

William Hartsell, MD, FASTRO, Northwestern Medicine CDH Cancer Center/Radiation Oncology Consultants, Warrenville, IL

Science Council Vice-chair

Catherine Park, MD, University of California, San Francisco

In addition, candidates for open seats on the Nominating Committee include:

Academic Physician of the Nominating Committee

Daphne Haas-Kogan, MD, Dana-Farber Institute/Brigham and Women's Hospital, Boston

Charles Thomas, MD, Oregon Health and Science University, Portland, Oregon

Community Practice Physician of the Nominating Committee

Paul Sperduto, MD, MPP, FASTRO, Minneapolis Radiation Oncology PA, Minneapolis

Patrick S. Swift, MD, Stanford Cancer Center, San Jose, California

Radiobiologist of the Nominating Committee

Jacqueline P. Williams, PhD, FASTRO, University of Rochester Medical Center, Rochester, New York

George Wilson, PhD, William Beaumont Hospital, Royal Oak, Michigan 

Members eligible to vote include active, affiliate and international. ASTRO has a web-based voting process that ensures the authenticity and secrecy of votes. View biographical data and policy statements for each nominee by visiting www.astro.org/vote.



The voting deadline is 5:00 p.m. Eastern time on July 7, 2017.

Best of ASTRO Licensing Program keeps international colleagues updated on latest research

BY JOHANNA VANARSDALL, ASTRO SENIOR MANAGER OF SCIENTIFIC AND EDUCATION PROGRAMS

ASTRO is committed to sharing educational resources with our colleagues around the world. Cancer rates are increasing in low- and middle-income countries (LMIC), and radiation therapy is an important part of trying to eradicate this disease. Sharing the latest scientific research from the ASTRO Annual Meeting can improve both physician knowledge and patient outcomes in LMIC.

The Annual Meeting receives more than 3,000 research abstracts from more than 45 different countries, with nearly 40 percent of submissions coming from outside the United States. The Annual Meeting attracts more than 11,000 attendees from around the world, but its five-day format can be challenging to attend for many.


To help its international colleagues stay connected, ASTRO began offering the Best of ASTRO meeting, which is a two-day, intensive meeting that shares the highlights from the Annual Meeting. Taking this a step further, in 2014, ASTRO then licensed the content from the Best of ASTRO Meeting to other countries.

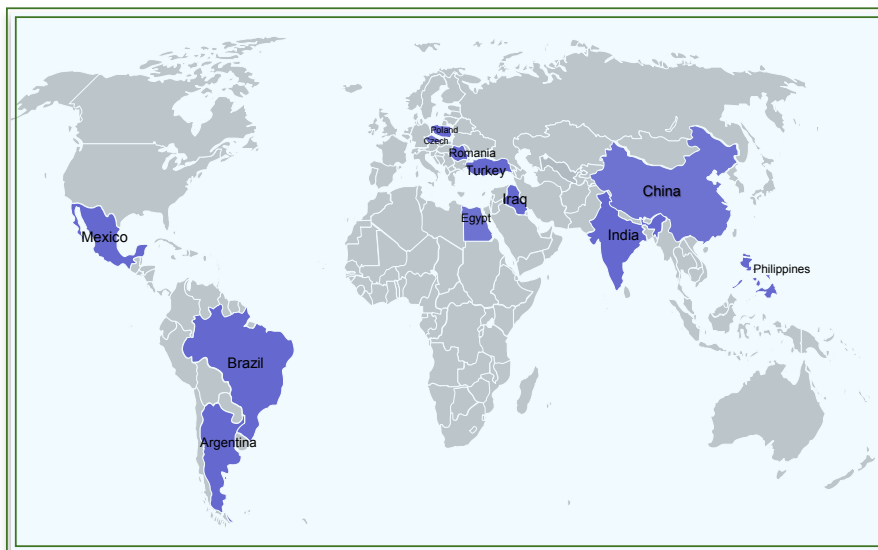
The Best of ASTRO Licensing Program is aimed at our International members and includes the use of more than 80 abstracts from multiple disease site tracks from the ASTRO Annual Meeting, the original slide presentations from the authors and two Educational Sessions from the Best of ASTRO meeting.

Licensees have the option to customize their program to meet local educational goals by adding up to 10 additional abstracts from another track or disease site. Original slide presentations and the Virtual Meeting from the Best of ASTRO meeting are also

included. Hearing the presentations in the Virtual Meeting improves the transfer of knowledge from the English language to the licensing site country's native language. Since 2014, Best of ASTRO licensed events have been held in 15 countries and on five continents.

For more

information on the Best of ASTRO Licensing Program, see the ASTRO website, www.astro.org/BOAlicensing, or email Education@astro.org. 



COUNTRIES HIGHLIGHTED HAVE HOSTED BEST OF ASTRO LICENSED EVENTS.

Attendee feedback from Best of ASTRO Licensed Meetings:

- 93 percent of attendees would recommend the meeting to a colleague.
- 96 percent of attendees said the meeting provided new approaches to help them manage patient care.
- 69 percent of attendees said they intend to change their practice and/or patient care as a result of attending.
 - The majority of attendees who intend to change said they will modify current treatment plans/processes.


Patient videos and brochures now available in Spanish

The ASTRO Communications Committee is pleased to announce that ASTRO's seven patient videos, including an overview video on radiation therapy and six disease site-specific videos, are now available with a Spanish voiceover.

ASTRO produced the videos in response to the growing need for culturally competent resources for Hispanic patient audiences. Latinos account for more than half of the total U.S. population growth since 2000, according to the Pew Research Center. Between half and two-thirds of all cancer patients will receive radiation therapy, known as radioterapia in Spanish.


As with all of the ASTRO patient videos, they are

available for patients to view on www.rtanswers.org and for members to view or pick up the embed codes on the ASTRO website, at www.astro.org/Spanishvideos. Members may also purchase downloads of the videos through the ASTRO Product Catalog, available at www.astro.org/ProductCatalog.

There are also four patient education brochures available in Spanish, including Radiation Therapy (RT) for Cancer, RT for Lung Cancer, RT for Breast Cancer and RT for Prostate Cancer. These are also available under Patient Resources on www.rtanswers.org or members may buy them, at cost, through the Product Catalog. 



Submit your news to ASTRO

Periodically, ASTRO reports People in the News, featuring updates about your colleagues' awards, promotions, media coverage and other announcements. We encourage ASTRO members to submit items to us at communications@astro.org for inclusion in the online feature. View the most recent edition at astro.org/PeopleintheNews. 

ASTRO members take to the Hill for ASTRO's annual fly-in

BY STEPHANIE QUINN, ASTRO ASSISTANT DIRECTOR OF CONGRESSIONAL RELATIONS

On May 1-2, ASTRO hosted its 14th annual Advocacy Day. More than 100 ASTRO members, including radiation oncologists, residents, physicists, administrators and nurses representing 34 states, met with members of Congress and their staff to educate them on ASTRO's legislative priorities.

The event kicked off on Monday, May 1, with a variety of sessions designed to update members on key issues and prepare them for the following day's Congressional visits. Speakers included U.S. House of Representatives and Senate staff members and political strategists who discussed the policies and political landscape impacting health care. ASTRO's Chair, David C. Beyer, MD, FASTRO, shared ASTRO's research agenda and strategic vision to advance the field of radiation oncology through improved public awareness, among other projects to help position the specialty for success. Stephanie Quinn, assistant director of congressional relations for ASTRO, presented the legislative priorities for this year's meeting.


This year's Advocacy Day focused on four main legislative priorities: preserve access to care through stable Medicare payments and alternative payment models; promote stable cancer research funding; protect access to radioactive isotopes; and avoid disruptions in coverage for cancer patients.

Following the day's sessions, ASTRO's Political Action Committee (ASTRO PAC) hosted its annual donor appreciation dinner. Sen. Debbie Stabenow

(D-MI), ASTRO's longtime champion, served as the honored dinner guest and received ASTRO's Legislator of the Year award for her ongoing dedication to speaking out on behalf of radiation oncology.

The following day, an ASTRO-hosted lunch for attendees featured Rep. Charlie Dent (R-PA), an advocate for radiation oncology research, who discussed several issues facing the House, most specifically health reform. Rep. Dent's address to the Advocacy Day group underscored the importance of engaging with members of Congress on concerns and ideas in the health care reform debate.

Overall, ASTRO's 2017 Advocacy Day provided an opportunity for members to network, learn about the political and policy pressures that continue to face the specialty and strengthen ties between attendees and their legislative offices. Both staff and members of Congress were grateful for the opportunity to learn more about the issues facing radiation oncologists and many committed to visiting facilities in their districts to learn more.

As noted by University of California, Los Angeles radiation oncology resident and first-time attendee, Eric Chang, MD, "I greatly appreciated the chance to learn about the policy issues facing radiation oncology firsthand from legislative experts. With major changes ongoing in health care, it seems more important than ever to advocate for our patients to ensure continued access to radiation therapy—I hope to attend for years to come." 

In Memoriam

ASTRO has learned that the following members have passed away. Our thoughts go out to their family and friends.

David E. Cunningham, PhD, Hershey, Pennsylvania

Luis Declos, MD, FASTRO, Houston, Texas

John T. Fazekas, MD, Manhasset, New York

Lowell S. Miller, MD, FASTRO, Nada, Texas

Daniel A. Tobin, MD, Louisville, Kentucky

The Radiation Oncology Institute (ROI) graciously accepts gifts in memory of or in tribute to individuals. For more information, visit www.roinstitute.org. 



Bringing radiotherapy to the world

Pivoting from evidence to action, the Global Task Force on Radiotherapy for Cancer Control aims to close the equity gap in access to radiation therapy

BY DAVID A. JAFFRAY, PHD, AND MARY K. GOSPODAROWICZ, MD

IN 2013, THE UNION FOR INTERNATIONAL CANCER CONTROL (UICC), based in Geneva, convened a Global Task Force on Radiotherapy for Cancer Control (GTFRCC) to address the challenge of closing the global equity gap in access to radiation therapy (RT). Bringing together perspectives from RT professionals and industry, cancer control organizations, patient groups, economists and global health experts, the GTFRCC worked to quantify the global demand for RT and assess the investment needed to provide equitable access across the globe.

In addition to this unique calculation, the Task Force went one step further—it set out to demonstrate the economic value of investing in RT. The resulting publication¹ not only demonstrated that equitable access to radiation therapy will save tens of millions of lives in the next 20 years, it will also provide a net positive economic return to those countries that choose to make the investment on behalf of their citizens.

The clear benefit of RT and the scale of the problem facing cancer patients in low- and middle-income countries (LMICs) compelled the authors to make five “calls to action” for the global cancer community. These set targets for:

1. inclusion of detailed plans for RT implementation in national cancer control plans,
2. building cancer system capacity through the establishment of national comprehensive cancer resources in every country,
3. training tens of thousands of RT professionals,
4. creating novel financing solutions to allow countries to make the investment in RT, and finally,
5. securing access through the inclusion of RT in universal health coverage plans.

Building the framework

During the 24 months of the Task Force, it became evident that there was a growing groundswell of

Continued on next page

interest in advancing RT in LMICs. The Red Journal's 2014 dedicated issue on the efforts to secure access to RT highlighted the diversity of efforts and provided a forum for the common challenges and frustrations². The Task Force heard from teams working to bring donated equipment to clinics in Africa³, personal contributions to practice RT in LMICs⁴, industry-led efforts to implement sustainable solutions⁵ and radiation oncology professionals working collectively to bring their expertise to impact local and global needs^{6,7}.

In the same period, the Lancet Oncology Commission on Cancer Surgery—representing another essential component of effective cancer control—highlighted the need for a systemwide perspective if real progress was going to be made⁸. Like RT, effective surgery relies on the availability of appropriate diagnostics and the other essential components of effective cancer care including chemotherapy. Clearly, future efforts must address all elements of cancer care, and advancing one or the other in isolation will not have the desired impact. Overall, the RT community is more active than ever and engaging in a vibrant and energetic global dialogue that draws together multiple disciplines and expertise, young and old, with new conversations between new parties informed by evidence. The challenge now is to make timely progress against the ever-growing burden of cancer.

Stepping back from action to contemplate strategic directions is always a worthwhile endeavor. The perspective developed through the GTFRCC and subsequent efforts over the past 18 months brings two key messages. First, validated data and methods are critical elements for serious engagement in the presence of well-equipped competitive demands. Second, innovation is required on every front—we cannot rely on our traditional paradigms whether in education, technology or advocacy. The current paradigms have not resulted in sufficient progress and each year, many thousands of patients continue to suffer and die.

The GTFRCC relied heavily on the evidence generated by others. By using estimates of RT utilization rates developed by the Collaboration for Cancer Outcomes, Research and Evaluation (CCORE) group in Australia⁹; determining country-by-country cancer burden from the GLOBOCAN and Global Cancer Observatory datasets¹⁰; utilizing the International Atomic Energy Agency's Directory of Radiotherapy (DIRAC) database of RT equipment to estimate current global capacity¹¹, and employing Delphi methods, the membership of the Task Force estimated costs for RT education across the world.

The development of these and many other critical data sources allowed a clear picture of the demand and return on investment to be assembled quickly. The detailed activity models allowed the Task Force to not only calculate the cost, but also model the impact of technological and logistic changes, such as automation and bulk-purchasing initiatives on operating costs.

Time to act

While we clearly demonstrated the global scale of the problem and the potential economic return on investment, we now need to translate these results and adapt the methods to support local conversations. The global case opens the door, but the investment and implementation decisions are local. The readiness of countries and regions to implement RT needs to be matured and efforts to prepare those that are not ready need to be made a priority. The global efforts should accelerate now that the World Health Organization launched a list of priority medical devices for cancer management, which includes RT equipment.

By 2030, the annual number of cancer cases is expected to reach 24.9 million. The GTFRCC report modeled a simple but aggressive investment pace to address the demand for RT by 2035. This pace far outstrips our current capacity to build, educate and support RT deployment. It is a paradox that, while we make the case for investment based on the current evidence, we know that these methods have no chance of addressing the pressing need in a timely manner. The world urgently needs real innovation if we are going to provide effective response to the growing inequity in access to cancer services and this innovation is needed across many fronts.



Educational approaches have remained incredibly stagnant and new paradigms of learning and professional practice that enable task-shifting and integration with modern technology need to be accelerated in their adoption¹². Technological entrenchment in current paradigms of radiation production and control rely on dedicated service teams, parts supply chains and stable infrastructure that are uniquely tuned to the high-cost, high-infrastructure demand environments that have been built up in developed nations over the past 100 years. Technology developers and industry need to respond to the global need and fund innovations that address pressing global problems as opposed to tweaking existing solutions. Disruptive technologies that lower cost and decrease complexity will also be attractive to developed nations.


Innovation and advocacy

Innovation in engagement and advocacy is possibly the most important of all. For the first time in human history, we have the data to characterize the growing cancer burden in all 184 undisputed countries, we have the modeling and evidence to predict the demand for RT and its impact on human lives saved and we know what needs to be done.

There is no need for more science here. The question is whether we are prepared to act. The solution, if any, will come through engagement in partnerships and advocacy. We need to increase awareness among all sectors of global health and development, and those that can motivate investment. Successful strategies for engagement must operate at multiple levels (local, regional, national, international) and include multiple stakeholder groups (the public, professionals, industry, politicians). Partnering with other cancer stakeholders is essential. Speaking to a minister of finance about investing in RT without a viable clinical receptor will not be fruitful. The process starts with a clear, common message—but the message needs to be translated and repeated until the goal is achieved. We need to take encouragement from the amazing ambition and progress made in the fight against AIDS where clarity of message, alignment of incentives and coordination has changed the lives of millions.

The efforts of GTFRC and the publication of the Lancet Oncology Commission galvanized the global cancer community's interest and must be sustained. This edition of *ASTROnews* highlights the enormous impact that professional organizations can have on the global cancer problem. We were fortunate to have several professional organizations in the field of radiation

oncology and medical physics, including ASTRO and ESTRO, support the participation of its members and facilitate Task Force meetings. This support was critical. Of course, no good deed goes unnoticed—the world is now looking to organizations like ASTRO to bring their knowledge, resources and capacity for innovation to bear on the well-defined, time-critical challenge of bringing the benefit of radiotherapy to the world.

Are you up for the challenge? 

David Jaffray is a radiation physicist with TECHNIA/Princess Margaret Cancer Centre at the University Health Network and the Departments of Radiation Oncology, Medical Biophysics and Institute of Biomaterials and Biomedical Engineering at the University of Toronto, Toronto, Canada. Dr. Gospodarowicz is the medical director of the Princess Margaret Cancer Centre at the University Health Network and professor in the Department of Radiation Oncology at the University of Toronto.

References

1. Atun, R., et al., Expanding global access to radiotherapy. *Lancet Oncol*, 2015. 16(10): p. 1153-86.
2. Zietman, A., Bringing radiation therapy to underserved nations: an increasingly global responsibility in an ever-shrinking world. *Int J Radiat Oncol Biol Phys*, 2014. 89(3): p. 440-2.
3. <http://www.radiatinghope.org/>.
4. <http://www.iceccancer.org/about-icec/leadership/surbhi-grover-md-mba/>.
5. <http://medicalphysicsweb.org/cws/article/newsfeed/48772>.
6. Coleman, C.N., et al., The international cancer expert corps: a unique approach for sustainable cancer care in low and lower-middle income countries. *Front Oncol*, 2014. 4: p. 333.
7. <http://www.mpwb.org/>.
8. Sullivan, R., et al., Global cancer surgery: delivering safe, affordable, and timely cancer surgery. *Lancet Oncol*, 2015. 16(11): p. 1193-224.
9. Barton, M.B., et al., Estimating the demand for radiotherapy from the evidence: a review of changes from 2003 to 2012. *Radiother Oncol*, 2014. 112(1): p. 140-4.
10. Ferlay, J., et al., Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer*, 2015. 136(5): p. E359-86. <http://gco.iarc.fr/>.
11. Agency, I.A.E. DIRAC (Directory of radiotherapy centres). [cited Nov 14, 2014; Available from: <http://nucleus.iaea.org/HHW/m/DBStatistics/DIRAC/>].
12. Frenk, J., et al., Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*, 2010. 376(9756): p. 1923-58.



PARTICIPANTS IN A WORKSHOP ORGANIZED BY THE INTERNATIONAL CANCER EXPERT CORPS ON "DESIGN CHARACTERISTICS OF NOVEL LINEAR ACCELERATORS FOR CHALLENGING ENVIRONMENTS: IMPROVING GLOBAL ACCESS TO RADIATION THERAPY," HOSTED BY CERN, THE EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH, IN GENEVA ON NOVEMBER 7-8, 2016.

Radiation oncology in the trenches

Universities in the United States are responding to the global need for training and resources in radiation oncology. Here are a few of the institutions that have forged international collaborations.

BY PAUL E. WALLNER, DO, FASTRO

AS DESCRIBED IN SEVERAL ARTICLES IN THIS ISSUE OF *ASTRONEWS*, many international and national governmental agencies and non-governmental organizations (NGOs) have launched initiatives to address issues related to global health. Each of these disparate entities has established programs that seem to fall within their specific missions and/or regions of interest, including data gathering and dissemination, infrastructure development, education and training, clinical support, and all too often, simply crisis intervention. In addition to these larger and more "official" initiatives, a number of radiation oncology departments, either alone or as part of broader institutional programs, have developed projects outside of the United States. Here, we highlight several of these efforts.

Department of Radiation Oncology, University of Texas MD Anderson Cancer Center in Houston
MD Anderson Cancer Center (MDACC), with active participation from the Department of Radiation Oncology, has been developing a network of partnerships with countries and institutions

internationally, including in South America, Asia, Europe and the Middle East. In sub-Saharan Africa, the institution has interacted with the ministries of health (MOH) of Ethiopia, Rwanda and Zambia, and a formal memorandum of understanding has been executed with the MOH of Ethiopia. Additional initiatives have been developed on a faculty-to-faculty or department-to-department basis. The programs have focused on research, including translational research on cervical cancer in Botswana, as well as significant efforts in physics research funded by support from NIH UH3, which are exploratory/developmental cooperative agreements. In addition to research initiatives, radiation oncology faculty members have participated in educational programs in-country and, under provisional medical licensure, are participating in clinical care—especially when it relates to education. In the summer of 2017, an MDACC resident will participate in the first one-month elective rotation in radiation oncology at the University of Botswana.

For additional information regarding this program, contact Ann H. Klopp, MD, PhD, AKlopp@mdanderson.org.

Department of Radiation Oncology, Perelman School of Medicine, University of Pennsylvania in Philadelphia

Initiated by an invitation from the African Comprehensive AIDS Partnership, the Bill and Melinda Gates and Merck Foundations and the Government of Botswana, the school developed a formal memorandum of understanding with the Botswana Ministry of Health and Wellness and the University of Botswana in 2004. The Botswana-UPenn Partnership (BUP) employs more than 150 full-time staff on the ground in Botswana, with an overall mission to build capacity. Initially developed for outreach in HIV/AIDS and other infectious disease control, the partnership has grown to include other areas of health care education and delivery, as well as collaborative research. As a metric of success, the BUP programs have extended beyond the Perelman School of Medicine (PSOM) to include the university's schools of dental and veterinary medicine, nursing, arts and sciences, social policy and practice, business and design.

The BUP programs were initially confined to Princess Marina Hospital (PMH) in Gaborone but have expanded to include several additional urban and rural district facilities. Programming in three principal areas, HIV/AIDS care and support, adult and pediatric tuberculosis and women's health, was expanded to include oncology in 2011. A faculty member of the PSOM has been based in Botswana full time since 2014, working with the local health ministry and university on broad issues of education, research and clinical care, with a narrower focus on several oncology-related areas. Additional members of the department of radiation oncology, and departments of medical oncology and pathology have assisted both in-country and from Philadelphia. At PMH, new patient oncology clinics and multidisciplinary education and care teams have been established for gynecological and head/neck cancers.

In areas of research, the BUP project has received NCI funding for cervical cancer research and capacity building. This grant includes a mentoring core for development and support of young investigators. Research projects in HIV-related cancers have also been initiated. PSOM's Department of Radiation Oncology has established a formal senior resident elective rotation to allow these trainees to participate in clinical care in Botswana under the supervision of their own faculty members.

A natural extension of the BUP partnership has been the initiation of telemedicine programs between

PSOM and other African nations and facilities. Many of these programs have now expanded to include on-site participation.

For additional information regarding this program, contact Surbhi Grover, MD, MPH Surbhi.Grover@uphs.upenn.edu.

Department of Radiation Oncology, Stanford School of Medicine in California

Members of the department of radiation oncology participate in international programs in a variety of organizational and personal roles, including International Atomic Energy Agency (IAEA) panels and studies and service on the Massachusetts General Hospital Global Breast Tumor Board. This effort involves ongoing real-time feedback on the care of specific patients, as well as more general educational input. The department has also developed formal collaborations in South Africa with the University of Stellenbosch and University of Cape Town, and in the Philippines, with the University of Santo Tomas in Manila. These projects were initiated in 2015, and are currently supported by an NIH grant directed toward the development of automated radiation treatment planning systems for use in low- and middle-income countries.

Faculty and instructors from all three divisions of the department—radiation and cancer biology, medical physics and radiation therapy—are involved in formal research programs with Hokkaido University in Japan and planning is underway for similar initiatives in China. These projects have governmental support.

Volunteer members of the Stanford oncology-related faculty have developed the Stanford Global Oncology initiative, which has now partnered with the Clinton Health Access Initiative and the American Cancer Society. Currently focused on the Lagos University Teaching Hospital and University of Abuja Teaching Hospital, both in Nigeria, the project aims to assist in needs assessment, provide monthly conferences and pair interested Stanford physicians with colleagues



HOKKAIDO UNIVERSITY SITE INITIATION MEETING.

Continued on next page

at the Lagos University. In February 2017, a team from Stanford traveled to Nigeria to implement additional research projects and to develop a strategy for seeking research funding.

The Pediatric Radiation Oncology Society is developing international relationships with physicians in less developed countries to provide clinical consultative services. Members of the department of radiation oncology at Stanford will participate in these efforts.

For additional information regarding this program, contact Anne Heintz, anneheintz@stanford.edu.

Department of Radiation Oncology, Duke University School of Medicine in Durham, North Carolina

Duke University School of Medicine has made a significant commitment to international programming through the Duke Global Health Initiative (DGHI). The department of radiation oncology has participated in these programs and established department-based programming, as well. As part of a Sino-American Partnership with Wuhan University in Wuhan, China, a Master of Science program in Medical Physics has been established at Duke Kunshan University in China. A Duke radiation oncology faculty member serves as program director and Duke faculty provide on-site instruction. Students in the program, which is jointly funded by Duke and the Kunshan City government, will receive Duke University MSc degrees. Planning is underway for a PhD program in medical physics. It is hoped that these programs will serve to alleviate the anticipated 1,000-plus shortage of medical physicists currently projected in China.

Under the auspices of the DGHI, a Duke radiation oncology clinical faculty member has a joint appointment in that global program and has developed outreach efforts including research initiatives in Botswana and extension of existing DGHI partnerships in Tanzania and Kenya. These programs are supported by external grants and university funding.

One of the Duke residents, supported by grants and departmental funds, has visited Bugando Cancer Center in Mwanza, Tanzania, and plans to spend an additional three months at that facility following completion of his training. In conjunction with a year of Master's coursework, this fieldwork will earn him a Master of Science degree from DGHI.

For additional information regarding this program, contact Christopher Willett, MD, FASTRO, christopher.willett@duke.edu.

Department of Radiation Oncology, David Geffen School of Medicine at University of California, Los Angeles

The department of radiation oncology at UCLA's David Geffen School of Medicine and Barretos (Brazil) Cancer Hospital first forged a collaborative agreement in 2014. The relationship primarily involves educational programming and was initially developed based on individual faculty relationships. An annual meeting in Brazil generally lasts for three to five days and includes members of UCLA clinical and physics faculty, as well as post-graduate trainees. Publications by the combined faculties have been produced.

The two institutions have signed a formal memorandum of understanding for continuation of the educational programs, implementation of new technology and development of cooperative clinical trials.

For additional information regarding this program, contact Kathy Rose, KRose@mednet.ucla.edu.



UCLA'S SCHOOL OF MEDICINE HAS A COLLABORATIVE AGREEMENT WITH THE BARRETOS CANCER HOSPITAL, IN BARRETOS, BRAZIL. THIS PARTNERSHIP INCLUDES AN ANNUAL MEETING IN BRAZIL, PICTURED HERE.

Department of Radiation Oncology, Weill Cornell Medical College, Cornell University in New York

Weill Cornell has had a longstanding commitment to global health extending throughout the world, including programs in Australia, Brazil, Haiti, India, Peru and Tanzania, and a full Medical School campus in Qatar.

The department of radiation oncology has participated in international programming for more than 20 years, with cancer treatment facilities in India, South America and Israel, and more recently developed relationships in Armenia and Gabon, to implement

CT simulation and 3-D treatment planning. Current projects are focused on breast cancer, with plans to expand efforts to include gynecologic and head/neck malignancies and to develop a telecommunications network.

Funding for the departmental programs has been provided by department revenue and the Cornell University Institute for African Development.

For additional information regarding this program, contact Onyinye Balogun, MD, onb9003@med.cornell.edu.

Department of Radiation Oncology and Molecular Radiation Sciences, Johns Hopkins Medicine in Baltimore

Johns Hopkins Medicine (JHM) made a major commitment to international education, research and clinical care programming in 2003, with the establishment of Johns Hopkins Medicine International (JHMI). The entity specifically focuses on the advancement of the JHM clinical and academic missions outside of the U.S. The department of radiation oncology has been an active participant in these initiatives since its formation.

JHMI has developed international relationships in Panama, Peru, Brazil, Mexico, Greece, Lebanon, Saudi Arabia, the United Arab Emirates, China and Japan. Projects are primarily structured as short- and long-term consulting engagements focused on the development of local quality and safety programs, capital asset planning, capital procurement, research, product development and didactic lectures. Programs are also aimed at providing advanced education support to international radiation oncology leaders.

Although departmental programs are primarily structured through and supported by the JHMI mechanism, support is also provided through grants, strategic collaborations with industry and research partnerships. These projects are managed using a team approach, with teams consisting of radiation oncologists, medical physicists, radiation therapists, nurses and administrators. Depending on the specific project arrangements, academic credit and financial compensation may be awarded. As with many similar programs in other institutions, securing faculty support may be a challenge, but JHMI will continue to pursue projects that it perceives to be value-added to advance its mission and international collaborations.

For additional information regarding this program, contact Theodore DeWeese, MD, FASTRO, deweese@jhmi.edu.

ARE INTERNATIONAL RADIATION ONCOLOGY PROGRAMS SUSTAINABLE?

Constraints of available time and space have prevented greater depth of description of the programs included in this report or a greater review of initiatives by other radiation oncology programs and individual ASTRO members. Discussions with involved individuals and organization stakeholders do raise questions that should be considered in the near- and long-term future, if international program efforts are to be sustainable.

These issues include, but are not limited to:

- Selection of specific initiatives is currently determined to a significant degree by the personnel and resources of the U.S. institutions participating, but are programs being developed based on specific requests for support from host countries and/or institutions, perceived needs of the host country by the U.S. programs, or by real needs assessment and mutual agreement?
- As major shifts in U.S. medical care payment policy, medical education and research funding and foreign aid are implemented, will these programs be able to continue support for their international initiatives at current levels or consider growth of their programs?
- Will academic leaders be willing to consider international initiatives by departments and individuals as fulfilling metrics for academic promotion, salary support and for trainees' training time?
- Will adequate levels of support be available for countries with great need, but limited resources and potentially unstable governmental or civil circumstances?
- Are current institutional and/or individual outreach efforts sufficient to address international needs, and if not, how can program planning and implementation needs be met?

—Paul E. Wallner, DO



Coloring outside the lines

With some creative problem-solving, the ASTRO eContouring Ambassador Program shares technological expertise around the globe

BY KENNETH HU, MD

IN TERMS OF THE GLOBAL HEALTH ISSUES FACING LOW- AND MIDDLE-INCOME (LMIC) COUNTRIES, there is good news and bad news. The good news is that longevity is increasing as causes of early mortality, such as infectious disease and malnutrition, are successfully overcome. The bad news is that there is now a critical need for radiation therapy in these LMICs as the incidence of noninfectious diseases, such as cancer, rises.

It is projected that by 2035, over two-thirds of all cancer-related deaths will occur in LMIC. Based on estimates that 50 percent of cancer patients will need radiation therapy for both palliative and curative treatment, approximately 5,000 new linear accelerators need to be built to address this rapid growth of new cancer cases.

To this end, many LMICs have prioritized acquisition of modern radiation therapy units, commonly involving sophisticated radiation therapy hardware and treatment planning systems capable of delivering intensity modulated radiation therapy (IMRT), stereotactic body radiation therapy (SBRT) and 4-D radiation therapy.

The radiation oncology team is then challenged to create treatment plans that effectively treat tumors and

maximally protect normal tissue in a safe and efficient manner. Thus, in the transition from 2-D or 3-D to IMRT, SBRT or 4-D RT delivery, mastery of accurate target delineation becomes a paramount objective to fully utilize the benefits.

Yet the dearth of modern training programs and experienced practitioners creates a wide educational gap. Frequently, practitioners who are not trained or comfortable with new technologies apply 2-D or 3-D RT principles to treatment planning to allay their appropriate concern of a geographic miss.

Fortunately, ASTRO is addressing this need by offering educational sessions around the globe based on eContouring sessions typically offered at the ASTRO Annual Meeting.

The origins of ASTRO eContouring

Many practitioners in the U.S. also grapple with similar concerns about keeping up-to-date with new technologies. So, in 2005, ASTRO began eContouring workshops using a web-based platform developed by RadOnc eLearning Center called EduCase, which enables in-depth self-learning of this critical skill. Participants access cases from their own computers

and anonymously compare their contours with those of their peers and a designated expert ASTRO faculty member.

The program involves three steps: First, case vignettes and associated treatment planning computerized tomography (CT) images are provided prior to a formal didactic session. The participants access the images on the web, contour treatment planning volumes and organs at risk and save them. The contours of the faculty member are blinded to the participant but a similarity metric value can be generated, which provides an assessment of how comparable the participant's contour is to that of the faculty member.

Then, participants gather with the faculty member at a didactic session, typically at the ASTRO Annual Meeting. The faculty member delivers a brief lecture overviewing the fundamental target delineation guidelines, then reviews each case demonstrating the collective participant contours overlaid on that of the faculty member. The faculty member imparts clinical pearls about why certain contours are more satisfactory than others.

After the didactic session, access to the contours is granted for a specific time so that participants can redraw their contours and resubmit to determine how the similarity metric changes. The eContouring didactic sessions are catalogued as part of the ASTRO Virtual Meeting so that participants may review the session as they wish. The eContouring program has been a fixture at the Annual Meeting with more than 800 to 1,000 participants yearly.

Taking eContouring global

Recognizing the flourishing interest among ASTRO members in global health missions coupled with the rapid growth in attendance of international colleagues at the ASTRO Annual Meeting, the eContouring Ambassador Program was designed in 2012 to allow both domestic and foreign-born ASTRO members to participate.

International ambassadors are foreign radiation oncologists who are vetted by ASTRO's International Education Subcommittee (IES) so that they are proficient to conduct didactic eContouring sessions in their native countries. Such designees attend the ASTRO Annual Meeting and participate in two to three eContouring courses of their choosing, familiarizing themselves with the program and case examples. They meet with ASTRO staff to help coordinate future courses to be conducted in their

countries using either catalogued ASTRO cases or new cases of their own.

Domestic ambassadors are ASTRO members based in the United States who wish to conduct eContouring courses while visiting a foreign country, typically at an academic meeting or as an invited scholar. Successful sessions have been conducted in Southeast Asia (Manila, Phillipines, in 2011 and 2017), Africa (Cape Town, South Africa, in 2012), Europe (Yerevan, Armenia, in 2015; Istanbul, Turkey, in 2016; Vienna, Austria, in 2017) and Latin America (Santiago, Chile, in 2016; Bogota, Colombia, in 2016; Santa Cruz, Bolivia, in 2016; and San Jose, Costa Rica, in 2017).

Each of the programs were adapted to the particular circumstances of the visit or meeting. Some sessions replicate the format that is currently used at the ASTRO Annual Meeting, where an instructional video and contouring homework are given prior to the meeting and then participant contours are displayed at a didactic session with an expert faculty member.

Other sessions are conducted with real-time contouring done at the time of the teaching session in a prolonged curriculum. The sessions have been conducted in English and in native languages and are usually led by senior faculty from academic institutions.

Specific site summaries: Manila, Yerevan, Istanbul and Latin America

In Manila, both contouring sessions were conducted in English. The 2011 session was conducted as a pilot in

the context of a multi-society sponsored meeting consisting of International Atomic Energy Agency (IAEA), Southeast Asia Radiation Oncology Group (SEAROG) and Philippine Radiation Oncology Society (PROS). Participants from more than 10 different countries performed real-time contouring during a live didactic session.

In 2017, the eContouring session in Manila was done in



INTERNATIONAL eCONTOURING SITES INCLUDE MANILA (PICTURED HERE AND OPPOSITE PAGE ON THE LEFT) AND ISTANBUL (OPPOSITE RIGHT).

Continued on next page

CORPORATE AMBASSADORS


ASTRO PROUDLY RECOGNIZES THE ONGOING
COMMITMENT OF OUR CORPORATE AMBASSADORS
FOR THEIR OUTSTANDING YEAR-ROUND LEADERSHIP
AND PROMOTIONAL SUPPORT
OF RADIATION ONCOLOGY.

conjunction with a Best of ASTRO meeting hosted by PROS. One of the faculty members, Miriam Calaguas, MD, an IES committee member and former PROS president, said of the 2017 session: “eContouring was a most sought-after activity, not only for residents, but the consultants as well. The idea of giving out the cases ahead of time was a very good one to allow participants to spend time on each of the cases prior to the event. And an open atmosphere was good in allowing the participants to ask questions from the faculty in an unintimidating way.”

Onyinye Balogun, MD, assistant professor at Weill Cornell Medical College, conducted a pilot two-week teaching curriculum that took place at the cancer center in Yerevan. The curriculum focused on breast contouring and consisted of lectures discussing advantages of more conformal radiation over 2-D techniques, prone versus supine positioning, review of the Radiation Therapy Oncology Group breast cancer atlas, practical training in simulation and treatment planning of beam shapes/angles, as well as a contouring session using the eContouring case modules. Participants expressed that the eContouring lessons are practical, feasible and valuable. Based on this initial experience, Dr. Balogun will implement a refined version of the curriculum in Gabon with institutional grant support from her home institution at Cornell.

Ugur Selek, MD, organized two one-day eContouring courses covering head and neck, lung, gastrointestinal and genitourinary cases in March and September of 2016 in Istanbul. The courses were given in Turkish to members of the Turkish radiation oncology society. Attendance was intentionally kept intimate to foster group discussion—between 15 and 25 participants. Satisfaction was quite high, and another session was planned for May 2017.

In Latin America, Beatriz Amendola, MD, organized a highly successful series of eContouring sessions in conjunction with radiation oncology meetings sponsored by eCancer, a nonprofit organization whose mission is to improve cancer care. eContouring sessions were delivered in Spanish by ambassadors Marco Amendola, MD, and Adela Poitevin, MD, on head and neck, lung, prostate and gynecologic tumors. Sessions were conducted in Santiago, Santa Cruz, Bogota and San Jose. Future courses are planned for Lima, Peru, and Punta del Este, Uruguay.

For further information regarding the eContouring Ambassador Program, please visit: www.astro.org/econtouringambassadorinitiative. 





OPINION

“Sorry, but it can’t be done!” Nonsense. We’ll do it and here’s why...

FIRST, SOME KEY BACKGROUND INFORMATION.

One, this is the opinion of the listed co-authors based on years—sometimes decades—of experience in delivering medical care to the underserved in the United States and around the globe. Two, the co-authors represent various sectors and phases of careers in radiation oncology, but many other interested and dedicated people would gladly have signed. Three, this is a transformational time for global partnerships to address the dire need for better care for noncommunicable diseases (NCDs), including cancer. We believe radiation oncology should lead this effort. And lastly, for our purposes, “global” cancer care includes geographically isolated indigenous populations in upper-income countries (UICs), as well as people in low- and middle-income countries (LMICs).

The explosion in incidence of cancer and other NCDs globally has been reported in numerous publications in recent years. This enormous problem requires a solution of equal scope and size¹. Because radiation therapy (RT) is an essential component of the solution, the shortage of at least 5,000 linacs in LMICs is a good measure of the challenge². If one could commission one new linac per week with adequate staff and expertise, it would take a century just to fill the current gap. This *ASTRONews* issue describes welcome efforts enhancing global quality of care with

Contouring, ARRO’s pioneering leadership in global health careers and the Global Task Force for Radiation for Cancer Control’s establishing a blueprint by which to attack this problem².

Our response is in three parts, outlined below in question-and-answer format.

How can radiation oncology capitalize on the passion of people interested in addressing the gap and even expand their numbers?

Since people enter health care professions with idealism and enthusiasm to serve others in need, the issue may be how to encourage and not extinguish their passion. Because they may not generate enough revenue, community service and global health activities are often discouraged or even not allowed as a career path. Accepting and fostering this type of career path by leadership in academia, practice and health care systems is necessary³, possibly using unique models⁴. Radiation oncology residency training should include competencies in global health to understand the need and our specialty’s relevance in addressing it. In addition, capturing the continuing passion of many retirees seeking opportunities to use their lifelong experience by mentoring could help develop and sustain a global talent pool.

Continued on next page

What barriers can be removed to address the need and avoid losing the opportunity to lead transformational change in global health?

Barriers to global health involve human resources, infrastructure and equipment. The topic, “Developing medical linacs for challenging environments,” was recently discussed in Geneva⁵. Critical to addressing the barriers are new ideas and serious investments in



technology and expertise. By including indigenous populations in UICs who face similar issues as those in LMICs⁶, our efforts not only help their shortages, but also address the issue of “Why help other countries when we have our own problems?”


What mechanisms are available and which are needed to address these issues?

The numerous entities working to reduce the gap in global cancer care were recently summarized by Rodin⁷. Although global health certainly benefits from the commendable efforts of these and other generally small and underfunded nongovernmental organizations, their efforts can be counterproductive, either by not coordinating resources or by competing for donations. The result is no one achieves the necessary scale of financial and human resources and it could potentially dilute or discourage serious investment. We believe that both individual recognition and a substantial collaborative effort are compatible and are among the goals of the International Cancer Expert Corps (ICEC)⁸. Unique partnerships often arise; an example being a new paradigm, “Treatment, not Terror,” which is bringing together global security of radiological medical sources, alternative technologies and cancer care⁹.

Global health is an obligatory part of the future of health care and, to no small measure, provokes thinking as to the true purpose of health care. Linking

science, service and society unites a range of sectors and provides benefit to and appreciation from people in need, groups seeking social justice and equity and industry seeking a vigorous and enthusiastic workforce¹⁰.

Pessimists have a point in that truly addressing the global need in cancer care is difficult and will take decades. All too often people interested in global health are told, “Sorry, but it can’t be done!” Perhaps the problem is better defined as one that can no longer be ignored. Ideas and paradigms for effective action are coming together. Early career leaders in our field are already leading this challenge. They, along with their senior colleagues looking to transform global cancer care, need support to seize this opportunity to help our specialty effectively address this gap in cancer care.

So when told we face an insurmountable task, we prefer to answer with, “Nonsense. We’ll do it and here’s why...” Let’s just do it. 

C. Norman Coleman, MD, FASTRO

David A. Pistenmaa, MD, PhD

Daniel Petereit, MD, FASTRO

Tim R. Williams, MD, FASTRO

Surbhi Grover, MD

Tracy Sherertz, MD

Mira Shah, MD

Donna O’Brien

Bhadrasain Vikram, MD

Silvia Formenti, MD, FASTRO

Harmar Brereton, MD

References

1. Zietman A. Bringing radiation therapy to underserved nations: an increasingly global responsibility in an ever-shrinking world. *Int J Radiat Oncol Biol Phys* 89:440, 2014.
2. Atun R. Expanding global access to radiotherapy. *Lancet Oncol* 16:1153, 2015.
3. Rodin D. Global Health in Radiation Oncology: The Emergence of a New Career Pathway. *Sem Rad Oncol* 27: 118, 2017.
4. Coleman CN. Masters of Our Destiny: From Jazz Quartet to Symphony Orchestra. *Int J Radiat Oncol Biol Phys*; 96:511, 2016.
5. ICEC- CERN hosted workshop. <http://cerncourier.com/cws/article/cern/67710>.
6. Guadagnolo BA. Cancer Care Access and Outcomes for American Indian Populations in the United States: Challenges and Models for Progress. *Sem Rad Oncol* 27:143, 2017.
7. Rodin D. Mobilising Expertise and Resources to Close the Radiotherapy Gap in Cancer Care. *Clin Oncol* 29: 135, 2017.
8. International Cancer Expert Corps. <http://www.iceccancer.org>.
9. Treatment, not terror. <http://www.nonproliferation.org/treatment-not-terror/>.
10. Coleman CN. Transforming science, service, and society. *Sci Transl Med*. 22: 259, 2014.

HOW DOES SHE DO IT?

As a career, marrying the areas of public health and radiation oncology is new, but not impossible. Here's how one radiation oncologist combined the two.

ASTRONews spoke with the only radiation oncologist from a U.S. institution working full-time in a public health role overseas. Surbhi Grover, MD, MPH, is head of department at Princess Marina Hospital in Gaborone, Botswana, and assistant professor of global radiation oncology at the University of Pennsylvania. She combined her interest in global health with her chosen specialty to develop a new career path—global radiation oncology.

Tell me a bit about your background.

I grew up in India and then moved to New York in high school. I went to college at Columbia University and decided on a career in medicine. During my time at Harvard Medical School, I knew I wanted to do something in global health. I worked in global health in India and I had a great mentor in radiation oncology, who convinced me there's a lot to be done in global oncology.

When I interviewed for residency, I was very clear that I was going to be working internationally. During my interview at Penn, they seemed very interested in that. Penn already had a program in Botswana that needed help and support in oncology. I was interested in being on the ground, so we carved out a position where I could work full-time from Botswana. I started there in 2014. I was supposed to be there for a year but it's hard to accomplish much in just one year. It's now been 2 1/2 years and I'm likely to be there for five.

How did you decide to combine the fields of global health and radiation oncology?

I wasn't planning on doing radiation oncology when I started out. To be honest, I thought I would be doing family medicine or pediatrics. But the issues in global oncology are immense. That's kind of how it worked out. The fact that there was no clear path in global radiation oncology did not deter me. It needs to be done.

Describe for us what a typical day looks like for you.

It starts around 7:30 a.m. Usually on my clinic days, I start seeing new patients with gynecologic cancers—usually about 15 patients. Then, from 10:00 a.m. to 2:00 p.m., I see about 40 follow-ups. From 2:00 p.m. until 4:30 p.m., I do research for grants. Around 6:00 p.m. or 6:30 p.m., I normally have meetings or calls with people in the U.S.



Thursdays, I have rounds. I have head and neck clinic once a week and a breast clinic. Tuesdays, I teach in the morning.

Where are your patients coming from?

We are the only facility with radiation therapy in the country—a country of more than 2 million people. We've collected some data on where our patients live: they come from as far as 1,000 to 1,100 kilometers away [roughly 620 to 680 miles]. It's a lot of effort coming here for treatment.

Are there many other physicians elsewhere that are doing what you are doing?


There are a lot of doctors doing public health work but there are no radiation oncologists on the ground from the U.S., aside from me. There are institutions that have short-term appointments—there are a couple institutions that have medical oncologists on the ground in global health. But, to my knowledge, there are no radiation oncologists based anywhere else in the world doing what I am doing.

What do you think is necessary to combat cancer in developing countries?

Political will of the local government, which only comes with education and awareness. This is where a lot of international institutions will come in—helping to educate governments. You can set up what you can but there needs to be commitment from the country. Once you have the political will, then you need support and human resources—people like me willing to come and work. You need to build the programs but also provide the mentorship to young doctors locally and build training programs so they can do this work on their own.

What is your advice to others who want to become global health radiation oncologists?

I think you need to be completely honest with yourself. You need to make sure it's what you want to do and not just something that there's funding in or jobs for. Second, you need the right mentorship—they may not be in the same field as you but you need someone to think through it with you. Third, as you start your residency, you need to build that path because this is not going to be a traditional path. You should look at what other people have done and explore where you want to be in five to 10 years and follow a similar pathway.

Global health is not new. But combining it with radiation oncology requires a little more initiative. There are now a lot more grants out there than when I started this—and there are a lot more coming. 





ATOP THE PEAK OF MOUNT KILIMANJARO, A GROUP OF CLIMBERS CELEBRATE MAKING THE SUMMIT. THE CLIMB RAISED FUNDS FOR THE CHARITY'S PROJECTS IN AFRICA. OPPOSITE PAGE: THE GROUP ON DAY ONE AT THE GATE OF THE MOUNTAIN.

Climbing higher with Radiating Hope

Nonprofit aims to expand access to radiation therapy in developing countries

BY TOM LADD

IN OUR WORLD, PART OF THE OUTCOME OF A CANCER DIAGNOSIS DEPENDS ON WHERE YOU LIVE and the access you have to needed treatments. For patients in developing areas where cancer care is limited or nonexistent, their prognosis is often bleak.

This inequity greatly troubled radiation oncologists Larry Daugherty, MD, and Brandon Fisher, DO, and prompted them to start Radiating Hope, a nonprofit organization with a mission to expand access to radiation oncology in developing countries. Both avid mountaineers, Daugherty and Fisher tapped into their passion for mountain climbing to establish a fundraising platform for Radiating Hope's outreach efforts.

Thanks to the generous support of many individuals and organizations over the past six years, Radiating Hope will soon place its 15th radiation machine. These linear accelerators and high-dose-rate (HDR) brachytherapy machines, along with other valuable donations, have been able to help cancer patients in

places like Senegal, Tanzania, Ukraine, Honduras, Peru, Guatemala, Madagascar and Panama.

Through these donated machines, Radiating Hope has helped thousands of people receive much-needed radiation therapy treatment in low- and middle-income countries (LMICs), assisted by partners like Revenue Cycle, Varian, Elekta, UCSD, Brainlab and others. See the sidebar for more information on what the radiation oncology industry has been doing to improve access to radiation therapy in LMICs.

In addition to placing machines, Radiating Hope and its volunteer medical professionals provide training and share best practices in areas that have received equipment. In 2014, Radiating Hope created Greater Horn Oncology Symposium (GHOS), a three-day meeting held in the Greater Horn Area of Africa. This biennial conference brings together representatives from 16 countries, and has helped interested stakeholders better understand the needs and obstacles of those treating patients in this region. Radiating

Hope will return for its third GHOS in June 2018.

To help raise money for the nonprofit's various projects in Africa, Radiating Hope organized a fundraising climb of Mount Kilimanjaro in 2014. That year, 36 climbers of all skill levels raised \$100,000 and had the adventure of a lifetime as they pushed for the summit. Based on this success, Radiating Hope continues to do a fundraising climb of Mount Kilimanjaro each June.

To expand our work in Asia, Radiating Hope added a new fundraising trek in 2017, this time in Nepal. There are currently just two working linacs and one working HDR machine available to provide care to Nepal's population of 28 million people. To address this shortage, more than 70 climbers hiked to Everest Base Camp in April 2017, raising more than \$100,000 in the process.


Radiating Hope will use these funds to help bring needed equipment and training to the Kathmandu region. While most climbers in the group celebrated the end of their trek at Everest Base Camp, Drs.



Daugherty and Fisher carried prayer flags in honor of cancer patients to the summit of Mount Everest. Their climb is symbolic of the struggle to conquer a challenge like cancer, and

each thread of the prayer flags that blows in the wind is intended to represent a prayer of hope, strength and health for the cancer patient it honors.

Another way people can support Radiating Hope's mission is by joining the Radiating Hope Society. This membership organization offers different levels of participation, and directly supports efforts to bring radiation equipment and training to developing areas. Anyone can join at the website.

To learn more about Radiating Hope, participate in a fundraising climb, volunteer at one of our sites or to support our mission, please visit www.RadiatingHope.org or attend the annual reception at ASTRO's Annual Meeting. 

Tom Ladd is the executive director of Radiating Hope. He welcomes feedback on this story to tom@radiatinghope.org.

CORPORATE PARTNERS

Those who produce RT equipment and services have helped increase global access

Along with education and training, equipment is another component of creating access to radiation therapy in low- and middle-income countries (LMIC). *ASTROnews* requested that members of its Corporate Advisory Council report on how their companies were addressing the need for RT equipment in LMIC.

Elekta

Elekta has been working in Africa, Eastern Europe and South America to get more RT solutions in countries that have not had any before, including cost-effective radiosurgery and brachytherapy solutions. These installations provide improved outcomes for patients around the world and support the company's mission to increase global access to radiation therapy.

The company partnered with ESTRO to raise awareness and access to countries in east and southeast Europe that are relying on outdated technologies for radiation therapy.

Recently, four Elekta high-dose rate (HDR) brachytherapy units were donated to Radiating Hope. The devices are set to be used in Nepal.

Varian


Varian Medical Systems is working to expand radiation therapy access for cancer patients in LMIC. Varian supports the goals of the Global Task Force for Radiotherapy and Cancer Control published in *Lancet Oncology* to expand RT access, which include the establishment of population-based cancer control plans and inclusion of RT in universal health care coverage.

In Kenya, Varian partnered with the American Cancer Society to create a voucher program offering private RT treatment at a lower rate. Varian is also participating in the Union for International Cancer Control's City Cancer Challenge to provide comprehensive cancer solutions to eleven cities throughout the world. Varian believes it is important to offer not only the equipment but a comprehensive training and education solution delivered under their Access to Care initiative.

Xstrahl Inc.

Xstrahl supplied the first superficial radiotherapy system, Xstrahl 200, to Havana, Cuba. The equipment was installed in 2016 and has now been successfully treating Cuban cancer patients for the last 12 months.

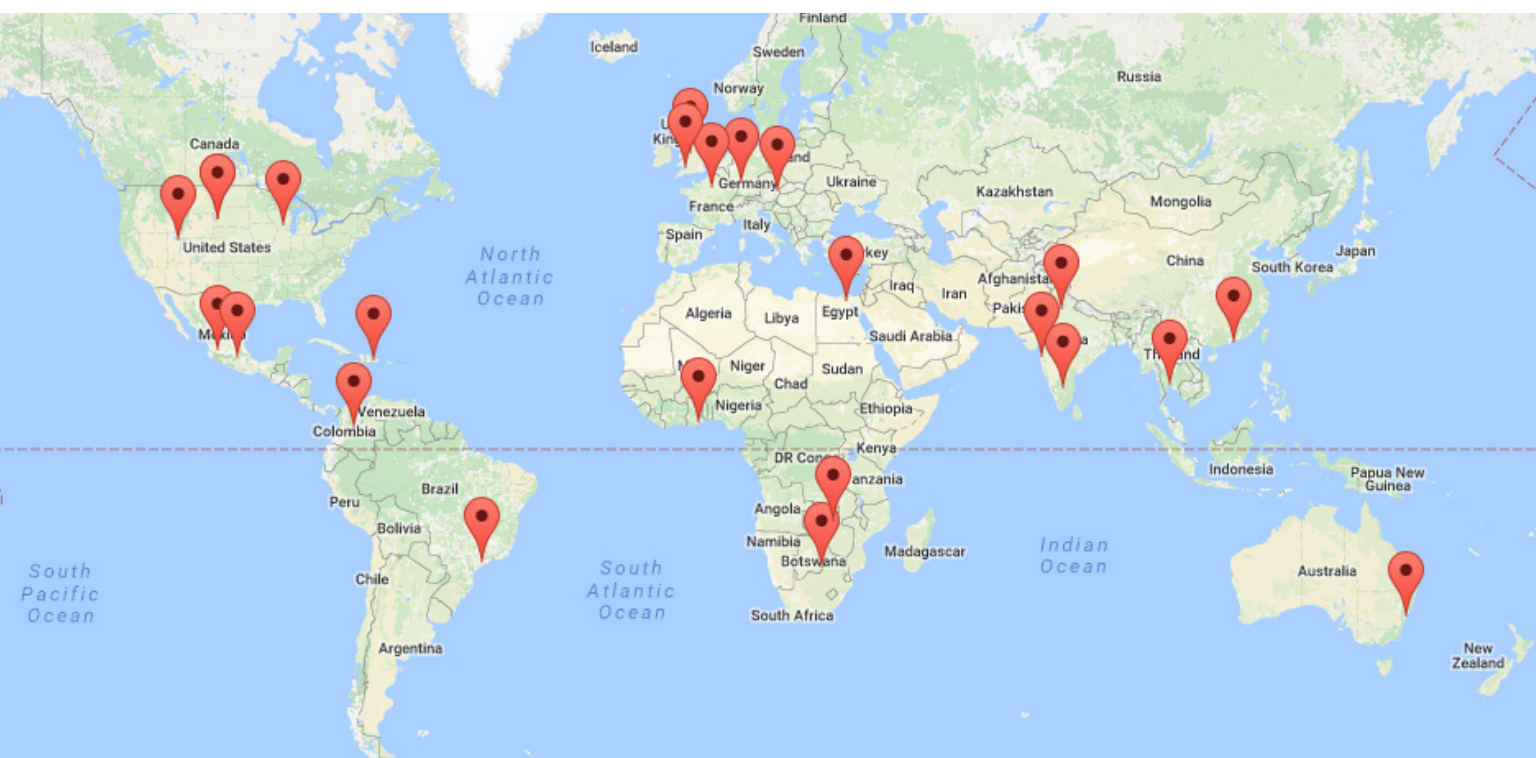
Xstrahl and Medicuba, the Cuban medical equipment import company, will use this to treat skin cancer, where incidence of this type of cancer is of epidemic proportions.

For more than seven years, Xstrahl has been working with MediCuba to bring superficial skin therapy to the Cuban people who suffer from an increasing number of non-melanoma skin cancers. 

TRENDING: RESIDENT INTEREST IN GLOBAL HEALTH

The Association of Residents in Radiation Oncology (ARRO), the resident section of ASTRO, has witnessed trainee interest in global health skyrocket over the past decade. Rapidly advancing technologies are facilitating international communication and travel, and breaking down access barriers globally. While this trend has been apparent across medical specialties for some time, global oncologists have only recently blunted the intimidating technologic complexities of our specialty with strong evidence demonstrating the great value of our modality in low- and middle-income countries (LMICs). To meet the growing demand of trainee interest, ARRO created the Global Health Subcommittee in 2009 with the goal of fostering international collaboration, education and research among residents worldwide. Over the past eight years, the program has successfully developed multiple national and international initiatives that have raised global health awareness among trainees and provided opportunities to experience unique perspectives in cancer care.

One of the first programs created by the subcommittee, in partnership with ASTRO, is the Global Health Scholars Program. Established in 2011, the focus of this scholarship is to allow senior-level residents interested in global health the opportunity to develop clinical- or educational-based projects with developing nations. The program provides \$2,500 to three residents per year, which can be used toward housing or travel expenses. Their host colleagues provide valuable international perspectives that complement the traditional trainee curriculum. Since inception, 18 residents have been selected from 16 different institutions and rotated at 12 different international locations. The Global Health Scholars Program has been an instrumental tool in promoting global health awareness and fostering international collaboration within the resident community. For example, Daniela Buscariollo, MD, a current post-graduate year five at the Harvard Radiation Oncology Residency Program, traveled to Gaborone, Botswana, in March 2016, where she investigated the use of post-



operative radiation therapy in breast cancer patients. Demonstrating the potential for sustainability in the program, Dr. Buscariollo recently returned to Botswana in March to continue her work.

The second program the ARRO Global Health Subcommittee offers is the Mutual Mentorship Program. Created in 2012, this program matches groups of radiation oncology residents from around the world with the purpose of promoting the sharing of ideas and treatment perspectives and creating long-lasting relationships among participants. Groups are sent monthly clinical case prompts with discussion questions via email. Residents are encouraged to discuss their preferred treatment methods and describe the unique challenges faced when treating these patients at their home institutions. The program has flourished in recent years, growing to more than 40 residents from across the globe. The international trainee participants represent sites from Indonesia, Nigeria, the Philippines, Zambia, Nigeria, Zimbabwe and India, to name a few. The ultimate goal is to forge relationships that evolve into lifelong collaborations, well beyond residency.

In 2015, the ARRO Global Health Subcommittee partnered with a host of international collaborators (ASTRO International Education Subcommittee, American Brachytherapy Society International Committee, GlobalRT.org and CARO International Communications Working Group) to develop the Global Health Rotation Initiative. The goal of this project is to promote and facilitate international rotation opportunities for U.S. and foreign residents. This database of elective opportunities is hosted by GlobalRT.org. To date, 24 institutions on six continents have agreed to host rotating American and international residents. This website is a collaborative effort to make international exchange easier among the entire radiation oncology resident community. Residents no longer have to “recreate the wheel” every time someone is interested in a rotation abroad. We continue to enroll new host sites to provide the most diverse catalogue of locations possible.

A more recent project is the development of the ARRO Global Health Faculty Award. This honor recognizes a mentor in the global health radiation oncology community who has helped guide and encourage residents to pursue a career in global health. We feel these pioneers deserve formal recognition for their efforts in the budding subspecialty of global radiation oncology. Backed by their mentorship, radiation oncology residents can now contemplate bona fide career paths in global health. We are currently

THROUGH THE GLOBAL HEALTH SCHOLARS PROGRAM, DANIELA BUSCARIOLLO, MD, LEFT, TRAVELED TO BOTSWANA. OPPOSITE PAGE: FLAGS INDICATE SITES FOR THE GLOBAL HEALTH ROTATION INITIATIVE.



soliciting nominations from within the U.S. resident community and hope to recognize the inaugural recipient at the Annual ARRO Seminar at ASTRO's Annual Meeting in San Diego this year.

Radiation oncology residents are increasingly entering the field with fiery passion for global health and we aim to enable these pursuits. We see it also in the new resident applicants, whose resumes are chock-full of global health experiences. With the continued support of ASTRO and residency programs, we hope to continue to expand our current initiatives. The underlying purpose of all these programs is to create sustainable advancements in global health cancer care and permanent international relationships that will drive long-lasting change.

The sustainability of radiation oncology global health depends upon individual and institutional commitment to the field driven by the common goal of health care equity. In the future, we believe there will continue to be more academic and private career opportunities involving global health, which will help solidify the groundwork required to close the global cancer care gap. These paths are already evident, with many previous committee members going on to pursue permanent positions that involve international health. Clearly, the budding subspecialty of global radiation oncology continues to trend upward. We look forward to seeing where things go from here. 🚀

Dr. Freese and Dr. Royce are co-chairs of ASTRO's ARRO Global Health Subcommittee.

THE PATTERNS OF CARE STUDIES AND THE ORIGIN OF EVIDENCE-BASED RADIATION ONCOLOGY

What do prostate cancer dose response, the use of intracavitary brachytherapy for cervical cancer, custom-shaped blocks in Hodgkin's disease treatment and the importance of treatment time for head and neck radiation therapy have in common?

Ask this question to a radiation oncologist older than a certain age and the answer will be the Patterns of Care Studies (POCS). Ask a radiation oncologist below a certain age what the POCS are and you will most likely get a blank stare. Radiation oncology is a specialty built on the foundation of data and evidence, but many of us do not know its origin. To my own chagrin, I asked some of the residents in my own department what the POCS were and I was embarrassed to discover that, although they had internalized the ethos of evidence-based treatment decisions, they were not aware of the significance of the POCS and its legacy in their own department.

So what are the Patterns of Care Studies, how were they created, what were the results and what are their legacy? The goal of the POCS was to "improve the quality and accessibility of radiation care in the United States"¹. In 1969, Simon Kramer, MD, from Thomas Jefferson University in Philadelphia and David Herring, PhD, a physicist from La Jolla, California, came up with the idea for a systematic review of the specialty of radiation oncology. Radiation oncology was a relatively young specialty, and they were interested in connecting the processes of radiation oncology to quality of care by applying the concept of decision tree analyses. In 1971, the first POCS grant was reviewed by the National Cancer Institute and the first study was funded for 1974.

The foundation of the POCS was based on the Donabedian Model of Quality Assessment². This model provided a framework for examining health services and evaluating quality of health care based on three factors: structure, process and outcome. Structure included all the factors that affected the context in which care was delivered. Process was the sum of all actions that made up health care. Outcome included all the effects of health care on patients or populations. For the POCS, structure was defined as the equipment and personnel, process was defined as actions to evaluate

and treat patients and outcome was defined as results for patients.

The POCS were a series of surveys that collected data in radiation oncology facilities across the United States. These periodic surveys of institutions were repeated every four years beginning in 1974. They included all the departments in the United States. A Facilities Master List (FML) was developed and the structure of radiation oncology was identified^{3,4}.

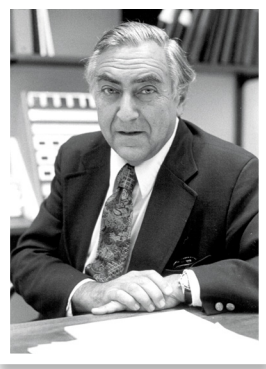
Moving on from structure to process, the POCS had to gain acceptance by providers to allow review of records, and this was helped by the fact that it was operated out of the Commission of Radiation Therapy of the American College of Radiology. In the early 1970s, 50 percent of radiation therapy was done by diagnostic radiologists. The POCS relied on work by committees of experts in each disease site to develop concepts of best current management.

The original survey teams during the first decade of the POCS included a radiation oncology resident and a medical physicist. The second generation survey teams included a senior radiation oncologist, a medical physicist and a nurse/data manager, while the third generation survey teams consisted of just one research associate. For the first survey, cases from 1973 concerned only process of care¹. Reviewers at the time noticed less compliance with best current management and poor compliance was seen in all types of practices. Based on this observation, the POCS decided that they needed to study outcomes of care. Dr. Kramer asked Gerald Hanks, MD, to develop outcomes surveys. In 1978, the POCS resurveyed most of the patient records included in the 1974 process survey.

The surveys in 1974, 1978 and 1983 looked at defining and improving quality and accessibility of radiation therapy care in the United States and developing criteria for optimal care. The surveys of 1988 and 1994 continued to measure processes and outcomes in



DR. GERALD HANKS




DR. SIMON KRAMER

select disease sites, added new disease sites relevant to radiation oncology and conducted a Patterns of Fractionations study in tonsil cancer in the U.S. and UK led by Rodney Withers, MD, PhD, and Lester Peters, MD. The surveys in 1994 and 1998 monitored national averages for outcomes, assessed the efficacy of new technologies including high-dose-rate intracavitary brachytherapy cervix and interstitial prostate implants, coordinated the POCS with national clinical trial cooperative groups (RTOG), examined the penetration of positive trial results into clinical practice, provided feedback to the RTOG to generate hypotheses for future clinical trials and evaluated the structure, process and outcome of care for minority and nonminority populations in prostate, cervix and breast cancer.

What were some of the findings of the POCS that have made this project so significant? Important findings from the prostate studies found a dose response for local control and complications, the use of AP-PA only techniques increased complications and clinical control correlated with treatment technique⁵. For the cervical cancer studies, significant highlights included that bulk of tumor in Stage IB was important in local control, use of intracavitary brachytherapy was essential for improved local control and reduction in overall treatment time and adequacy of intracavitary implant placement improved treatment outcomes^{6,7}. For Hodgkin's disease, subtotal lymphoid irradiation reduced relapse versus involved or extended field radiation therapy, custom-shaped blocks reduced recurrence and inadequate field margins resulted in increased recurrence, no dose response for doses >30 Gy, increased failure for patients with Stage IIIA disease treated with radiation alone compared with combined modality therapy and increased complication rates when infradiaphragmatic dose >35 Gy⁸. Finally, for seminoma, key findings included that mediastinal radiation was not necessary, there was no need for pelvic radiation and increased complication rates were identified when infradiaphragmatic dose >35 Gy^{9,10}. This list is incomplete, and other sites in the POCS include larynx, tonsil, oral tongue, breast and lung cancer¹¹⁻¹⁴.

The Patterns of Care Studies are one of the most successful examples of how physicians can develop measures of Quality of Care and use these processes to

define the state of practice in the U.S., determine where deficiencies in practice exist and assess improvement in treatment over time. The POCS assumed that good processes of care were critical in providing the patient with the best chance of survival. The POCS have provided unique insights because the data reflect the diversity of treatment delivered in the United States. The POCS were responsible for some of the fundamental insights of radiation oncology and most importantly, provided the foundation of evidence for the practice of radiation oncology in the United States. 

Eric M. Horwitz, MD, is a professor and chair of the Department of Radiation Oncology at Fox Chase Cancer Center in Philadelphia. There, he is the Gerald E. Hanks, MD, Chair in Radiation Oncology.

REFERENCES

1. Kramer S, Herring DF. The patterns of care study: a nationwide evaluation of the practice of radiation therapy in cancer management. *Int J Radiat Oncol Biol Phys.* 1976;1(11-12):1231-1236.
2. Donabedian A. Evaluating the quality of medical care. *Milbank Mem Fund Q.* 1966;44(3):Suppl:166-206.
3. Kramer S, Hanks GE, Herring DF, Davis LW. Summary results from the Facilities Master List surveys conducted by the Patterns of Care Study. *Int J Radiat Oncol Biol Phys.* 1982;8(5):883-888.
4. Diamond JJ, Hanks GE, Kramer S. The structure of radiation oncology practices in the continental United States. *Int J Radiat Oncol Biol Phys.* 1988;14(3):547-548.
5. Leibel SA, Hanks GE, Kramer S. Patterns of care outcome studies: results of the national practice in adenocarcinoma of the prostate. *Int J Radiat Oncol Biol Phys.* 1984;10(3):401-409.
6. Hanks GE, Herring DF, Kramer S. Patterns of care outcome studies. Results of the national practice in cancer of the cervix. *Cancer.* 1983;51(5):959-967.
7. Lanciano RM, Won M, Coia LR, Hanks GE. Pretreatment and treatment factors associated with improved outcome in squamous cell carcinoma of the uterine cervix: a final report of the 1973 and 1978 patterns of care studies. *Int J Radiat Oncol Biol Phys.* 1991;20(4):667-676.
8. Hanks GE, Kinzie JJ, White RL, Herring DF, Kramer S. Patterns of care outcome studies. Results of the national practice in Hodgkin's disease. *Cancer.* 1983;51(4):569-573.
9. Coia LR, Hanks GE. Complications from large field intermediate dose infradiaphragmatic radiation: an analysis of the patterns of care outcome studies for Hodgkin's disease and seminoma. *Int J Radiat Oncol Biol Phys.* 1988;15(1):29-35.
10. Hanks GE, Herring DF, Kramer S. Patterns of care outcome studies: results of the national practice in seminoma of the testis. *Int J Radiat Oncol Biol Phys.* 1981;7(10):1413-1417.
11. Lustig RA, MacLean CJ, Hanks GE, Kramer S. The Patterns of Care Outcome Studies: results of the National practice in carcinoma of the larynx. *Int J Radiat Oncol Biol Phys.* 1984;10(12):2357-2362.
12. Solin LJ, Fowble BL, Martz KL, Goodman RL, Hanks GE. Results of the 1983 patterns of care process survey for definitive breast irradiation. *Int J Radiat Oncol Biol Phys.* 1991;20(1):105-111.
13. Luk KH, Fuller DE, Kramer S, et al. Patterns of care in radiation therapy of adenocarcinoma of the endometrium. *Int J Radiat Oncol Biol Phys.* 1980;6(5):613-620.
14. Wallner PE, Hanks GE, Kramer S, McLean CJ. Patterns of Care Study. Analysis of outcome survey data— anterior two-thirds of tongue and floor of mouth. *Am J Clin Oncol.* 1986;9(1):50-57.

THE ABR AND GLOBAL RADIATION ONCOLOGY

Policy and philosophy discussions regarding globalization typically focus on economics and international commerce, but many aspects of health care have international implications, often overlooked by policymakers. Issues related to medical education, licensure and specialty certification, none of which are typically crisis-driven or subject to long-term planning, are rarely considered outside of directly involved stakeholder individuals or organizations.

These issues become more relevant as we face predicted shortfalls in the number of practicing physicians in the U.S. and we look to International Medical Graduates (IMGs) to fill those gaps. IMGs comprise roughly 25 percent of physicians in U.S. residency and fellowship programs and in postgraduate practice, although in some regions and specialties, the numbers are far greater^{1,2}. It has been estimated that more than 40 percent of practicing IMGs are in primary care disciplines, and these physicians are more likely to practice in specialties for which there would otherwise be a shortage, or in socioeconomically disadvantaged populations³.

The need for some regimen of official evaluation and recognition of IMGs occurred shortly after World War II. Established in 1956, that organization is now known as the Educational Council for Foreign Medical Graduates (ECFMG). With the assistance of the National Board of Medical Examiners (NBME), policies and procedures were developed to inform, examine and credential physicians who had received their undergraduate medical education outside the United States¹. The ECFMG programs have functioned effectively to enable access for IMGs wanting to train further or practice in the U.S., but entry into this country through the ECFMG route neither guarantees access to that further training or to a wide variety of practice options³.

IMGs without U.S. specialty board certification are often relegated to nonphysician service or to training in specialties found to be of less interest to U.S. medical graduates (USMGs). The ECFMG has developed an initiative, the ECFMG Certificate Holders Office (ECHO), to assist IMGs holding ECFMG credentials in obtaining U.S. specialty training positions, but access to those slots is widely disparate. The specialties most

frequently sought by IMGs are internal medicine, family medicine and pediatrics. Radiation oncology has long been one of the most sought-after specialties in medicine and, in 2016, more than 99 percent of available U.S. training positions were filled by USMGs. By comparison, only 33 percent of nuclear medicine training slots were filled by USMGs^{4,5}. In those rare instances where an IMG has fulfilled all requirements of an Accreditation Council for Graduate Medical Education (ACGME) accredited training program, he or she would be eligible to sit for certification by the American Board of Radiology (ABR) in a manner like any USMG candidate.

Because entry to U.S. radiation oncology training programs is rarely available to IMGs, the primary route for practice in the specialty has been for IMGs fully trained and certified in their home countries to immigrate to the U.S. for practice opportunities. ECFMG requirements must still be met for state licensure, but various state scope-of-practice requirements, as well as hospital and payer requirements, often state that the specialists must be certified, or eligible for certification, by a member board of the American Board of Medical Specialties (ABMS). To enable these fully specialty-trained physicians to attain eligibility for certification, the ABR and other ABMS member boards have developed alternate pathways to eligibility that do not require the traditional ACGME-accredited training.


This IMG alternate pathway has rigid documentation and U.S. experience requirements to ensure that when eligible to sit for examinations, candidates are highly capable by U.S. standards. After they have attained certification eligibility status, these physicians must pass the same examinations, with the same eligibility time constraints, as USMGs⁶. Between 1998 and 2016, only 14 IMGs applied for participation in the IMG alternate pathway and, as of this writing, only seven have attained initial certification (personal communication, American Board of Radiology, March 23, 2017).

Many individual physicians, academic institutions and organizations, including ASTRO, have launched international initiatives to improve education and care delivery, especially in developing countries.

Arguably, as globalization becomes a more ingrained element of medicine, these efforts might extend to availability of U.S.-like educational programs and specialty certification outside the U.S. In this regard, the ACGME has launched an ACGME International (ACGME-I) initiative. The mission of the initiative is “to improve health care by assessing and advancing the quality of resident physicians’ education through accreditation.” ACGME-I programming has been developed with several institutions in the Middle East⁷.

The ABMS has also launched an international initiative (ABMS-I) “to assist organizations around the world in striving to set high standards for assessing and certifying medical specialists.” ABMS staff and volunteer physicians assist in writing items for in-training and specialty certification examinations, interpreting test and item statistics, designing score reports and understanding standard setting. These services have been performed for the Ministry of Health of Singapore and have been discussed with countries in the Middle East⁸.

Neither the ACGME-I nor the ABMS-I initiative currently leads to U.S.-accepted training accreditation or certification, but it is possible that could occur in the

future. At this time, the ACGME Radiation Oncology Residency Review Committee and the ABR radiation oncology initial certification (IC) or maintenance of certification (MOC) programs do not participate in these international efforts. 

References

1. Educational Commission for Foreign Medical Graduates. <http://www.ecfm.org/> Availability verified March 6, 2017.
2. Ranasinghe PD. International medical graduates in the U.S. physician workforce. *Jour Amer Osteo Assoc.* 2015;115(4):236-241.
3. Page L. Where do international medical graduates fit in the U.S. healthcare picture? *Medscape Business of Medicine*, 2016, Feb. 3. <http://www.medscape.com/viewarticle/857443> Availability verified March 17, 2017.
4. Educational Council for Foreign Medical Graduates ECFMG Certificate Holders Office (ECHO). <http://www.ecfm.org/echo/> Availability verified March 15, 2017.
5. National Resident Matching Program 2016 Results and Data: Main Residency Match. <http://www.nrmp.org/match-data/main-residency-match-data/> Availability verified March 17, 2017.
6. American Board of Radiology Alternate Pathway for International Medical Graduates. <https://www.theabr.org/ic-int-ro> Availability verified January 25, 2017.
7. Accreditation Council for Graduate Medical Education international programs. <http://www.acgme-i.org/> Availability verified January 29, 2017.
8. American Board of Medical Specialties International. <http://www.abms-i.org/about-abms-international> Availability verified March 17, 2017.

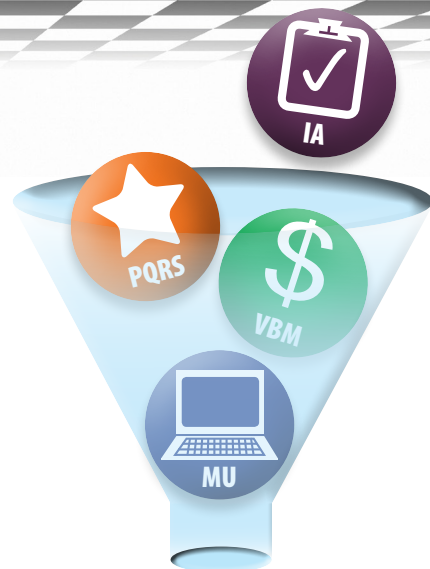
Are you
MIPS
ready?

We are here to help!

Merit-based Incentive System (MIPS) replaces and consolidates previous Medicare quality programs and adds a new Improvement Activity category. Most radiation oncologists will be subject to MIPS in 2017, so the time to prepare is now!

Visit www.astro.org/mips

Or email questions to us at: mips@astro.org



MIPS

USING IMAGING MARKERS TO GUIDE THERAPEUTIC OPTIONS FOR CANCER PATIENTS

John Floberg, MD, PhD, one of the 2016 recipients of the ASTRO Resident Seed Grant, is a second-year radiation oncology resident at Washington University in St. Louis where he is in pursuit of his goal to become a physician-scientist. With the combination of his background in medical physics and imaging along with his clinical skills as a radiation oncologist, Dr. Floberg focuses on connecting biology to imaging and imaging to biology, and to further develop imaging as a tool that can provide insight into cancer biology to better guide therapy for individual patients.

Throughout his medical training, Dr. Floberg has approached every patient with an open mind and curiosity so that he can learn from them. He has worked hard to understand what patient needs are not being met, and when clinical innovation is required to meet those needs. To that end, Dr. Floberg's long-term career focus is the application of imaging science into research questions arising from, and that can be applied to, clinical practice.

"I was drawn to the clinical aspects of radiation oncology and all that can be learned from patients," says Dr. Floberg. He hopes to find opportunities to build on his PhD work, which involved the improvement of positron emission tomography (PET) imaging by developing several new technologies to increase the image clarity and quantitative image processing of PET scans. He is particularly interested in functional and molecular imaging modalities, including ways in which they can be used as prognostic and predictive biomarkers in cancer. These modalities have the potential to identify novel therapeutic targets that can be combined with radiation therapy and identify the patients that might benefit most from such novel therapeutic strategies.


During his residency, Dr. Floberg continues to develop the skills necessary to become a physician-scientist. He is currently participating in the Holman Research Pathway for Clinical Training in Radiation Oncology, which will provide him with 18 months of research time under the mentorship of Julie Schwarz, MD, PhD. Dr. Schwarz has established an NIH R01-



DR. JOHN FLOBERG

funded research program to study the fundamental biology that drives tumor appearance on diagnostic images (e.g., FDG-PET and MRI), and the development of molecular and imaging biomarkers. Under her guidance, Dr. Floberg aims to develop imaging markers for the redox state of cervical cancer cells. This

includes markers of reducing potential, which may be linked to treatment resistance, as cells able to reduce reactive oxygen species may be more tolerant of stress from radiation and chemotherapy and therefore harder to destroy.

His work also includes the development of imaging markers for reactive oxygen species, which could be used to predict how effective radiation therapy will be in any given tumor. He is investigating both established and novel PET tracers as potential markers, as well as novel optical probes. The project could help further the understanding of fundamental tumor biology. 

If you know a researcher doing cutting-edge work related to radiation oncology, please send an email to Tyler Beck at tyler.beck@astro.org with their name, contact information and a brief description of their work for consideration for a Research Spotlight article.

JOURNALShighlights

HIGHLIGHTS FROM INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY • BIOLOGY • PHYSICS

March 1, 2017

Local treatment of the primary tumor in patients presenting with stage IV breast cancer: a first and what's up ahead

Truong

In this Oncology Scan, Breast Cancer Associate Editor Pauline Truong focused on new evidence in an old breast cancer debate. Approximately 5 percent to 10 percent of patients with breast cancer present with distant metastasis at diagnosis. The standard of care for patients with distant metastasis is systemic therapy and advances in systemic therapy are contributing to improving survival. This has led some clinicians to ask whether more aggressive loco-regional treatment of the primary breast tumor may now improve clinical outcomes. A new randomized trial from India provides valuable information to inform this debate.

Effect of long-term hormonal therapy (versus short-term hormonal therapy): a secondary analysis of intermediate-risk prostate cancer patients treated on NRG Oncology RTOG 9202

Mirhadi et al

RTOG 9202 was a randomized trial testing long-term adjuvant androgen deprivation (LTAD) against short-term only (STAD) in conjunction with external beam radiation therapy in high- and intermediate-risk prostate cancer patients. This secondary analysis looked at those with intermediate-risk disease and asked whether an additional survival benefit could come from LTAD. With more than 11 years of median follow-up, there was no difference in overall survival, disease-specific survival or freedom from PSA failure. This analysis discourages any further exploration of long duration hormonal therapy in the intermediate-risk subset.

March 15, 2017

Cost-effectiveness analysis of radiation therapy versus transoral robotic surgery (TORS) for oropharyngeal squamous cell carcinoma (OPSCC)

Rodin et al

The authors developed a micro-simulation state transition model to compare the cost-effectiveness of radiation therapy to TORS for patients with clinically staged T1N0M0 to T2N1M0 oropharyngeal cancer. Using standard benchmarks for cost-effectiveness in the United States, TORS may be a cost-effective alternative for this subset of patients with early-stage OPSCC, but there is considerable sensitivity to assumptions around quality of life.

Effect of p16 status on quality of life (QOL) during chemoradiation for locally advanced oropharyngeal cancer within randomized trial TROG 02.02

Ringash et al

TROG 02.02/HeadSTART was a negative international phase 3 trial of concurrent chemoradiation therapy with or without the hypoxic cell cytotoxic agent tirapazamine. This subgroup analysis examined the impact of p16 status on QOL for 200 patients with locally advanced oropharyngeal disease.

Both p16 positivity and baseline QOL scores independently predict survival after concurrent chemoradiation therapy. Patients with p16-positive OPC had better baseline QOL, but a more major QOL drop with concurrent chemoradiation therapy.

April 1, 2017

A phase 1/2 trial of a combination of paclitaxel and trastuzumab with daily irradiation or paclitaxel alone with daily irradiation after transurethral surgery for noncystectomy candidates with muscle-invasive bladder cancer

Michaelson et al

In this prospective RTOG study, non-cystectomy candidates were treated with daily radiation and weekly paclitaxel. Patients whose tumors exhibited her2/neu overexpression (one-third) were additionally treated with weekly trastuzumab. The complete response rate at one year was 72 percent for those receiving



Continued on next page

trastuzumab and 68 percent for those without. Toxicity was moderate and comparable. Thus, for patients with her2/neu-positive tumors, a group generally considered to have worse outcomes, the addition of trastuzumab appears to result in comparable efficacy and toxicity.

Predictors of liver toxicity following stereotactic body radiation therapy (SBRT) for hepatocellular carcinoma

Vevec et al

This study investigated risk factors associated with deteriorating liver function in hepatocellular carcinoma patients treated on clinical trials of six-fraction SBRT. Liver toxicity was defined as an increase in Child-Pugh (CP) score ≥ 2 at three months post-SBRT. Higher baseline CP score, including distinguishing between A5 and A6, and several liver dose-volume metrics were most strongly associated with toxicity three months after treatment.

HIGHLIGHTS FROM PRACTICAL RADIATION ONCOLOGY

March–April 2017

Accelerated partial breast irradiation: executive summary for the update of an ASTRO Evidence-Based Consensus Statement

Correa et al

The authors updated the accelerated partial breast irradiation (APBI) Consensus Statement published in 2009. Recommendations for the use of intraoperative radiation therapy (IORT) for breast cancer patients include counseling patients regarding the higher risk of ipsilateral breast tumor recurrence with IORT compared with whole breast irradiation, the need for prospective monitoring of long-term local control and toxicity with low-energy radiograph IORT given limited follow-up and restriction of IORT to women with invasive cancer considered “suitable.”

Attitudes of radiation oncologists toward palliative and supportive care in the United States: report on national membership survey by ASTRO

Wei et al

Radiation oncologists are frequently involved in

providing palliative and supportive care (PSC) for patients with advanced cancers through delivery of palliative radiation. Radiation oncologists are more confident in their ability to assess and manage pain than in their ability to manage depression, anxiety, anorexia and fatigue. There is a need for increasing continuing medical educational efforts in PSC for practicing radiation oncologists, and strengthening PSC training in residency programs.

HIGHLIGHTS FROM ADVANCES IN RADIATION ONCOLOGY

January–March 2017

Lessons learned from reirradiation of recurrent skull base meningioma: a case report and review of the literature

Pritchard et al

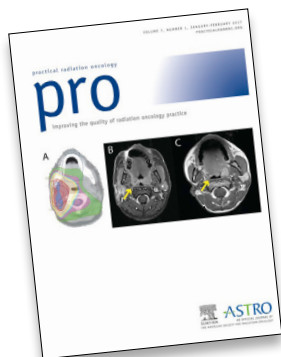
Radiation therapy provides an effective solution to the anatomical challenges of skull base meningiomas where complete resection is not possible but treatment planning requires consideration of areas at risk for recurrence. In the postoperative salvage setting, the original tumor bed and points of contact along the base of the skull should be encompassed by target volumes. Successful tumor control through reirradiation of recurrent grade 1 meningioma is possible, albeit with the risk of radiation-induced toxicity.

Independent test of a model to predict severe acute esophagitis

Huang et al

Treatment planning factors are known to affect the risk of severe acute esophagitis during thoracic radiation therapy. The authors

tested a previously published model to predict the risk of severe acute esophagitis on an independent data set. The previously published model was validated on an independent data set and determined to be nearly as predictive as the best possible two-parameter logistic model even though it over predicted risk systematically. A novel, machine learning-based model using a bootstrapping approach showed reasonable predictive power.



**REGISTER NOW!
FOR ASTRO 2017!**

ASTRO'S 59TH ANNUAL MEETING

the *healing art*
and science
of radiation oncology

MEETING DATES: SEPTEMBER 24-27, 2017 | EXHIBIT DATES: SEPTEMBER 24-26, 2017
SAN DIEGO CONVENTION CENTER | SAN DIEGO

THIS YEAR'S VISIONARY KEYNOTE SPEAKERS:



Richard Zane, MD
Chief Innovation Officer of University of Colorado Health System



Lucy Kalanithi, MD
Widow of Paul Kalanithi, MD, authors of *When Breath Becomes Air*, and Paul's doctor, **Heather Wakelee, MD**



Vinay Prasad, MD, MPH
Author of *Ending Medical Reversal: Improving Outcomes, Saving Lives* and Medical Oncologist at Oregon Health and Sciences University

NEW THIS YEAR:

- Science "Highlights Sessions" each morning, featuring the best abstracts in six disease site tracks.
- More interactive poster presentation time with the authors.
- The Product Showcase, an electronic billboard with details on unique products.
- Disease site specific "ASTRO Connect" areas, where you can network, relax and interact with experts.

ASTRO



#ASTRO17

Register by June 29 for early-bird rates! • www.astro.org/annualmeeting

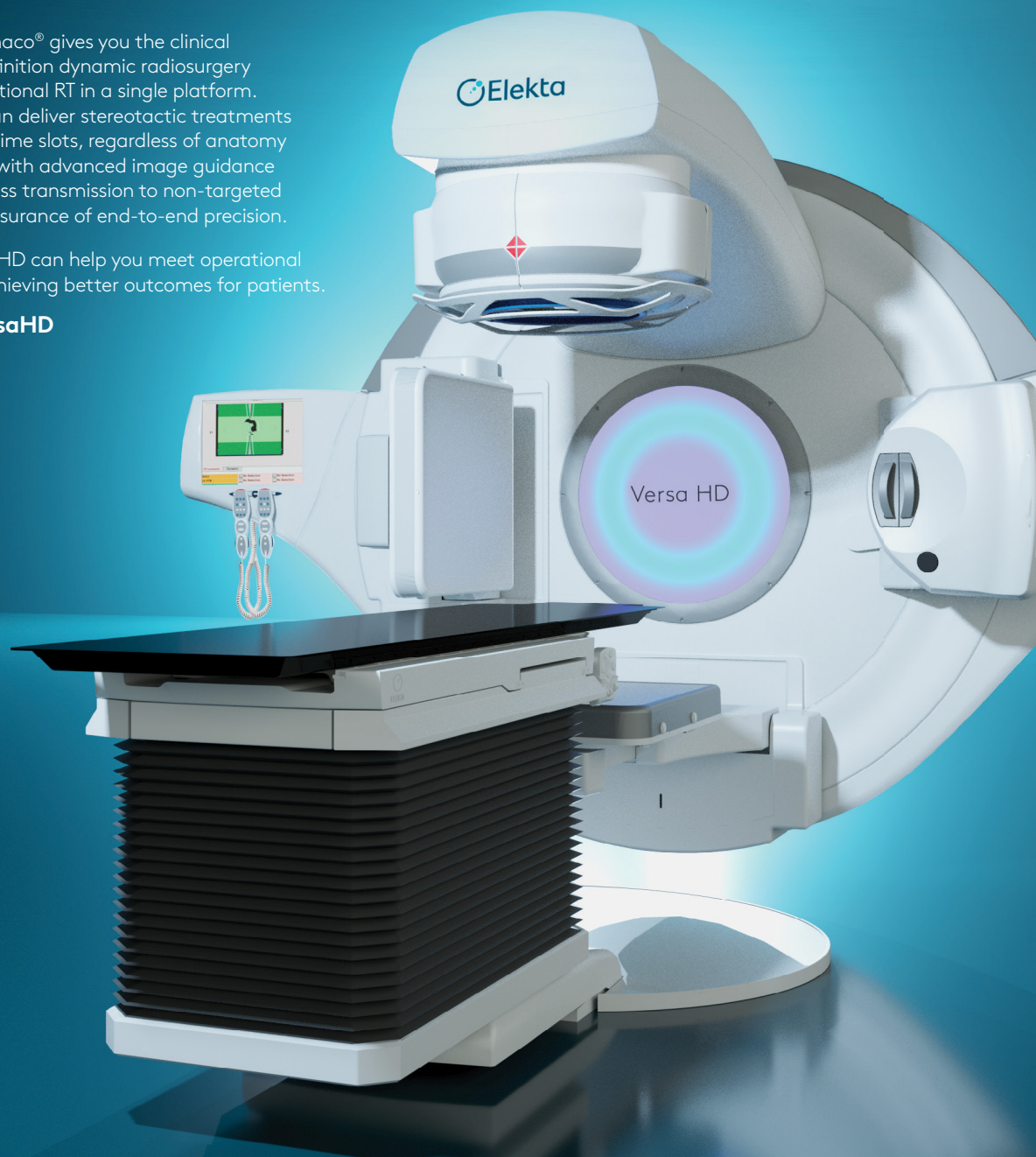
VersaHD.

Powered by high definition dynamic radiosurgery.

Versa HD™ with Monaco® gives you the clinical flexibility of high definition dynamic radiosurgery (HDRS) and conventional RT in a single platform. HDRS means you can deliver stereotactic treatments within standard RT time slots, regardless of anatomy or complexity. And, with advanced image guidance tools and up to 5x less transmission to non-targeted regions, you have assurance of end-to-end precision.

Discover how Versa HD can help you meet operational efficiencies while achieving better outcomes for patients.

elekta.com/VersaHD



Focus where it matters.

4513 371 1539 03.17

 Elekta