

SUMMER 2018

# ASTRO *news*



**Thoughts** and **reflections** on **diversity**  
in radiation oncology

**Diversity and Inclusion:** **An ASTRO Core Value**

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Best 20u/25	20, 25–15	Best 15 + <sup>123</sup> I, <sup>111</sup> In, <sup>68</sup> Ge/ <sup>68</sup> Ga
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Best 35	35–15	Greater production of Best 15, 20u/25 isotopes plus <sup>201</sup> Tl, <sup>81</sup> Rb/ <sup>81</sup> Kr
Best 70	70–35	<sup>82</sup> Sr/ <sup>82</sup> Rb, <sup>123</sup> I, <sup>67</sup> Cu, <sup>81</sup> Kr + research



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

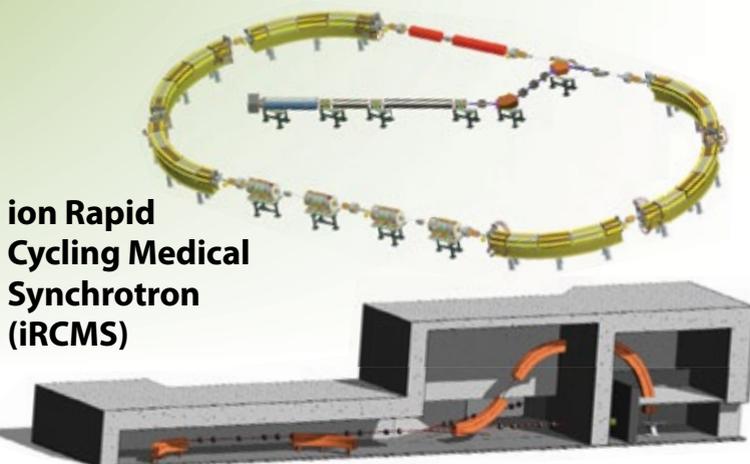


Installation of Best 70 MeV Cyclotron at Italian National Laboratories (INFN), Legnaro, IT

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# ASTRO news

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## EDITOR'S *notes*

BY NAJEEB MOHIDEEN, MD, FASTRO  
SENIOR EDITOR, *ASTROnews*

# THE INCLUSIVE FUTURE

### THE SOCCER WORLD CUP—THE MOST-WATCHED SPORTING

**EVENT IN THE WORLD**, bigger than even the Olympics—may have just ended as this issue lands in your mailbox. Hopefully, the team you're rooting for has done well (a pity the U.S. didn't qualify this time). The World Cup generates billions in revenue from corporate sponsors, broadcasting rights and merchandising for FIFA, soccer's all-powerful governing body that's long been a male preserve.

Of late, this boys' club has been engulfed in allegations of widespread corruption, casting doubt over its transparency and honesty. Reeling from these scandals, FIFA made a key substitution when it selected Fatma Samoura of Senegal as its Secretary General in 2016. Samoura was an atypical candidate. At the United Nations World Food Program, she had often found herself in life-threatening situations during stints in such hotspots as Liberia and Sierra Leone. But she exemplified the qualities that the organization desperately needed—integrity, courage and the ability to resolve intractable conflicts. And, as she sought to turn around an organization that had been run for decades as a fiefdom by men of privilege, the experience of facing down warlords came in handy. In two years, she has—against all odds—been instrumental in initiating sweeping changes, pushing the organization toward transparency and accountability.

Diversity is critical toward the advancement of human endeavor, not just in sport and art, but in science, as well. Studies show that students trained at diverse schools are more comfortable treating patients from a wide range of ethnic backgrounds, and that teams composed of diverse individuals operate with increased creativity as they promote cross-cultural competence. However, creating an environment that allows this medley of voices to thrive involves focused, long-term efforts. As Brian Kavanagh says in his column in this issue, “the tectonic shifts required to modify workforce demographics meaningfully might take generations to complete.”

Properly actualizing this diverse talent is a necessity as we look to the workforce of the future. The 2030s are projected to be a transformative decade for the United States. The population is expected to grow at a slower rate, age considerably and become more racially and ethnically diverse. Statisticians project that the nation will become a “majority-minority” country in 2045 with no single ethnic group comprising over 50 percent of the population (predicted to be 49.9 percent Caucasian, 24.6 percent Hispanic, 13.1 percent African-American, 7.8 percent Asian and 3.8 percent multi-ethnic).<sup>1</sup> Currently, only 9 percent of practicing physicians in the United States self-identify as black/African-American or Hispanic/Latino.<sup>2</sup> This gap is particularly pronounced in oncology, where only 2 percent of the physician workforce self-identifies as black/African-American and 3 percent as Hispanic/Latino.<sup>3</sup> So how are we doing in radiation oncology? An article by Chapman, Hwang and Deville<sup>4</sup> evaluating the diversity of the radiation oncology physician workforce in the United States shows that females and traditionally underrepresented minorities in medicine are also underrepresented as radiation oncology residents (33.3 percent and 6.9 percent, respectively), faculty (23.8 percent, 8.1 percent) and practicing physicians (25.5 percent, 7.2 percent) compared with the current U.S. population (50.8 percent, 30.0 percent;  $p < .01$ ). It also outlines the significant lack of representation of African-Americans in the pipeline from medical school to radiation oncology residency (7.1 percent versus 3.3 percent). African-Americans were less likely to apply to radiation oncology residency programs compared with whites and were less likely to attend a medical school with an affiliated residency. According to Ahmed and Deville<sup>5</sup>, women's representation in academic radiation oncology has risen over time but at a much slower rate than in the field of hematology oncology.

This issue features several outstanding pieces on the topic. Sewit Teckie's fascinating interview with Reshma Jagsi looks at increasing the number of women in radiation oncology and the importance of

understanding the impact of unconscious biases that keep women and minorities from finding success in the field. Karen Winkfield (Chair of ASTRO's Committee on Health Equity, Diversity and Inclusion) and Charles Thomas talk about the critical role of mentorship in increasing diversity. Ray Mailhot describes how he benefited from such mentorship, while Julianne Pollard-Larkin writes about the most gender-equitable physics specialty: medical physics. Connie Mantz and Arica Hirsch look at diversity from the point of view of private practice and Paul Wallner and the ABR team discuss how the organization strives to improve diversity within the workforce.

We also bring you information updates on two key guidelines—whole breast irradiation for breast cancer and palliative radiation for lung cancer. Another recent publication I would like to highlight is the report of an ASTRO-commissioned task force to review opportunities to improve outcomes for cancer patients by expanding the number of clinical trials that



"Diversity is critical toward the advancement of human endeavor, not just in sport and art, but in science, as well."

include radiation therapy in combination with molecular targeting and immunotherapy agents.<sup>6</sup> In keeping with the theme of building for the future, a collective effort is needed to promote these novel treatment approaches based on tumor, immune, environmental and patient-specific factors.

The updated ASTRO Strategic Plan states diversity and inclusion as one of its core values. ASTRO's Committee on Health Equity, Diversity and Inclusion, under the leadership of Curtiland Deville, has a new program, the Pipeline Protégé Program, a career development program aimed at bringing diversity to ASTRO's Councils and

its future leaders. These initiatives are welcome steps. What is required of us as a field is a commitment to these goals, not simply because it is morally right, but also because it will help us better treat our increasingly diverse patient base. As such, one can—and should—rightfully look at diversity programs as a long-term step in helping us be better for our patients. 

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## CHAIR'S *Update*

BY BRIAN D. KAVANAGH, MD, MPH, FAstro  
CHAIR, BOARD OF DIRECTORS  
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# THE NECESSARY REFLECTION ON **DIVERSITY AND INCLUSION**

**IT WOULD BE DISINGENUOUS FOR ME TO PRETEND** that I have a firsthand understanding of the frustration and pain that can be inflicted by racial, ethnic and gender biases. However, what I believe I can attest, as someone who witnessed discrimination in the largely segregated city where I grew up, is that societal barriers between groups of people prevent the evolution of a culture to be the healthiest it can be.<sup>1</sup>

ASTRO's Strategic Plan, updated in 2017, confirms diversity and inclusion to be a core value of the organization, on equal footing with excellence in patient care, improved outcomes, innovation and integrity.<sup>2</sup> Additionally, many of us are also members of the American Society of Clinical Oncology (ASCO), which has laid out a road map for increasing racial and ethnic diversity among oncologists. One of our esteemed colleagues in radiation oncology, Karen Winkfield, MD, PhD, is the lead author of this publication.<sup>3</sup> Read more from Dr. Winkfield on page 18.

The tectonic shifts required to modify workforce demographics meaningfully might take generations to complete. All physicians together need to start far upstream by advocating for underrepresented groups to have access to the long odyssey through the U.S. medical educational system before we even have a chance to nudge students in our particular direction. In the meantime, while we await the resolution of this and so many other disparities, for those of us who want to do something now, today, while we are still practicing, where do we start?

In 1994, Cleeland and colleagues looked at the records of more than 1,300 patients with metastatic cancer from 54 treatment locations affiliated with the Eastern Cooperative Oncology Group.<sup>4</sup> Among their observations was that patients seen at centers that predominantly treated minorities were three times more likely than those treated elsewhere to have inadequate pain management. This article has now been cited in roughly 2,300 other papers as subsequent investigators

have tried to ferret out the causes and potential solutions for this problematic finding. For the sake of brevity, we will just consider a few of them.

In 2016, Hoffman and colleagues reported a study in which 418 medical students and residents were quizzed about clinical scenarios involving patients of different racial backgrounds.<sup>5</sup> A surprisingly high percentage held false beliefs about biological differences between black and white patients, and the degree of misunderstanding predicted a bias in pain perception and treatment recommendations.

Penner and colleagues studied the effect of implicit bias among non-black medical oncologists interacting with black patients.<sup>6</sup> Unsurprisingly, oncologists with higher levels of implicit racial bias had shorter interactions with the patients, and patients had more difficulty remembering the content of the interaction. The authors drilled down further and observed that physicians with higher levels of implicit racial bias used socially dominant first-person pronouns and anxiety-related words more frequently than physicians with lower levels of implicit bias.<sup>7</sup> Also, not surprisingly, from the patients' perspective, higher levels of perceived past discrimination and higher levels of mistrust also predicted negative interactions.<sup>8</sup>

The trust and communication problems of racial discordance are magnified in the context of clinical research, and the lessons and legacy of the Tuskegee Syphilis Study must never be forgotten.<sup>9</sup> In a hopeful sense, the RTOG appeared to have made incremental progress with a Cultural Competency and Recruitment Training Program that was evaluated in a cohort of investigators and clinical research associates and resulted in a modest increase in minority accrual to clinical trials.<sup>10</sup> But we still have a long way to go.

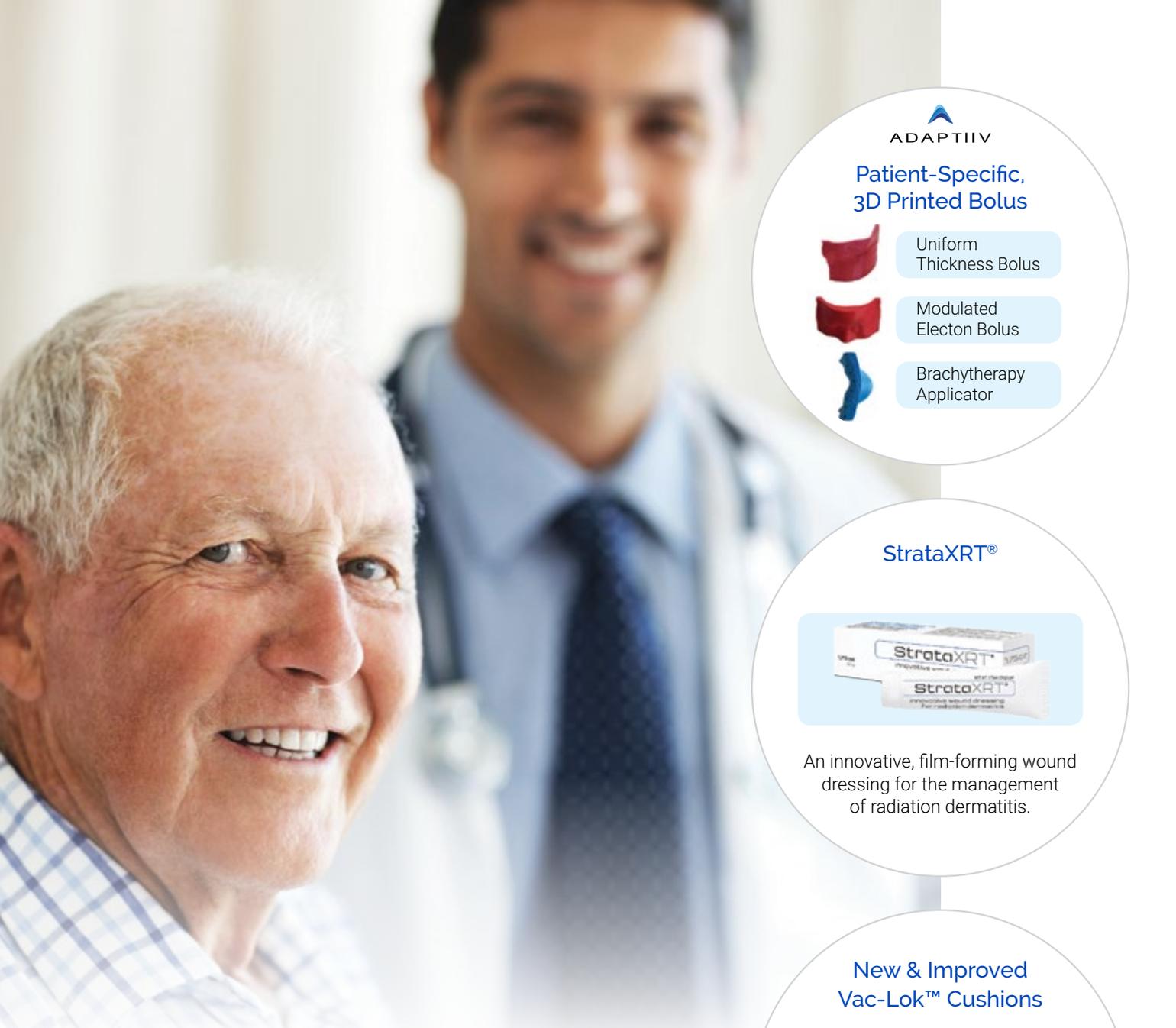
Ultimately, if we all want to do something useful and good in an immediate sense, we each should take a look at ourselves to be sure our own behaviors are part of the solution—and not part of the problem. 



## References and Notes

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A photo of a painting Dr. Kavanagh created called "WhoAmI?" as seen in a camel bone mirror. Acrylic on canvas, ca. 2005.



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# SOCIETY NEWS

## ASTRO launches new program aimed at increasing diversity

**LAUNCHED EARLIER THIS YEAR**, the Pipeline Protégé Program was created by ASTRO's Committee on Health Equity, Diversity and Inclusion (CHEDI) as a career development program aimed at increasing diversity among ASTRO leadership.

The program is designed to expose underrepresented minorities within ASTRO to leadership activities, with a goal of developing the next generation of ASTRO leaders.

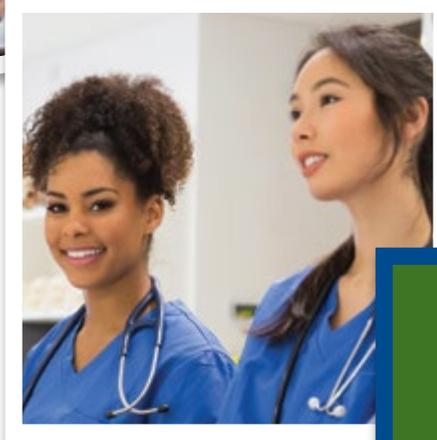
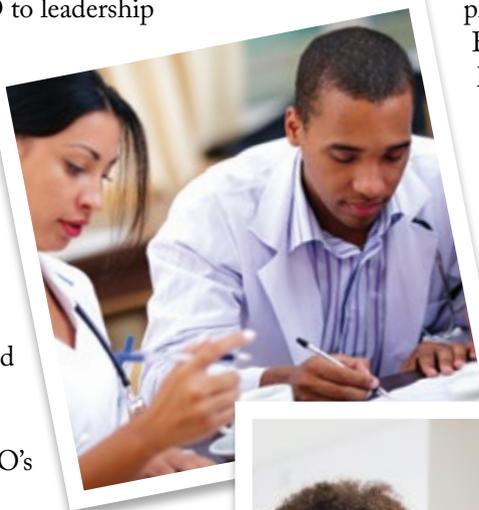
"In radiation oncology, the number of women and minorities remains disproportionately underrepresented compared with other specialties," says Stephen Hahn, MD, FASTRO, chair of ASTRO's Education Council.

"Inevitably, this underrepresentation translates to a lack of diversity within ASTRO's leadership. We hope to address that issue with the Pipeline Protégé Program, which is in line with ASTRO's core value of diversity and inclusion, an essential and enduring principle that guides the behavior of our organization."

Ideally, those who are selected as protégés will remain highly active and engaged in the ongoing activities of ASTRO's Councils. Protégés will have access to seasoned volunteer and staff leaders and participate in planning conversations that help shape ASTRO's programs and activities.

CHEDI has a mission to advance the status of minorities and the underserved in oncology through educational and professional opportunities, advocacy and awareness. During the first-year pilot phase, the selected protégés will focus on further developing the Pipeline Protégé Program. At the end of the program term, the protégés will attend the ASTRO Board of Directors meeting on-site at the Annual Meeting and will report on their experiences in the program.

Applications for the first year were due April 1. Selected protégés will be notified by July. For more information, visit [www.astro.org/pipeline](http://www.astro.org/pipeline).



ASTRO's New  
**Pipeline  
Protégé  
Program**

## Communications Committee releases social media best practices

### IN ORDER TO ASSIST MEMBERS WITH NAVIGATING THE WATERS OF SOCIAL MEDIA, ASTRO's

Communications Committee has created a list of best practices for members to use when establishing and participating in social media platforms, such as Twitter, Facebook, LinkedIn and Instagram.

"It's recently been estimated that about 40 percent of patients have sought out reviews of treatments, physicians and other patient experiences on social media," says Sabin Motwani, MD, one of the committee members who helped put the best practices together.

"Therefore, it's important as radiation oncologists to engage with patients and the public in a professional capacity on social media to make sure we continue

to educate people about the benefits of radiotherapy in the management of cancer."

The guidelines include recommendations on how to set up an online identity, how to protect patient confidentiality and how to use hashtags. They also address the kinds of content to post and share online, as well as etiquette for maintaining a professional presence on social media. There is also a list of resources for further reading. Read the full Social Media Best Practices for Radiation Oncologists at [www.astro.org/smbestpractices](http://www.astro.org/smbestpractices).

Stay tuned for more information from the Communications Committee about how to maintain a presence on social media, including a slide deck for presentations on social media to be given to physician groups, best practices and upcoming presentations and workshops on the topic. 



**SOCIAL MEDIA BEST PRACTICES for Radiation Oncologists**

- 1. Establish an online identity**
  - Create a professional handle (i.e. @DrJohnSmith) and use a professional photo.
  - Share what is important to you as an individual and as a physician. Social media is an excellent way for others to connect to you, including other physicians, health care professionals, patients, patient advocacy groups, hospitals, specialty societies and research organizations (e.g., ASTRO, NRG, SWOG, EORTC).
  - Some people want to keep their private lives offline. If you want to separate the professional and personal aspects of your life online, consider creating separate personal and professional profiles in order to post specific content to your private or professional account.
  - Be aware that, if you do not have separate profiles, what you share personally may be seen by others as part of your professional identity.
- 2. Protect physician-patient confidentiality**
  - Remember that anything shared on the Internet is public and lives forever (a paper or digital trail is left behind even if you delete a post). Whatever you post is public knowledge for patients, colleagues, bosses, administrators and your family.
  - Never share any specific, identifying details about patients.
  - Do not give personalized medical advice on social media.
- 3. Engage in real time**
  - Network with other physicians who are also online to facilitate interdisciplinary collaboration locally, regionally, nationally and internationally.
  - Post updates from live events that you are attending, such as annual meetings or conferences.

- Share research updates or presentations that might not be published or accessible elsewhere yet (if permitted by the presenter). When sharing results or retweeting slides, adding your own summary or insight is an excellent way to include your personal perspective on a particular piece of data.
- Sharing information facilitates a high level of online discussion. Back up your recommendations with data by sharing links to articles, figures, and graphs.
- Raise awareness and promote pertinent, timely topics in radiation oncology and health care in general to colleagues, other physicians and the public. Examples of this participation include online journal clubs or tweetchats.

**Create and innovate**

- Use social media to learn best practices both in oncology and medicine overall. Learning from other physicians online is an excellent tool.
- Open to new uses for social media, such as boosting accrual for clinical trials or training grant funding.

**Be transparent about conflicts of interest**

- Disclose conflicts of interest and be careful about promoting specific products or companies for which you have a financial or perceived conflict of interest.
- Follow your institution's policy on social media.
- When tweeting for yourself, and only you. A common phrase to include in one's Twitter bio is "views and retweets do not mean an endorsement."

**Platform**

- Read the official rules of each social media platform you use, including Twitter, Facebook, LinkedIn or other platforms. Start slowly and observe others who seem to understand the platform to learn them.
- Join groups for which they legitimately belong. For example, a Facebook group is for physicians only, don't invite patients. Likewise, do not join groups where your specialty does not match.
- Use relevant hashtags in your messages or tweets. For example, #radonc, #lcsm (lung cancer social media), #astro (social media). See [symplr.com](http://symplr.com) source below for a full list.
- When you should in face-to-face interactions, be kind and courteous to your online colleagues, even if their opinion differs from yours. Patients and patient advocacy groups are often following or participating in discussions. They might form impressions of you based on your tone, as much as, or more than, the content of your commentary.
- Don't be afraid to ask questions. If there is a concern about offending someone, trust your instincts and consider rewriting or not posting at all. If you don't want to post a message to everyone, send the intended user a private or direct message (DM).

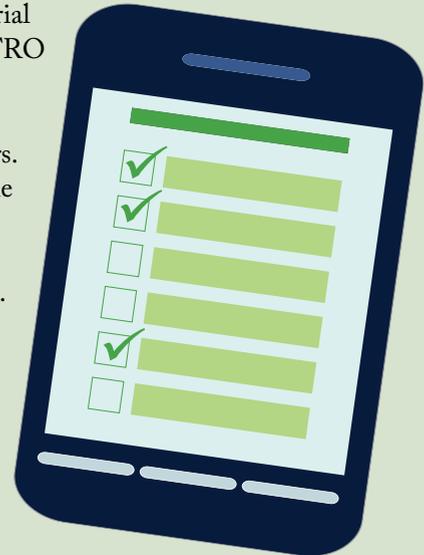
## Help ASTROnews help you

### Take the magazine readership survey and tell us what you think

*ASTROnews* is conducting a readership survey to help guide editorial content and themes for future issues. The brief survey will collect ASTRO members' opinions and suggestions so that the *ASTROnews* editorial board can tailor content to best serve you.

A link to the online survey will be emailed to all ASTRO members. Please take a moment to complete the survey so we can understand the habits and interests of the readers of ASTRO's member magazine.

Look for the survey link in the *ASTROnews* electronic table of contents for the Summer 2018 issue, which will be emailed on July 24. Or you can log in to the survey from [www.astro.org/astronewssurvey](http://www.astro.org/astronewssurvey).



## In Memoriam

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

**Mike Cheng, MD**, *Hattiesburg, Mississippi*  
**Richard L. Cumberlin, MD**, *Bethesda, Maryland*  
**Roy R. Deffebach, MD**, *Belmont, California*  
**Stanley Dische, MD**, *Northwood, United Kingdom*  
**Walter G. Gunn, MD**, *Bigfork, Montana*  
**Peter Mauch, MD, FASTRO**, *Boston*  
**Robert Woodhouse, MD**, *Fountain Valley, California*



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

## ASTRO releases two new guidelines this spring

**IN MARCH, ASTRO RELEASED A NEW CLINICAL GUIDELINE** for the use of whole breast radiation therapy for breast cancer that expands the population of patients recommended to receive accelerated treatment. Reflecting current evidence from clinical trials and large cohort studies, the new guideline recommends hypofractionated whole breast irradiation (WBI) for breast cancer patients regardless of age, tumor stage and whether they have received chemotherapy. Published online in March and in the May-June issue of *Practical Radiation Oncology (PRO)*, it replaces the existing ASTRO WBI guideline published in 2011.

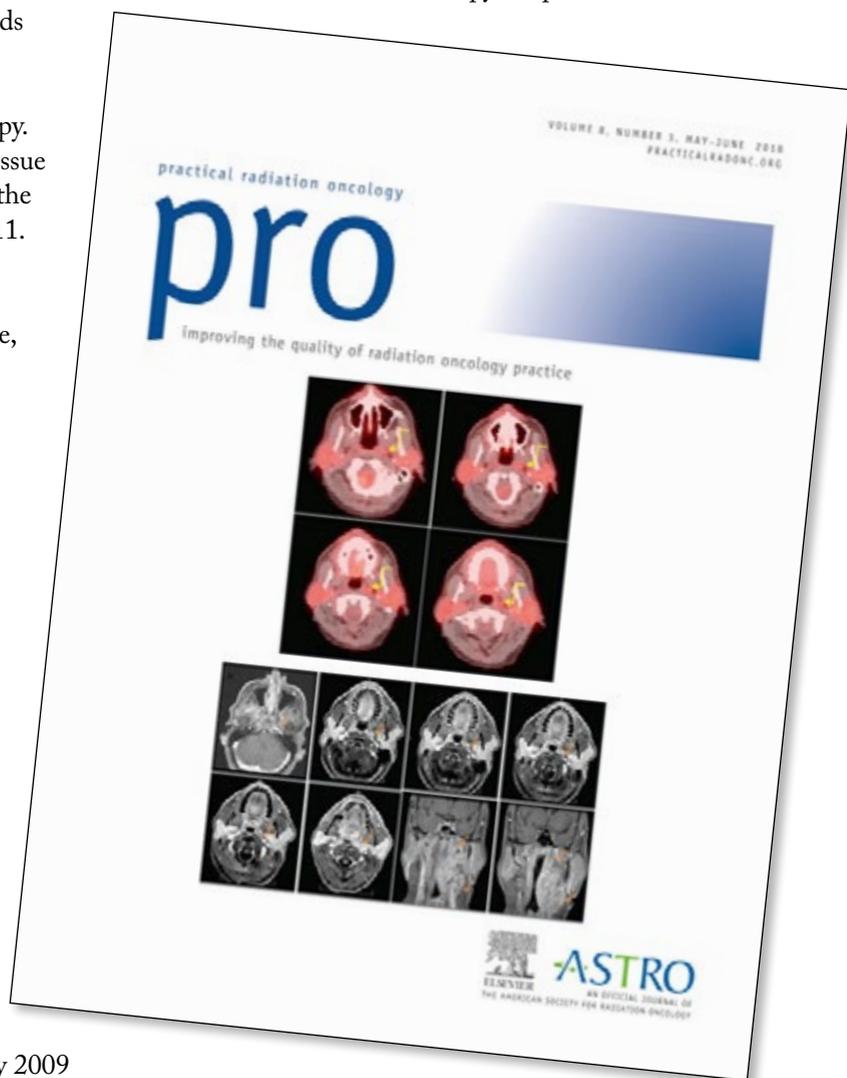
“Previously, accelerated treatment was recommended only for certain patients, including older patients and those with less advanced disease, but recent long-term results from several large trials strongly support the safety and efficacy of accelerated treatment for most breast cancer patients,” said Benjamin Smith, MD, co-chair of the guideline task force and an associate professor of radiation oncology at the University of Texas MD Anderson Cancer Center in Houston. “Conventional therapy does not provide an incremental benefit in either tumor control or side effects compared to hypofractionated WBI.”

Despite the data supporting accelerated treatment, large numbers of eligible breast cancer patients are not receiving shorter courses of radiation therapy. A 2013 JAMA study found an adoption rate of approximately 30 percent, and a 2017 analysis for Kaiser Health News indicated that fewer than half of patients older than age 50 with early-stage disease receive the accelerated treatment.

The guideline was based on a systematic literature review of studies published from January 2009 through January 2016. A total of 528 abstracts were retrieved from PubMed, and the 100 articles that met inclusion criteria were evaluated by a 15-member task

force of radiation oncologists who specialize in breast cancer, a medical physicist and a patient representative.

In April, ASTRO issued an update to its clinical guideline for the use of palliative-intent radiation therapy for patients with



The new whole breast irradiation guideline and updated guideline on palliation for incurable non-small cell lung cancer were recently published in *Practical Radiation Oncology (PRO)*, ASTRO's clinical practice journal

incurable non-small cell lung cancer (NSCLC). Reflecting new evidence from randomized clinical trials, the guideline now recommends the addition of concurrent chemotherapy to radiation therapy for certain patients with incurable stage III NSCLC, including those who are able to tolerate chemotherapy and have a life expectancy longer than three months.

“The primary question we faced with this revision was whether providers can enhance the impact of moderate, palliative doses of radiation by introducing additional therapy,” said Benjamin Moeller, MD, PhD, chair of the guideline task force and a radiation oncologist at the Levine Cancer Institute in Charlotte, North Carolina.

“Patients in this setting typically receive two to three weeks of daily radiation, during which they might expect to have one to two weeks of clinically significant, treatment-related side effects—most commonly inflammation of the esophagus. Following treatment, however, these patients experience a more robust and durable stabilization of their quality of life, including less pain and fewer symptoms.”

The recommendations, which will be published in the July-August issue of *PRO*, update the existing 2011 ASTRO guideline, which stated that there was no added benefit of concurrent chemoradiation in the palliation of lung cancer symptoms. 

## 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](mailto:communications@astro.org) for inclusion in the online feature. View the recent edition at [astro.org/PeopleintheNews](http://astro.org/PeopleintheNews).



# LET'S TALK *about* **GENDER**

Two ASTRO members have a conversation about why women are underrepresented in radiation oncology, what can be done about it—and why it matters.

**ASTRONEWS EDITORIAL BOARD MEMBER** Sewit Teckie, MD, recently spoke with Reshma Jagsi, MD, DPhil, to talk about Dr. Jagsi's research on gender issues, including studies of women's representation in the medical profession.

Dr. Jagsi is a professor, deputy chair and residency program director of the Department of Radiation Oncology and director of the Center for Bioethics and Social Sciences in Medicine at the University of Michigan. She graduated first in her class from Harvard College and then pursued her medical training at Harvard Medical School. She also served as a fellow in the Center for Ethics at Harvard University and completed her doctorate in Social Policy at Oxford University as a Marshall Scholar. In addition to her social scientific research, she is an active clinical trialist and health services researcher.

**Sewit Teckie, MD:** Please tell us about your research on women in medicine and the challenges of being a woman radiation oncologist, or a woman physician in general.

**Reshma Jagsi, MD, DPhil:** Lots of interesting research has investigated why women continue to be underrepresented in senior positions in medicine, and that research can help us to understand some of the differences we see within radiation oncology—both in terms of recruitment and advancement of women in our field.

Much research has focused on the challenges of gendered expectations and implicit bias. We all—men and women alike—have notions of male and female roles and different expectations for how men and women should behave and what they are capable of.

Women may be expected to exhibit what are known as communal behaviors, like teamwork, sharing, counseling and listening. And men may be expected to demonstrate more of what are known as agentic behaviors: going out there and doing something, accomplishing something. Radiation oncology is a very active field where we go after a tumor and treat it aggressively. That may be something that isn't necessarily concordant with the gender norms that we raise our little girls to embody. So that may help to explain why we see so few women entering our field: It's really remarkable that when half of all medical students are women, not even a third of the residents in our field are women.

Unconscious bias can also affect how we evaluate men and women who are performing in a professional context. I am sure you are familiar with the work that showed that you can send the same CV with one small change—changing the name from Brian Miller to Karen Miller—and that one difference will completely change how the CV is evaluated. Karen Miller is less likely to get hired, and Karen Miller is rated as objectively having lower ratings in terms of her teaching, her service and her scholarship. Even though it's the exact same CV. These are really powerful biases that we have. The existence of these deep, unconscious biases can help to explain why we see so few women advancing to positions of leadership.

Then, of course, there are also the gendered expectations in society that can be particularly difficult for women who are integrating work with family. It's still the case in our society that women are expected to bear the greater burden of domestic responsibilities. My own research team conducted a study, it's one of my favorite studies that we've done, that actually looked at time distribution of men and women who are both incredibly career-oriented, that is, physicians holding NIH [National Institutes of Health] career development awards. We asked them how they were spending their time, using the same framework that labor economists use—that there is paid labor and there is unpaid labor.

What we found is that, of course, women are not lazier than men. They are not doing less labor. What we found was that they were spending, even after adjustment on multivariable analysis, eight-and-a-half hours more per week on parenting and domestic tasks. And what was getting squeezed out was their research at work. So it's not surprising to me that we see differences in career outcomes develop when, even in that extraordinarily career-oriented cohort, there were big differences in the amount of time that people are spending on domestic responsibilities. So that's another set of challenges that women face.

And then, of course, we've been hearing more and more recently about overt discrimination and harassment as additional challenges that women in medicine still have to deal with.

**Dr. Teckie:** Are there any policies or proactive steps that you have seen, in medicine or in our field, that help women succeed and stay in the pipeline, especially in academia?

**Dr. Jagsi:** Mentorship and networking programs, both at the individual institution and professional society level, are key. Mentors can help women to learn how to play games they didn't learn during childhood, they can serve as sponsors who provide them with opportunities they wouldn't otherwise have and they can teach important skills like negotiation that aren't part of the standard medical curriculum.

There have also been a number of other innovative programs that have been implemented at various institutions. Some of them are more comprehensive—like an effort to promote cultural transformation at the University of Pennsylvania—and some of them are more focused, like specific efforts bringing women together in groups where they can serve as peer



Sewit Teckie, MD, *ASTROnews* editorial board member and assistant professor in the Department of Radiation Medicine at Lenox Hill Hospital in New York.



Reshma Jagsi, MD, DPhil, is professor, deputy chair and residency program director of the Department of Radiation Oncology at the University of Michigan. She has conducted research on issues facing women in medicine.

mentors for one another. Molly Carnes, MD, MS, at the University of Wisconsin, and her colleagues did a wonderful experimental study where they looked at the impact of an implicit bias training workshop and published their findings in “Academic Medicine” showing that there was a durable impact.

Stanford had a pilot program looking at rewarding the kind of work that sometimes goes unrecognized. They would give credit for things like asking someone to do some extra mentorship or extra teaching—the kinds of work that one might classify as “women’s work”—because they recognized that doing those things takes time and is valuable to the institution. They gave out credits for doing those things that the people who were giving their time to others could then use to get help for themselves. If you mentored someone else, you could use those credits to get grant writing support or to get help at home for yourself, like a food delivery service. You could tailor it to your own specific needs. That kind of creativity is really wonderful.

I am the national program evaluator for a Doris Duke Charitable Foundation program. We published a very preliminary description of the program in “Annals of Internal Medicine” in March. In that program, the support is deliberately targeted toward men or women who are facing challenges of work-life integration, specifically related to their caregiving responsibilities at home. Again, it’s not specific to women, but we know that in our society women are more likely to face these kinds of challenges.

Those kinds of programs, even though they don’t necessarily have to be gender-specific in their design, may be a rising tide of lifting all boats but helps women who have the most need more.

**Dr. Teckie:** Stepping back a bit—what made you want to go into this line of research? You’ve really taken a lead on it, certainly within radiation oncology and medicine more broadly. What inspired you to do this work?

**Dr. Jagsi:** Two words for you: Nancy Tarbell. Nancy was the director of the Office of Women’s Careers

when I matched as a resident at Mass General, and she was my mentor. And she ended up engaging me in her work. She pointed out that, as someone who had done my PhD in social science, I had the skillset to carve an academic niche in this area that was really understudied. She was an incredible mentor to me, embodying everything that one wants in a mentor and a sponsor, and helped me to identify a series of questions that really bothered me—questions that I thought, if we could answer, would actually make a real difference in the world.

I wanted to be a pediatric radiation oncologist when I started off—that’s how I found Nancy. Then when I realized that my real passion was breast cancer, she didn’t abandon me—she was still my mentor. We just found something else we could work together on. So she’s the one that got me into this area.



**Dr. Teckie:** That’s great. And based on your work within radiation oncology, what is the current state of diversity in our field?

**Dr. Jagsi:** It’s appalling. If you look at the AAMC statistics, they have a table online that shows the distribution of residents by specialty in 2005 and in 2015. Radiation oncology was one of the specialties where the proportion of women actually went down from 2005 to 2015. It’s under 30 percent now [28.5 percent in 2015].

If 50 percent of medical students are now female,

but only a quarter of the trainees in radiation oncology are female, then we're never going to be more than a quarter of the practicing workforce. Sadly, the proportion of women is sort of hanging right there at the 25 to 30 percent level. Women have been about 30 percent of the residents in radiation oncology since about 1990 and we haven't seen any improvement. In other fields, including medical oncology, nearly half of their fellows are females, and they have seen a dramatic, continued increase over the course of the '90s and over the past nearly 20 years. We need to do better.

**Dr. Teckie:** Do you or your collaborators have a hypothesis as to why the representation of women in our field is low?

**Dr. Jagsi:** I think it's complicated. Certainly, I mentioned that radiation oncology is a field that involves agentic behavior, and there may be some implicit bias about either evaluating women differently when they are pursuing their medical student clerkships or encouraging them to occupy fields that are perceived as involving more feminine behaviors.

It's ironic because of course radiation oncology involves quite a bit of patient counseling. We are the experts in complex risk communication—that is a behavior that is not agentic. It is a communal behavior, and I spend most of my day counseling patients and very little, relatively speaking, doing the things that people might assume that a radiation oncologist does. I think there is a misconception that we sit alone in dark rooms and contour anatomic structures rather than interact with patients. That's unfortunate.

Then I think there are the issues with stereotype threat and women having been told for a long time that girls aren't good at math and "hard science" like physics. So the idea that this is a field that requires expertise in those areas may also contribute in a negative way.

I think another issue is a lack of female role models. Our field has a persistent paucity of women in senior positions and women on faculty. If a female medical student rotates in radiation oncology at a typical department where three of the 12 residents are female, is she going to feel like she really fits in there, or is she going to feel like those three female residents are outliers to her? Is she going to see anyone who reminds her of herself who she can use as a role model?

**Dr. Teckie:** How can women seek out role models who are supportive of their careers?

**Dr. Jagsi:** In terms of role modeling, some of the junior women in our field have undertaken some wonderful initiatives. There's a group of female residents who founded something called the SWRO, the Society for Women in Radiation Oncology. It's a forum for young women in radiation oncology to come together and support one another, and also engage more senior women in a variety of different ways. I'm personally supporting them by doing a survey of what the needs are amongst women who are already residents in radiation oncology. Then, hopefully from there, we'll be able to branch out and extend these efforts to reach back much earlier in the pipeline.

Because the issue is that—and this is even more the case for race than it is for gender—we lose people at every step in the process. We need to be targeting trainees much earlier than during residency. We need to be going to the medical students, to the undergraduates, to the high school students, and tell them what a wonderful career medicine, and specifically, radiation oncology is. That's where we start capturing their imagination; when they're young and they can say, "Hey, I might want to be that when I grow up."

Once, my daughter visited me at work when she was about two years old. When she saw one of the male physicians in the department, she said to my husband, "Hey look, Daddy, boys can be doctors, too." Everybody heard that and laughed. But she knows that little girls can be good at math and science. We need to provide those role models very early on.

**Dr. Teckie:** One question that I think some people may ask about this line of research is, "Why do we care; why does it even matter to have more women in the field?" How would you answer that?

**Dr. Jagsi:** There are two classes of arguments that can be made. One is more philosophically robust, in my opinion, but actually less effective in practice. That explanation is a deontological argument, which states that equity is important, because fairness is important, because it's simply the right thing to do. It's grounded in the philosophy of Immanuel Kant—this idea that human beings have a fundamental dignity that merits respect for its own sake—that dignity derives from human beings' capacity for freely willed action and rational thought. It's basically a dignity-based fairness argument.

This argument doesn't tend to be as compelling because, when you're trying to make a case for resources or programing to support interventions, you're usually

approaching someone who is in charge. Those kinds of arguments can backfire because they can seem like you're saying the person who's in charge is being unfair or not being respectful or is somehow out to get someone. In my experience, people in leadership positions are not waking up in the morning thinking about how they can best oppress the women in their employment but are actually trying to do the right thing.

A more effective type of argument for why this matters, and a type of argument that I think is more useful in terms of helping to acquire the resources needed to pursue equity and diversity, relates to the consequences of diversity and equity. If you think about the tripartite mission of academic medical centers—there's the clinical mission, there's the research mission, there's the educational mission—diversity serves all of those. We know that half of our patients are women. We know that many of our patients are from racial and ethnic minority populations. We need a workforce

that includes members of those communities in order to be able to serve that population well. Similarly, half our students are women; we need role models for all those young women—and for the young women and members of racial/ethnic minority populations who should know that medicine in general (and radiation oncology in particular) are fields they can and should consider pursuing.

And then in terms of research, there's an abundance of literature that suggest that having people who have different backgrounds and experiences coming together and interacting leads to better solutions to problems, and leads to asking more innovative questions, and improves collective intelligence. Diversity leads to better science.

So diversity serves our field in all of these ways. Basically, equity is important because it's the right thing to do, and diversity is important because it helps us to achieve the goals of our profession and our society. 

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## FURTHER READING ON DIVERSITY

For more information on diversity in radiation oncology and the House of Medicine as a whole, we've compiled a source list of ASTRO resources and other groups who are working in this area. If you know of other resources, please let us know by emailing [astronews@astro.org](mailto:astronews@astro.org).

### ASTRO Resources:

**ASTRO Minority Summer Fellowship Award**  
[www.astro.org/minoritysummerfellowship](http://www.astro.org/minoritysummerfellowship)

**Pipeline Protégé Program**  
[www.astro.org/pipeline](http://www.astro.org/pipeline)

**Online SA-CME: ASTRO-NCI Diversity Symposium: Addressing Cancer Disparities**  
<https://academy.astro.org/node/840>

### Other Resources:

**American Association for Women Radiologists**  
[www.aawr.org](http://www.aawr.org)

**Association of American Medical Colleges**  
[www.aamc.org](http://www.aamc.org)

**Latino Medical Student Association**  
[lmsa.site-ym.com](http://lmsa.site-ym.com)

**National Hispanic Medical Association**  
[www.nhmamd.org](http://www.nhmamd.org)

**National Medical Association**  
[www.nmanet.org](http://www.nmanet.org)

**National Society of Black Physicians**  
[www.nsbp.org](http://www.nsbp.org)

**National Society of Hispanic Physicians**  
[www.hispanicphysicists.org](http://www.hispanicphysicists.org)

**Physician Moms Group**  
[physicianmomsgroup.com](http://physicianmomsgroup.com)

**Society for Women in Radiation Oncology**  
[www.societywomenradiationoncology.com](http://www.societywomenradiationoncology.com)



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# WHY Mentorship MATTERS

Mentoring underrepresented minority medical students, residents and early-career physicians can encourage greater diversity in the field of radiation oncology

**AS IS DISCUSSED ELSEWHERE IN THIS ISSUE**, 9 percent of radiation oncology medical students are underrepresented minorities, compared with 14 percent across all specialties. This translates into a ranking of 17 out of 20 for radiation oncology when looking at the largest medical specialties. At the same time, one of ASTRO's core values is diversity and inclusion within the field of radiation oncology. So how can those in radiation oncology encourage greater diversity among its ranks?

Many in the field have advocated that mentoring can expose promising underrepresented minority students to radiation oncology. In 2010, ASTRO's Committee on Healthy Equity, Diversity and Inclusion launched the ASTRO Minority Summer Fellowship Award to formalize the process of physician-to-medical-student mentoring. In an effort to promote radiation oncology as a career choice, the fellowship provides medical students with an experience designed to introduce students to clinical, basic and translational research questions in radiation oncology. Since its inception, the fellowship has been awarded to 17 minority medical students. See the sidebar on page 21 for the experiences of one of ASTRO's 2012 Minority Summer Fellowship awardees, Raymond Mailhot, MD, MPH.

*ASTROnews* spoke with two members, Karen Winkfield, MD, PhD, and Charles Thomas, MD, whom are both active mentors to medical students, about the importance of mentorship when it comes to increasing diversity in the specialty.

## On the Importance of Mentoring in Radiation Oncology

BY KAREN WINKFIELD, MD, PHD,  
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**THE RACIAL AND ETHNIC DIVERSITY OF THE MEDICAL WORKFORCE** has not kept pace with the increasing diversity of our nation. Currently, fewer than 10 percent of practicing physicians self-identify as African American, Hispanic or American

Indian/Alaskan Native. These are the primary racial and ethnic groups that are traditionally considered underrepresented minorities in medicine (URM). Even fewer (6 percent) select careers in either medical oncology and radiation oncology. While the number of Hispanics entering the field of radiation oncology as trainees is increasing (from 4 percent to 7 percent in five years), the same is not true for African Americans, whose entrée into the field has remained stagnant at 3 percent for the last decade.<sup>1</sup>

Increasing the pipeline of URM medical students who select a career in radiation oncology is possible—but there must first be recognition from the field as a whole that workforce diversity is essential for us to appropriately serve our increasingly complex and diverse patient population. Racial concordance between patients and providers improves the patient experience. With the unequal burden of cancer and cancer mortality in the African American community, it is vital to improve access to care wherever possible, and that includes via workforce diversity. The number of URM graduates from medical school remains comparatively low; therefore, our subspecialty has to actively recruit and retain URM students. The recruitment challenges into our field have been addressed elsewhere,<sup>2,3</sup> but an even larger issue and more complex concern is the creation of an inclusive work environment; one where the URM trainee or faculty member truly becomes part of the team and is supported in a way that will help them thrive. Why bring URM students to the table if there is no plan to teach them how to play the game?

Not all medical students from URM backgrounds have had exposure to careers in medicine and even fewer know about radiation oncology. And there is a culture associated with our subspecialty; this is where mentoring is essential. Investment must be made to teach URM students the culture of the field, ideally before they begin training. Most physicians have limited training in how to mentor; it often happens organically based on connections made between two individuals that sometimes is steeped in likeness. Imagine walking into a field where only a handful of providers look like you? Or talk like you? Or come from a similar background? Inherent in this can be a feeling of “other” that, unless actively addressed, can cause increased isolation during training and beyond.

Fewer than 20 practicing radiation oncologists in academia self-identify as black. That is 20 individuals in the entire country! So the primary thing I provide to students of color is an example—they see an African American woman in an academic position in radiation

oncology. Turns out, that’s a rare thing. I was blessed as a trainee to have two senior residents ahead of me who were African American, but I trained at the largest residency program in the country. Most URM trainees are lucky if they have a single co-resident in their year who is also a URM student.

I mentor URM medical students by exposing them to the field early in their medical school experience, primarily via clinical exposure, but also by helping to build their research portfolio. Every student who wants to be mentored by me is asked for a photo and a CV. I set expectations for the mentoring relationship upfront and allow the mentee to set the pace of our relationship. One of my mentors would take notes during our scheduled visits; I adopted the same practice as it allows both the mentee and the mentor to set and stick to goals. Often, resident trainees and young faculty members just need a sounding board; someone who will not judge them for their fears, concerns or mistakes. Mentoring, coaching and sponsorship are vital for success in radiation oncology academia, and every physician who enters the field can take an active role in helping to shape the vision of our workforce for the future.

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## How I Mentor—and Why I Do It

BY CHARLES R. THOMAS JR., MD, PROFESSOR AND CHAIR, DEPARTMENT OF RADIATION MEDICINE, OREGON HEALTH AND SCIENCES UNIVERSITY (OHSU), PORTLAND, OREGON

### I GET INVOLVED WITH MENTORING

because it is a shared responsibility and opportunity to make sure that we cultivate talent. With proper mentoring, we may be able to facilitate a level of productivity that otherwise might not have occurred. For example, I often get asked to interface with a broad spectrum of learners

with varying career interests in medicine, including radiation oncology. One such individual is Shearwood “Woody” McClelland, MD, who is transitioning from another specialty into radiation oncology. Following a series of discussions, we felt that the mentor-mentee relationship between members of our department and Dr. McClelland would be facilitated if he spent several months at OHSU as a research associate under a SWOG-funded research grant to Timur Mitin, MD, PhD. During the short time that Dr. McClelland has been co-mentored by our team, his publication record has been remarkable. He’ll probably have nearly 90 publications by the time he starts a residency training program. He and other emerging talent have a lot to offer and the mentoring process can contribute in a positive way.



Charles R. Thomas Jr., MD, meets with medical students during a visit to the University of Pittsburgh.

We try to proactively identify highly qualified talent like Dr. McClelland whenever possible. I have worked to incorporate this approach as part of my own DNA, and work to encourage it in my faculty members, as well. For example, when I am asked to be a visiting professor, I will proactively ask the host institution to find 30–45 minutes for me to meet with underrepresented minority (URM) talent from the host institution. Specifically, when I was given opportunities to serve as a visiting professor at the University of California, Los Angeles, the University of Florida, the University of Pittsburgh and the University of Iowa, I kindly asked to meet three to five URM students to learn more about their career goals and advocate for careers in oncology, including radiation oncology. I often seek out the institution’s medical scientist training program (MSTP) website, as well as those of the

Student National Medical Association, Latino Medical Student Association and various other student affinity groups, who can easily identify students working on exciting research projects. I introduce myself to the students and tell them that I would like to learn more about their research and career plans. In every case, the host department leadership helped to fit in a session for me to meet with these fountains of young talent.

I have shared this tactic with other department chairs at OHSU and several now proactively seek out this opportunity as a normal part of their visiting faculty stints to various outside academic institutions. I do want to stress that one doesn’t have to be from a URM population in order to identify and spend a few minutes with high-quality URM trainee talent.

Finally, I ask my entire faculty to include a brief self-assessment of their own activities regarding diversity prior to their annual performance review with me. Actually, this idea was borrowed from the University of California system, which requires this type of self-assessment as part of the routine promotions and tenure process. The self-reflection of the topic can be a helpful exercise.

Once URM students are in the radiation oncology pipeline, continued mentoring is necessary to ensure they receive the support they need. I always have three to four URM students that I have quarterly conference calls with to provide career advice. For example, William Wagstaff is a current student in the University of Chicago’s MSTP. I have met with him several times when I’ve been in town for various meetings. He is fortunate enough to be in a high-quality lab and may become an academic radiation oncologist. Daniel Golden, MD, one of our specialty’s best-and-brightest emerging academic educational leaders, has already offered to interface with William and will, no doubt, play a positive role in his career development.

I also try to have URM talent come through and give research seminars to a diverse group of scientific investigators at OHSU and the Knight Cancer Institute. Darrion Mitchell, MD, PhD, currently a physician-scientist at Ohio State University’s radiation oncology program, was first brought to my attention when he was awarded an ASTRO Resident Seed Grant in 2013 while a Holman Research Pathway resident at the University of Iowa. On his way back from the 2014 ASTRO Annual Meeting in San Francisco, I had him swing through Oregon. He gave a very well-received

research seminar to the Pacific Northwest Prostate Cancer Specialized Programs of Research Excellence (SPORE) group that was shared with the OHSU, Fred Hutchinson Cancer Research Center and British Columbia Cancer Agency researchers within the SPORE.

In essence, mentoring can become a core part of the DNA in all of us. Wasserman and Coleman<sup>1</sup> have challenged us to value mentorship as a core value of our profession. Several radiation oncology programs, including some of the top academic programs in Madison, Wisconsin; Seattle; Ann Arbor, Michigan;

Houston, Boston and Philadelphia, to name just a few, have published on this important topic in our specialty's flagship journal, the *International Journal of Radiation Oncology•Biology•Physics*. In addition, the OHSU Radiation Medicine website has some useful information on mentoring, as well.<sup>2</sup> 

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# Reflections from a Minority Summer Fellowship Awardee

BY RAYMOND MAILHOT, MD, MPH, RADIATION ONCOLOGY RESIDENT, NEW YORK UNIVERSITY LANGONE MEDICAL CENTER

**MENTORSHIP AND GRATITUDE.** Honestly, those are the two words I associate the most with my having been awarded the ASTRO Minority Summer Fellowship in 2012. At the time of my award, I had taken a year off from Washington University in Saint Louis School of Medicine to complete a master's degree in public health at Harvard University with a focus on quantitative analysis and cost effectiveness. During that time, I was blessed to become friends with Sean McBride (then a resident at Harvard, and now an attending physician at Memorial Sloan Kettering Cancer Center), who introduced me to Shannon MacDonald, MD, based on my interest in pediatric oncology.

Together, we embarked on a cost-effectiveness analysis comparing proton versus photon therapy for pediatric medulloblastoma, and the work was accepted for oral presentation at the Scientific session of the 2013 ASTRO Annual Meeting and later published in *Cancer*. Before meeting Dr. MacDonald, I had completed my sub-internship in pediatric hematology/oncology, and I had imagined I would pursue residency in pediatrics or obstetrics and gynecology. But, by seeing her scholarship and excellent patient care, I realized I could have my dream career in radiation oncology.

I subsequently was accepted for residency at New York University and my prior work led naturally to other cost-effectiveness analyses and publications trying to determine the optimal allocation of proton therapy for children with intracranial tumors and

women with breast cancer. The fellowship was, without a doubt, a door-opener for my research career, and Dr. MacDonald has remained my mentor since. This opportunity led to my meeting David Sher, MD, MPH, from UT Southwestern Medical Center, who serves as a research mentor of mine. The exposure to research I was granted through the award fomented my own passion in research, and I became intent on pursuing a career in academic medicine, continuing to pursue research in cost-effectiveness.

Another passion of mine had been global health, particularly cancer care in Latin America as my own family is from Honduras. With the support and mentorship of Kenneth Hu, MD, FASTRO, and Beatriz Amendola, MD, FASTRO, I've been able to lead Spanish-language *e*Contouring workshops in both Argentina and Peru. We've been fortunate to be able to publish our didactic experience in Argentina.

With residency coming to a close, I am excited to join the University of Florida Proton Therapy Institute in Jacksonville, Florida, to treat breast cancer and pediatrics—just like my first mentor Dr. MacDonald. I'm deeply grateful for this award's existence as it set me on a trajectory to achieve goals and successes I didn't think were attainable. 



Raymond Mailhot, MD, MPH



Julianne Pollard-Larkin, PhD, was the keynote speaker at the Conference for Undergraduate Women in Physics (CUWiP) at the University of Kansas in January. This conference is a national event hosted at campuses all over the United States each year for undergraduate physics majors.

# MEDICAL PHYSICS: THE MOST GENDER-EQUITABLE PHYSICS SPECIALTY

BY JULIANNE POLLARD-LARKIN, PHD

## WHEN I WAS A TRAINEE AND JUST BEGINNING TO REFER TO MYSELF AS A MEDICAL PHYSICIST,

I was enrolled in a medical physics graduate program with only one woman faculty member in the entire program. That was not surprising to me as physics is not the most gender-equitable field, and I was proud to have her to look up to. Fast-forward to today: I'm the chair of the American Association of Physicists in Medicine (AAPM)'s Diversity and Inclusion Subcommittee and there has been a consistent increase of women into the field of medical physics. In my own graduate class, three of the seven students were women, which is on par with the amount of women entering medical school but higher than the amount of women entering other specialties in the field of physics. This held true for almost every year after, and it appears that gender parity may become the norm in medical physics graduate programs across the United States within the

next decade. In addition, as one would expect, we are finally seeing the numbers of women faculty members in medical physics graduate programs climb, as well. At my old alma mater, they now boast 13 women faculty members!

All of this is quite noteworthy when one considers the backdrop of traditional physics programs, which only manage about 20 to 25 percent representation of women trainees at the undergraduate and graduate level, according to the American Physical Society's statistics.<sup>1</sup> Meanwhile, according to the 2016 CAMPEP/SDAMPP Graduate Program Survey Results from the Society of Directors of Academic Medical Physics Programs, roughly 39 percent of the entering class for medical physics master's of science degrees were women and 37 percent for the doctoral entering class for all accredited medical physics graduate programs were women.<sup>2</sup>

Some may ask why is this happening and how can other STEM fields follow suit? Well, medical physics is a unique, applied field that appeals to scientists interested in solving concrete problems with elegant analytical skills but simultaneously is grounded in solving real-world, life-threatening problems. This is quite different than pure physics, which is seen as more theoretical and abstract. Medical physics contributes to detecting cancer and other diseases, saving the lives of many patients and improving the quality of life of others, and therefore is relevant to a large segment of science students, including women and minorities who are interested in meeting societal needs.<sup>3</sup> While the author Ramin Skibba may be correct in his “Nature” article, “Women in physics face big hurdles—still,” women in medical physics represent a more equitable share of the workforce than most of their female counterparts.<sup>3</sup>

Our field is in step with radiation oncology. According to Ahmed et al.’s work on gender trends in radiation oncology, as of 2010, women represented about 27 percent of radiation oncology faculty members and 33 percent of radiation oncology residents—slightly below the levels of medical physics. However, radiation oncology female representation is mostly due to the upswing of women medical school graduates, which reached a peak this past year of 50.7 percent compared with 24.9 percent in 1980.<sup>4</sup> This trend may even help two of the professions within radiation oncology, medical physicists and radiation oncology physicians, work better together since they share a similar gender balance.

A major contributor to advancing gender equity in our specialty is the fact that we are now reaching the threshold critical mass of women hypothesized by Rosabeth Moss Kanter, estimated at about 30 percent.<sup>5</sup> By having more than 30 percent women in our field at the trainee level, we are offering our women trainees a support system, and the current representation of women helps to change our field’s culture from the inside out and make it more inclusive for all.

In addition, the efforts to increase the racial and ethnic diversity in radiation oncology asked for in Winkfield and Gabeau’s “Why Workforce Diversity in Oncology Matters” article from 2013 is being applied in medical physics, as well.<sup>6</sup> AAPM offers several mentorship programs to women and minorities, has subcommittees focused on increasing the pipeline of underrepresented students in our field and even updated our diversity statement to reflect our desire to be a more inclusive field.

*Continued on following page*



Dr. Pollard-Larkin helped to create and host the “Strong, Smart and Bold” STEM outreach event at her institution, the University of Texas MD Anderson Cancer Center. In November 2016, students from Cristo Rey Jesuit High School attended the daylong career workshop for high school girls.

The AAPM updated its diversity statement to state in the opening line, “The American Association of Physicists in Medicine (AAPM) is committed to recognizing and, indeed, celebrating diversity in the field of medical physics.”<sup>7</sup> Not too many science professional organizations make such a bold statement nor embrace this commitment. AAPM has championed the inclusion of women and underrepresented minorities through innovative research and mentorship opportunities such as the DREAM (Diversity Recruitment through Education and Mentorship) fellowship program since 2007 and also has a Diversity and Inclusion Subcommittee, as well as a Women’s Professional Subcommittee.

As chair of this Diversity and Inclusion Subcommittee, I also engage in outreach initiatives that focus on increasing the pipeline of women and minorities into our training programs. We host educational outreach initiatives, such as the Med Phys Wiz Kidz program, on-site at our annual meetings and

we visit the National Society of Black Physicists and National Society of Hispanic Physicists to increase our visibility amongst underrepresented populations, as well. For these reasons, I am proud to be a member of the medical physics community and a positive statistic demonstrating the transition my field is experiencing.



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The AAPM Med Phys Wiz Kidz event that Dr. Pollard-Larkin helped create and organize for AAPM’s Women’s Professional Subcommittee in 2017. It is now an annual on-site STEM outreach event at AAPM annual meetings to show local students and members’ kids a behind-the-scenes tour of the world of medical physics and to help encourage them to choose STEM careers.





# Diversity Within Private Practice

## *Increasing workforce diversity in community-based practices*

We spoke with Constantine Mantz, MD, chief policy officer at 21st Century Oncology, Inc., about how community-based practices can enact initiatives to increase diversity within their staff.

### **What issues do women and underrepresented minorities face as radiation oncologists?**

### **Why do you think minorities and women are underrepresented in radiation oncology?**

At least from my perspective, limited exposure to our field generally, and to mentorship specifically, may be significant contributors to these deficits. Per a 2012 report in the Red Journal, black and Hispanic students are less likely to attend medical schools with affiliated radiation oncology training programs than are white and Asian students. Given that radiation oncology

is largely absent from medical school curriculum requirements, one can easily imagine how radiation oncology is made invisible as a career opportunity for some student groups. Downstream of this issue is the underrepresentation of women and minority mentors in our field. Although medical knowledge is itself neutral, the transmission of that knowledge still depends upon the mentor-apprentice relationship and therefore upon an interaction between two people that may be facilitated by a common basis of experience.

### **What specific steps has your practice undertaken to increase the diversity among your staff? What has been effective at increasing diversity? What has not?**

Our company prides itself in promoting a diverse

*Continued on following page*

workforce, fostering an environment that is conducive to professional growth and development. Our efforts to increase diversity among our workforce have not been limited to any specific employee group in the company but rather have been applied across all employees.

We have seen measurable success through good-faith recruitment efforts by way of outreach to minority organizations to make them aware of opportunities that are available. Our Human Resources team has partnered with various minority, female-led and veterans organizations through local and regional job fairs and outreach letters encouraging their members to apply to both clinical and support positions available in our group nationwide.

We have also focused on education for our human resources and management teams on best practices in diversity. Through a partnership with the Florida Diversity Council, our human resources team has taken part in diversity and inclusion symposia to learn about best practices for recruitment, selection and retention of diverse employees. Our employees have also received training that focuses on celebrating differences in ethnicity, race and gender.

Overall, we have been working toward a more robust diversity program. We have added a position to take on our affirmative action program and work toward education, oversight and support for our regional human resources managers in their diversity efforts, as well as encouragement of promotion of current team members. It is through these initiatives that the company has been able to increase the percentage of minority employees by nearly 10 percent in the past five years.

### **How can we, as a profession, increase the number of women and underrepresented minorities in our specialty?**

I don't believe that a singular solution can exist to manage the issue of underrepresentation among women and minorities in our field. However, current gaps may instead be more effectively addressed by a number of focused initiatives, and



Constantine Mantz, MD

we are increasingly seeing such activity. To the points made earlier regarding exposure to the field and access to mentorship, ASTRO must be commended on its establishment of the Minority Summer Fellowship Award for medical students as a door to high-quality research and investigators in radiation oncology. A small but highly meaningful step, this program addresses the issue of minority underrepresentation head-on while also serving as a model for individual training programs to follow and further amplify this initiative. (See page 21 for more on this program.)

Also, organizations such as the Association of Black Radiation Oncologists (ABRO) and the Society for Women in Radiation Oncology (SWRO) have been recently founded in part to establish platforms for women and minorities to network and identify and address barriers to entry in our field.

### **Why is it important to have a more equitable distribution of women and underrepresented minorities in the specialty?**

This is the key question, and there isn't adequate space in this context to answer it satisfactorily. However, with sufficient discourse, I think we can support the claim that problem-solving for health care challenges that affect specific populations may be best carried out with a strong representation of members of those afflicted populations among physicians. Current cancer health disparities research certainly identifies opportunities to improve outcomes for selected minority groups. And in the future, other such opportunities currently unimagined will arise. It seems helpful for medicine to be prepared with enough clinicians across all populations to meet such challenges as they present themselves. 🦋



# Achieving Diversity Organically

## *How one community-based practice created a diverse staff*

### **RADIATION ONCOLOGY CONSULTANTS, LTD. (ROCL) HAS GROWN OVER THE PAST 50 YEARS**

from our two founding white Christian male members to a highly diverse group of 21 physicians. Current and recent staff members of our Chicagoland private practice represent different ethnicities (Western European, Eastern European, African American, Asian Indian, Chinese, Korean, Scandinavian, Iranian, South American); religions (Protestant, Catholic, Jewish, Muslim, Hindu, Zoroastrian), years of experience; genders; and sexual orientations. Expanding the definition of diversity to include talents and hobbies, we have musicians and athletes, writers and poets, foodies and gourmet cooks, karaoke singers and world travelers. Diversity extends to the spouses and significant others to include professors, researchers, financiers, lawyers, homemakers, published authors, physicians in other fields and allied health care providers. Finally, we have diversity in the medical training, background, skills and proclivities of our physician members.

Diverse ecosystems are known to be healthier than those that are less diverse. In nature, such biodiversity is created naturally and is influenced by evolutionary and environmental factors. The processes by which ROCL became diverse was also organic, influenced by a collective goal to hire individuals who were the best fit. Each new physician has naturally added to our pluralism in a unique way without a conscious effort to engineer diversity. Ironically, when you blind yourself to the sources of

diversity, the diversity takes care of itself.

The heterogeneity notable in ROCL has enhanced our practice significantly. Learning from one another about different cultural and religious practices and beliefs not only is intellectually interesting but informs our interactions with patients who share similar backgrounds. We have learned that, despite external differences, there are so many more similarities—in our values, ideals, family experiences and life goals. From a practical perspective, maternity leaves may be covered

by those who are empty-nesters, care for an elderly parent can be accommodated by the younger members who are not yet facing such issues and religious holidays can be assigned to those who practice differently. Benefiting from each other's talents is something we could improve upon; however, we have centered social events around such hobbies and interests. For example, we've planned an upcoming karaoke night at a partner's home and recently went on a group Chicago architectural boat tour.

It remains unclear whether our diversity is a function of the downstream effect of a changing landscape of graduating

physicians or the natural evolution of a maturing practice that has been privileged to choose the most exceptional individuals who also add to our ethnic and cultural mosaic. The result is manifest in a radiation oncology practice that is unified in our values of mutual respect, and in our drive to provide the best possible compassionate care to our patients. 

—Arica Hirsch, MD

"Learning from one another about different cultural and religious practices and beliefs not only is intellectually interesting but informs our interactions with patients who share similar backgrounds."

## DISPARITIES IN PATIENT OUTCOMES AND DIVERSITY IN PROVIDER WORKFORCE: THE ROLE OF THE AMERICAN BOARD OF RADIOLOGY

### THE MISSION OF THE ACCREDITATION COUNCIL FOR GRADUATE MEDICAL EDUCATION (ACGME)

**IS** “to improve health care and population health by assessing and advancing the quality of resident physicians’ education through accreditation,”<sup>1</sup> and the mission of the American Board of Radiology (ABR) is “to certify that our diplomates demonstrate the requisite knowledge, skill and understanding of their disciplines to the benefit of patients.”<sup>2</sup> As the organizations charged with assuring the quality of postgraduate training programs and then assessing the knowledge and skills of trainees at the completion of training and throughout their careers, neither organization can be directly involved in impacting diversity-related clinical outcomes or workforce diversity; however, both do have an ability and obligation to impact both issues to the greatest extent possible within the limitations of their individual missions.

The six core competencies adopted by the ACGME and American Board of Medical Specialties (ABMS) that reflect the essence of “good doctoring” in the modern era include: 1) Patient Care and Procedural Skills, 2) Medical Knowledge, 3) Practice-based Learning and Improvement, 4) Interpersonal and Communication Skills, 5) Professionalism and 6) Systems-based Practice.<sup>3</sup> Although the ACGME Program Requirements for Graduate Medical Education in Radiation Oncology do not specifically address issues of differences in outcomes for various populations, the second core competency clearly implies that trainees will develop an understanding of these differences.<sup>4</sup> ABR volunteer question writers and staff exam developers recognize the need for acquisition

of this knowledge and insert items related to genetic, epidemiologic, socioeconomic and ethnic differences into written and oral exam content.

Workforce diversity is a more challenging hurdle for the ACGME and ABR. In its 2016–2017 data book, the Association of American Medical Colleges<sup>5</sup> reports that, nationally, 44 percent of all residents are women, but for radiation oncology, that number was only 29.9 percent (224 of 749).<sup>6</sup> While this number has increased over time, it remains a concern, with lack of clarity as to the cause of the disparity.<sup>7</sup> In response, the ACGME and ABR continue to strongly encourage gender, racial and ethnic diversity in trainees and diplomates, but achieving diversity of ethnicities and underserved populations in the radiation oncology workforce is a complex problem. This dilemma has multiple interrelated components and a long lead time, beginning before trainees enter residency programs or are eligible to take the certification exam.

It is important to note that the ABR does have a direct ability to impact gender diversity in its volunteers. For the 2016–2018 ABR organizational cycle, the senior volunteer leader of the Board of Governors, the ABR President, is a woman, Lisa Kachnic, MD, FASTRO. In addition, the ABR eight clinical category committees have an increasingly large contingent of women volunteers: the current complement of active radiation oncology volunteers is 150, of which 46 (31 percent) are women. Of the 16 clinical category chairs, eight for written exams and eight for oral exams, five (31 percent) are women.

The ABR will continue to strive to improve diversity within the radiation oncology workforce. 

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## NANOPARTICLES, MICRORNA AND MULTI-OMIC ANALYSES TO DETERMINE TUMOR RESPONSE TO RADIOTHERAPY

**YE YUAN, MD, PHD, IS A RECIPIENT OF THE 2017 ASTRO RESIDENT SEED GRANT** and is currently a fourth-year postgraduate student resident in the University of California, Los Angeles (UCLA) Department of Radiation Oncology. He obtained his medical degree and doctoral degrees from Northwestern University, where he worked under the mentorship of Gayle Woloschak, PhD. Dr. Yuan's doctoral research was focused on understanding how to optimize the cellular and subcellular targeted delivery of theranostic titanium dioxide nanoparticles. As part of this project, he developed a novel strategy to deliver nanoparticles into the nucleus of cancer cells where activation by light or radiation could result in DNA damage.

His doctoral thesis work also led to the first demonstration of the Bionanoprobe, an X-ray fluorescence imaging device that can directly visualize metal oxide nanoparticles within intact cancer cells. After working in the Northwestern Department of Radiation Oncology as a medical student, Dr. Yuan decided that training to become a radiation oncologist was a natural fit, especially given his passion for multidisciplinary cancer research.

With the generous support of the UCLA Department of Radiation Oncology, Dr. Yuan is currently splitting his time between taking care of patients in clinic and working in the lab. When asked what part of his job he liked best, he spoke of his patients with fondness.

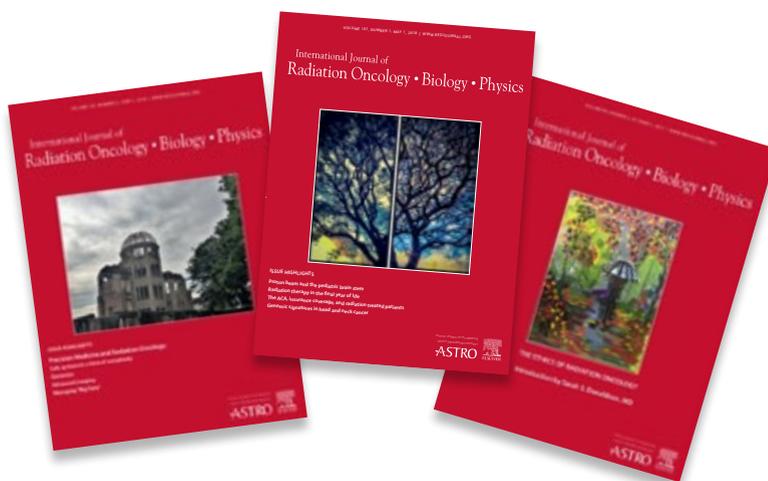
"This has been an extremely fulfilling experience. I find great joy and inspiration in caring for my patients and guiding them through their treatment courses." In the lab, Dr. Yuan has benefited greatly from the support and advice of his research mentor, Joanne Weidhaas, MD, PhD, who has provided him with the autonomy to explore new research directions while also showing him how to ask clinically impactful research questions.

Dr. Yuan's current research focus in Dr. Weidhaas' lab is to understand how microRNAs modulate the cellular response to radiation and immunotherapy and how genetic variants in key microRNA binding sites can alter these regulatory pathways and impact the clinical response to radiation and immunotherapies. The preliminary results of his work will be presented at the ASTRO 60th Annual Meeting in San Antonio this October.

Dr. Yuan also has a strong interest in applying modern data science and machine learning methods to multiomic data in order to develop new biomarkers and uncover new insights into the molecular mechanisms driving tumorigenesis and the cellular response to radiation. He will also be presenting the early results of work he has done with Robert K. Chin, MD, PhD, in developing a prognostic genomic signature in head and neck cancer patients at this year's ASTRO Annual Meeting.

"Since I first picked up a pipette as an undergraduate researcher at Stanford University, I've planned to become a clinician-scientist, to push research breakthroughs into the clinic while finding inspiration for new research directions from my patients," Dr. Yuan said.

The ASTRO Resident Seed grant and the support of his mentors and residency program has been instrumental in his development as a clinician and a scientist. Dr. Yuan's long-term research goals are to discover new biomarkers of treatment response and uncover new therapeutic targets through integrating fundamental molecular biology techniques with novel data science principles. He hopes that his work will lead to more personalized radiation treatment options for his future patients. 



## HIGHLIGHTS FROM INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY • BIOLOGY • PHYSICS

**May 1, 2018**

### National Cancer Institute workshop on proton therapy for children: considerations regarding brainstem injury

*Haas-Kogan et al.*

The article presents the findings of the National Cancer Institute Workshop on Proton Therapy for Children. The authors include consideration of the factors that may influence likelihood of brainstem injury, treatment plan examples from several institutions and discussion of the variation in linear energy transfer (LET) and relative biological effectiveness when using proton therapy. The authors review the state of LET-based planning, as well as expand on where LET optimization could be beneficial with further research.

### Does prophylactic radiation therapy to avoid gynecomastia in patients with prostate cancer increase the risk of breast cancer?

*Aksnessæther et al.*

The authors present a study evaluating the risk of breast cancer in men who receive antiandrogen monotherapy as treatment for prostate cancer along with prophylactic radiation therapy to the breast to avoid gynecomastia. Of the small number of men included in the study that later developed breast cancer, two developed extremely rare malignancies. The authors conclude that the study results do not give reason to warn against prophylactic radiation therapy to the breast buds.

**June 1, 2018**

### Patients undergoing radiation therapy are at risk of financial toxicity: A patient-based prospective survey study

*Palmer et al.*

The authors report results from physician and patient surveys focused on the economic burden of cancer treatment. The physician survey indicates a high degree of concern among radiation oncologists regarding treatment costs, though they do not screen patients for financial burden nor discuss the cost of treatment with them. Nearly a quarter of patients reported experiencing financial distress, many would like to know more about the cost of their care and most do not believe that discussing the cost will affect their care.

### How advances in imaging will affect precision radiation oncology

*Jaffray et al.*

These authors emphasize the fact that radiation oncology is one of the most structured disciplines in medicine and that practitioners are well positioned to incorporate advanced technology. With the increase in available imaging data, precision and personalization of treatment will increase provided the information is well-utilized. The authors present a perspective on the promises and challenges of fully exploiting imaging data, drawing from presentations at the 2016 American Society for Radiation Oncology National Cancer Institute workshop on Precision Medicine in Radiation Oncology.

*Continued on following page*

## HIGHLIGHTS FROM PRACTICAL RADIATION ONCOLOGY

March-April 2018

### Common error pathways seen in the RO-ILS data that demonstrate opportunities for improving treatment safety

*Ezzell et al.*

This report is the first peer-reviewed publication investigating information from the Radiation Oncology Incident Learning System (RO-ILS). The authors identify 396 high-priority reports and sort them into one of three pathways: problematic plan approved for treatment, wrong shift instructions given to therapists and wrong shift performed at treatment. The authors created fault trees showing how errors at different treatment stages flow into one of these general error types.

May-June 2018

### Radiation therapy for the whole breast: executive summary of an American Society for Radiation Oncology (ASTRO) evidence-based guideline

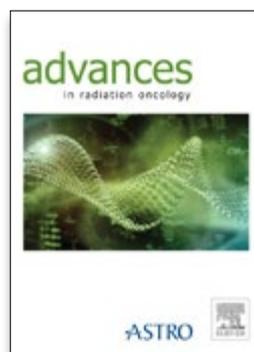
*Smith et al.*

A task force convened by ASTRO provides a guideline addressing five key questions about dose-fractionation for whole breast irradiation (WBI). The guideline considers factors in fractionation decisions, use of tumor bed boost and dose recommendations. The updated guideline aims to provide direction for not only WBI dose-fractionation but also treatment planning and delivery, with the goal of increasing appropriately individualized care.

### Stereotactic body radiation therapy (SBRT) for high-risk prostate cancer: Where are we now?

*Gonzalez-Motta and Roach*

The authors review literature where SBRT is used to treat high-risk prostate cancer patients either by itself or as a boost, and where biochemical disease-free survival (bDFS) is reported. The review compares outcomes between SBRT with high-dose-rate (HDR) brachytherapy (BT). The review reports similar five-year bDFS rates between SBRT and HDR BT when used alone, and higher bDFS rates in SBRT than HDR BT when used as a boost. However, they emphasize caution based on the limited nature of the SBRT studies included.



## HIGHLIGHTS FROM ADVANCES IN RADIATION ONCOLOGY

April-June 2018

### Lung cancer specialists' opinions on treatment for stage I non-small cell lung cancer: A multidisciplinary survey

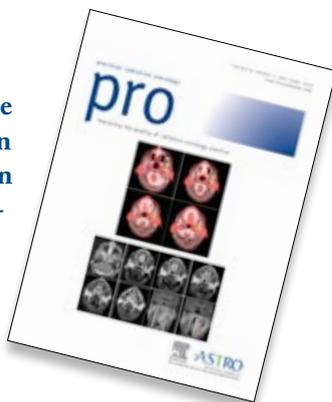
*Lammers et al.*

The authors report findings from a survey of clinicians including radiation oncologists and non-radiation oncologists regarding the use of stereotactic body radiation therapy (SBRT) to treat non-small cell lung cancer (NSCLC). The authors report clinician attitudes on the efficacy of SBRT as compared with surgical resection, likelihood of enrolling eligible patients in a randomized controlled trial of SBRT versus surgery and the prospects for changing the standard of care if SBRT showed better survival in a randomized controlled trial. The authors suggest their results will be helpful in the creation and implementation of future randomized controlled trials to evaluate SBRT efficacy.

### The pervasive crisis of diminishing radiation therapy access for vulnerable populations in the United States – part 3: Hispanic-American patients

*McClelland and Perez*

The authors present a review of 34 studies that document disparities in radiation therapy access for Hispanic-Americans. The review reports that disparity in access is as pervasive for Hispanic-Americans as it is for African-Americans, though Hispanic-Americans were less likely to present concomitant disparities in mortality. The authors suggest that birth country and English proficiency may affect radiation therapy access. This is the third part of a series on disparity in radiation therapy access; the first two focus on African-Americans and Native Americans respectively.





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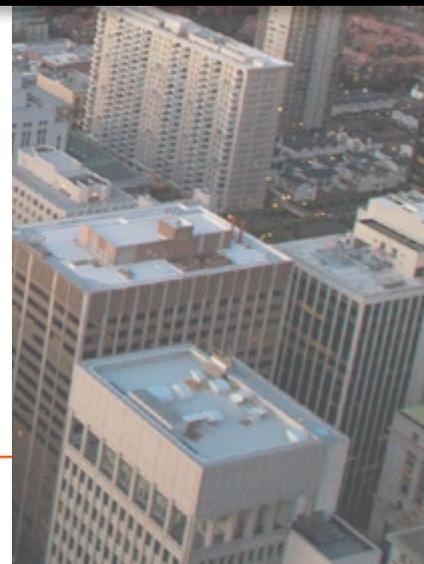
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