AMERICAN ASSOCIATION of PHYSICISTS IN MEDICINE

IMPROVING HEALTH
THROUGH MEDICAL PHYSICS

AAPM NEWSLETTER

March/April 2022 | Volume 47, No. 2

Special Interest Feature:

The AAPM Online Learning Center

IN THIS ISSUE:

COVID-19 UPDATE

Notice as of Sunday, February 27, 2022, 9AM Eastern Time.

- COVID-19 Information for Medical Physicists
- As of August 1, 2021, AAPM allows in-person meetings and AAPM-funded travel for those fully vaccinated, with the understanding that individuals may participate virtually if they do not feel comfortable traveling. Meetings at AAPM HQ must follow guidelines established by EXCOM as appropriate to circumstances at the time of the meeting.

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AAPM is located at 1631 Prince Street, Alexandria, VA 22314

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EVENTS/ANNOUNCEMENTS

SUBMISSION INFORMATION

To keep all reports uniform, we kindly request that submissions be made through a QuestionPro portal.

Questions? Contact Nancy Vazquez

PUBLISHING SCHEDULE

The AAPM Newsletter is produced bi-monthly.
Next issue: May/June 2022
Submission Deadline: April 1, 2022
Posted Online: Week of May 2, 2022

CORPORATE AFFILIATE ADVERTISING

Advertising Rates & Deadlines

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EDITOR'S NOTE

I welcome all readers to send me any suggestions or comments on any of the articles or features to assist me in making the AAPM Newsletter a more effective and engaging publication and to enhance the overall readership experience. Thank you.

AMERICAN ASSOCIATION of PHYSICISTS IN MEDICINE

Upcoming AAPM Webinars

Single Webinar Topics Include:

- Cancer Imaging Data Commons: A Platform for Data Sharing, Visualization, and AI Research in Imaging and Therapy
- Best Practices on the Use of the AAPM's Radiation Risk Communication Guide

Our Continuing Webinar Series:

- MP3.0 Webinar Series
- Series on Advances in Medical Physics
- Risk-Informed Quality Management

NEW in 2022!

- Webinar Series on Inertia or Excellence: Equity, Diversity, and Inclusion within AAPM

Look for updates by email or by visiting https://aapm.me/webinars

AAPM SPRING CLINICAL MEETING | 2022

Hyatt Regency New Orleans

MARCH 26–29
NEW ORLEANS, LA

Reconnect with your medical physics peers in-person for 3.5 days of great content and networking opportunities in New Orleans!

The 2022 Spring Clinical Meeting is the first ***live and in-person*** AAPM Meeting since 2019, offering the intimate setting this meeting is known for to reconnect with colleagues and vendors in-person and not on a screen!

Registering for in-person or virtual participation includes on-demand content available 24 hours post-session.

AAPM.ME/CLINICAL

MARCH 16	MARCH 26	MAY 10
Deadline to Cancel and Receive a Refund	Online Evaluation Opens	Online Evaluation and Meeting Platform Close

SPOTLIGHT ON DIVERSITY

NEWSLETTER EDITOR'S REPORT

Welcome to the March/April edition of the 2022 AAPM Newsletter and thank you for reading! Whether you read the Newsletter cover-to-cover or only have time to read a few articles that catch your eye, we're grateful for the time you spend with the Newsletter content. Our goal is to keep the AAPM Newsletter relevant and interesting to everyone who wants to learn what's happening in medical physics. We're always interested in submissions and suggestions from AAPM members, which can be submitted directly through the link on the Newsletter page. And as always, please share the Newsletter articles you enjoy with your social media network.

In this issue you will find a wealth of different perspectives on diversity and inclusion within AAPM. AAPM President-Elect **Ehsan Samei** reflects on why diversity matters to AAPM community in his first Newsletter report. Equity, Diversity, and Inclusion Committee Chair **Julianne Pollard-Larkin** explains the importance of affinity to groups helping all members feel welcomed and included. Remember to register for the upcoming AAPM webinar series on Inertia or Excellence: Equity, Diversity, and Inclusion within AAPM. The second webinar will present an analysis of AAPM's first EDI climate survey, conducted in 2021. If you missed the first webinar on why EDI matters, the recording is available to AAPM members in the webinar archive.

This issue also contains reports on many topics including a new CPT code which is the first to allow direct billing for an imaging physicist service, how supply chain challenges could impact the AAPM, and a special interest feature on the AAPM Online Learning Center. There are also updates from the Medical Imaging and Data Resource Center Subcommittee, the Medical Physics Leadership Academy, and the Science Council Specialty Meeting on IMRT quality assurance held January 24–25, 2022. In short, there should be something of interest to every AAPM member! Please enjoy this issue of the Newsletter and send us your feedback and ideas for the future. ■

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Congratulations

to the Recipients of the Following Awards, Achievements, and Honors in 2022!

All award, achievement, and honor recipients will be recognized during the 2022 AAPM Annual Meeting in Washington, DC at the Awards and Honors Ceremony and Reception

Monday, July 11 | 6:30 – 8:30 pm | Marquis Ballroom at the Marriott Marquis Washington, DC

Please Join Us in Congratulating These Recipients:

WILLIAM D. COOLIDGE GOLD MEDAL
Jacob Van Dyk, DSc

EDITH H. QUIMBY LIFETIME ACHIEVEMENT AWARD
Indra Das, PhD
Martin Yaffe, PhD

MARVIN M.D. WILLIAMS PROFESSIONAL ACHIEVEMENT AWARD
Steven Goetsch, PhD
Pei-Jan Lin, PhD

HONORARY MEMBERSHIP
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Bruce Tromberg, PhD

JOHN S. LAUGHLIN YOUNG SCIENTIST AWARD
Grace Jianan Gang, PhD

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AAPM 2022
JULY 10–14 | WASHINGTON, DC
64TH ANNUAL MEETING & EXHIBITION

CELEBRATING MEDICAL PHYSICS
TRANSFORMING HUMAN HEALTH

SHOULD DIVERSITY MATTER?

PRESIDENT-ELECT'S REPORT

A few years ago there was a proposal to change the name of our association from the American Association of Physicists in Medicine to the American Association for Physics in Medicine. You might ask what was the fuss? Aren't they basically the same? The change would be hardly noticeable, conveniently not even in the acronym or the AAPM logo, saving the cost and hassle of rebranding. The proposal was defeated, not by a large margin, but defeated nonetheless. I was surprised, as I myself had supported the proposal. My rationale was that the change would send a message that we value physics, regardless of its source, projecting a more inclusive posture for AAPM. Indeed, you could argue that we could have tried to be even more inclusive than that by invoking a term broader than physics, since many of us have degrees in fields other than physics (e.g., nuclear engineering, BME, etc.). But that was perhaps a step too far, as most of us seem to agree that regardless of our diverse degrees, physics in medicine, however and by whomever practiced, is our primary "glue."

The defeat of the proposal by our membership taught me an important lesson about AAPM. The membership decisively reaffirmed that we are not strictly a society for physics in medicine but *of physicists*, that what defines our association is *us*, not strictly our subject of work but *ourselves* as agents in practicing it. And further, in doing so, we reaffirmed that we are a *community* of physicists, a collective organized around a common core. You might still ask what difference that makes. Not a huge difference, I admit, but a nuanced and important one that should shape our posture towards our association and towards each other. AAPM is not a community for *some* physicists in medicine, but for *all* physicists in medicine. AAPM is not a community of myself and a few of my friends, but of *all* who share this common occupation. What our members do and feel matters—each and every member, including the marginalized members among us.

AAPM exists to be a community. Yet, over the years we have witnessed a growing stratification of the association: e.g., MS- versus PhD-educated, clinical versus research, academic versus community-based, in-house versus consulting. Our association boasts many beautiful collaborations across this diverse space working together towards the common good. Yet elitism, distrust, and cliquishness are also present, as well as, sometimes, a lack of respect for one another. Here are just a few examples: a PhD physicist making disparaging remarks about the intelligence of MS graduates; an MS physicist commenting on PhD elites being out of touch with reality; a

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"Both our professional and our personal diversity should be harnessed towards our broader mission—encouraging us all to higher planes of scientific innovation and clinical impact."

"We are diverse, we are equal, and we have a precious mandate at stake that should take advantage of (and not to be hindered by) our diversity."

"Let's not regard attending to diversity as a distraction from our mission but rather recognize it as central to our mission—as essential to nurturing the community of physicists that the AAPM aspires to be. Taking on diversity is not an obstacle in our way, but an asset on our way."

group disregarding the wisdom of another group with an overlapping scope; the collective deliberation of a committee undermined by a few who think they know better. Thankfully, these are not prevalent enough to affect all of us. But since AAPM at its core is a community, if such attitudes and behaviors affect some of our members, they matter.

Deeper than our professional identity, each of us, as a human being, embodies a personal identity across the diversity of race, gender, and heritage spectra, differences that have in the past led to tragic mistreatment. Some of the grossest types of mistreatment may thankfully be over—yet their echoes still persist in our society and our culture to this day. Those of us that come from backgrounds outside the prevalent cultural norms do not need to be told that this is true, in our personal lives as well as in our professional lives as medical physicists. The echoes are not always loud, and can be easy to miss if you are not personally affected, yet they are loud enough to affect many of our members. Again, since AAPM at its core is a community, if implicit biases and attitudes affect some of our members, they matter.

The diversities across our professional and personal identities are no surprise—we are a human enterprise after all—yet if they are allowed to negatively influence even a fraction of us, we ought to deal with them head on. Why? Because as I observed above, mismanagement of our diversity goes to the core of our identity as AAPM. More positively put, our diversity is our source of strength, a strength that we can further benefit from if we not only implicitly but also explicitly recognize and cherish it. Conversely, this very thing that is our strength has the potential to be our undoing. I don't mean to sound ominous, but it is sobering to observe that nearly all the ills of human civilization have somehow been tied to our inability to sort out and live with our various diversities.

Professionally, we all strive towards the same overall goal of improving human health. Facing this goal, we are different but equal. Our professional diversity enables us to offer differing gifts towards that goal. You might even say we are not only expected but have the *responsibility* to ensure that our differing gifts are allowed to contribute their full potential. We need, for example, the purely clinical professional, the purely research scientist, and the people whose work can be a bridge between research and the clinic. Likewise, on the personal diversity front, we ought to recognize the beauty of our human tapestry in all its shades and nuances, to value and enhance our diversity, and to ensure an inclusive space where all are welcomed and are safe, so that no members will be needlessly distracted from their mission of advancing medicine in the service of human health. We need to find a way to enhance the sense of collegiality, camaraderie, mutual respect, and mutual support within our community, virtues that not only make our life together more pleasant, but that enable us to better advance our communal and personal missions. Both our professional and our personal diversity should be harnessed towards our broader mission—encouraging us all to higher planes of scientific innovation and clinical impact.

I would like to point to the excellent work that is taking shape within AAPM towards embracing this diversity. Our attention to diversity is not new. It was pioneered back in 2005 by a working group under the Education Council led by **Paul Guèye**. As this is rightly a professional matter at large, the effort has now been taken on by an Equity, Diversity, and Inclusion (EDI) committee (under the Professional Council) led by **Julianne Pollard-Larkin**. The committee, organized into multiple subcommittees with diverse objectives, aims to foster diversity and inclusion within AAPM and the profession, to support the needs of underrepresented medical physicists, and to ensure that such efforts remain in alignment with the core mission of AAPM. This effort incorporates and is inspired by the distinguished initiative of AAPM Women's Professional Subcommittee, initiated in 2010 by **Jean Moran** and colleagues and now led by **Kristi Hendrickson**.

It is tempting to think that the EDI initiative of AAPM is nothing but the cultural intrusion of "diversity stuff" into our realm, that we are trying to be politically correct or in "vogue" by going along with the mandate of our time. After all, establishments of any kind nowadays are making a big deal about diversity. Are we just jumping on the bandwagon? While we are certainly shaped by the broader cultural contexts of our time, for the very reasons that I argue above, this is now and should long have been a core priority for AAPM regardless. We are diverse, we are equal, and we have a precious mandate at stake that should take advantage of (and not to be hindered

by) our diversity. I am personally so very excited to see how this initiative develops, and how it helps to advance our association and, through that, our profession and our mission.

And speaking of our mission, this being my first writing for the Newsletter as a member of the AAPM Executive Committee, I should not fail to recognize the very reason we are here: fostering human health through medical physics and our aspiration towards innovation and impact. Those of you who know me know well how passionately I care about the science and practice of medical physics. But I truly believe embracing our diversity is necessary. Fostering and stewarding our diversity may be good in and of itself, but for us in AAPM it is also a stepping stone towards our mission and the fulfillment of our responsibility. Let's not regard attending to diversity as a *distraction from* our mission but rather recognize it as *central to* our mission—as essential to nurturing the community of *physicists* that AAPM aspires to be. Taking on diversity is not an obstacle *in* our way, but an asset *on* our way. ■

SUPPLY CHAIN CHALLENGES — HOW THEY MIGHT IMPACT AAPM

TREASURER'S REPORT

Samuel G. Armato, III, PhD
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Anyone who has visited a retail establishment in the past several months and noticed empty shelves has witnessed, firsthand, the supply chain challenges plaguing the United States recently. For some shoppers, the sight of empty shelves has led to panic-buying, which has made a bad situation even worse.

The first question one might ask is, "How did we arrive in this situation in the first place?" There are both short- and long-term reasons for the supply-chain problems we are experiencing.

To stem the spread of COVID-19 at the beginning of the pandemic, governments forced businesses to shut down. These shutdowns disrupted the global supply chain. As the situation improved and restrictions were relaxed, the impact of the disruptions continued to linger. Since that time, a combination of worker shortages, subsequent virus strains, and efforts to further mitigate the spread of the virus has hindered efforts to return the supply chain to pre-pandemic levels. Another contributing and often-overlooked factor in this supply chain crisis, however, is a management strategy introduced 50 years ago to increase efficiency and decrease waste.

Up until the late 1960s, manufacturers carried significant quantities of inventory needed for production. These inventory levels significantly increased costs and reduced bottom lines. Toyota was the first company to introduce the just-in-time inventory (JIT) system to align raw material orders from suppliers with production schedules. Under this system, materials for production arrive as needed so manufactures don't need to carry excess inventory; companies began to carry only what was needed for immediate use (however that might be defined by industry/store), knowing that they can obtain additional product on demand. The strategy proved successful and was widely adopted across the manufacturing, distribution, and retail industries. This system worked with few problems for nearly 50 years—until 2021.

The combination of just-in-time and a global pandemic created the perfect storm for the supply chain crisis we are experiencing. There is, however, one additional factor: demand. It was anticipated that consumer demand would decrease during the pandemic as a result of being shut-in or decreased spending due to reduced travel and dining; instead, consumer spending actually grew during the pandemic. The combination of these factors created unprecedented strain on an already weakened supply chain causing it to falter under the weight.

As a not-for-profit, how might AAPM be impacted by the supply chain crisis? I see three main areas of potential risk for AAPM.

I. Human Capital

According to the Pew Research Center, gasoline prices have increased 50%, beef products 22%, bacon products 18%, and furniture products 17% from December 2020 to 2021. All this contributed to a 7% increase in the Consumer Price Index over the same period. AAPM members and staff are feeling the pinch in the marketplace. How might this impact AAPM? As staff feel the strain in their personal pockets, there is always the risk that some may seek higher compensation either from AAPM or elsewhere. Under either scenario, the AAPM bottom line would be negatively impacted. Furthermore, staff turnover could lead to lost institutional knowledge and time spent recruiting.

Traditionally, the not-for-profit sector doesn't compensate as well as the for-profit sector. Under the leadership of Executive Director Angela Keyser and volunteer leadership, AAPM has worked hard to keep staff compensation competitive. This is but one factor that has contributed to AAPM's very low turnover and long staff tenure.

II. Operational Expenses

As previously mentioned, the Consumer Price Index has risen by 7% from December 2020 to 2021. At the time of this writing, AAPM has experienced an increase in the prices paid for goods and services. Some areas have experienced increases that far exceed the CPI increase. As we navigate the course of 2022, we will continue to monitor the impact of the inflationary increases on our travel-related costs, among others.

Additionally, the Federal Reserve Board has already signaled it will begin a series of interest rate hikes in March to cool inflation. Those interest rate hikes will increase the interest AAPM pays on the variable interest portion of our bonds on the building (approximately $1.05M).

III. Contributions

Contributions to an organization often fall into two different categories: "major gifts" and "minor gifts." Major gifts are those large donations AAPM receives. Typically, these donations are earmarked for specific projects or programs. Major gifts are typically not impacted by inflation.

Minor gifts are smaller contributions, but they are anything but minor—these gifts are the lifeblood of most organizations, including AAPM. While smaller in amount, these gifts are consistent weekly and monthly over the course of the year, and collectively they often exceed the revenue of "major gifts." The challenge for minor gifts, especially in inflationary times, is that they often are given from one's disposable income. As such, not-for-profit organizations often see a decline in these gifts during periods of inflation.

AAPM cannot escape the realities of inflation and the supply chain crisis. However, the combination of strong leadership, strong reserves, and strong financial acumen has AAPM well positioned to survive, and perhaps thrive, during these turbulent times.

I would like to thank **Robert McKoy**, CPA, CGMA, CITP (AAPM Director of Finance) for his contributions towards this article. ■

OUR CONDOLENCES

Oscar Hidalgo-Salvatierra, PhD • David Jette, PhD • Adrian L. Oliver, PhD
George W. Sherouse, PhD • Kenneth D. Williams, MS

Our deepest sympathies go out to the families. We will all feel the loss in the Medical Physics community.

If you have information on the passing of members, please inform HQ ASAP so that these members can be remembered appropriately. We respectfully request the notification via e-mail to: 2022.aapm@aapm.org
(Please include supporting information so that we can take appropriate steps.)

focus on our future

THANK YOU!

AAPM wishes to acknowledge and thank the following individuals and organizations for their 2021 contributions:*

**Unaudited data subject to change*

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INFORMATION FROM HQ

EXECUTIVE DIRECTOR'S REPORT

New AAPM Reports:

• Report No. 272 – Report of AAPM Task Group 272: Comprehensive Acceptance Testing and Evaluation of Fluoroscopy Imaging Systems

• Report No. 290 – Report of AAPM Task Group 290: Respiratory Motion Management for Particle Therapy

Did you know?

- If you would like to make the pronunciation of your name available on your AAPM Member Directory listing, you can create a profile here. Record your name, then store a link to your NameCoach NameBadge so others can hear exactly how to pronounce your name in your Primary Information page.
- If you find a page or section of the website that is not working as it should, please send an email to the Help Desk, which will put the request into the Information Services Team queue. Someone will then respond to let you know when it has been resolved.

Funding Application Deadlines Approaching

Expanding Horizons Travel Grant | Application Deadline: *March 16*

Designed to provide students and trainees with an opportunity to broaden the scope of scientific meetings attended in their careers. The proposed meeting should introduce new and relevant topics which may ultimately be incorporated into current or future medical physics research and progress the field in new directions. View additional information and access the online application »

Research Seed Funding Grant | Application Deadline: *April 1*

Three $25,000 grants will be awarded to provide funds to develop exciting investigator-initiated concepts, which will hopefully lead to successful longer-term project funding from the NIH or equivalent funding sources. View additional information and access the online application »

Science Council Associates Mentorship Program (SCAMP) | Application Deadline: *April 11*

They have been established to recognize and cultivate outstanding researchers at an early stage in their careers, with the goal of promoting a long-term commitment to science within AAPM. The program uses the process of shadowing to integrate the Associates into the scientific activities of the organization. View additional information and access the online application »

Angela R. Keyser
AAPM
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Who Does What on AAPM's HQ Team?
See a list with contact information and brief descriptions of responsibilities online. An Organization Chart is also provided. We are now providing information about the diversity of our team as well.

2022 AAPM / RSNA Doctoral and Masters Graduate Fellowships | Application Deadline: *April 20*

The Fellowship awards program has been restructured from its original single award mechanism to 4 Doctoral awards (PhD or DMP) and 3 MS awards each of $10,000. Additionally, one of the MS and Doctoral awards will be reserved for under-represented applicants. View additional information and access the online application »

AAPM / RSNA Imaging Physics Residency Grant | Application Deadline: *May 3*

The purpose of the AAPM funding is to provide 50% support of a resident's salary for two imaging physics residency programs. The awardee institution(s) will provide the other 50% support. Funding for this program is provided through a collaboration between AAPM and RSNA. View additional information and access the online application »

AAPM BEST Award | Application Deadline: *May 3*

BEST Medical will provide a stipend to be used for travel, food, and lodging expenses to attend the 2022 Annual Meeting in Washington, DC. AAPM will provide complimentary 2022 Annual Meeting registration for each recipient. View additional information and access the online application »

AAPM Meeting News

Mark your calendars for upcoming AAPM meetings and webinars:

AAPM Spring Clinical Meeting
March 26–29, 2022
Hyatt Regency New Orleans
New Orleans, LA

Frontiers of Artificial Intelligence in Radiation Oncology and Medical Imaging
April 28–29, 2022
Stanford University, Stanford, CA

AAPM Summer School Small Field Dosimetry, Stereotactic Radiosurgery and Stereotactic Body Radiation Therapy: The Future is Here
June 7–12, 2022
Southern Methodist University and UT Southwestern Medical Center, Dallas, TX

AAPM 64th Annual Meeting & Exhibition
Celebrating Medical Physics: Transforming Human Health
July 10–14, 2022
Washington, DC

Webinars

AAPM Webinar Series on Advances in Medical Physics (2022)
March 8, 12:00 pm–1:00 pm ET
Webinar #29: Virtual Clinical Trials: An Emerging Experimental Paradigm in Medical Imaging and Therapy Episode
Speaker: Ehsan Samei
Register

AAPM Webinar Series on Inertia or Excellence: Equity, Diversity, and Inclusion within AAPM (2022)

March 17, 12:00 pm–1:00 pm ET
Webinar #2: Analysis of AAPM's First EDI Climate Survey
Speakers: Julianne Pollard-Larkin, Kristi Hendrickson, Adam Wang
Register

June 14, 12:0 pm–1:00 pm ET
Webinar #3: Recruiting for Workforce Excellence
Speakers: Jean Moran, Eric Ford, Kelly Paradis
Register

Missed any of the previous webinars? The Archived webinars can be found here.

AAPM's HQ Team News

A bright spot in our January was that **Erin Cox**, AAPM's Office Services Assistant, and her husband Mark welcomed their first child, Mark III or "Tripp," on January 14. We wish the Cox family all the best and can't wait to welcome baby Tripp to the AAPM family in the future. ■

OSTP ADVANCES INTEGRITY OF GOVERNMENT SCIENCE

LEGISLATIVE AND REGULATORY AFFAIRS REPORT

Integrity of science in government continues to be a concern of the Biden Administration. Last year, the President called to ensure evidence-based policymaking and to restore trust in government management, communication, and use of science (Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking, released January 27,2021).

In response, on January 11, 2022, the White House Office of Science and Technology Policy (OSTP) released a report assessing scientific integrity policies and practices in government and identifying pathways for strengthening those policies in federal agencies. The report seeks to ensure the accuracy and objectivity of government science and to protect it from political interference or manipulation.

The report found that violations of scientific integrity undermine federal decision-making and public trust in science, and it acknowledged that existing scientific integrity policies need to be strengthened to deter inappropriate influence. The report also recommended greater transparency of research processes as well as clear guidelines regarding data and communications. Going forward, OSTP will use the information in the report to develop a plan for the periodic assessment and improvement of scientific integrity policies and practices. In addition, OSTP will work with all federal agencies, even those that do not fund and conduct scientific research, to develop, implement, and update their scientific integrity policies. See the report here. ■

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We will continue to monitor developments regarding the integrity of government science and report updates as they occur. If you have questions or require additional information, please contact me.

IMAGING MEDICAL PHYSICISTS, YOU HAVE YOUR OWN CPT CODE! ARE YOU USING IT???

HEALTH POLICY AND ECONOMIC ISSUES REPORT

Samuel A. Einstein, PhD
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The Centers for Medicare & Medicaid Services now reimburses for CPT code 76145, *Medical physics dose evaluation for radiation exposure that exceeds institutional review threshold, including report*. Though this dose calculation will rarely be performed (likely <0.5% of fluoroscopic guided interventions require this service), it is imperative for physicists to implement the service when needed and report code 76145.

The Centers for Medicare & Medicaid Services (CMS) now reimburses for CPT code 76145, *Medical physics dose evaluation for radiation exposure that exceeds institutional review threshold, including report*. This is the first CPT code that explicitly recognizes the efforts of imaging medical physicists and allows hospitals to directly bill for an imaging physicist service. The creation and implementation of 76145 resulted from a nearly decade-long cooperative effort of AAPM, American College of Radiology, Society of Interventional Radiology, and the American College of Cardiology. The code captures the considerable work required to complete a careful, patient-specific dose evaluation for patients who have undergone one or more high-dose procedures and are at increased risk of a serious deterministic radiation effect.

Though this dose calculation will rarely be performed (likely <0.5% of fluoroscopic guided interventions require this service), it is imperative for physicists to implement the service when needed and report code 76145. In addition to failing to demonstrate our value, under-utilization of this procedure will jeopardize both reimbursement for this code as well as potential future imaging medical physics codes (MR safety evaluation of implants, fetal dose calculations, etc.). CMS maintains a 'use it or lose it' approach to reimbursement when they review codes and it will be immensely difficult to create future codes for imaging physics if 76145 is not utilized.

The purpose of this article is to provide suggestions for practical clinical implementation of this procedure code without going into the details and complexities of medical reimbursement.

Initial Steps

The first task is to add this service to the hospital's chargemaster. The chargemaster is a list of all potential items and services billable to a patient (or their insurance). It contains among other things the prices the hospital charges. When adding this new billable service to the chargemaster an appropriate price must be determined. Physicists should defer to hospital policy when available, but one approach is to choose a target payment that reflects the actual resources expended to provide the service. It is worth noting that CMS, in the Medicare Physician Fee Schedule (MPFS), has carefully analyzed these costs and has determined a payment of approximately $830. This MPFS reimbursement amount was determined by calculating the cost of providing a 'typical' dose evaluation at a 'typical' hospital. Of course,

facilities are encouraged to calculate a target payment that represents their actual costs. The chargemaster price is typically set higher than the target payment amount and the hospital billing department can assist in setting an appropriate chargemaster price. It is critical that the charge reflects the actual costs to provide the service as future Medicare outpatient payments for this service will be determined in part by the prices that hospitals are currently billing. Private health insurance reimbursement may be determined using chargemaster prices as well.

Once the chargemaster listing is in place, the service can be provided and reported. This procedure code requires an order by a physician for the physicist to calculate and interpret the patient organ dose. It is easiest to implement this requirement as a standing order based on facility dose metric thresholds. A standing order by a physician improves efficiency by providing written authorization for physicists to complete this clinical task automatically without the need to obtain a physician order for each individual case. Depending on hospital policy, this standing order could be hospital-wide, or separate orders could be created for individual departments (radiology, cardiology, etc.). For a hospital-wide order, it will likely need to be signed by the chair of the Radiation Safety Committee or the Chief Medical Officer. Department standing orders are typically signed by the chair of the department. Regardless of the type of standing order, it should automatically trigger a medical physicist dose evaluation when a dose metric from a patient fluoroscopic procedure exceeds a previously established threshold (such as air kerma at the reference point exceeding 5 Gy). Determination of this threshold is at the discretion of the facility and beyond the scope of both CMS and this article.

Performing the Service

When a procedure exceeds an institutional threshold, a physicist calculation is ordered and the physicist must be notified (this may be facilitated by close collaboration with various hospital departments or radiation dose management software). The physicist then calculates the organ doses for each imaging series (or x-ray field area) as well as the total peak organ dose (for all series) for the maximally exposed tissue(s) (usually an area of skin). This calculation requires knowledge of patient position, imaging system output for the specific techniques used for the patient, table attenuation, etc. It may require review with the performing physician or technologist as well as radiation dose measurements in the procedure room depending on the availability and thoroughness of the radiation dose structured report and previous physics testing of the system. The physicist should use their expertise as well as the available literature to determine the possibility and probability of adverse iatrogenic effects that may require follow-up and treatment. Time until onset as well as duration of expected tissue reactions should be determined to inform and guide the performing physician's recommendations for follow-up patient care.

Reporting the Service

All the information including detailed results of dose calculations as well as expected tissue reactions and timing must be included in a final report that is signed and dated by the medical physicist. This detailed report should be added to the patient's medical record and additionally sent to the performing physician (and potentially other entities as required by hospital policy). After the service is performed, it is necessary to notify the relevant department to report this service (i.e. to charge CPT 76145 to the patient or their insurance).

To those who have already implemented this code, thank you! This procedure demonstrates our value and is an important step in improving patient care using imaging physics economics. For those who have yet to implement this code please discuss with your department manager/administrator and contact the AAPM Professional Economics Committee with any questions. ■

ACR ACCREDITATION & MORE: INFO FOR MEDICAL PHYSICISTS

UPDATES FROM ACR HQ

Changes to ACRedit website are imminent! No more sharing of logins!

All modalities except radiation oncology will soon see an updated interface when they visit the accreditation system. ACRedit is the website and database through which all accredited facilities submit their data. ACR's Accreditation and IT staff have been working diligently for approximately three years to build out a brand-new database and interface for ACRedit, with the goal of improving front-end user experience in both obvious and non-obvious ways. The new ACRedit platform, called ACRedit Plus, is also a critical security upgrade for the ACR, which handles significant amounts of patient and facility data. This column will highlight some of the important differences and features that you and your clinics or clients will see when logging into ACRedit Plus.

Perhaps the most critical change in ACRedit Plus for the medical physics audience is that sharing of login information will no longer be reasonably possible, because ACRedit Plus will leverage multifactor authentication (MFA) through Okta. However, there will be upgraded permissions features to ensure that necessary personnel can participate in the various tasks required throughout the accreditation process. Importantly, facility personnel will be able to assign permissions to external personnel, such as a medical physicist, and the medical physicist will be able to remotely, securely, and legitimately log into ACRedit Plus to conduct their pieces of the accreditation process. The permissions can then be assigned back to the facility personnel. Of course, each person will initially need to configure their login credentials and MFA, but I suspect this will not be the first time most of you have been required to undertake such a process for data security. We appreciate in advance your patience while everyone becomes familiar with the new process for accessing ACRedit Plus.

For each facility there will be a section called "Additional Personnel." Because ACRedit Plus will be an interface through which confidential information will be shared, only personnel listed as either primary facility contacts or in Additional Personnel will be able to receive information from ACR staff via phone. Medical physicist personnel should be listed within the medical physicist section of a facility's personnel list. If your practice includes occasional or regular calls on behalf of clients or clinics submitting materials to ACR, we recommend working with them to be sure you're added to their personnel list.

Due to interaction between databases and IT systems, once ACRedit Plus launches, the TRIAD Windows Client will not be available for image upload in the current accreditation system. Submitting facilities that have not migrated

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In each issue of this Newsletter, I will present information of particular importance or relevance for medical physicists. You may also check out the ACR's accreditation web site portal for more accreditation information and QC forms. A big THANK YOU to all of the other staff that keep ACR programs running and assist with creating the content in this column.

Congratulations to **Ana Dieguez**, MS and **Sean Deng**, PhD, ACR's 2022 **Richard L. Morin**, PhD Fellows in Medical Physics! ACR recognizes the value of engaging our younger and incoming generations of medical physicists. Reviewing applications for the ACR's Morin Fellowship for medical physics residents and fellows every year gives me great hope and confidence that the field of medical physics has its best days ahead. Our incoming generation of medical physicists has some exceptional people; I hope those of you on AAPM committees are able to find one or more to include. if you need help, I'm sure the AAPM Students and Trainees Subcommittee can refer you to interested residents. ACR looks forward to welcoming Ana and Sean at ACR 2022.

to ACRedit Plus will need to use the TRIAD Web Client. ACR Accreditation and IT staff are working to create as little disruption as possible, and information on the process will be communicated directly to affected facilities and/or available at ACRaccreditation.org.

When users log in to ACRedit Plus, they will immediately notice the updated dashboard. The dashboard is designed to allow the user to quickly see modalities up for renewal, pending tasks, and other information. The user can easily navigate directly to the pending tasks. I have included below a screenshot of the dashboard at the time of submitting this column (please note that the system is still in user acceptance testing, and some details in the screenshot may change before deployment).

ROPA Announcement

Due to COVID-19, the ACR Radiation Oncology Accreditation program is **only** performing virtual site surveys.

*Please complete the following **before submitting your application**:*

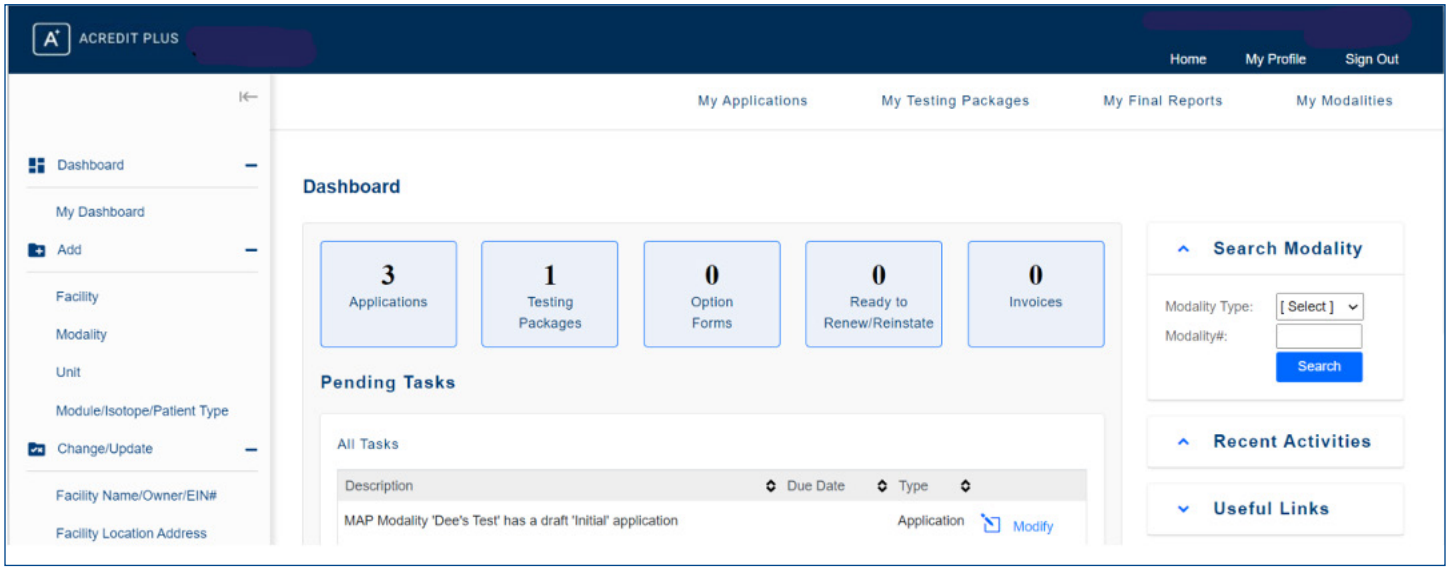
- *Start updating or gathering the Checklist information for the virtual survey found here: Pre-Virtual Site Survey Facility Checklist. This checklist will help you organize your data for the virtual review.*
- *Submit a Ticket with the completed Checklist through accreditation support*

Once your application submission is complete, the virtual site survey must be scheduled within 90 days.

NRC Commissioners Support Radiation Expertise in Authorized User Criteria

Quoting a February press release from ACR: "The leaders of the U.S. Nuclear Regulatory Commission (NRC) voted against a controversial plan to reduce the stringency of authorized user (AU) criteria, which would enable non-experts to serve as AUs on NRC and agreement state licenses for unsealed diagnostic and therapeutic radiopharmaceuticals. The disapproved plan was opposed by the American College of Radiology® (ACR®) and other medical stakeholders who believe that AUs must have adequate training in radiation to safely perform their responsibilities.

"I consider the radiation safety competency of Authorized Users to be one of the most important issues to ensure adequate protection of patients, healthcare workers, the public and the environment," said NRC Chairman Christopher T. Hanson. "Adequately trained personnel are key to the safe use of radioactive material in medicine."



Commissioner Jeff Baran noted the substantial feedback from concerned stakeholders, including the ACR. "Many stakeholders offer persuasive arguments that the current training and experience framework is working effectively to ensure radiological safety and is not resulting in a shortage of authorized users to administer radiopharmaceuticals," Baran said.

The ACR applauds the NRC for this important decision, which prioritizes radiation safety by ensuring the continued expertise of physicians responsible for the medical use of radiological materials."

ACR Government Relations advocated tirelessly for this advantageous outcome, along with AAPM, ASTRO, SNMMI, and others. On staff at ACR, I want to recognize the efforts of Mike Peters and Gloria Romanelli, in particular, though the ACR GR staff operation is an exceptional team effort. And obviously **Richard Martin**, JD of AAPM was an important ally and contributor in the advocacy effort! The ACR's Medical Physics GR committee is currently chaired by **Kate Hintenlang**, PhD, FAAPM, FACR, FASTRO and her efforts were instrumental, and it needs to be noted that the advocacy has spanned a period of years, so the previous chair, **Ralph Lieto**, MS, FACR, also deserves recognition for his contributions. Thank you and congratulations all around. The vigilant advocacy goes on.

Participate! Make a few extra measurements and contribute to a research study.

Leon et al published in 2020 a paper demonstrating the feasibility of using a helical acquisition technique for estimating CTDI during medical physics annual surveys. I have partnered with those researchers and other interested colleagues to investigate the generalizability of their proposed measurement method. In other words, their results indicate that the helical measurement method can work, and we are now investigating whether the helical method can reliably work for everyone.

We encourage all our colleagues who practice in CT to add a handful of extra measurements to their CT testing routine and contribute data to the study. The more data we can collect for analysis, the more we will all learn from the results! You can download the Excel template with instructions here, and you can drag & drop your completed Excel templates at the study landing page. You can also find a shortened link to the study landing page in my Twitter profile.

When you submit data, you'll need to attest that your dosimetry equipment has been calibrated within 24 months of your measurements, and that you are not submitting PHI, facility information, or CT device identifiers. The study collaborators are finalizing a date to close data collection, likely midyear, so please contribute soon! ■

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PATIENT SAFETY AWARENESS WEEK FOR RADIATION ONCOLOGY

ASTRO QUALITY IMPROVEMENT

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- Patient Safety Awareness Week (PSAW) is March 13–19 and serves as a national education campaign for promoting patient safety practices.
- Quality and safety are priorities for medical physicists, and this week serves as an opportunity to increase awareness within your practice.
- In the wake of the 2010 New York Times article on patient safety in radiation oncology, ASTRO and AAPM collaborated to develop RO-ILS, a national radiation oncology incident learning system.
- In 2014, using the guidance in Safety is No Accident, ASTRO created its own radiation oncology-specific practice accreditation program, APEx - Accreditation Program for Excellence®.

Patient Safety Awareness Week (PSAW) began in 2002 as annual event intended to encourage a continued focus on health care safety. This year it is observed March 13–19 and serves as a national education campaign for promoting patient safety practices. We know that quality and safety are priorities for medical physicists every day, and this week is an opportunity to increase awareness within your practice.

Patient safety was at the center of most radiation oncology discussions after the 2010 New York Times article, and tremendous progress has been achieved since that time. However, much like quality, safety assessments and improvements are an ongoing exercise. In the wake of the 2010 events, the American Society for Radiation Oncology (ASTRO) and the American Association of Physicists in Medicine (AAPM) collaborated to develop a national radiation oncology incident learning system (ILS), RO-ILS, to facilitate safer and higher quality care in a secure and non-punitive environment. In 2014, using the guidance in Safety is No Accident, ASTRO created its own radiation oncology-specific practice accreditation program. ASTRO's APEx - Accreditation Program for Excellence® builds on consensus statements, AAPM Task Group reports and technical standards to support safety and quality.

Medical physicist, Dr. **Eric Ford** from University of Washington, Seattle, along with radiation oncologists, Drs. **Sue Evans**, Yale School of Medicine, and Jean Wright, Johns Hopkins Medicine, are well known contributors to the topic of quality and safety within radiation oncology. In light of the upcoming PSAW, these leaders recently discussed quality and safety initiatives that resonate with them, including incident learning, accreditation and the importance of safety culture.

Eric: Let's start off by talking about one of my areas of focus, ILSs. Active engagement in programs such as RO-ILS can directly benefit our patients, and everyone has a role to play.

Sue: Certainly, and there is a central and pivotal role that medical physicists play in supporting quality improvement, especially in incident learning.

I believe that if a physicist is not advocating for and engaging with an ILS, it will simply fail. We need the thoughtful analysis from the physics perspective to make our systems stronger and there's nobody else better suited to speak to all the processes involved in an incident.

Eric: I know I feel that way, but it's so important to hear those kinds of affirmations from our colleagues.

Sue: I'm reminded how the late Peter Dunscombe used to quibble and call it an incident teaching system, because he would say that the learning is up to you. Those of us in radiation oncology know the same sorts of incidents keep happening and sometimes they fail in new and exciting ways, and sometimes they fail in the same old boring ways. Having data in a national system enables us to explore this further, identify trends and work with community partners, such as vendors, to resolve some of these error pathways. Varian and Sun Nuclear Corporation have been long standing supporters of RO-ILS and hopefully other vendors will join the effort.

Eric: The practice culture underpins everything that happens, and PSAW presents an opportunity to improve it. How does RO-ILS support safety culture?

Sue: One of my favorite ways is creating a safe space to talk about errors. It's easier to discuss an error that occurred somewhere else, so practices can start with RO-ILS education and then analyze the data in their local RO-ILS system. It is helpful to not feel alone; to know that on the national level, they might be seeing the same thing that happened at your practice. I do think it's a way to normalize errors and to allow people to be more open about it and foster safety culture from that aspect. In 2021, RO-ILS added safety check questions in the educational resources to encourage more active reading, reflection and spark conversations.

Jean: Incident learning is a forward-thinking approach. Rather than focusing on what happened to assign blame, we must investigate the contributing factors and understand why the error occurred. This allows us to appreciate how errors happen and then work to address it, so it doesn't happen again. I think all the resources that come with RO-ILS really convey that message and make it easy. You can have a discussion and go over the errors as a group.

We [Johns Hopkins Medicine Department of Radiation Oncology] are in the process of transitioning to RO-ILS. One of the reasons we wanted to change from our internal program is that the participation at the national level is more impactful and gives us the ability to learn from others and provide more information back to the community in a safe, protected way. But we've known that for a long time. To be honest, I'd say the biggest driver for us is the ability to do the analytics in a way that's more ready-made. Once you learn the features of RO-ILS, you realize that it has options to tailor reports.

Eric: Accreditation is another initiative that gives practices an opportunity to review their specific reports, promote safety and should be celebrated for PSAW.

Sue: I think we all understand that the same basic processes happen in each radiation oncology practice, regardless of our vendor equipment and our individual workflows. In our APEx assessment, we found areas that required more standardization and where we could beef up our processes. I know when we went through APEx, it was amazing how many processes that we thought were buttoned up well hadn't been revised in three or four years. Also learning where we didn't have a defined process.

Jean: Another thing I want to highlight about APEx is that there are two phases — this is the crux of the program. It has the self-assessment phase and then the site visit. The self-assessment phase consists of an initial review where practices conduct an internal assessment of their own medical records policies, procedures and other forms of documentation. As a result, you have the opportunity to identify areas that you may want to improve on prior to the site visit like Sue just talked about, where they didn't even know there was a problem. That definitely happens with APEx. The self-assessment helps you realize you don't have something in place.

Eric: Jean, how are the physics elements assessed in APEx?

Jean: The APEx medical record review is fairly equally weighted between physician medical notes and physics documentation that supports quality assurance (QA) for patient safety. Another substantial component of the program is the document review. APEx assesses individual specifications for machines like commissioning documentation, results of annual and monthly testing, and

all the different QA checks are done at the machine level. It's really a physics-driven process in a lot of ways.

Sue: The other thing that I'll add to that, Jean, is from my understanding of having friends at other institutions going through this process, they've actually found the accreditation process to be very helpful when they're in discussions with their hospital or funding source because sometimes you'll have an accreditation notation and say the QA process you have for this modality is certainly adequate, but it's recommended that you look at adding an aspect. A lot of organizations that I know have been able to successfully lobby their hospital or parent institution and say APEx told us that we were OK, but if we really want to be excellent, we need to add something. The institution or organization will really listen to that. Accreditation helps advocate for you in terms of really elevating your game.

Eric: I've witnessed this as well. Accreditation can be an ally for physicists.

Jean: The APEx Standards are very clearly delineated so practices know what is going to be evaluated and there is no mystery. Because of the Self-Assessment, you'll have a very clear sense of how you will do even before the surveyors arrive.

Eric: I agree. In reviewing the APEx Standards, I think the requirements should not come as a surprise to any medical physicists. These are well documented, well accepted standards that are published and align with AAPM Task Group reports and other professional recommendations. Practice accreditation is doing what we all know is right and confirming it's effective.

Sue: I think that's why accreditation can be undervalued. People look at the requirements and say to themselves, well, of course we do that. But one of the things that we discovered when we went through APEx was that while we do a lot of those things, the process of having a deadline, a formal assessment, an outside evaluator meant that we still discovered new things. Everything just got squared away with the accreditation process, and it was extremely informative.

Patient safety is a key aspect of radiation therapy every day; however, PSAW presents a chance to assess your own practice. Many tools, like RO-ILS and APEx, are used by radiation oncology practices around the country to measure and improve the consistency and effectiveness of daily practice. ASTRO challenges you to take advantage of PSAW to evaluate your own practice and learn how RO-ILS and APEx can help with your patient care. ■

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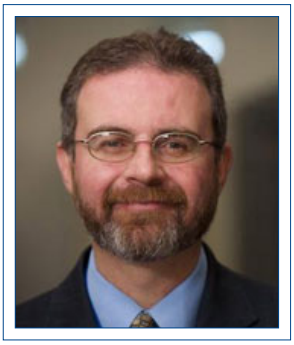
ABR POST-EXAM SURVEYS PROVIDE IMPORTANT FEEDBACK

ABR NEWS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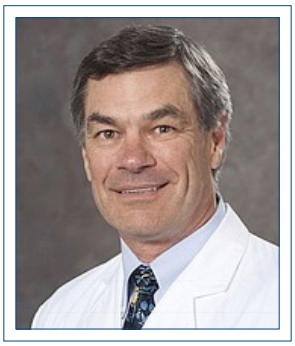
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- Responses to post-exam surveys provide valuable input that helps the ABR improve the exams.
- Responses and comments regarding the exam content are consistent with past exams.
- Nearly 90% of recent exam candidates liked the remote exam format and found it easy to use.

The ABR's mission is to certify that our diplomates demonstrate the requisite knowledge, skill, and understanding of their discipline to the benefit of patients. This is complementary to the AAPM mission: Advancing medicine through excellence in the science, education, and professional practice of medical physics.

To become board-certified, medical physicists must pass a series of exams structured to evaluate their clinical skills and knowledge: three written qualifying exams (Part 1 general, Part 1 clinical, and Part 2 in their specialty, either Therapeutic Medical Physics, Diagnostic Medical Physics or Nuclear Medical Physics) followed by a final certifying exam in their specialty (Part 3 oral). These exams include questions written by medical physicist volunteers who are board certified by the ABR and are maintaining their certificates in the Continuing Certification (formerly MOC) program for their respective disciplines. Each question is reviewed to establish appropriate content and evaluated for clarity of presentation by committees of medical physicist volunteers and ABR editorial staff. Moreover, each exam is reviewed in its entirety by the ABR psychometrics staff, medical physicist volunteers, and the trustees before it is delivered. Finally, each exam is assessed after delivery to ensure that participants who passed the exam have demonstrated

appropriate knowledge such that the ABR's mission is achieved.

Over the past two years, all ABR written and oral exams have undergone significant changes stemming from the transition to fully remote exams. In 2021, the ABR administered two rounds of qualifying exams along with a pilot certifying exam offered to a limited number of candidates, followed by two certifying exams open to all eligible candidates. Valuable input from medical physicist stakeholders during the almost year-long hiatus in exam delivery in 2020 was incorporated into the new delivery formats.

Because of the significant changes in exam delivery format, it was perhaps more important than ever to query these examinees regarding their experiences. Of the 662 participants in the exams given in August 2021, which included one administration each of the Part 1, Part 2, and Part 3 exams, 405 candidates responded to post-exam surveys. A review of the survey responses showed the following highlights:

- 85% of respondents indicated they understood the exam registration process, although some had difficulty scanning their IDs or had difficulty performing a room scan.
- 96% of respondents successfully completed the technical self-check, and 94% found the process to be useful.
- Only 58% of respondents found the online practice exam to be useful. We are currently reconfiguring the practice exam to be an Exam Readiness Check and Sample Questions, which will provide a broader range of question types.
- About 85% of respondents had a connection issue either before or during their exam. There was an interruption in accessing the Part 1 Qualifying Exam question server that was a result of circumstances outside our control, and we worked with the affected participants to address their situations. Connection issues experienced by oral exam participants were mostly related to local power outages and home internet interruptions. We worked with these individuals as well to provide opportunities for them to complete their exams once their connections were re-established.
- 88% of computer-based and oral exam participants liked the newly developed exam interfaces, although some indicated that exam content, particularly images, was blurry. The remote exam format continues to evolve, and the quality of images and text will be significantly improved.
- We received many comments about case-based questions in which there was a block between sequential questions in a two- or three-question case. We will shortly discontinue the use of cases that require blocks between questions.
- 39% of respondents rated their exam as "too difficult" or "much too difficult." This is not different from previous years.
- 38% of respondents said they were surprised by the exam content, with Part 1 respondents commenting that the exam contained too many imaging questions, not enough imaging questions, too many therapy questions, or not enough dosimetry questions (depending on their discipline interest).
- Many oral exam respondents indicated displeasure with the requirement to run both WebEx and a browser window simultaneously. This will be modified in a future version of the oral exam software platform.
- Of oral exam respondents, 92% found their navigator to be helpful, 92% perceived their examiners to be fair and professional, and 85% said their examiners helped them express their knowledge.
- Finally, candidates were asked to rate the exam software by giving one to five stars. The overall average was 3.4 stars, with the following individual averages: Part 1 – 2.9 stars, Part 2 – 3.1 stars, and Part 3 – 3.8 stars.

We were pleased to find that most responses to survey questions based on exam content rather than delivery format were similar to those from previous years, indicating that candidate opinions about content have not changed. This is consistent with our finding that metrics used to assess each exam were largely consistent with those of previous exams.

The ABR continually strives to improve the quality of the exam experience. Changes in the process are informed, in large part, by participant responses to surveys that are offered at the end of each exam. Each participant

is asked to answer specific questions and provide free-form feedback related to their experience. These surveys are reviewed extensively, and responses help guide refinements and changes to the exam process.

Responses to survey questions continue to provide useful input that has already led to improvements in the exam delivery user interfaces and, for the computer-based written qualifying exams, changes to the question types and operational format. Further evolution based on survey responses is already planned and will be implemented soon.

The Board of Trustees finds tremendous value in the feedback received from exam participants and looks forward to continuing the evolution of all exams informed by survey responses. ■

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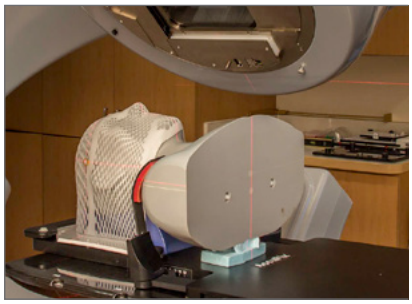
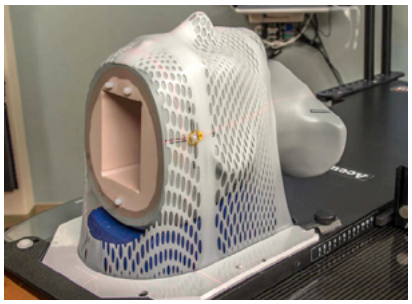
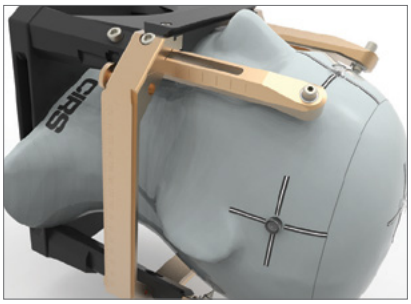


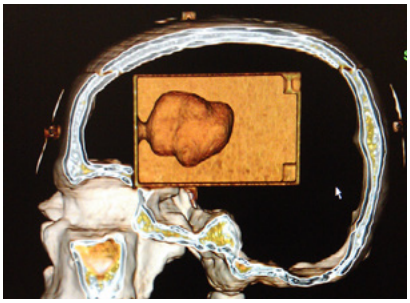
Perform QA on OBI systems



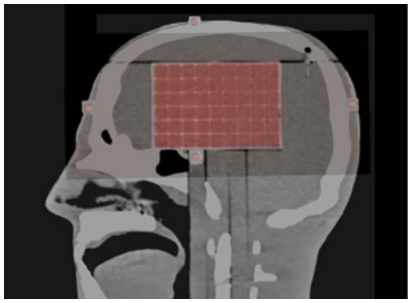
Verify patient positioning using frame/frameless systems, head/shoulder masks or other fixation devices



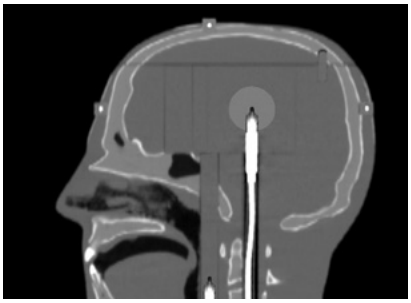
Quick, repeatable positioning in frame based systems



Evaluate TPS deformable image registration algorithms



Assess TPS image fusion and image transfer accuracy with multi-modality imaging inserts for CT, MRI and PET



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IOMP AWARDS THREE AAPM MEMBERS

PEOPLE IN THE NEWS

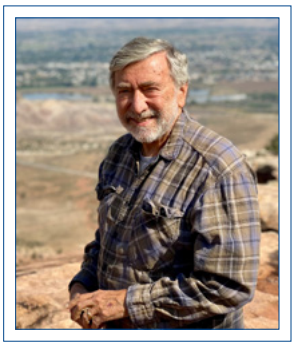
AAPM is pleased to recognize three of our members who have been honored by the International Organization for Medical Physics (IOMP) with major awards to be bestowed in 2022.

The Harold Johns Medal for 2022 has been awarded to **George Starkschall**, PhD, Professor Emeritus at the MD Anderson Cancer Center. This award is established in honour of Harold E. Johns (1915–1998), a medical physicist whose career was foundational to the profession. The award recognizes scientists who have distinguished themselves by their contributions through excellence in teaching and to international education and is given every three years. Dr. Starkschall will receive his award at the World Congress on Medical Physics and Biomedical Engineering to be held in Singapore in June. A description of his accomplishments related to the award can be found at here.

Professor **Ehsan Samei**, PhD from Duke University and AAPM President-Elect, has been selected as the awardee for the Marie Sklodowska-Curie Award. This award is established to honor scientists who have distinguished themselves by their contributions to the education and training of medical physicists, medical students, medical residents, and allied health personnel, advancement of medical physics knowledge and advancement of the medical physics profession. This award is given triennially and will be presented to Dr. Samei at the at the IOMP World Congress in Singapore in June. The IOMP has published a summary of Dr. Samei's contributions that led to his selection for the award.

The International Union for Physical and Engineering Sciences in Medicine (IUPESM), an umbrella organization consisting of the IOMP and the International Federation of Medical and Biological Engineering (IFMBE), has selected Professor **Xie George Xu**, PhD, Professor of Nuclear Science and Radiation Oncology, and Director of the Institute of Nuclear Medical Physics, the University of Science and Technology of China, as the recipient of the IUPESM 2022 Award of Merit in Medical Physics. This award honors a medical physicist or a biomedical engineer who has established a distinguished career in the field, having made a significant impact in the science and scientific practice of medical physics, participated meritoriously in national and international organizations for medical physics and significantly influenced the development of the profession of medical physics. This award will also be presented at the IOMP World Congress in Singapore in June. You can view the IUPESM summary of Dr. Xu's accomplishments here. ■

Gerald A. White, Jr., MS
Colorado Associates in Medical Physics
Chair of Awards and Honors Committee
Email: gerald.white@mindspring.com



George Starkschall, PhD

Ehsan Samei, PhD

Xie George Xu, PhD

AAPM SCIENCE COUNCIL ASSOCIATES
MENTORSHIP PROGRAM

The AAPM Science Council Associates Mentorship Program (SCAMP) has been established to recognize and cultivate outstanding researchers at an early stage in their careers, with the goal of promoting a long-term commitment to science within AAPM. SCAMP uses the process of shadowing to integrate the Associates into the scientific activities of the organization. Our review working group will select eight Associates then assign each one to a Mentor from the AAPM Science Council, Research Committee, Data Sciences Committee, Therapy Physics Committee, Imaging Physics Committee, or Technology Assessment Committee. The Associate will participate in selected meetings of their assigned Mentor's Committee and join a Task Group (chosen with input from the Mentor). Other shadowing AAPM-related activities include abstract review, Young Investigator judging, committee activities at the Annual Meeting, etc.

The Associates will participate in the program through the end of the following calendar year. Each Associate will be reimbursed up to $2000 to cover the costs (travel-related expenses including flight, hotel, and meeting registration) to attend the 2022 Annual Meeting in DC and the 2023 Annual Meeting in Houston. Announcement details, along with Associate's picture and short biosketch, will be posted on the AAPM website by early June.

OPEN FOR APPLICATIONS:

January 10, 2022

ELIGIBILITY CRITERIA:

- PhD candidates or early career Medical Physicists within five years of earning a doctoral degree
- Must be a member of AAPM at the time of application (any membership category) and maintain membership for the duration of the award period.

  Pending membership status not acceptable

  Prior Mentorship Program recipients are ineligible

DIRECT INQUIRIES: scamp@aapm.org

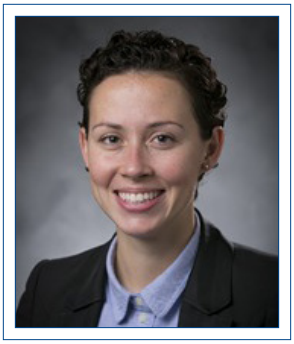
APPLICATION REQUIREMENTS:

- Cover letter outlining current contributions to Medical Physics research, describing future career plans, and reasons for interest in the SCAMP program
- The cover letter should specify the committee(s) and/or committee member(s) of interest — e.g., Science Council, Research Committee, Therapy Physics Committee, Imaging Physics Committee, or Technology Assessment Committee, and/or member(s) therein
- A diversity statement limited to one single-spaced page that describes how you will support and achieve SCAMP and AAPM's goals of equity, diversity and inclusion, especially as it relates to supporting the role of women and underrepresented groups in the field
- CV (no more than four pages)
- Brief letter of support from supervisor
- Please combine and submit all application documents as one PDF

AMERICAN ASSOCIATION *of* PHYSICISTS IN MEDICINE

UPDATES FROM THE WORK GROUP ON MULTI-INSTITUTIONAL JOURNAL CLUBS FOR RESIDENCY PROGRAMS (WGJCRP)

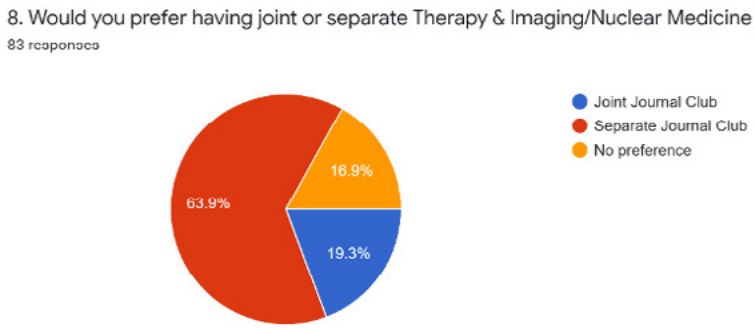
EDUCATION COUNCIL REPORT



The COVID-19 pandemic has disrupted and modified many of our venues for interaction for both scientific discourse and social interaction. Following-up on the report in the March/April 2021 *AAPM Newsletter* by **Hania Al-Hallaq**, PhD and **Ingrid Reiser**, PhD on their successful pilot program creating and running a regional multi-institutional medical physics imaging residency journal club (JC) in Midwestern states, the **Work Group on Multi-Institutional Journal Clubs for Residency Programs (WGJCRP)** chaired by **Christopher Watchman**, PhD was formed. We are excited to announce that the WGJCRP created a framework to expand this concept to all CAMPEP-accredited residency programs and launched the 1st cycle September 2021–July 2022 of Multi-institutional Journal Club (MIJC) groups. Our efforts consisted of two rounds of activities:

(1) Initial survey of CAMPEP program directors to assess interest and structure for MIJC

Interest in the MIJC model was substantial: The initial survey closed in May 2021. Ninety out of 140 Residency Programs completed the survey (64% response rate). **Eighty-three out of 140 Residency Programs (59.2%)** indicated that they were interested in this JC model. A subset of results from the initial survey is shown in Figure 1 below. Of particular importance to our WG was assessing residency program preference as to whether journal clubs should be **separate (64%)** or **joint (19%)** between therapy and diagnostic imaging (DI)/nuclear medicine (NM) (question 8). Questions 9 and 10 addressed preferences of journal club group composition in terms of number of residents **(5–10 (40%)**), and faculty/staff to resident ratio **(no preference (40%)**, with **1:4 (33%)** being second highest choice). These responses helped guide the WG framework for the MIJC.



Anna Rodrigues, PhD
Duke University
Working Group Vice-Chair
Email: anna.rodrigues@duke.edu
Twitter: @actuallyacat

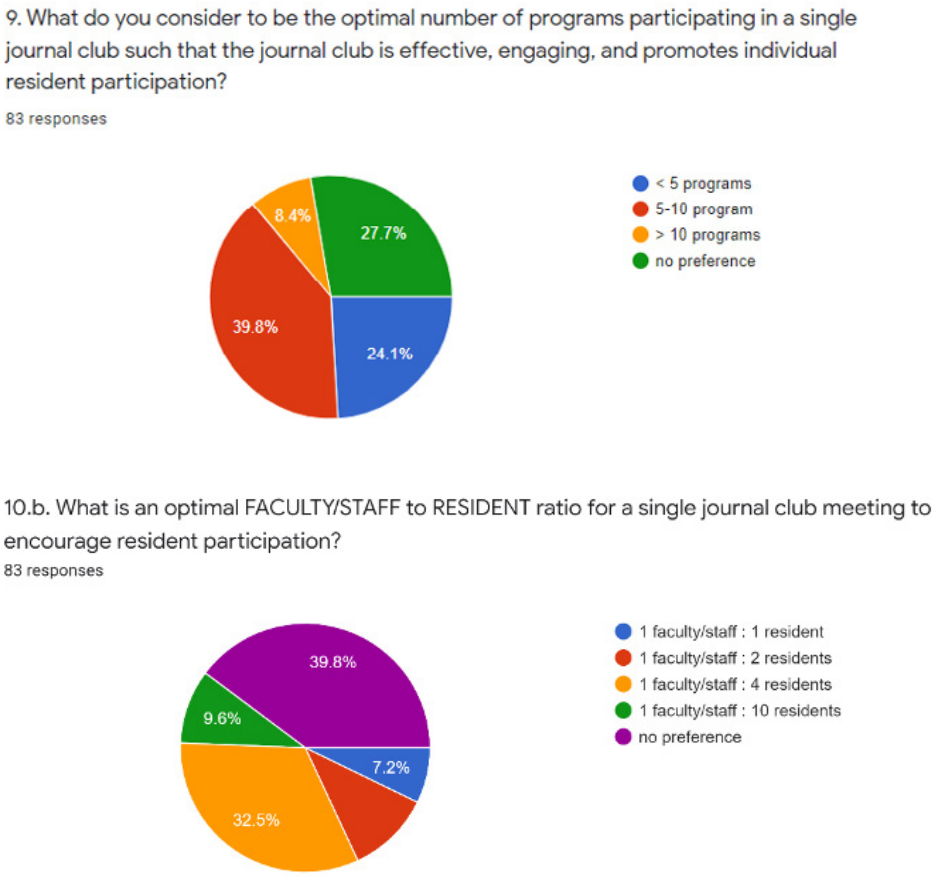


Figure 1. Subset of results from the initial survey.

(2) Follow-up survey of CAMPEP program directors for MIJC participation agreements

Tables 1 and 2 summarize the follow-up survey results. In total, **42 Therapy** and **17 DI/NM residency programs** chose to participate, resulting in a participation rate of 39.6% and 50%, respectively, for a total of 121 therapy and 47 DI/NM residents. Fourteen therapy MIJC groups and 5 DI/NM MIJC groups were formed with the number of programs per group ranging from 2–4 and number of residents per group ranging from 6–12, averaging 3 programs and 9 residents per group.

Table 1. Overall residency program participation rate.

Type of Residency Program	# of participating residency programs	# of CAMPEP residency programs*	% of CAMPEP residency programs participating in MIJC
Therapy	42	106	39.6%
DI/NM**	17	34	50.0%

*At the time of survey (July 2021), from CAMPEP website.
** DI and NM residency programs were combined

EDUCATION COUNCIL REPORT, Cont.

Type of Residency Program	# of participating residents	# of residents from 2020 CAMPEP Annual Residency Report*	% of CAMPEP Residents participating in MIJC
Therapy	121	338	35.8%
DI/NM	47	84	56.0%

*This number is given as an estimate of the total number of residents in CAMPEP residency prog

Details on our framework including MIJC guidelines and feedback forms can be found in here. The WGJCRP is overseeing the management and operation of each MIJC group and will report feedback on this model towards the end of this cycle. We will be opening participation at the beginning on June 2022—be on the lookout for an email from the WGJCRP then!

For any questions or comments please reach out to us: 2022.WGJCRP@aapm.org ■

AAPM / RSNA IMAGING PHYSICS RESIDENCY GRANT

Applicant Eligibility:

The purpose of AAPM funding is to provide 50% support of a resident's salary for two imaging physics residents. The awardee institution(s) will provide the other 50% support. After the period of the award is over, the intent is that the awardee institution(s) will continue to fully support this new imaging physics residency position. Demonstration of this intent should be included in the application materials.

- CAMPEP accreditation is expected within the first year of the funding period, if a program is not currently accredited.
- Open to existing or new imaging residency programs.
- 1st priority — New programs (hence new slots), no previous funding from any AAPM program. A new program is defined as one that has applied for CAMPEP accreditation after January 1, 2021, or has not yet applied for CAMPEP accreditation.
- 2nd priority — Existing program but with new slots, no previous funding from any AAPM program. A new slot is defined as one that has been created or filled after January 1, 2021.
- 3rd priority — Existing program but with new slots, has had previous funding from an AAPM program. A new slot is defined as one that has been created or filled after January 1, 2021.

History:

The AAPM Board of Directors has approved $420,000 in support over 6-years ($70,000/year starting in 2019) to fund six spots in existing or new imaging residency programs. The RSNA Board of Directors approved $210,000 in funding for three additional slots in existing or new imaging residency programs.

Sponsored by the AAPM Education and Research Fund.

A list of Award Recipients can be found here.

Award Duration: July 1, 2023 – July 1, 2025

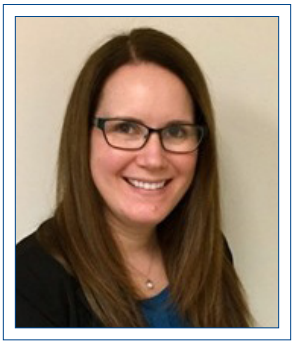
Application Deadline: May 3, 2022

Recipients Notified by: May 27, 2022

FOR MORE DETAILS, VISIT: http://gaf.aapm.org/index.php#IPRWG

SPECIAL INTEREST FEATURE: AAPM ONLINE LEARNING CENTER

Stephanie Parker, MS | Wake Forest Baptist Health High Point Medical Center, RDCE Chair
Eric Lobb, MS | Ascension NE Wisconsin, RDCE Radiation Therapy Vice-Chair
Michael Silosky, MS | University of Colorado Anschutz Medical Campus, RDCE Imaging/Nuclear Medicine Vice-Chair



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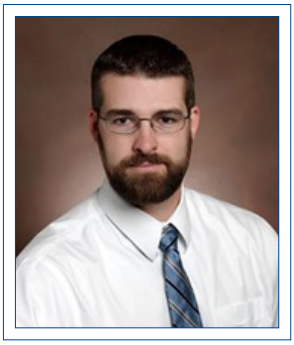


M. Silosky
michael.silosky@ucdenver.edu

All quizzes in the OLC fully meet the requirements for Category 1 CME and SA-CME and are approved by the Commission on Medical Physics Education Programs (CAMPEP). The AAPM Virtual Library includes more than 5,000 videos captured from presentations at over 50 AAPM meetings including select specialty meetings. Presentations from meetings are available in the VL to AAPM members one year after the meeting and to non-members two years after the meeting.

Introduction to the AAPM Online Learning Center

The AAPM Online Learning Center (OLC) is a repository of enduring educational materials to be used by individuals to continue their professional development. The OLC includes two types of online assessments (quizzes) and the AAPM Virtual Library (VL). Access to the online quizzes in the OLC is available to both AAPM members and non-members through an annual subscription.

Approximately 600 standard quizzes are available in the OLC and are based on a wide variety of CAMPEP categories. Also available in the OLC are over 115 SAMs quizzes which originate from AAPM meetings including the Annual Meetings, Spring Clinical Meetings, and Summer Schools. The AAPM VL includes more than 5,000 videos captured from presentations at over 50 AAPM meetings including select specialty meetings. Presentations from meetings are available in the VL to AAPM members one year after the meeting and to non-members two years after the meeting.

	OLC Quizzes	SAMs Quizzes
Number of Quizzes Available	>600	>115
Number of Questions per Quiz	10	6 or 10
Required % of Correct Answers for Credit	80%	100%
Number of Credits per Quiz	1	1-2
Type of Credit Earned	Category 1 CME & SA-CME	Category 1 CME & SA-CME
Length of Time Quiz is Available in the OLC	Indefinitely Unless Replaced or Deemed Outdated	3 years

Table 1: Comparison of OLC and SAMs Quiz Types Available in the Online Learning Center (OLC).

The Online Learning Services Subcommittee (RDCE) is tasked with management of the VL and OLC. Volunteers of RDCE include a chair who coordinates all subcommittee activities, two vice-chairs (therapy and imaging / nuclear medicine) who assist in delegation and execution of these activities, and several members from a wide range of disciplines and backgrounds who volunteer their

time to the various subcommittee tasks and functions. Additionally, the subcommittee has received extensive support from AAPM staff including Zailu Gao, Farhana Khan, Jacqueline Ogburn, and Lisa Sullivan.

Continuing Education: Credit Types and Reporting

The OLC provides continuing education credits structured to meet the Maintenance of Certification (MOC) requirements of the American Board of Radiology (ABR). AAPM members participating in ABR MOC must have earned 75 Category 1 Continuing Medical Education credits (CME) over the previous three years. Additionally, 25 of these must be Self-Assessment CME (SA-CME).

As previously stated, the OLC provides two types of quizzes: standard quizzes generated by RDCE that are listed as "MPCEC and SA-CE Offerings" on the OLC website and those generated from SAMs sessions during meetings, which are listed as "SAM Offerings." It should be noted that while the quiz types differ in their method of generation, number of questions, and pass/fail criteria, both types fully meet the requirements for Category 1 CME and SA-CME and are fully approved by the Commission on Medical Physics Education Programs (CAMPEP) (see Table 1).

The differences between the two types of quizzes in terms of number of questions and passing criteria were determined as per an agreement between AAPM and CAMPEP and are not at the discretion of the RDCE. Regardless, the ABR MOC CME requirements may be met by utilizing "MPCEC and SA-CE Offerings," "SAM Offerings," or a combination of the two.

Finally, AAPM members that rely on CMEgateway.org to tabulate their CME will find that credits earned through OLC are listed as both MPCEC as well as SA-CME, ensuring that it is easy to verify that both requirements have been met.

Sources of New Continuing Education Content

There are three major pathways for new continuing education content to become available within the OLC.

Self-Assessment Modules (SAMs) offered during sessions of AAPM meetings are transferred into the OLC one year following the conclusion of the meeting. SAMs quizzes automatically expire after three years to comply with ABR requirements. After expiration of a meeting's SAM quizzes, RDCE is tasked with reviewing the material and determining what is appropriate for preservation within the OLC as a standard non-SAM quiz.

Conversion of a SAM quiz into a standard quiz typically requires the writing of additional quiz questions, revision of existing questions for compliance with RDCE writing requirements, and the splitting of longer meeting sessions into multiple individual quizzes. As there are typically more than 100 SAM quizzes added to the OLC each year from the major AAPM meetings, this work composes a significant portion of RDCE volunteer effort throughout the year.

Finally, quiz content is periodically sourced from peer-reviewed publications within journals accessible to AAPM members. Typically, this includes the *Journal of Applied Clinical Medical Physics* and *Medical Physics*, though other open-access publications are considered on a case-by-case basis.

Ensuring Quality

Content Creation Team

The process of generating a quiz for the OLC involves three volunteer members of the AAPM: the Quiz Writer, the Quiz Reviewer, and the Administrative Reviewer.

The primary responsibility of RDCE volunteers in the writing stage of quiz generation is to identify a subject matter expert for the material that is willing to submit a timely set of multiple-choice quiz questions that adhere to RDCE writing standards. This identified person is the Quiz Writer, and they may or may not be an active RDCE volunteer. As an example, the speaker for a Virtual Library presentation or the author of a publication that is being considered as source material for a new quiz almost certainly qualifies as the subject matter expert and may be invited to submit a quiz themselves even if they are not an RDCE member.

The Quiz Reviewer is an additional subject matter expert who is responsible for evaluating the submitted quiz for compliance with writing standards, ensuring high educational value, and ensuring overall quality in terms of clarity, conciseness, and appropriate

reflection of the source material. Currently there are approximately 50 AAPM Members who serve as Quiz Reviewers, largely composed of current and former RDCE volunteers. As part of the review process, the Quiz Reviewer may make modification requests or suggestions that are communicated back to the Quiz Writer. Any subsequent modifications made by the Quiz Writer are re-evaluated by the Quiz Reviewer before approval.

Finally, the Administrative Reviewer (from a small group of experienced RDCE volunteers) holds the authority to publish a written quiz within the AAPM OLC, and therefore is ultimately responsible for the quality of the final work. The Administrative Reviewer performs a final check of the appropriateness of the source material and learning objectives as well as the quiz itself and communicates any quality issues that need to be addressed back to the Quiz Reviewer, who may further communicate them back to the Quiz Writer. This iterative writing and reviewing process repeats until the submitted quiz is approved at both levels of review and is then published, where it undergoes a final post-publication review by the Administrative Reviewer to ensure that it is accessible and grades correctly within the OLC.

RDCE Question-Writing Guidelines

At a basic level, quizzes added to the OLC must be grammatically correct, must test the important and key topics of the source material, and should largely adhere to the best-practice recommendations of the American Board of Radiology's "Radiologic Physics Item-Writing Guide." The expectation for each multiple-choice question is that they are concise, clearly written, and focused on testing a single concept in a way that is fair and consistent with the goals of a continuing education program.

User Feedback

Due to the large volume of material available in the OLC relative to the modest size of the subcommittee, RDCE relies heavily on feedback submitted by OLC users for identifying quality issues in existing material. Generally speaking, users have two options for submitting feedback. Feedback is primarily submitted at the time of quiz completion when the OLC user is prompted to rate the quiz activity and provide more detailed comments in a free-text form. Alternatively, users may email their questions or feedback directly to ollc@aapm.org. Feedback provided in either manner is automatically emailed to the appropriate AAPM staff as well as RDCE leadership for review and corrective action, if appropriate.

Managing user feedback is a major responsibility of the RDCE subcommittee, with more than 350 individual instances of feedback submitted by OLC users in 2021 alone. Examples of types of feedback commonly submitted include:

- Questions for which the answer is not located in the linked source material.
- Questions for which the correct answer is specified incorrectly.
- Images, equations, or supplemental material needed for the quiz not being displayed correctly.
- Source material being inaccessible, either due to removal or loss of open-access status.
- Source material and associated quiz testing outdated or supplanted material.

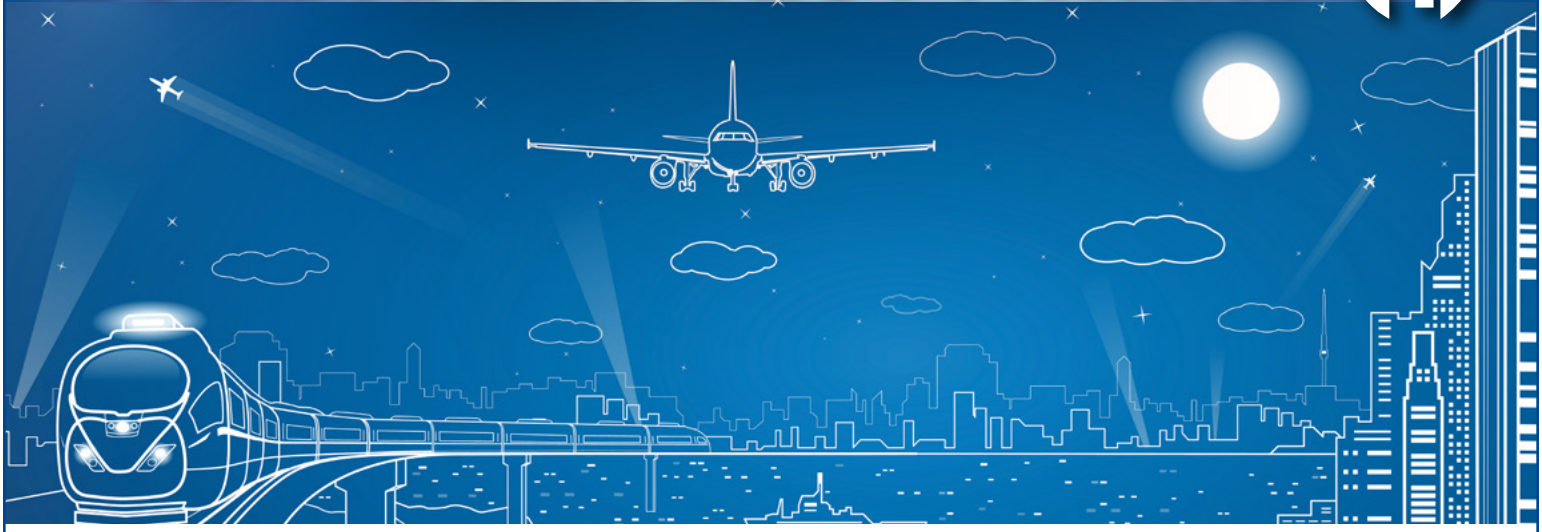
Mitigation of these issues obviously improves the quality of the OLC experience for subsequent users, so RDCE considers the timely review and management of any received feedback to be of high importance. Constructive feedback that enhances the OLC is greatly appreciated, and users are encouraged to submit their feedback with as much specific detail as possible to assist RDCE volunteers with their efforts in making efficient corrections.

Getting Involved

The Online Learning Services Subcommittee welcomes content suggestions from AAPM members. Publications with high educational value that you would like to see included in the OLC can be shared with ollc@aapm.org for review and consideration. If you are a subject matter expert for the topic at hand and would be willing to volunteer as a Quiz Writer then please share that information as well.

Finally, monitor the AAPM Committee Classifieds for opportunities to volunteer with RDCE and contribute to the continued success of these popular AAPM offerings. ■

2022 AAPM BEST AWARD



Best Medical International, with their Team Best Companies and the American Association of Physicists in Medicine (AAPM), are pleased to announce the availability of a Travel Fellowship for Student, Resident or Junior Members of AAPM to attend the 2022 AAPM Annual Meeting in Washington, DC. Recipients will have access to the scientific and technical information and presentations on current and emerging topics in medical physics and related areas.

Sponsored by BEST Medical International and the AAPM Education Council through the AAPM Education & Research Fund.

Eligibility

Each applicant must be:

- a Student, Resident or Junior Member of the American Association of Physicists in Medicine (AAPM); and,
- first author on an accepted abstract for the 2022 AAPM Annual Meeting.

Required Supporting Documentation

- Attach all abstracts submitted to the 2022 AAPM Annual Meeting.
- Download and complete the AAPM Best Award application. Merge all files into one PDF and upload the completed application.

Award Duration:
July 10 – 14, 2022

Application Deadline:
May 3, 2022

(All supporting documents are due by the application deadline.)

Recipients notified on:
May 24, 2022

FOR MORE DETAILS, VISIT: gaf.aapm.org/#BM

SCMPCR E-LEARNING PROGRAM 05 - AN ACCREDITED COURSE ON ADVANCED RADIOTHERAPY: MY VIEWS & EXPERIENCE

REPORT FROM THE SOUTH ASIA CENTRE FOR MEDICAL PHYSICS AND CANCER RESEARCH (SCMPCR)

It was sometime in early September 2021 when I received an email from Mohammad Ullah Shemanto, Program Manager for the South Asia Centre for Medical Physics and Cancer Research (SCMPCR), about the 5th e-Learning program of SCMPCR, asking if I could moderate any of the sessions, and what else could I say but yes!!

My first interaction with SCMPCR and the team goes back to 2019 when I went to Bangladesh to attend the 5th Hands-on Training & Workshop on Dosimetry of Small Fields in External Beam Therapy. The association has continued to date, only growing stronger with time.

SCMPCR, conceived in 2018, is a project of the Alo Bhubon Trust which aims to create skilled manpower for cancer treatment through different programs with a national and international collaborative approach. SCMPCR organizes meetings, seminars, workshops, hands-on training, in-service training, e-learning, and awareness programs with national and international experts. Programs are developed for the masses as well as relevant people from many health sectors for different communicable and non-communicable diseases, and especially for cancer patients, to achieve the United Nations Sustainable Development Goals (SDG) 3 (Good Health & Well-being) and SDG-goal 4 (Quality Education). It is the passion of Prof. Dr. Golam Abu Zakaria, former chairman and chief medical physicist of the Department of Medical Radiation Physics at Gummersbach Hospital of the Klinikum Oberberg, towards SCMPCR that inspires me so much and has kept me connected with the organization. The efforts of Dr. Zakaria, Prof. Dr. **Hasin Anupama Azhari**, Director of the Centre for Biomedical Science and Engineering in United International University (UIU), and the SCMPCR team to nurture the medical physicists in the South Asian and African regions are unparalleled and a great motivation for all of us.

The philosophy of SCMPCR resonates quite a lot with my idea of developing into a responsible medical physicist, so to be a part of any of its programs is an excellent opportunity for me to learn and grow. The themes chosen for all the SCMPCR programs are relevant to the contemporary needs of the medical physics community and its transforming role in the future. The first e-learning program (ELP) held in June–July 2020 was about revisiting the basics of radiation therapy, radiation protection, and imaging. Now, the 5th edition of the e-learning program addressed advances in radiation therapy, showing the perceptivity with which these programs are curated. The ELPs which started during the pandemic have now become a regular feature of SCMPCR and are one of the most sought-after programs by young medical physicists across the globe.

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"SCMPCR organizes meetings, seminars, workshops, hands-on training, in-service training, e-learning, and awareness programs with national and international experts."

The 5th ELP, held October 1–22, 2021, on the theme of 'Advanced Techniques in Radiotherapy,' was another successful event of SCMPCR with over 50 participants from 28 countries attending. It was a series of eight lectures and a group discussion followed by an online evaluation test and was accredited for 18 Continuing Professional Development (CPD) points by IOMP, the International Organization for Medical Physics.

It was a great pleasure for me to be a part of this ELP, moderating some of the sessions and attending the others, with each session being educational and informative. I got the opportunity to learn from experts in medical physics and a chance to know and interact with so many fellow medical physicists.

The first session on October 1, 2021 was an 'Introduction to Advanced Techniques from inter-and intrafraction motion direction,' which was delivered by Dipl. Ing. Volker Steil, Head of the Medical Physics and Radiation Protection department at Mannheim University Hospital GmBH, Germany. The moderator for the session, Mr. Suresh Poudel, Medical Physicist at BPKMCH, Chitwan, Nepal, started the program by introducing SCMPCR, its programs, and their need in the current times.

The following two sessions were moderated by Ms. Mandvi Dixit, a friend of mine who is currently working as RSO at Shree Jagannath Charitable Cancer Hospital, NCR, India. The second session on October 2, delivered by Dr. Pietro Mancosu, a renowned medical physicist from Humanitas Clinical and Research Hospital-IRCCS, Milan, Italy, was on 'Stereotactic Body Radiation Therapy (SBRT): A New Standard.' On October 3rd, the third session on 'MR-Guided Radiotherapy' dealt with one of the most sought-after technologies in the current times. The lecture was given by Prof. Dr. Rer. Nat. Oliver Jäkel, who is the Head of Division of Medical Physics in Radiation Oncology at German Cancer Research Center (DKFZZ), Heidelberg, Germany.

On October 8, Mr. Suresh Poudel moderated the fourth session of the ELP on 'IMRT & VMAT,' which was delivered by Dr. Dipl.-Ing. Natasa Milickovic, the Head of the Department of Medical Physics and Engineering at Sana Klinikum Offenbach GmbH in Germany.

The fifth and sixth sessions were held on October 9 and 10th, respectively, and Mr. K. M. Masud Rana, Medical Physicist & RCO at Evercare Hospital, Dhaka, Bangladesh, moderated these sessions. The lecture on 'Tomotherapy: Key Concept, Clinical Adaptation and Recent research regarding the Treatment Planning' was delivered by Dr. Hidetoshi Shimizu, who is the Chief Medical Physicist at Aichi Cancer Center Hospital, Japan. Prof. **Sung Yong Park**, Chief Proton Physicist at National Cancer Centre, Singapore, delivered a very insightful talk on the 'Recent Advances in Proton Beam Therapy.'

I had the opportunity to moderate the last two sessions of the ELP on October 15 and 16, which were delivered by Dr. Leonard Wee, Assistant Professor of Clinical Data Science at MAASTRO, University Maastricht, and GROW School of Oncology and MUMC, The Netherlands. The themes of these sessions were both very interesting. In the session on 'Artificial Intelligence, Deep Learning and Machine Learning in Radiotherapy,' Dr. Wee clearly explained the basics of artificial intelligence and neural networks. In the session on 'Imaging Modalities used in the Advanced Techniques of Radiotherapy,' Dr. Wee touched upon imaging concepts and moved on to the higher dimensions in imaging like radiomics, etc.

The last interactive session of the 5th ELP was the group discussion held on October 17, conducted by Dr. J. Jeyasingham, who is a senior lecturer in Medical Physics at the University of Colombo, Sri Lanka. The panellists comprised all the speakers of the 5th ELP and Prof. Zakaria. It was a very interactive session with in-depth discussions on the changing role of medical physicists, and participants got an opportunity to clarify their doubts and ask all the relevant questions.

The assessment examination was conducted on October 22nd for the CPD points with 36 participants, of whom more than 80% passed the exam. Yernar Orda & Tanzhas Shayakhmetov from Hospital Complex of Tomotherapy & Nuclear Medicine UMIT, Kazakhstan, scored the highest.

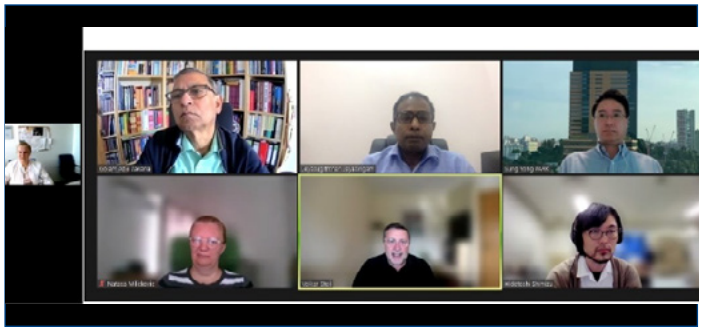
The 5th ELP was a great success owing to the cohesive efforts of all the speakers, participants, and organizers, and it is reflected in the feedback we got from the participants. I would like to quote one of the participants, Mr. Luwis Gabriel, a student of MSc Medical Physics at the University of Colombo, who appreciated the ELP and the platform

SCMPCR REPORT, Cont.

that SCMPCR provides. Mr. Gabriel said, "At the end of this year 2021, I will be completing my M.Sc. program and be the first Papua New Guinea Medical Physicist. The talks include many clinical and scientific lectures, and I am glad to have learned so much from the SCMPCR platform while being a student at the University. It has expanded my knowledge capacity to a level to serve my country in cancer treatment."

It is so heart-warming to see such appreciation and results for the efforts one puts in, and the SCMPCR team should be lauded for the same. I thoroughly enjoyed being a part of the 5th ELP, learned a lot, and will look forward to being a part of future endeavours too. I thank Prof. Zakaria and Prof. Anupama Azhari for showing confidence in young medical physicists like me and giving us a platform for interacting with experts and our peers. And to make this journey smooth for us, I would like to thank Shemanto, who again is a friend, and the entire SCMPCR team.

See you all soon!! ■



Top row, left to right: Screenshots from the 5th ELP first lecture, by Dipl. Ing.Volker Steil, and the third lecture, by Prof. Oliver Jakel. Bottom row, left to right: Screenshots from the fourth lecture by Dr. Natasa Milickovic-Skalonja, and all of the panellists participating in the group discussion.

MPLA Medical Physics Leadership Academy

The AAPM MPLA JOURNAL CLUB

Grow and develop as a leader when you participate in these monthly discussions with other AAPM members who want to do the same!

- Look for new topics introduced each month along with a selected resource focusing on the theme.
- Suggested articles, books, podcasts, or other creative resources to generate discussion relevant to medical physicists to begin the discussion will be provided.
- Take a few weeks to read and reflect on the material prior to joining The Journal Club discussion, moderated by a leader through a live web conference.

https://w3.aapm.org/leadership/community/journalClub.php

Upcoming AAPM MPLA Journal Clubs:

March 14: Human Resources

April 11: Negotiation

Visit the MPLA Journal Club website page for more information. We look forward to you joining us in this new opportunity for learning more and growing together as leaders through the MPLA's Journal Club.

AAPM AMERICAN ASSOCIATION of PHYSICISTS IN MEDICINE

AFFINITY GROUPS: THE BEST THING TO COME TO AAPM

EQUITY, DIVERSITY AND INCLUSION COMMITTEE REPORT

Julianne Pollard-Larkin
MD Anderson Cancer Center
Chair of the Equity, Diversity and Inclusion Committee
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Twitter: @JulieLarkin305

"Being seen, heard, welcomed and valued is an essential part of all social, professional and academic pursuits. Affinity groups offer that at little to no cost."

Several people have reached out to me publicly and privately to inquire as to why AAPM has recently gained so much traction with equity, diversity and inclusion efforts and more importantly, why have we as an organization of scientists considered having affinity groups. All I can tell you is that if you want to attract, nurture, and retain the best talent, we must continue on this path.

Also, I want to begin by providing a huge disclaimer, these are entirely my own personal views and are not representative of AAPM's or our leadership's views.

My first AAPM annual meeting was the summer of 2007, the year before I graduated with my PhD. It was in humid Minneapolis, known mostly to me as the home of the artist formerly known as Prince and the Mall of the Americas. It was the largest conference I had attended at that point. After landing on site, the handful of colleagues from my institution that traveled there seemed to evaporate into the thick crowds of faceless, nameless AAPM attendees holding too heavy copies of the Medical Physics journal with the free tote bags each of us was given swinging on their shoulders. I'm an outgoing and gregarious person, but suddenly thrust in a new city, surrounded by strangers and potentially future bosses in my profession, I felt invisible, alone, frustrated and overwhelmed. After checking in at the registration desk, I gripped the tube holding my scientific poster and slipped through the throngs of medical physicists who all seemed older and more comfortable in that space and made my way through each day just hoping to see anyone I knew. And when I did recognize someone, I clung/hung with them until they politely excused themselves to take part in the important committee meetings that I was not a part of.

After my first day of the conference and first physical introduction to the society that I was sure would have the greatest impact on my career, I realized it was about as fun as getting a mammogram or colonoscopy and just as important. Let's be clear, no one was openly rude, exclusionary or abrasive in any way to me during that whole event. There was simply a lack of a space for me to be introduced to people who were engaged with getting to know me and ensuring that I was making the most of the opportunity and experience. Subsequently, AAPM has revamped the conference attendee experience in several ways and the on-site staff are brilliant at helping lost attendees find their way.

My second day of the conference, I was resolute to seek out people who seemed friendly and open. I forced myself to go to the social events which included a hilarious log rolling event. I didn't know the people on the logs, but

the relaxed atmosphere, the laughter and congregation of more junior physicists and trainees made it easier for me to connect socially with some of the attendees and I even made a friend. He also happened to be African American and a graduate student and he saw me as we walked across the bridge en masse to the social events. It was at that moment that I really appreciated standing out, as it helps other people from my community identify me even amongst a moving crowd. Meeting him helped me meet other students of color and that gave me the courage to step socially outward that much more in other conference-related events. The height of my enjoyment at the Minneapolis meeting was befriending a table of African physicists and them waving me down to sit with them. They saw me, they cared, and they acted on it without hesitation.

And that is the spirit behind why affinity groups are so critical to success in academic and scholastic endeavors. Please note that public schools, including colleges, were not desegregated in America until 1954 with the ruling from Brown v. Board of Education. So, as schools finally allowed Black students in their classrooms, it became quite evident early on that the incoming students of color had social needs that were not being addressed by the social climate on those campuses. In order to provide a safe space for Black students to feel fully accepted and to offer a sense of belonging in an unfamiliar space, Black student unions were created in the 1960s and still are prevalent today. This was the original affinity group established for academic campuses, since then, we have seen the growth of affinity groups to address the needs of other marginalized groups such as those who identify as Hispanic/Latino/Latin-x, LGBTQ+ and more. And these groups are in several organizations such as the NIH which has 15 affinity groups from Network of African American Fellows at the NIH, NIH-Lesbian, Gay, Bisexual, Transgender-Fellows, and Friends to Fellows of All Abilities.

Being seen, heard, welcomed and valued is an essential part of all social, professional and academic pursuits. Affinity groups offer that at little to no cost. And the benefits of providing these safe spaces for AAPM members are too numerous to ignore. Helping more people feel welcomed, safe, seen, valued and heard hurts no one and benefits all of us. The beauty of these groups is that they are open to all, especially allies who want to support the needs and concerns of the group members. As medical physicists we pride ourselves on knowing intimately the interactions between energy and matter and a number of us may be more comfortable sticking with particles and ignoring the social interactions that impact our daily life. And it must be stated that even for us medical physicists, equity, diversity and inclusion matter. They impact the atmosphere of our classrooms, work and research groups. Physicists who don't feel they belong won't contribute to projects or discussions. Physicists who feel unseen or unheard are more likely to leave their team or institution. Affinity groups can help change the course of some physicists' careers and improve science as they contribute their full potential.

As I work with several stakeholders within AAPM to begin our affinity groups, I wish that I could have told my younger self this day was coming. If you want to know more about the newly created affinity groups, please listen to our webinar series "Inertia or Excellence: Equity, Diversity and Inclusion within AAPM." I want to say thank you to all of you who have befriended, mentored, and encouraged me on my journey as a medical physicist. Finally, I am eager to see the new talent we bring in and see how many people of all backgrounds we retain as we ensure with each year that AAPM is more inclusive of all. ■

EQUITY, DIVERSITY, AND INCLUSION EFFORTS GATHER MOMENTUM

RESEARCH SPOTLIGHT

AAPM is rolling out a series of new policies and initiatives that will help make the organization more diverse and inclusive in the coming years, according to leaders in the field, helping to drive innovation and excellence in medical physics.

Equity, diversity, and inclusion (EDI) is increasingly recognized as a crucial component of quality healthcare that benefits both providers and patients. In medical physics, that means a leadership and employee team that not only appreciates the barriers to care that women, racially underrepresented minorities, LGBTQ+ patients, international patients, patients from rural areas and other groups face, but also are able to communicate effectively with and be respectful toward patients and staff from all backgrounds.

"We cannot ignore the fact that patients really do have a different experience when they are treated by a culturally competent team that looks like them or understands them and their background," says **Julianne Pollard-Larkin**, PhD, Associate Professor and Section Chief at the University of Texas M.D. Anderson Cancer Center in Houston. "Even if we can't represent the spectrum of diversity within our centers, making sure our staff is educated makes us better physicists."

As Chair of AAPM's newly created EDI Subcommittee, Dr. Pollard-Larkin is spearheading several initiatives to help make AAPM more inclusive. She has worked to create affinity-based groups for sexual and gender minority physicists that will sit within the EDI Subcommittee. An affinity group for Latinx and Hispanic AAPM members recently launched, and more are on the horizon.

"The goal is to create an affinity group for every major cohort and minority within AAPM where members can network and build support to seek out leadership roles and help produce more diverse talent," Dr. Pollard-Larkin says. "This will allow us to hear from voices we haven't heard from before."

Other projects underway include the development of educational programs with EDI experts in both academic and clinical environments, along with seminars at every national and annual meeting.

The challenges ahead are not unlike those that faced veteran medical physicists like **Jean Moran**, PhD, who entered the field when the proportion of women who made up AAPM membership was below 10%.

"Back then, there weren't many women at the podium at the AAPM meetings, whether it was at the invited or proffered talks or even in moderator roles," remembers Dr. Moran. "That motivated me to get involved in the AAPM and its meetings as well as encourage other women to get involved."

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"I really believe that by the end of 2022, we're going to be at a point where we understand what the true diversity is within AAPM after we get more members to update their demographic profiles," she says. "Once we get past the fact-finding stage and give everyone the tools they need to succeed, we'll be on our way to a new era of inclusion."

—Jullianne Pollard-Larkin, PhD

During her tenure at the University of Michigan, Dr. Moran worked tirelessly to bring gender equity to AAPM. She served as a mentor and sponsor to many physicists and, notably, founded AAPM's Women's Professional Subcommittee in 2010.

Partly through the efforts of Dr. Moran and others, the proportion of women in AAPM climbed steadily to almost 25% in 2019, as outlined in a recent paper by Dr. Moran and former University of Michigan trainees and colleagues **Elizabeth L. Covington**, PhD, and **Kelly C. Paradis**, PhD, who currently serves in a unique role at the University of Michigan as the Associate Chair for Equity and Wellness in the Department of Radiation Oncology. Nearly 40% of all new trainees are female.

But the pace of change has been slow, and crucial gaps persist. The percentage of women in leadership positions remains lower than the percentage of women in AAPM. Two of the four AAPM councils (Science and Professional) have never had a woman serve as Chair. A woman has never held the position as Editor-in-Chief of AAPM's two journals, *Medical Physics* and *Journal of Applied Clinical Medical Physics*.

"There is a lack of women being provided opportunities to serve as council Chair in other parts of the organization," Dr. Moran said. "Even when women are represented, it may often be the same ones who get most of the opportunities. We need to continue to expand opportunities for women."

Similar obstacles surround efforts to increase racial diversity in AAPM. African Americans comprised less than 3% of AAPM membership, despite making up more than 12% of the US population, according to a presentation by **Laura Cerviño**, PhD, Memorial Sloan Kettering Cancer Center in New York City, at the 2019 AAPM meeting. The first 2021 EDI climate survey revealed stark differences in member experiences based on identity.

In response, AAPM leadership declared EDI a strategic goal in 2018. Two years later, a Diversity Statement released by the Board of Directors outlined goals with respect to EDI, such as providing opportunities for research and clinical experiences for medical physicists of underrepresented backgrounds who have historically been excluded.

Among some of the specific proposals are sponsorship programs that pair junior colleagues with experienced women and men in the field. This effort, part of the charge of the Work Group on Science Council EDI, is particularly important to Dr. Moran, who recently took the position of Vice Chair for Radiotherapy Physics at Memorial Sloan Kettering Cancer Center. She credits the mentorship of her former advisor **Benedick Fraass**, PhD, now Vice Chair and Director of Physics in the Department of Radiation Oncology at Cedars-Sinai Hospital, **Mary Martel**, PhD, Chair of Radiation Physics at MD Anderson Cancer Center, and others for helping her find her way in AAPM.

"I strongly believe in people finding and pursuing their passion," said Dr. Moran. "A big piece of that is just making sure that there are equal opportunities for people to discover if medical physics is a passion for them or not."

In the near term, EDI leaders at AAPM are focusing on getting a more detailed picture of the true state of diversity within the organization, a major challenge considering that only about 40% of AAPM members confidentially provide demographic information in their membership profiles. Establishing the true state of diversity within AAPM will help define metrics for the success of programs such as training in gender and unconscious bias. Other ideas under consideration include:

- gender-blind review of all awards, proposals, and publications;
- more transparency on what it takes to serve within the organization;
- addressing salary inequalities;
- support for parental leave policies, along with financial support for students and trainees who are not covered by such policies; and
- tracking incidents of perceived bias or discrimination received through the Ethics Committee.

On the research side, Dr. Moran is working with Dr. Cerviño and others to evaluate the speaker and moderator representation by gender at meetings of the AAPM.

She continues to collaborate with Dr. Paradis and others on qualitative research exploring different themes impacting women and men as trainees and in staff or academic positions.

Dr. Pollard-Larkin is optimistic that these EDI efforts will reap benefits very soon. ■

MPLA COMMUNITY RESOURCES: JOURNAL CLUBS AND COHORTS

MPLA SPOTLIGHT

Written on behalf of the Medical Physics Leadership Academy Community Subcommittee

The Medical Physics Leadership Academy (MPLA) Community Subcommittee would like to highlight two initiatives and accompanying resources that benefit all AAPM members, but residency directors, graduate program directors, and faculty may find these especially useful for their programs and trainees.

Aside from being a member of the MPLA subcommittee, I am also a residency program director and was previously an assistant director for administration with an MS-PhD graduate program. In both of these roles I have been and continue to be heavily involved in CAMPEP re-accreditation cycles and curriculum development, so I'm acutely aware of the requirement to cover leadership topics in training as well as the challenges of designing, developing, and implementing courses and modules.

The current CAMPEP standards for Graduate Education Programs (Nov 2021), Professional Doctoral Education Programs (Nov 2021), and Residency Education Programs (Jan 2022) in Medical Physics all require the curricula to address aspects of professionalism, ethics, and leadership. These requirements are in line with AAPM's current Strategic Plan Focus Area of Leadership, but there is also recognition that these topics are outside the canon of medical physics.

Both existing programs with well-established curriculum and new programs that are trying to get started, may find it very time consuming and challenging to create quality content and materials to meet all of the requirements. If a program is part of, or affiliates with, a large institution that offers professional development workshops for staff and students, this could be an "easy" fix. However, there are a variety of risks with this, particularly that the workshop's presented materials have minimal utility for medical physicists. Thus, partly in furtherance of the Strategic Plan's Education Focus Area and goal of developing "educational materials and methods to aid AAPM educators," the MPLA Subcommittee on Community has developed and implemented two initiatives.

MPLA Journal Club

Each month a one-hour, virtual journal club is held that focuses on a leadership topic. Registrants will have a month to view an introductory video from the journal club host and publicly available materials and to consider discussion prompts. Then, during the journal club, most of the hour is spent in breakout rooms of 4–6 people, including a facilitator who helps to lead the discussion. The hour concludes with all of the groups reconvening to share insights from their breakrooms.

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After almost two years of conducting these journal clubs, we received an overwhelmingly positive reception. Every attendee who has submitted the post-meeting survey said they would attend a future journal club, and indeed, there are numerous repeat attendees. There is no ongoing commitment to these journal clubs: attend one, many, or all as time or interest allows.

This coming year's schedule, with dates and topics is already posted (plus you can look at back at our content from last year.

MPLA Cohorts

Cohorts are for members who are committed to studying and discussing fundamental leadership principles on a routine basis. The cohorts program creates a space where the same few individuals have committed to participate for a year, meet monthly, and actively participate in on-going discussions. The curriculum for the cohorts is titled "Foundations of Medical Physics Leadership," and although some topics overlap with the journal club, it is distinct in that the small-group setting will help build deeper professional relationships with other AAPM members and develop a leadership network for members.

More details about the cohorts, including syllabi and membership agreement, can be found here. Please note that the sign-up deadline is July 30.

Both the MPLA Journal Clubs and Cohorts are open and accepting of all AAPM members, but I believe that the above can be valuable resources for those administering training programs. I have highlighted how these can speak directly to leadership development in medical physics, I'll note that I am not a member of CAMPEP review committees, nor can I offer any guarantee that these resources alone will satisfy accreditation requirements. However, I think one of the extremely valuable aspects of these MPLA initiatives is that they are by-and-for medical physicists. For the students and residents who participate, they (1) build their presence within our profession, (2) network with medical physicists throughout the association, and (3) gain leadership insights beyond what any single institution or program could offer. ■

REPORT ON IMRT QUALITY ASSURANCE MEETING

SCIENCE COUNCIL SPECIALTY MEETING

Written on behalf of the IMRT QA Planning Committee

It is a pleasure to report on the Science Council approved virtual "Specialty Meeting on IMRT Quality Assurance: Learning from our Past to Move Patient Safety Forward" which was held on January 24–25, 2022. More than 200 individuals registered for our meeting, representing 26 countries with 25% of our attendees from outside of the United States. Presentations at the meeting reflected on the state of quality assurance when the 2010 ASTRO Call to Action meeting was held, gaps addressed by guidance from the AAPM and other organizations, and advances in science and technology to revisit safety guidance. Our speakers provided tremendous support by meeting with our Program Committee in advance, working to coordinate topics.

Participants were invited to provide input on the current state of pre-treatment IMRT QA measurements in the context of its effectiveness, how it fits into a comprehensive safety-focused program, and where new knowledge may support a change in guidance. Positive energy was generated and shared in the interactive small group discussions which were held after each session. Facilitators led discussions following our meeting workbook with questions developed by speakers and meeting organizers. This format was modeled after the success of the "Accelerating Women and Minority Physicists" meeting which was held in August of 2021. In the small groups, individuals connected with the same colleagues throughout the meeting and could share key areas where the AAPM should develop further guidance. At the end of each day, a panel was held where the key themes from the small group discussions were reflected upon and further discussed by each day's speakers.

What's next? Papers will be developed to summarize those key themes and to delineate areas for future work related to IMRT QA and safe radiotherapy systems. AAPM's Science Council, Therapy Physics Committee, the Work Group on IMRT, and other groups will then be able to use those materials as guidance for moving our field forward in a holistic view of patient safety, setting the stage for further developments in our field. ■

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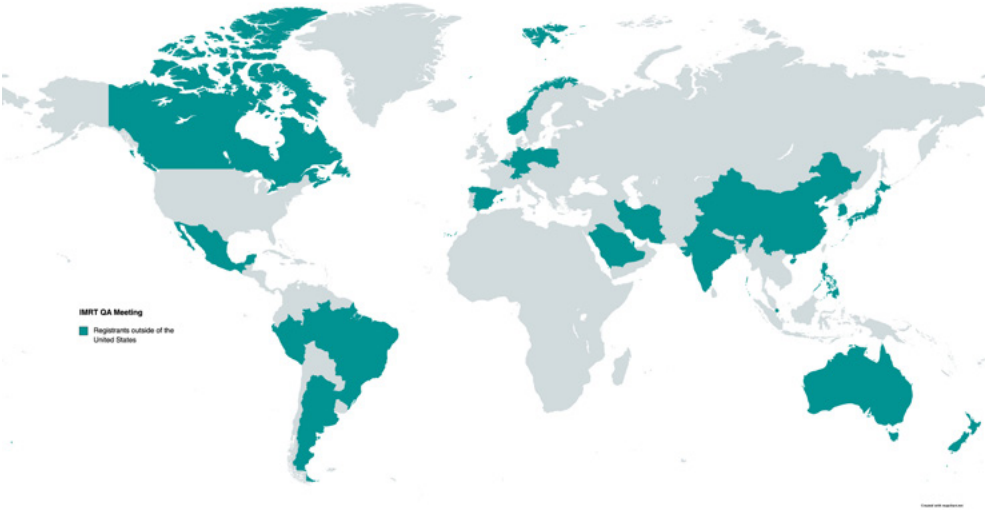
"This meeting brought participants together to reconsider what a comprehensive IMRT QA looks like."

It was wonderful to work with **Eric Ford**, PhD; **Ashley Cetnar**, PhD; **Daniel Pavord**, MS; **Grace Kim**, PhD; **Haidy Naisef**, PhD (a SCAMP mentee); **Karen McFarland**; and **Payton Brown**. All of our speakers were outstanding, and we appreciate their extra effort for this meeting. We look forward to the next stages of this important conversation. Stay tuned!



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Top 5 Reasons to attend #AAPM2022 »

IMPORTANT DATES:

- **March 10:** Deadline to Submit Proffered Abstracts
- **April 6:** Registration and Housing Open
- **April 19:** Authors Notified of Proffered Abstract Disposition
- NEW! → **May 2:** Deadline to Pay $50 ePoster Fee
- **May 11:** Annual Meeting Scientific Program Available Online

TOP 5 REASONS

to attend the AAPM Annual Meeting **LIVE & IN-PERSON:**

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1. **Interact with equipment/service providers.** See and evaluate emerging technology and solutions. Attend live educational sessions with product experts.
2. **Develop and maintain relationships** with medical physicists and commercial product experts from around the country and the world.
3. **Attend scientific, clinical, and professional sessions.** Meet the experts and start a dialogue.
4. **Attend committee, task group, and working group meetings.** Learn about cutting edge work relevant to medical physics and patient care. Become involved.
5. **Meet government and regulatory specialists** attending this meeting in the nation's capital.

#AAPM2022 | aapm.me/annual

2022 ANNUAL MEETING UPDATE

ANNUAL MEETING SUBCOMMITTEE REPORT

Written on behalf of the AMSC

We hope you will be joining us at the 64th annual meeting in Washington, DC, July 10–14, 2022! Finally (fingers crossed) we should be able to meet in-person to re-unite and celebrate medical physics with friends and colleagues, and to meet with vendors and explore the latest products in the Exhibit Hall! Popular events include the guided vendor tours, partners-in-solutions sessions, as well as vendor sessions in the innovation spaces directly on the exhibit floor.

Not quite ready for an in-person meeting? To facilitate remote participation, one of the seven meeting rooms will be live-streamed, and all sessions will be recorded and made available on-demand within 24 hours of the presentations.

The meeting organizing committee has put together a truly outstanding program. A first this year are the joint imaging/therapy education symposia, that will bring together diagnostic and therapy medical physicists and build upon the success of the multi-disciplinary program. Continue reading to learn about the highlights of this years' program, and we look forward to welcoming you in DC!

Professional Track

The Professional Track highlights the intersection of humanities and science. A highlighted session — *Ethics and Artificial Intelligence in Radiology and Radiation Oncology* — will focus on how human attributes influence AI. In a two-part session on *Advancing EDI at Every Level of Med Physics: For Trainees, the Workplace and Beyond*, attendees will study equity, diversity, and inclusion methods to learn why belonging is important and to learn how to advocate for greater belonging for all individuals. Several sessions focus on the physicist's role as a member of an interdisciplinary team, including *Contingency Planning: Can you handle a ransomware attack?* Whether new to the profession or practicing for many years, attending a session on recruitment, careers outside of the clinic, or mentoring are guaranteed to elevate your career. The professional track will increase collaboration, communication, and other skills required for a successful career. It is not to be missed!

Joint Imaging/Therapy Educational Sessions

In honor of our anticipated in-person reunion with colleagues, the annual meeting will feature three sessions uniting imaging and therapy physicists. Physicists from both sides of the aisle will provide their perspectives on breast

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Kristy Brock, PhD, Vice-Chair, Annual Meeting Subcommittee

Scientific Program:
Carri Glide-Hurst, PhD, Chair, Annual Meeting Scientific Program Working Group
Ioannis Sechopoulos, PhD, Vice-Chair, Annual Meeting Scientific Program Working Group and Imaging Scientific Program Co-Director
Amit Sawant, PhD, Therapy Scientific Program Director
Stephen Bowen, PhD, Therapy Scientific Program Co-Director
Wojciech Zbijewski, PhD, Imaging Scientific Program Director
Bryan Bednarz, PhD, Specialty Program Co-Director
William Erwin, MS, Specialty Program Co-Director

Education Program:
Tyler Fisher, MS, Chair, Annual Meeting Education Program Working Group
Matthew Vanderhoek, PhD, Imaging Education Program Director
Kai Yang, PhD, Imaging Education Program Co-Director
Laura Cervino, PhD, Therapy Education Program Director
Hania Al-Hallaq, PhD, Therapy Education Program Co-Director

Professional Program:
Eileen Cirino, MS, Chair, Annual Meeting Professional Program Working Group
Michelle Wells, MS, Professional Program Director
Carnell Hampton, PhD, Professional Program Co-Director

Technical Exhibit/Vendor Program:
Deborah Schofield, PhD, Chair, Technical Exhibits Sub-Committee

cancer and pediatric cancer from diagnosis to treatment. In the third session, a dialogue between therapy and imaging physicists will allow therapy physicists to seek solutions for commonly encountered imaging problems in therapy. Check out these collaborative sessions and provide your feedback on this new format.

Imaging Education Track

The Imaging Education track features a variety of relevant and interesting sessions across different modalities. Some highlights include a *real-world approach to CT protocol optimization, artifacts and image quality in accelerated/rapid MR, multi-modality* cardiac imaging, a look-back and ahead at dual energy CT, a chance to read with an expert mammographer, and the latest in *clinical ultrasound elastography*. The track will also feature a lively debate on *tracking cumulative effective dose for individual patients*, a much-anticipated session on *current practice and new developments in patient shielding*, and a timely session on *contemporary imaging disparities in the United States*.

Therapy Education Track

The therapy education track brings this year a wide variety of state-of-the-art topics. The area of AI and automation includes sessions on *Integrating omics in the era of AI for better patient-specific outcomes, Automated Planning: What do physicians want?, and State of the art of adaptive radiotherapy*. In the safety and quality space we will hear about enhancing a physicist's role in radiation therapy treatment plan assessment, and about building a better safety net. We will also have the opportunity to learn about two newer therapies with the sessions on *Clinical implementation of spatially fractionated radiotherapy (SFRT)*, and *Cardiac Radioablation: Expanding across many centers via outreach and collaboration*. And last but not least, we have a very exciting and timely session on *health disparities in clinical trials* and how physicists might be contributing to them.

Joint Imaging Education/Science Sessions

The Imaging Education and Scientific tracks have teamed up to offer two exciting sessions in some very hot areas: *Photon Counting CT* and *Artificial Intelligence in Imaging*. Each session begins by bringing you up to speed on the fundamentals in an education session and then continues with some of the latest, cutting-edge research in each area.

Imaging Science Track

The Imaging Science program will showcase the latest research in all major modalities and applications, including ultrasound, nuclear medicine, magnetic resonance, breast imaging, and interventional imaging. A series of joint sessions with the Imaging Education program will present the perspectives of renowned experts in *photon-counting CT* on the current state and future directions of this exciting technology, now entering clinical applications. Recent advances in analytical methodologies applicable to imaging will also be featured. In this area, the highlights include a session on *Virtual Clinical trials*, a joint Education-Scientific symposium on AI, and a continuation of last year's collaboration with **SIIM** on *machine intelligence in medical imaging*.

Therapy Science Track

The therapy science program will highlight exciting new developments in novel modalities such as *spatiotemporally modulated radiotherapy* and a *joint ESTRO-AAPM symposium on ultra-high dose rate (FLASH) radiotherapy*. A major area of focus will be the promises and limitations associated with the increased translation and deployment of artificial intelligence and deep learning tools in clinical practice. Finally, the program includes sessions on the role of *immunotherapy in cancer radiation therapy, and next-generation biomathematical modeling of tumor and normal tissue response for predicting outcomes* and, potentially, *personalizing treatment plans* to achieve patient-specific functional endpoints.

Multi-Disciplinary Science Track

The multi-disciplinary track will bring together leaders from imaging and therapy science to highlight cutting-edge and impactful collaborations, including *emerging applications of medical physics in digital pathology, biomarkers of response to radiation and immune modulating cancer therapies, machine intelligence for treatment response prediction and biological adaptation, and translational pathways via pre-clinical and veterinary science*. The *Medical Physics in Clinical Trials* session will showcase partnerships between **NIH** officials and medical

physicists in support of multi-disciplinary national trials and programs. The **Grand Challenges** session will unveil winners of the **deep learning spectral CT, true CT, and Y90 microsphere (SIRPRISE) challenges**. Lastly, the Grant Funding session will feature pearls and pitfalls from the diverse perspectives of NIH program officers, NIH scientific review officers, principal investigators, and study section members.

Specialty Track: The New Era of Radiopharmaceutical Therapy

This year's Specialty Track at the annual meeting will highlight "The New Era of Radiopharmaceutical Therapy". Radiopharmaceutical Therapy (RPT) has been used for nearly a century (e.g., Na131I) to treat cancer and other diseases, but the incorporation of new radiopharmaceuticals into the armamentarium of oncologists during most of this time has only led to moderate clinical benefit. In recent years, however, the medical community has seen a renaissance of RPT applications stemming from the success of labeling and delivering highly selective drugs with both imaging and therapeutic isotopes into patients, a process that has been coined 'radiotheranostics'. With a rapidly growing number of radiopharmaceuticals that have been approved for clinical use or are in late-stage clinical trials there is a great opportunity for medical physicists to have a major impact on this burgeoning field in terms of both research and clinical service. To this end, this track will consist of a mixture of scientific, educational and professional sessions on important topics related to RPT.

Topics to be covered include:

- Radiopharmaceutical therapy radiobiology and patient-specific approaches
- New developments in radiopharmaceuticals and imaging
- Novel interventional applications, recent ICRU and IAEA developments related to radiopharmaceutical therapy dosimetry
- Results of the SNMMI Lu-177 dosimetry challenge
- Impact of RPT on the education, training and practice of medical physics.

Given the rapid growth of this field stemming from the introduction of several radiolabeled pharmaceuticals and other agents such as microspheres as well as novel routes of delivery, this specialty track is timely and should provide a lot of useful and stimulating information on all aspects of RPT and its relevance to, and impact on, the science and practice of medical physics in the 21st century. ■

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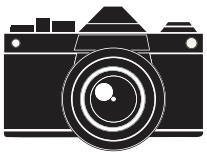
NEW MEMBER SYMPOSIUM

Tuesday, July 12, 2022 | 4:30–6:30 PM EDT
Room 102AB, Walter E. Washington Convention Center

As a new member of AAPM, it is easy to feel overwhelmed by the size and complexity of the association and to be unaware of the benefits and opportunities available to members. At this year's AAPM Annual Meeting in Washington, DC, we will host a New Member Symposium where you can learn more about the organization, member resources, opportunities to get involved, and about topics of particular interest to new professionals. We encourage you to take advantage of this great opportunity to learn valuable information and to grow your professional network.

Registered attendees will receive a raffle ticket. Enter to win a complimentary registration for the 2023 Annual Meeting in Houston, TX!

In addition, all new members who register for the Symposium will receive a drink ticket, good for one complimentary soda or beer served after the New Member Symposium during the social with committee chairs from four AAPM Councils: Science, Education, Professional and Administrative.

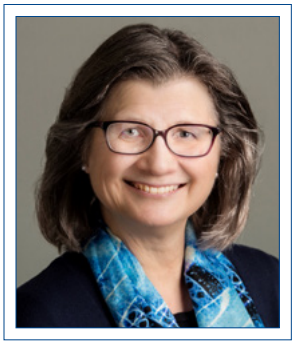


Get Your Picture Taken.
A photographer will be available to snap a photo for your profile in the AAPM member directory.

aapm.me/annual

REPORT FROM THE MEDICAL IMAGING AND DATA RESOURCE CENTER (MIDRC)

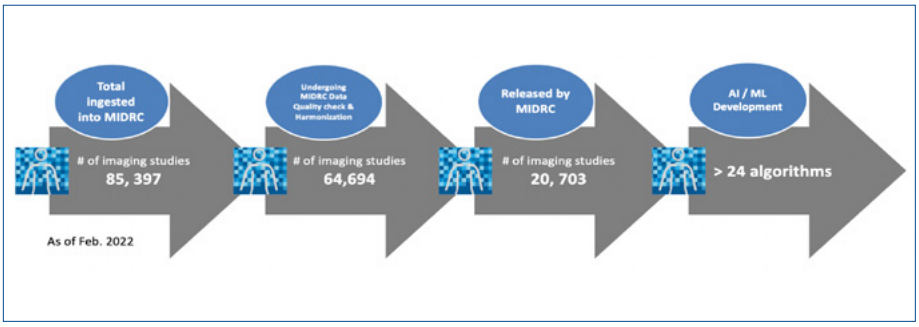
MIDRC SUBCOMMITTEE UPDATE



M. Giger

P. Kinahan

The Medical Imaging and Data Resource Center (MIDRC), funded by the National Institute of Biomedical Imaging and Bioengineering (NIBIB), is an AAPM co-led consortium creating a repository of curated images of COVID-19 patients for the development of AI methods for surveillance, detection, diagnosis and other important medical tasks. MIDRC continues to strengthen its ingestion pipeline, processes, workflow, research projects and open-discovery data repository, and is publishing additional incoming batches of imaging cases monthly. As of February 2022, registered users can run queries on, build cohorts with and download **over 20,000 published imaging studies**. Additionally, there **are over 60,000 contributed imaging studies** currently undergoing MIDRC curation, harmonization, annotation and data quality checks in preparation for public release over the coming months. The data portal contains cohorts of chest radiographs and CT scans, with plans to publish COVID-related MRI, ultrasound and PET scans in the near future.



MIDRC is composed of technology development projects (TDPs), collaborative research projects (CRPs), and data science subcommittees and working groups, with members representing the primary MIDRC collaborators: the Radiological Society of North America (RSNA), the American College of Radiology (ACR) and AAPM, along with various NIH Institutes and Centers. AAPM Member-led TDPs and CRPs have made steady research progress and advances, including:

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Earn MIPS Improvement Activity Credits By Contributing COVID images and data through two data intake portals: ACR's COVID-19 Imaging Research Registry (CIRR) and RSNA's International COVID-19 Open Radiology database (RICORD).

Medical imaging practices and radiologists now can claim Merit-based Incentive Payment (MIPS) "Improvement Activity" credits for contributing COVID-related data and images to MIDRC's two data intake portals: ACR's COVID-19 Imaging Research Registry (CIRR) and RSNA's the RSNA International COVID-19 Open Radiology Database (RICCORD).

Practices and clinicians can earn Centers for Medicare and Medicaid Services (CMS) points by completing MIPS requirements.

Please direct inquiries to:
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Paul Kinahan, PhD, **FAAPM, or**
AAPM MIDRC Program Manager,
Emily Townley

MIDRC
MEDICAL IMAGING AND DATA RESOURCE CENTER

MIDRC SUBCOMMITTEE UPDATE, Cont.

- CRP for "Radiomics & Machine Intelligence of COVID-19 for detection and diagnosis on chest radiographs and thoracis CTs" is working to oversee and conduct scientific Grand Challenges this year using MIDRC data for training, testing and validation. CRP AAPM-Members are **Lubomir Hadjiiski** (University of Michigan), as well as **Karen Drukker**, **Samuel Armato** and **Mena Shenouda** (all, University of Chicago).
- CRP for the "Visualization & Explainability of Machine Intelligence of COVID-19 for prognosis and monitoring therapy" is currently developing a software platform to analyze new and existing models, after having published articles in both the *Journal of Medical Imaging* and *Medical Physics*. CRP AAPM-Members are **Maryellen Giger**, **Issam el Naqa** (Moffitt Cancer Center), along with **Hui Li**, **Isabelle Hu** and **Jordan Fuhrman** (all, University of Chicago).
- CRP for the "Investigator of image-based biomarkers for radiogenomics of COVID-19" is analyzing data fusion techniques and new data technologies, and developing various case studies using MIDRC data. CRP AAPM-Members are **Weijie Chen** (US FDA), Maryellen Giger and **Sandy Napel** (Stanford University).
- CRP for "Determining COVID-19 image data quality, provenance, and harmonization" is providing guidance on MIDRC data and image quality assurance, as well the harmonization methods for widely varied sources of incoming data across acquisition systems and protocols. CRP AAPM-Members are **Paul Kinahan**, **John Boone** (UCDavis), **Tony Seibert** (ret, UCDavis) and **Nick Bevins** (Henry Ford Health System).

Other notable progress includes:

- Creating a private MIDRC Sequestered Data Commons, housing roughly 20% of incoming data, which will allow MIDRC to independently evaluate submitted AI algorithms to aid in expediting approval through regulatory agencies.
- Working to establish interoperability with other repositories, such as NCAT's National COVID Cohort Collaborative (N3C) and Cancer NHLBI's PETAL Network on BioData Catalyst.
- Collaborating with Argonne National Laboratory on federated learning methods.
- Expanding the MIDRC schema to accommodate annotations (including the development of an annotation "management" system, matching cohorts to domain experts), as well as clinical and derived data.

MIDRC has maintained an active presence in the medical and data science communities at-large through outreach in the form of quarterly newsletters (subscribe here) and highly attended MIDRC Monthly Seminars. Past recent Seminars have featured MIDRC Bias and Diversity Working Group member Judy Wawira-Gichoya (Emory University) speaking on her work, "Reading Race: AI Recognizes Patient's Racial Identity in Medical Images", and MIDRC Investigator Sharyn Katz (University of Pennsylvania) discussing leveraging registry data to conduct virtual clinical trials (free registration for upcoming MIDRC Seminars can be found here). Additionally, MIDRC had a well-visited exhibit area and presentations at RSNA's 2021 Annual Meeting in Chicago, IL.

(5 of 7 MIDRC Primary Investigators at RSNA, pictured l to r, Paul Kinahan, Mike Tilkin (ACR), Maryellen Giger, Curtis Langlotz (RSNA/Stanford University) and Adam Flanders (RSNA/Thos. Jefferson University)

MIDRC SUBCOMMITTEE UPDATE, Cont.

Despite its many accomplishments, MIDRC's data-driven ambitions remain high. The vital research and technology development engendered by the ever-evolving nature of the COVID-19 pandemic depends on reliably available, well-curated and relevant COVID data. MIDRC is on its way to becoming a premiere national resource for just that. We urge you to consider facilitating a data contribution from your academic institution, private practice, or community hospital (we especially seek data from rural or potentially under-represented communities). In an effort to ease the administrative burden of contribution, MIDRC has created this *Data Contribution 101 Guide* — please reach out to any member of the AAPM MIDRC Subcommittee to discuss what may be possible, or contact us through a MIDRC data contribution inquiry. AAPM Member support of this initiative remains vital and your data could make a difference! ■

MIDRC Data Contributors

We are MIDRC!

Twenty-four participating institutions, government agencies and over 100 investigators, with current data contributions from across the country.

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AAPM MEMBERS ELECTED NATIONAL ACADEMY OF INVENTORS FELLOWS

PEOPLE IN THE NEWS

The National Academy of Inventors (NAI) is a member organization comprised of both U.S. and international universities and governmental and non-profit research institutes. NAI was founded in 2010 to recognize and encourage inventors and to enhance the visibility of academic technology and innovation. The NAI Fellows program was established to highlight academic inventors whose inventions have made a tangible impact on quality of life, economic development, and the welfare of society. Election as an NAI Fellow is the highest professional distinction accorded solely to academic inventors. With the induction of the 2021 class, there will be 1,567 Fellows worldwide, representing more than 250 institutions.

The AAPM is pleased to recognize three of its members elected to the NAI 2021 Class of Fellows: **Thomas R. Mackie**, PhD, FAAPM, University of Wisconsin-Madison, **David Jaffray**, PhD, FAAPM, University of Texas MD Anderson Cancer Center, and **Brian W. Pogue**, PhD, University of Wisconsin-Madison, recently of Dartmouth College. All three are well known as innovators and inventors in the medical physics space. Dr. Mackie founded the Geometrics Corporation, which developed the Pinnacle treatment planning system, and is also a co-founder and co-inventor of TomoTherapy, Incorporated. Dr. Jaffray is a co-inventor of on-board kV cone-beam CT imaging and has led the development of multiple related commercial software and hardware products. Dr. Pogue has co-founded and led two companies, including DoseOptics LLC, which is advancing the first Cherenkov imaging system to provide real-time imaging of radiation delivery. The NAI 2020 Class of Fellows also included two AAPM members: **Matt A. Bernstein**, PhD, FAIMBE, FISMRM, Mayo Clinic, for his substantial contributions to MRI, and **Charles A. Mistretta**, PhD, FAAPM, University of Wisconsin-Madison, for his substantial contributions to real-time angiographic imaging.

The 2021 NAI Fellows will be inducted at the Fellows Induction Ceremony at the 11th Annual Meeting of the National Academy of Inventors, June 14–15, 2022, in Phoenix, AZ. Congratulations to these three inspirational AAPM members who will be recognized for their outstanding contributions to the field of medical physics and society as a whole! ■

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