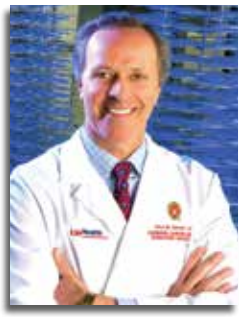
ASTRO DAILY NEWS

60TH ANNUAL MEETING | OCTOBER 21-24, 2018

SUN. AND MON. | ISSUE 1

Welcome to the Future: ASTRO 2018

By Paul Harari, MD, FASTRO, ASTRO President



When I joined ASTRO as a first-year resident in radiation oncology, I was enthusiastic about the possibilities that the organization and the specialty had to offer in terms of clinical cancer care, technology, research, education and health policy. Fast forward to today: I'm now in my third decade of membership—attending every Annual Meeting since joining—and as a researcher and clinician, I continue to be inspired by the ever-changing advances in this field.

We are in the midst of a remarkable new era of scientific discovery of innovative technologies and treatment combinations. I am encouraged that these breakthroughs coincide with a substantial shift toward more personalized treatment. These combined forces provide a powerful framework for increasing cancer cure rates.

While radiation offers excellent palliative care for many cancer patients, it also provides an outright cancer cure to many patients around the world every year. We are consistently striving to further increase cancer cure rates with new research discoveries contributing to this important effort, and this year's theme of "Translating Discovery to Cure" permeates through many of the sessions at the 2018 ASTRO meeting.

I encourage you to take in as much as possible during these four incredible days, which promise an array of robust speakers, groundbreaking research and engaging networking opportunities; and I am eager to share with you some key points of interest at ASTRO's 60th Annual Meeting.

This year's **Presidential Symposium** will showcase cutting-edge scientific discovery in four remarkably important new arenas: immunotherapy, virally-induced cancers, artificial intelligence and liquid biopsies. For more on this exciting session, see page 9.

Powerful studies that will impact cancer care around the globe will be highlighted in this year's **Clinical Trials** and **Plenary Sessions**. Scientific Chair Lisa Kachnic, MD, FASTRO, of Vanderbilt University Medical Center and co-chair Andrea Ng, MD, MPH, of Harvard's Brigham and Women's Hospital, will moderate the Plenary Session on Monday, which includes several late-breaking studies. You don't want to miss these informative, potentially practice-changing presentations.

You will also want to put three special sessions on your schedule—two featuring our exceptional **keynote speakers** and a third expert panel conversation among former ASTRO gold medalists. On Monday morning, Norman (Ned) Sharpless, MD, the new director of the National Cancer Institute, who is championing important new visions for cancer research and clinical care, will address attendees. This keynote address and panel discussion with Dr. Sharpless affords ASTRO members a very important opportunity to dialogue about major issues that impact the field of radiation oncology now and for the future.

Continued on page 21

Keep your Annual Meeting schedule organized, even on the go.

MyASTROApp

MyASTROApp, formerly ASTROmobile, is getting a new look and feel with exciting innovative features. As always, the official meeting app will give you access to the meeting program and the ability to customize your meeting experience with planners and maps. You can:

- Search sessions by day, track, session type (new feature) or speaker.
- Search exhibitors by company name, booth number or product/service category.
- Check out innovative products in the Product Showcase.
- Locate exhibitors on the interactive floorplan.
- Search and view the full abstracts.
- Access "My Schedule"—your personal Annual Meeting schedule.
- Complete evaluations to receive continuing education credits.

New this year, you will be able to:

- Complete Live SA-CME evaluations.
- View presenter slides.
- Take notes as you listen to presentations.
- Interact with presenters by answering polls and asking questions.
- View faculty and presenter photos and bios, if included by presenter.
- Connect with colleagues at the meeting with the Find-a-Friend feature.
- Participate in the Survivor Circle passport program and be entered into daily prize drawings.

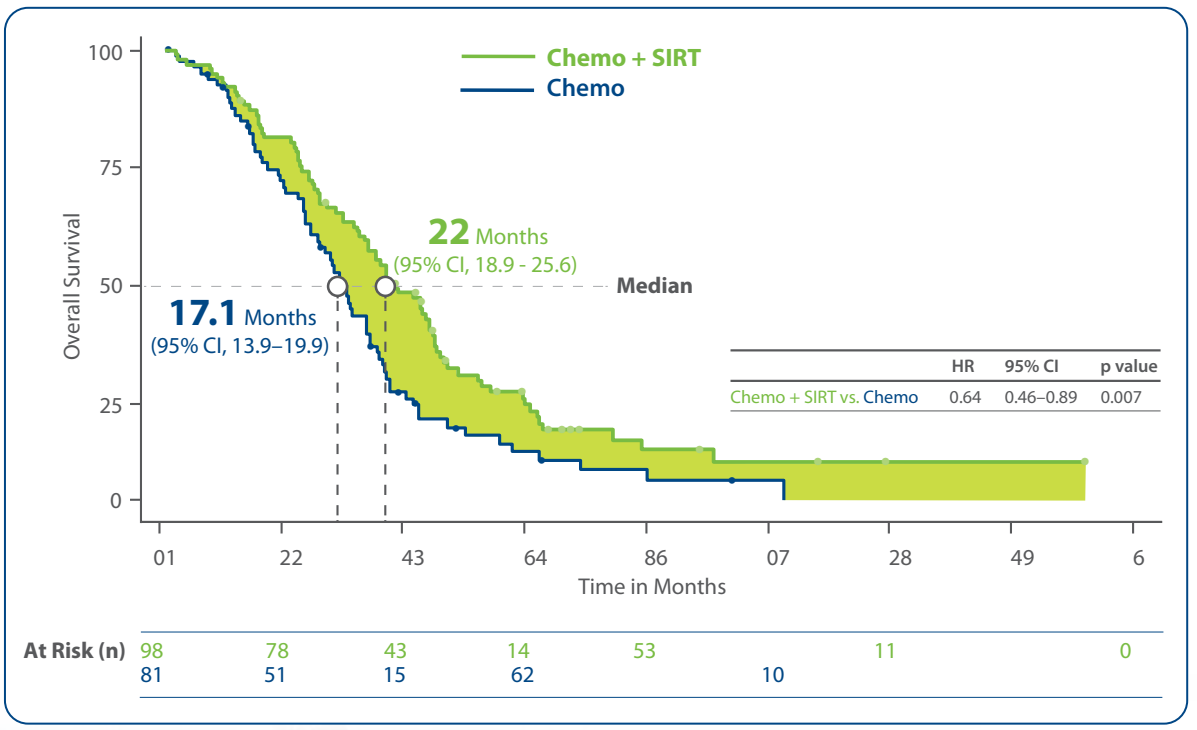
The mobile-friendly Conference Planner website and MyASTROApp are fully integrated so you can access your up-to-date customized notes and schedule from both. Download MyASTROApp for free in the App Store or Google Play Store on your iOS or Android device. Other smartphone users can access the Conference Planner at www.astro.org/conferenceplanner.

Join us for a tweet-up on Sunday, October 21, from 4:45 p.m. to 5:45 p.m. by the Ask ASTRO booth in the main lobby.

SIRTeX

Working **better together** in **1st Line mCRC**

4.9 Months Improvement in OS in Patients with Liver Metastases from Right-Sided Primary Colon Cancer†1



SIR-Spheres Y-90 resin microspheres

A Treatment Option to Complement Chemotherapy

SIR-Spheres® Y-90 resin microspheres

Better together with 1st-line chemo in mCRC

† The Primary Endpoint of Overall PFS was not met in this study

1. van Hazel G, Heinemann V, Sharma N, et al. Impact of primary tumour location on survival in patients with metastatic colorectal cancer receiving selective internal radiation therapy and chemotherapy as first-line therapy. *Ann Oncol.* 2017;**28** (suppl 3; abstr LBA-006).

Caution: Federal (USA) law restricts this device to sale by or on the order of a physician. SIR-Spheres Y-90 resin microspheres may only be distributed to a duly licensed or accredited facility capable of handling therapeutic medical isotopes. This product is radioactive and should thus be handled in accordance with all applicable standards and regulations. **Intended Use / Indications For Use:** SIR-Spheres Y-90 resin microspheres are approved for use in Argentina, Australia, Brazil, Canada, the European Union (CE Mark), Switzerland, Turkey, and several countries in Asia for the treatment of unresectable liver tumors. In the US, SIR-Spheres Y-90 resin microspheres have a Pre-Market Approval (PMA) from the FDA and are indicated for the treatment of unresectable metastatic liver tumors from primary colorectal cancer with adjuvant intra-hepatic artery chemotherapy (IHAC) of FUDR (Floxuridine). **Warnings / Precautions:** Inadvertent delivery of the microspheres to locations other than the intended hepatic tumor may result in local radiation damage. Due to the radioactivity and the significant consequences of misplacing the microspheres in situ, this product must be implanted by physicians who have completed the Sirtex TEC training program. A SPECT scan of the upper abdomen immediately after implantation is recommended. Patients may experience abdominal pain immediately after administration and pain relief may be required. H-2 blocking agents may be administered the day before implantation and continued as needed to reduce gastric complications. **Side Effects:** Common side effects are fever, transient decrease of hemoglobin, mild to moderate abnormality of liver function tests, abdominal pain, nausea, vomiting, and diarrhea. Potential serious effects due to exposure to high radiation include acute pancreatitis, radiation pneumonitis, acute gastritis, radiation hepatitis, and acute cholecystitis. **Contraindications:** SIR-Spheres Y-90 resin microspheres should not be implanted in patients who have either had previous external beam radiation therapy to the liver, ascites, or are in clinical liver failure. This device is contraindicated in patients with markedly abnormal synthetic and excretory liver function tests, greater than 20% lung shunting of the hepatic artery blood flow, disseminated extra-hepatic malignant disease, and portal vein thrombosis. This device should not be implanted in patients determined via angiogram to have an abnormal vascular anatomy that would result in significant reflux of the hepatic arterial blood flow to the stomach, pancreas or bowel. **Reference the Package Insert (www.sirtex.com) for a complete listing of indications, contraindications, side effects, warnings, and precautions.**

Sirtex Medical Inc. 300 Unicorn Park Drive, Woburn, MA 01801 888.474.7839 www.sirtex.com 864-U-1017

SCHEDULE AT A GLANCE

Sunday, October 21, 2018

6:45 a.m. – 7:45 a.m.
ROI Breakfast
Securing Your Future: Tax Reform, Personal Financial Planning and Charitable Giving
Room: 205; 0 CME

6:45 a.m. – 8:00 a.m.
International Attendee Welcome Breakfast
Room: Hemisfair Ballroom 3; 1.25 CME

7:45 a.m. – 7:55 a.m.
Welcome to San Antonio
Lisa A. Kachnic, MD, FASTRO
Room: Stars at Night Ballroom; 0 CME

7:55 a.m. – 12:15 p.m.
Presidential Symposium
Discovery Science Impacting Radiation Oncology
Opening Remarks Paul M. Harari, MD, FASTRO
Room: Stars at Night Ballroom

8:00 a.m.– 9:00 a.m.
Presidential Symposium I:
The Radiation Oncology/Immunotherapy Interface
Moderator Silvia Chiara Formenti, MD, FASTRO
Room: Stars at Night Ballroom; 1.00 CME

8:00 a.m. – 9:30 a.m.
***e*Contouring Session 03**
eContouring for Prostate Cancer
Room: 303; 1.50 CME Ticketed Event

8:00 a.m. – 9:30 a.m.
PRO 06 – *Practical Palliative Radiation Therapy*
Candice Johnstone, MD, MPH
Room: 304; 1.50 CME Ticketed Event

9:00 a.m. – 10:00 a.m.
Presidential Symposium II:
Virally-Induced Cancers 2018 and Beyond
Moderator Paul Lambert, PhD, BS
Room: Stars at Night Ballroom; 1.00 CME

9:45 a.m. – 11:00 a.m.
PRO 07 – *Central Nervous System* Christina Irene Tien, MD
Room: 304; 1.25 CME Ticketed Event

10:00 a.m. – 10:15 a.m.
Break

10:00 a.m. – 5:00 p.m.
Exhibit Hall Open

10:00 a.m. – 5:00 p.m.
Poster Viewing
Location: Innovation Hub

10:15 a.m. – 11:15 a.m.
Presidential Symposium III:
Artificial Intelligence Meets Radiation Oncology
Moderator David A. Jaffray, PhD
Room: Stars at Night Ballroom; 1.00 CME

10:30 a.m. – 12:00 p.m.
***e*Contouring Session 04**
eContouring for Gastrointestinal Cancer
Room: 303; 1.50 CME Ticketed Event

11:00 a.m. – 12:15 p.m.
PRO 08 – *Socioeconomic Update*
Najeeb Mohideen, MD, FASTRO
Room: 304; 1.25 CME Ticketed Event

11:00 a.m. – 2:30 p.m.
ASTRO Bistro Open

11:15 a.m. – 12:15 p.m.
Presidential Symposium IV
Liquid Biopsies and Cancer Care
Moderator Catherine Park, MD, FASTRO
Room: Stars at Night Ballroom; 1.00 CME

12:15 p.m. – 1:15 p.m.
Lunch Break

12:15 p.m. – 1:15 p.m.
Nurses' Luncheon
Radiation Oncology 101 for Nurses
Room: 205; 0 CME Ticketed Event

12:15 p.m. – 1:15 p.m.
ARRO Annual Luncheon
Room: 302; 0 CME Ticketed Event

1:15 p.m. – 2:45 p.m.
***e*Contouring Session 05**
eContouring for Breast Cancer
Room: 303; 1.50 CME Ticketed Event

1:15 p.m. – 2:45 p.m.
Education Sessions; 1.50 CME
- **EDU 01** (Live SA-CME) – *The Modern Management of Brain Metastases,* Room: 007 A/B Ticketed Event
- **EDU 02** (Interactive) – *Social Media 101 for the Practicing #RadOnc,* Room: 005
- **EDU 03** (Interactive) – *Challenging Cases in Head and Neck Cancer,* Room: Lila Cockrell Theatre

1:15 p.m. – 2:45 p.m.
International Session 02
Define the Value of Radiation Therapy in the Era of Big Data – Challenges and Opportunities
Room: 007 C/D; 1.50 CME

1:15 p.m. – 2:45 p.m.
Joint Session 01
ASTRO/ILROG: Riding the Tsunami: The Role and Practice of Radiation Therapy for Hematological Malignancies in the New Era of Biologicals, Immunotherapies (Checkpoint Inhibitors and CAR-T Cells) Room: 214 C/D; 1.50 CME

1:15 p.m. – 2:45 p.m.
Panel Sessions; 1.50 CME
- **Panel 01 (Interactive)** – *HyTEC Report: SBRT/SABR in Abdominal Regions* Room: 301
- **Panel 02 (Interactive)** – *The How and Why of Applying Formal Risk Management Techniques for Quality Improvement,* Room: 006

1:15 p.m. – 2:45 p.m.
Poster Discussion Sessions; 1.50 CME
- **PD 01 – GU 1** – *New Data on PET, MRI and Protons for Treating Prostate Cancer,* Room: 217 A/B
- **PD 02 – Palliative 1**, Room: 217 C/D

1:15 p.m. – 2:45 p.m.
PV QA 01 – Poster Viewing Q&A *Session 1 – GI, GU and Biology*
Location: Innovation Hub, Exhibit Hall 3; 0 CME

1:15 p.m. – 2:45 p.m.
Scientific Sessions; 1.50 CME
- **SS 01 – Physics 1** – *Best of Physics*, Room: 214 A/B
- **SS 02 – Lung 1** – *SBRT,* Room: 004
- **SS 03 – Biology 1** – *Innovative Biologic Approaches to Improve Risk Stratification and Treatment Outcomes,* Room: 008

1:30 p.m. – 2:00 p.m.
Meet the Editor
Practical Radiation Oncology (PRO)
W. Robert Lee, MD, MS, MEd, FASTRO
Location: Innovation Hub

2:00 p.m. – 2:30 p.m.
Meet the Editor
International Journal of Radiation Oncology • Biology • Physics (Red Journal)
Anthony Zietman, MD, FASTRO
Location: Innovation Hub

2:15 p.m. – 2:45 p.m.
Meet the Editor
Advances in Radiation Oncology (Advances)
Robert C. Miller, MD, MBA, FASTRO
Location: Innovation Hub

2:45 p.m. – 3:15 p.m.
Break

3:15 p.m. – 4:45 p.m.
Clinical Trials Session
Room: Stars at Night Ballroom; 1.50 CME

4:45 p.m. – 6:15 p.m.
ARRO Meet the Professor Reception
Room: 302; 0 CME
Ticketed Event

4:45 p.m. – 6:15 p.m.
***e*Contouring Session 06** (Live SA-CME) – *eContouring for Gynecologic Cancer*, Room: 303; 1.50 CME Ticketed Event

4:45 p.m. – 6:15 p.m.
Young Physicians Workshop – *Addressing Challenges and Providing Platforms to Develop Future Leaders in Our Field*, Room: 005; 1.50 CME

4:45 p.m. – 6:15 p.m.
Education Sessions; 1.50 CME
- **EDU 04** (Interactive) – *Management of the Axilla and Neoadjuvant Systemic Therapy*, Room: 214 A/B
- **EDU 05** (Live SA-CME) – *Esophagus and Gastric Cancer: Contemporary Treatment Approaches,* Room: 007 A/B Ticketed Event
- **EDU 06** (Interactive) – *Practical Clinical Implementation and Use of Adaptive Radiotherapy*, Room 008

4:45 p.m. – 6:15 p.m.
International 03 – ***ASTRO/ESTRO Joint Session*** – *Emerging Developments in Head and Neck Cancer Therapy*
Room 004; 1.50 CME

4:45 p.m. – 6:15 p.m.
Panel Sessions; 1.50 CME
- **Panel 03** (Interactive) – *Hypofractionated Radiation Therapy for Localized Prostate Cancer: ASTRO, ASCO and AUA Guideline Recommendations and Evidentiary Base,* Room: Lila Cockrell Theatre
- **Panel 04** (Interactive) – *Integrating Health Care Technology to Prevent Error: Experiences from RO-ILS and IHE-RO*, Room: 214 C/D

4:45 p.m. – 6:15 p.m.
Poster Discussion Sessions; 1.50 CME
- **PD 03 – CNS 1**, Toxicity and Quality of Life, Room: 217 A/B
- **PD 04 – Pediatrics 1**, Room: 217 C/D

4:45 p.m. – 6:15 p.m.
Scientific Sessions; 1.50 CME
- **SS 04 – Lung 2** – *Stage III/IV,* Room: 301
- **SS 05 – Biology 2** – *Radiation and Immune Response Session 1*, Room: 007 C/D
- **SS 06 – Head and Neck 1** – *Current Topics in Post-operative Radiation Therapy*, Room: 006

See Monday's schedule on next page

Answer ASTRO's "Question of the Year" on MyASTROApp

Question focuses on new technologies and modalities

ASTRO is once again asking a "Question of the Year" at the Annual Meeting: **"What is the BIGGEST research discovery that needs to be translated to the clinic RIGHT NOW?"** Attendees can answer this question through the official Annual Meeting app, MyASTROApp. This question will jump-start discussions about exciting new technologies and treatment modalities that have yet to be moved into the clinical space but are poised to be in the next several years.

At the 2017 ASTRO Annual Meeting in San Diego, attendees were asked, "What is the most important research question that needs to be answered in the next three to five years?" From more than 100 responses received during the meeting, the wide-ranging answers included things like "What is the exact role of radiation in stage IV disease in combination with immunotherapy or targeted agents to combat resistance development" and "How can personalized care be better integrated into the oncology and radiation oncology clinical space?"

Another 456 responses were recorded to this question through the end-of-meeting survey sent to all attendees, and these responses included 136 mentions of immunotherapy or combinations of immunotherapy and radiotherapy, and 131 related to genomic influences and targeted/personalized cancer care. A short manuscript describing these results has been published in the Red Journal. The results highlight the excitement around immunotherapy, precision medicine and other important topics that affect the field of radiation oncology research right now.

To answer the 2018 Question of the Year, go to the MyASTROApp and click on "Question of the Year," or start a conversation on Twitter by tagging us @ASTRO_org with the hashtag #ASTRO18.

ASTRO Daily News 2018
Issue Number 1 | Sunday/Monday Edition

Publisher: Laura I. Thevenot

Editorial Director: Anna M. Arnone

Managing Editor: Leah Kerkman Fogarty

Design/Production: Jaimie Hernandez

Contributing Editors: Tyler Beck, Emily Connelly, Laura Hinely, Melana Hydrick, Randi Kudner, Robin Lindner

Visit the Exhibit Hall

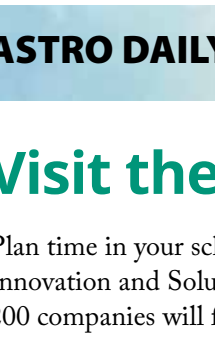
Plan time in your schedule to visit the Innovation and Solution Showcase. More than 200 companies will feature the latest technology, services and products in cancer treatment during this three-day exhibition.

In the exhibit hall, you'll find the ASTRO Connect areas, which feature disease-site specific spaces for attendees to network with colleagues with similar interests, as well as a place to recharge electronic devices and check email. The popular Meet the Experts times take place in the ASTRO Connects.

At this year's Annual Meeting, we are debuting the Innovation Hub, an exciting new area in the Innovation and Solution Showcase. See page 17 for more on the features of the Innovation Hub.

The Innovation and Solution Showcase is located in Halls 1-4 of the Henry B. González Convention Center and open Sunday through Tuesday, from 10:00 a.m. until 5:00 p.m.

DON'T MISS KEYNOTE SPEAKER



NORMAN SHARPLESS, MD
director of the National Cancer Institute

Monday, October 22, 2018
9:15 a.m. – 10:15 a.m.
Stars at Night Ballroom

NEW FOR 2018!

ANNUAL MEETING JOURNEY MAPS

Be sure to pick up your Annual Meeting Journey Map from the kiosks in the Main Lobby, the Registration area and on the Meeting Room level. These handy guides will help you navigate the Annual Meeting. There are six versions:

- First-time Attendees
- Community Practitioners
- International Attendees
- Physicists
- Immunotherapy Specialists
- Basic/Translational Researchers

SCHEDULE AT A GLANCE

Monday, October 22, 2018

7:45 a.m. – 8:15 a.m.
Science Highlights – *Lung Cancer*
Room: 304; 0.50 CME

7:45 a.m. – 9:00 a.m.
Education Sessions; 1.25 CME
- **EDU 07** – *Integrating Biology into Clinical Practice for Viral Associated Cancers*, Room: 217 A/B
- **EDU 08** – *The Physics of Proton Therapy: A Refresher for Physicians and Physicists*, Room: 004
- **EDU 09 (Live SA-CME)** – *Management of Adult Sarcoma*, Room: 217 C/D **Ticketed Event**
- **EDU 10 (Interactive)** – *Re-irradiation in Recurrent or Second Primary Head and Neck Cancer,* **Room**: Lila Cockrell Theatre
- **EDU 11** – *2019 Radiation Oncology Coding and Reimbursement Update*, Room: 206

7:45 a.m. – 9:00 a.m.
International Session 04 (Interactive)
Peer Review for Requirement and Safe Implementation of Hypofractionation in Resource Constrained Environments
Room: 005; 1.25 CME

7:45 a.m. – 9:00 a.m.
Scientific Sessions; 1.25 CME
- **SS 07 – GI 1** – *Gastric/GE Junction*, Room: 214 /B
- **SS 08 – GU 2** – *Long-term Updates of Prospective Prostate Cancer Clinical Trials*, Room: 214 C/D
- **SS 09** – *Patient Reported Outcomes/ Quality of Life/Survivorship*, Room: 008
- **SS10** – *Palliative 2*, Room: 007 C/D
- **SS11** – *HSR 1*, Room: 007 A/B

8:30 a.m. – 9:00 a.m.
Science Highlights – *Pediatric Cancer,* Room: 304; 0.50 CME

9:00 a.m. – 9:15 a.m.
Break

9:15 a.m. – 10:15 a.m.
Keynote I: Norman Sharpless, MD, Director, National Cancer Institute, Room: Stars at Night Ballroom; 1.00 CME

10:00 a.m. – 5:00 p.m.
Exhibit Hall Open

10:00 a.m. – 5:00 p.m.
Poster Viewing Open, Location: Innovation Hub

10:15 a.m. – 10:45 a.m.
Break

10:45 a.m. – 12:15 p.m.
eContouring Session 07
eContouring for Lung Cancer
Room: 303; 1.50 CME Ticketed Event

10:45 a.m. – 12:15 p.m.
Education Sessions; 1.50 CME
- **EDU 12 (Interactive)** – *Challenging Cases in the Management of Newly Diagnosed and Recurrent Prostate Cancer*, Room: 214 A/B
- **EDU 13 (Interactive)** – *From the Ivory Tower to the Real World—Bridging the Limitations of Randomized Controlled Trials and the Strengths of Non-randomized/Observational Studies to Enhance Patient Care*, Room: 007 A/B
- **EDU 14 (Interactive)** – *RO-ILS and Safety Culture: Physician's Role in Communication, Collaboration and Commitment*, Room: 007 C/D

10:45 a.m. – 12:15 p.m.
International Session 05 – *Leveraging Information Technologies in Mitigating Risks and Globally Improving Quality in Radiation Oncology Part 1: Current Information Technology Challenges and Mitigation Strategies*
Room: 005; 1.50 CME

10:45 a.m. – 12:15 p.m.
Panel Sessions; 1.50 CME
- **Panel 05** – *NCI's Quantitative Imaging Network: Development and Integration of Novel Tools for Oncology Clinical Trials and Patient Management*, Room: Lila Cockrell Theatre
- **Panel 06** – *The Translational Potential of Liquid Biopsies for Predicting Radiation Response*, Room: 304

10:45 a.m. – 12:15 p.m.
Poster Discussion Sessions; 1.50 CME
- **PD 05 – GI 2,** Room: 217 A/B
- **PD 06 – Physics 2,** Treatment Delivery, Room: 217 C/D

10:45 a.m. – 12:15 p.m.
PV QA 2 – Poster Viewing Q&A Session 2 – Head and Neck, Hematologic, Digital Health Innovation and Informatics and Sarcoma/Skin, Location: Innovation Hub, Exhibit Hall 3; 0 CME

10:45 a.m. – 12:15 p.m.
Scientific Sessions; 1.50 CME
- **SS12 – Breast 1** – *Toxicity,* Room: 214 C/D
- **SS13 – CNS 2** – *Gliomas*, Room: 004
- **SS14 – Pediatrics 2**, Room: 008

11:00 a.m. – 11:30 a.m.
Meet the Editor
International Journal of Radiation Oncology•Biology•Physics (Red Journal)
Anthony Zietman, MD, FASTRO
Location: Innovation Hub, Exhibit Hall 3

11:00 a.m. – 2:30 p.m.
ASTRO Bistro Open

11:30 a.m. – 12:00 p.m.
Meet the Editor
Practical Radiation Oncology (PRO),
W. Robert Lee, MD, MS, MEd, FASTRO,
Location: Innovation Hub, Exhibit Hall 3

12:15 p.m. – 1:30 p.m.
Lunch Break

12:15 p.m. – 1:30 p.m.
ARRO Poster Viewing with a Professor
(Residents Only),
Location: Innovation Hub, Exhibit Hall 3
0 CME Ticketed Event

12:30 p.m. – 1:00 p.m.
Meet the Editor
Advances in Radiation Oncology (Advances)
Robert C. Miller, MD, MBA, FASTRO
Location: Innovation Hub, Exhibit Hall 3

12:30 p.m. – 1:30 p.m.
AAWR/ASTRO Luncheon
Pros and Cons of Practice Setting,
Room 302; 0 CME Ticketed Event

1:30 p.m. – 2:15 p.m.
Presidential Address: *Radiation Oncology at a Crossroads*, Paul M. Harari, MD, FASTRO, Room: Stars at Night Ballroom; 0.75 CME

2:15 p.m. – 3:45 p.m.
Plenary Session, Room: Stars at Night Ballroom; 1.50 CME

3:45 p.m. – 4:15 p.m.
Break

4:00 p.m. – 4:30 p.m.
Meet the Editor
International Journal of Radiation Oncology• Biology•Physics (Red Journal)
Sue Yom, MD,
Location: Innovation Hub, Exhibit Hall 3

4:15 p.m. – 5:45 p.m.
eContouring Session 08 (Live SA-CME) – *eContouring for CNS/SBRT Spine,*
Room: 303; 1.5 CME Ticketed Event

4:15 p.m. – 5:45 p.m.
Education Sessions; 1.50 CME
- **EDU 15** (Interactive) – *Challenging Cases in IGRT: Are We All Well Aligned?*, Room: 206
- **EDU 16** – *Neuroblastoma and Renal Tumors*, Room: 005
- **EDU 17** (Interactive) – I*ncreasing Role of Radiation Therapy and Multidisciplinary Management of Thymic Malignancies*, Room: 007 C/D

4:15 p.m. – 5:45 p.m.
International Session 06 – *Leveraging Information Technologies in Mitigating Risks and Globally Improving Radiation Oncology Part 2: Leveraging IT to Enhance Quality in Radiation Oncology and Global Collaboration*, Room: 008; 1.50 CME

4:15 p.m. – 5:45 p.m.
- **Joint Session 02** (Interactive) – *ASTRO/ AAWR Joint Session: Achieving Gender Equity in Radiation Oncology*, Room: 214 A/B; 1.50 CME
- **Joint Session 03** (Live SA-CME) – *ASTRO/ASCO Joint Session: Genomics to Personalize Breast Cancer Treatment: On the Evolving Road to Minimize Overtreatment*, Room: 302; 1.50 CME Ticketed Event

4:15 p.m. – 5:45 p.m.
Panel Session; 1.50 CME
Panel 07 (Interactive) – *Leadership Development for the Radiation Oncologist of the Future*, Room: 304

4:15 p.m. – 5:45 p.m.
Poster Discussion Sessions; 1.50 CME
- **PD 07 – Biology 3**, Room: 217 C/D
- **PD 08 – Hematologic 1**, Room 217 A/B

4:15 p.m. – 5:45 p.m.
Scientific Sessions; 1.50 CME
- **SS 15 – Physics 3** – Treatment Planning, Room: 006
- **SS 16** – *Digital Health Innovation and Informatics 1*, Room: 007 A/B
- **SS 17 – GI 3** – *Colon/Rectum/Anus,* Room: 214 C/D

ASTRO CONNECT

BACK THIS YEAR ARE THE ASTRO CONNECT BOOTHS WITH A SPECIALTY FOCUS.
See our Meet the Experts schedule on page 18.

Stay in the know and network with colleagues in the online ASTRO private community

By Laura Hinely, ASTRO online communications coordinator

New this year, ASTRO launched its first-ever private Annual Meeting community. Hosted on RO*hub*, ASTRO's official online community platform, attendees can use this private community to share and view vital resources, participate in polls and create connections to make the most of their Annual Meeting experiences. The Annual Meeting community serves as an information platform, broadcasting important changes and updates during and after the meeting. View which of your colleagues are attending the meeting and ask your questions about the meeting to ASTRO staff and Annual Meeting leadership directly.

ASTRO understands attendees have demanding schedules and might not have time to log into the community to view posts. All users have been subscribed to daily digests to ensure no posts are missed. Attendees receive a recap of discussion posts to keep up with the latest news. Settings in your RO*hub* profile can be configured to adjust this to weekly digests or opt-out. Make sure to check you are receiving these emails in your inbox—see an ASTRO staff member at the Ask ASTRO booth for further assistance.

Session-specific, disease-site discussions and more Annual Meeting related content will continue in the community post-meeting. Do you have questions you wished you asked during a session? Ask it in the community! Find information about the Virtual Meeting, 2018 Meeting Survey and the 2019 Annual Meeting.

Big plans are in the works for RO*hub*. Moving forward, each ASTRO meeting will have an event community that attendees can use as an information and networking hub. Open forums will also be launched where any ASTRO member can participate. RO*hub* is your community platform – make the most of this vital resource!

New PRO Program offers weekend option for Annual Meeting attendees

This year, more than 370 attendees gathered one day early to attend the new Practical Radiation Oncology (PRO) Program. Running on Saturday, October 20, and Sunday, October 21, this program allowed doctors who were unable to leave their practices during the week a chance to attend ASTRO 2018.

The PRO Program was designed with the community practice radiation oncologist in mind. While we envisioned the program would be attended by only those physicians who needed to return to quickly to their practice, many Annual Meeting registrants came in a day earlier than usual and plan to stay for the entire meeting. About two-thirds of registrants were from private practice; the rest came from academic institutions.

"We received feedback from many ASTRO members who said they would be open to a condensed option of the Annual Meeting," says Laura I. Thevenot, ASTRO chief executive officer. "We wanted to put together a program that would appeal to our many members in private practice who wanted the best of both worlds—a shortened time commitment along with the top science from the premier event in radiation oncology."

Yesterday, PRO program participants attended practical review sessions for breast, head and neck, prostate and lung cancer. Each disease site review session also offered designated Q&A time for attendees to get feedback from session chairs and discussants.

There was also a science review session led by Anand Shivnani, MD, with Texas Oncology, that highlighted the practice-changing oncology research from this year's Annual Meeting. The day was capped off with a networking reception to allow attendees to share perspectives and strategies with their colleagues.

Today, attendees will be able to attend palliative and CNS sessions and also get a socioeconomic update on the state of radiation oncology. ASTRO staff members will present the latest information on the Centers for Medicare and Medicaid Services' Quality Payment Program, as well as on alternative payment models.

Session chairs are Richard Lovett, MD, FASTRO, and Sarah Thurman, MD, for breast; Najeeb Mohideen, MD, FASTRO, for head and neck, lung and CNS; Thomas Boike, MD, for prostate; and Candice Johnstone, MD, MPH, for palliative care.

Included with the registration, participants may also attend any other Sunday sessions at the Annual Meeting, as well as see the latest from exhibitors in the Innovation and Solution Showcase.

"The response from the attendees to the first PRO Program was overwhelmingly positive," said Dr. Mohideen, one of the architects of the program. "They loved the way the experts discussed practical aspects of management and the opportunity to engage them in discussions and interact with them. The added bonus was the summary of key research being presented at this ASTRO meeting.

"We will review the feedback in detail and see if any changes are needed and, rest assured, next year we plan to add in additional disease sites," said Dr. Mohideen. Stay tuned for more details on the PRO Program at ASTRO's 2019 Annual Meeting, which will be held September 14-15 in Chicago.

Docs talk about the value of APEx Accreditation

Improving patient care through APEx

By Leah Kerkman Fogarty

Erdal Gurgoze, PhD

J. Ben Wilkinson, MD

Michael Steinberg, MD

ASTRO's Accreditation Program for Excellence, or APEx®, is a practice accreditation program created to support quality improvement in radiation therapy practices. Facilities that obtain accreditation have demonstrated they have the appropriate systems, consistent processes and documented policies needed to meet the APEx standards for high quality patient care. It focuses on the entire radiation oncology team, with an emphasis on understanding each team member's role in the patient care process.

The APEx process begins with a comprehensive self-assessment, allowing your practice to review compliance with evidence-based indicators and adjust as needed before the facility visit. The four-year accreditation cycle allows time for quality and process improvement and to evaluate the impact on your facility's safety processes and patient care.

APEx has several practical benefits in addition to quality improvement. Evidence indicators required for accreditation map to 15 improvement activities in Medicare's Merit-based Incentive Payment System (MIPS), the APEx PQI template satisfies the American Board of Radiology's Maintenance of Certification (MOC) Part 4 requirements and program participation also satisfies the radiation therapy component for the Commission on Cancer (CoC) and National Accreditation Program for Breast Centers (NAPBC).

We spoke with three program participants about their experiences with the APEx program. Erdal Gurgoze, PhD, is a medical physicist with Arizona Oncology; J. Ben Wilkinson, MD, is medical director of the Provision Center for Proton Therapy in Knoxville, Tennessee; and Michael Steinberg, MD, FASTRO, is professor and chair of the department of radiation oncology in the David Geffen School of Medicine at the University of California, Los Angeles.

Why did you decide to become an APEx-accredited facility?

Erdal Gurgoze, PhD (EG): Our physicians are already ASTRO members and we felt the designation was commensurate with our high standard of care. We also felt that the accreditation would help us with our managed care contracts.

J. Ben Wilkinson, MD (BW): Our facility places a high value on the accurate delivery of proton beam therapy, as well as internal quality improvement. The APEx accreditation process allowed our team to verify and improve our internal policies and procedures through both introspective review and external verification by the APEx team.

Michael Steinberg, MD (MS): We decided to become an APEx-accredited facility to make sure that our quality program met rigid national standards. We wanted to ensure our program and treatments are the safest and best they can be.

What have you found to be the benefits of being an APEx-accredited facility?

EG: We have only recently been accredited. However, we hope to find the benefits to be achieving a higher standard of patient care as the accreditation process has pushed us to reevaluate and update our internal physics and patient policies. Another potential benefit will be to serve a wider range of health plans.

BW: As part of our plan to seek APEx accreditation, we added the RO-ILS program at our center. Although we previously had a culture of seeking high levels of quality and problem solving, the process of adding a formal incident learning system has been invaluable. We now have the ability for anyone in the organization to bring up suggestions, good catches and areas of concern for our quality improvement committee to review and, if necessary, implement changes. The other benefit we perceived internally was having an external review of our policies and procedures. Although an organization may believe they have an excellent program in place, it can always be improved through collaborative ideas from leaders in our field.

MS: The process of accreditation allowed us to examine our safety and quality policies and procedures in an extremely robust manner. We learned and improved through the process. We are safer for the effort. Each member of our department understands our dedication to safety and quality—and that we walk the talk.

Let's talk about the self-assessment portion of the APEx accreditation process. Was it helpful in preparing you for your facility visit? What was required of you? How long did it take to go through the self-assessment?

EG: Self-assessment was very helpful to find those areas in our practice that needed improvement. The preparation process took about three months.

BW: The self-assessment was a critical step in preparing for our facility visit. It allowed our team to understand exactly what was expected of us from a document perspective to ensure we had policies and procedures in place internally that matched national guidelines of a high-quality radiation oncology facility. The self-assessment also allowed our staff to prepare for the facility visit as an internal dry run, which gave us confidence that we would ultimately be successful in achieving accreditation.

MS: The self-assessment portion was well-organized and therefore we were well-organized for the facility visit. It opened our eyes to the scope of the accreditation process. Our department carved out dedicated weekly and monthly meeting time among quality team members to prepare for the self-assessment portion and facility visit. The document upload and self-assessment portion did require organization, weekly time and good old-fashioned discussion among the team members about the current state of affairs in the department and how best to move forward. The self-assessment was not completed in one sitting. We arranged weekly meetings and an oversight meeting for questions we were not sure how to answer.

How was the facility visit beneficial to the process of accreditation?

BW: It is always gratifying to invite other radiation oncology professionals into your center and have them commend your staff and the processes of the center. Both surveyors were very knowledgeable and were clearly committed to verifying quality and safety at our center.

MS: The facility visit was useful in two ways. The first was in the actual preparation for the visit.

Continued on page 7

This required coordination in document organization and preparation among the various divisions in the department. Also, the facility visit forced us to examine each division, in detail, and fostered increased collaboration. A member of each division was ready to answer any questions the reviewer may have had. Teamwork was essential.

Did your facility change any practices as a result of the APEx accreditation process?

EG: Absolutely. Based on the self-assessment, we identified areas that lacked proper documentation, process or procedures, where we made the necessary changes and implemented in our routine practice.

MS: We updated our templates for consultation, OTV and follow-up. Also, we reviewed and updated multiple policy and procedures documents.

Any advice to other facilities thinking about becoming APEx-accredited?

EG: It may seem like an overwhelming task initially, however, once you start the process it is very straightforward.

MS: Put a quality team together that is in charge of the process. Call ASTRO for advice before you start, give the quality team dedicated time to perform the work, start the self-assessment, keep track of documents that need updating and practice for the facility visit.

Would you recommend becoming APEx-accredited to other facilities?

BW: I think any facility that is looking to elevate its level of quality and service would benefit from the APEx accreditation process.

MS: Absolutely–100 percent.

APEx, MIPS and RO-ILS OFFICE HOURS IN SAN ANTONIO

Room 224, Meeting Level

Do you have questions about ASTRO's quality programs, APEx and RO-ILS, or the Medicare Merit-based Incentive Payment System (MIPS)? ASTRO staff are available for one-on-one support or team meetings. Whether you are just beginning or currently working on implementing a plan, we are here to help. For individualized assistance, we recommend emailing apexsupport@astro.org, roils@astro.org, and/or mips@astro.org to schedule an appointment in advance. However, all drop-in inquiries are welcome.

Hours of operation:

Sunday, October 21	1:00 p.m. – 4:00 p.m.
Monday, October 22	10:00 a.m. – 4:00 p.m.
Tuesday, October 23	10:00 a.m. – 2:30 p.m.
Wednesday, October 24	10:30 a.m. – 1:30 p.m.

Join us for Science Highlights

Back again this year are the Science Highlights Sessions! These 30-minute sessions will be held each morning, Monday, Tuesday and Wednesday, and will provide a brief overview of the top science being presented at the meeting in the most commonly treated disease sites in radiation oncology. An expert discussant will present the top four to five abstracts at the meeting in a "best-of" format, allowing attendees to hear about the top science in GU, Lung, Head and Neck, CNS, GI and Breast cancer. Located in Room 304.

The ASTRO Bistro is located in the Innovation and Solution Showcase (Exhibit Hall) in the rear of Hall 4B in the Henry B. González Convention Center. It is open from 11:00 a.m. until 2:30 p.m., Sunday through Tuesday. If you have not already purchased tickets, they may be purchased on-site at the ASTRO Bistro for $25 each.

SUNDAY BISTRO MENU

Texas Farmers Market Salad VG
Greens, Baby Tomatoes, Cucumbers, Carrot Curls,
Pickled Watermelon Radish and Brazos
Valley Cheddar Cheese, Herb Croutons, Choice of Dressing

Classic Bistro Salad GF
with Endives & Arugula, Blue Cheese, Shallots, Candied Pecans and Peppered Bacon

Sourdough Dinner Rolls and Mini Baguettes

Burgundy Braised Beef Short-ribs GF
Roasted Mushrooms Jus

Tofu Tortellini & Mushrooms, Vegan Madeira Glace GF V

Whipped Potatoes and Celery Root GF V

Grilled Asparagus and Herb Roasted Plum Tomatoes GF V

Assorted Cookies, Brownies, Blondies
Whole Fruit
Iced Tea and Lemonade

MONDAY BISTRO MENU

Baby Romaine Caesar Salad VG
Garlic Croutons, Parmesan Cheese, Caesar Dressing

Green Beans Salad GF V
Sweet Drop Peppers, Balsamic Onions and Pignolias, Balsamic Vinaigrette

Grilled Flatbreads and Butter and Egg Rolls

Pan Seared Chicken Breasts GF
Artichokes, Olives and White Wine Butter Fondue

Vegetable Lasagna VG
Marinara and Roasted Garlic

Roasted Marble Potatoes VG GF

Brussels Sprouts and Pearl Carrots, Caramelized Onions and Sea Salt GF V

Tiramisu Cake and Chocolate Chip Cookie Bars
Whole Fruit
Iced Tea and Lemonade

GF GLUTEN FREE V VEGAN VG VEGETARIAN

STREET TALK

What new feature are you most excited about at #ASTRO18?

"This year, we are thrilled to offer the opportunity for attendees to "Meet the Editors" of ASTRO's journals. Drs. Zietman, Yom, Lee and Miller will be available in the Innovation Hub at various times throughout Sunday through Tuesday to answer questions and discuss the latest journal developments. The event provides a rare chance to connect with ASTRO's editors!"

– Lisa Braverman,
Managing Editor, the Red Journal

"Based on attendee feedback, ASTRO is rolling out the new Practical Radiation Oncology (PRO) program. This two-day program, running Saturday and Sunday, was designed specifically for the busy radiation oncologist unable to leave his or her practice for the full meeting. I'm looking forward to the practical reviews, a discussion on the practice-changing data from this Annual Meeting and the socioeconomic update."

– Najeeb Mohideen, MD, FASTRO

"For the first time, ASTRO's Annual Meeting will feature all-digital posters in the poster viewing session. No more cardboard tubes and no more paper posters! Having the more than 1,700 all-digital posters will allow for inclusion of audio, video and media, while also allowing attendees to browse the posters on the mobile app. All of the posters will be displayed on touch-screen monitors in the new Innovation Hub area, located on the Exhibit Hall floor."

– Johanna VanArsdall, Senior Manager
Scientific and Educational Programs, ASTRO

Stay Connected

#ASTRO18

All About MIPS: How Can Practices Boost Their Scores?

By Dave Adler, ASTRO's Vice President of Advocacy

Jon Strasser, MD

Radiation oncologists are starting to see their Medicare payments increase or decrease based on their performance in the new Medicare quality reporting program. To find out how radiation oncologists are doing and how they can avoid cuts and boost revenue, we sat down with radiation oncologist Jon Strasser, MD, and ASTRO staff member, Randi Kudner, to better understand the Merit-based Incentive Payment System (MIPS) and the QOPI® Reporting Registry Qualified Clinical Data Registry (QCDR).

Good afternoon, thank you for speaking with us today. Let's start with the basics. What is MIPS?

RK: MIPS replaces legacy payment programs and involves four performance categories: Quality, Promoting Interoperability, Improvement Activities and Cost. The categories have different requirements and different weights. Physicians earn points from 0–100 based on performance and can achieve up to a 5 percent positive payment adjustment for 2018 performance, or a negative 5 percent for not participating in MIPS.

What kind of strategy does a practice need to develop for participating in MIPS?

JS: MIPS is a budget-neutral program, with limited money to be shared. If physicians want to achieve a high reimbursement, they need to score above what's called the "exceptional performance threshold." In 2018, that is 70 points. On the other hand, if a practice is just interested in avoiding the penalty, they would only need to score 15 points.

Do physicians find out how they have scored?

RK: Yes, physicians can look up their 2017 performance on the qpp.cms.gov website. Some ASTRO members have shared their feedback data with us. There were many top performers, but even the highest performing practices only received a positive 2 percent payment adjustment.

So, what would you recommend for a practice that wanted to achieve a high score?

JS: I have used the QOPI® Reporting Registry for 2017 and 2018 to collect and report data to the Centers for the Medicare and Medicaid Services (CMS) on all performance categories. QOPI provides a way to continuously aggregate data, calculate performance on quality measures and identify gaps for improvement while satisfying annual CMS requirements. QOPI is cosponsored with the American Society of Clinical Oncology (ASCO), which can be a benefit for multispecialty practices. FIGmd, the vendor for the QCDR, provides the technology platform for QOPI.

A QCDR sounds like a powerful reporting tool, but what about burden to practices? How does the QCDR work?

RK: QOPI connects directly to the practice's EHR [electronic health records] and data relevant to the quality measures are extracted in real time directly into the QCDR. This is called the System Integration (SI) function. Practices can access the QCDR dashboard to review the data and have access to monthly reports. The QCDR has been used with ARIA® and MOSAIQ® Radiation Oncology EHRs. Approved users may view and query data. FIGmd designed a secure system to be compliant with federal regulations, including HIPAA.

Does a practice have to hook up their EHR to use the QCDR?

JS: No. In 2017, my practice used the Web-interface Tool (WIT), which is a manual data-entry functionality. However, in 2018 we are using the SI option and we have been working with the FIGmd team to map data elements in our EHR. It has been a fairly easy process. Practices have access to the quality dashboard no matter which data capture option they choose.

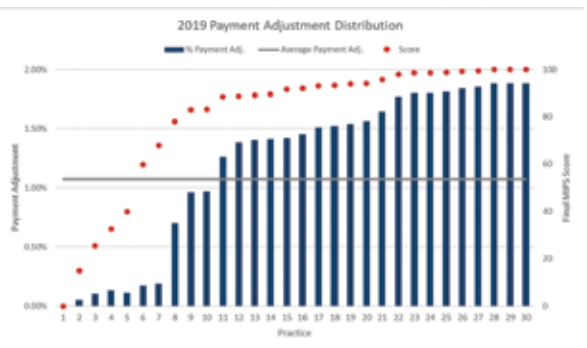
What quality measures can be reported using the QOPI Reporting Registry QCDR?

RK: We now have 25 measures, including general oncology, medical oncology and radiation oncology. A complete list of the measures is available at www.astro.org/qcdr.

Ok, so the last big question: how can a practice learn more?

JS: We are presenting more information on MIPS and the QCDR, as well as updates on a potential Radiation Oncology Alternative Payment Model (RO-APM) on Tuesday, from 2:45 p.m. – 4:15 p.m. in Room 303. Attend the session to find out more and get some questions answered.

RK: We are also hosting office hours during the Annual Meeting in Room 224, so come talk with us about any questions you may have on this process.



Presidential Symposium addresses the new frontier of cancer treatments

By Robin Lindner

The 2018 Presidential Symposium's line-up may sound like it's from the future—but it's really the dawn of a new era in radiation oncology. Each session reinforces the overall meeting theme, "Translating Discovery to Cure," and showcases opportunities for translational science. We spoke with the session experts to get a preview of the topics each will cover in today's symposium.

Session 1: The Radiation Oncology/ Immunology Interface, *moderated by Silvia Formenti, MD, FASTRO*

Why is this topic so important in the current medical climate?

This is a new application of an established modality. Ionizing radiation has an established role as a cytocidal modality but it is only in the past 15 years that a novel application has been explored; that of stimulating the immune system. We're looking at if radiation-induced cell death and inflammatory response can successfully inform the immune system about the tumor and somehow overcome the indifference of the immune system toward the cancer. Particularly when combined with modern immunotherapy, radiation can contribute to successfully immunizing the patient against his/her cancer, and possibly enable immune rejection of un-irradiated metastases.

What are the key takeaways for attendees from this session?

I hope the audience will walk away with an appreciation of the importance of the immune system and the microbiome, as well as with the recognition of a new potential role for radiotherapy. I also hope that we will convey that much of the potential of ionizing radiation remains unexplored. We are in the process of learning how to optimally harness ionizing radiation in combination with immunotherapy to evoke an immune rejection of tumors. Radiation is a valuable adjuvant to the action of currently available immunotherapy drugs and is easily available to participate in immune strategies to achieve the rejection of established tumors. There are many unexplored possibilities, as more immunotherapy approaches are emerging.

How has your background helped prepare you for this topic?

My training in immunology makes it natural for me to always think about the implications to the immune system. Fifteen years ago, we designed experiments reflected in a paper published in the *International Journal of Radiation Oncology•Biology•Physics* in 2004. This was the first time that researchers connected an immune-mediated mechanism behind the abscopal effect of radiation. Since then, researchers have also been able to translate preclinical work into clinical trials in metastatic breast cancer, lung cancer and melanoma. We will soon be releasing results from a new study that confirms that radiotherapy can convert a tumor into a vaccine.

Session 2: Virally-induced Cancers 2018 and Beyond, *with speaker Erich Sturgis, MD*

Why is this topic so important in the current medical climate?

We tend to focus on the advances in surgery and radiation, but many of our greatest impacts in medicine have come through prevention. We are experiencing emerging epidemics in Human Papillomavirus (HPV) and Hepatitis C related cancers. HPV-related oropharyngeal cancer is now the most common cancer in the head and neck and the most common HPV-related cancer in the U.S. (more than cervical cancer). Unfortunately, less than half of our children are completing HPV vaccination, which could virtually eradicate HPV-related diseases.

Additionally, there are about 3.5 million Americans who do not even know they have Hep C, and they are at risk for liver cancer and death. Now that we can treat Hep C, we have a tremendous opportunity to prevent so many cancer-related deaths. Worldwide, viruses account for approximately one of every eight cancers, and preventive interventions in many regions represent the only feasible answer for this global problem.

What are the key takeaways for attendees from this session?

The key message is that very common diseases are increasing in numbers, and there's a very simple solution. We need to speak out for these prevention opportunities and, where we can, we need to act on them. I hope attendees can understand in this case an ounce of prevention is truly worth a pound of cure and that it is their obligation to advance this message wherever they can. This is an important problem, and in many ways a simple solution.

How has your background helped prepare you for this topic?

I completed a master's in public health in epidemiology, instigated by my passion for cancer prevention and screening. My academic career has been dedicated to cancer epidemiology and prevention, especially HPV-related cancers. I feel strongly about this topic because I truly believe that a focus on the prevention side rather than end-stage treatment will save many more lives.

Session 3: Artificial Intelligence Meets Radiation Oncology, *moderated by David Jaffray, PhD*

Why is this topic so important in the current medical climate?

Over the past few years, there has been quite a convergence of technology and theory that is allowing us to use machines to look for correlations between what data we put in and what information we get out. Artificial Intelligence (AI) can also allow us to predict those outcomes. From a medical perspective, that is very exciting.

What are the key takeaways for attendees from this session?

With all the conversation around AI, we would like our speakers to focus on where they think we will see the first big impact in the field. We also want to talk about things from a career perspective. If you're a young oncologist, physicist, therapist or researcher, what should you be doing to participate, to prepare for this new technology? Machines can now do a lot of things traditionally done by junior researchers. So what does that mean for those just starting out in their careers?

How has your background helped prepare you for this topic?

I have been involved in the development of technology that's injected unprecedented amounts of information into the radiation oncology tumor process. We have designed some of the first augmentation systems because we knew humans were going to be overwhelmed with the advent of "big data." We need to get that data moving and get the most out of it for the patient.

Session 4: Will Liquid Biopsies Alter Cancer Care? *moderated by Catherine Park, MD, FASTRO*

Why is this topic so important in the current medical climate?

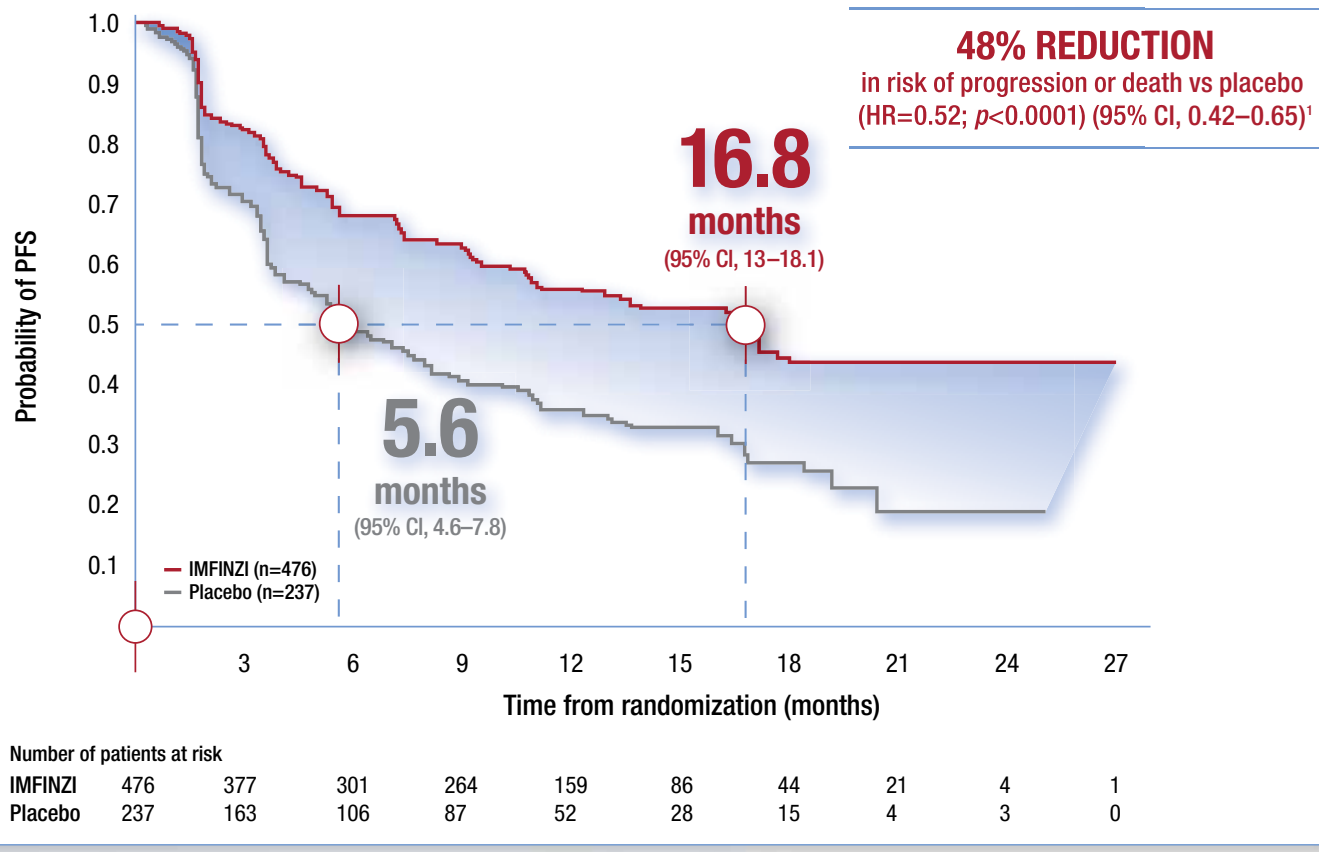
DNA that has been shed from cancer cells has been shown to reflect the cancer genome, specific cancer mutations and has been correlated with the tumor burden and response to therapy. Therefore, it has the potential to be used in many aspects including diagnosis, prognosis, prediction and the guiding of cancer therapies.

Continued on page 21

NOW WITH PFS AND OS DATA

IMFINZI: THE FIRST AND ONLY APPROVED IMMUNOTHERAPY FOLLOWING CRT FOR PATIENTS WITH UNRESECTABLE STAGE III NSCLC

Superior 11.2-month improvement in median PFS*[1]



Number of patients at risk

IMFINZI	476	377	301	264	159	86	44	21	4	1
Placebo	237	163	106	87	52	28	15	4	3	0

Visit AstraZeneca at Booth #2665

Indication[1]

IMFINZI is indicated for the treatment of patients with unresectable Stage III non-small cell lung cancer (NSCLC) whose disease has not progressed following concurrent platinum-based chemotherapy and radiation therapy.

Important Safety Information

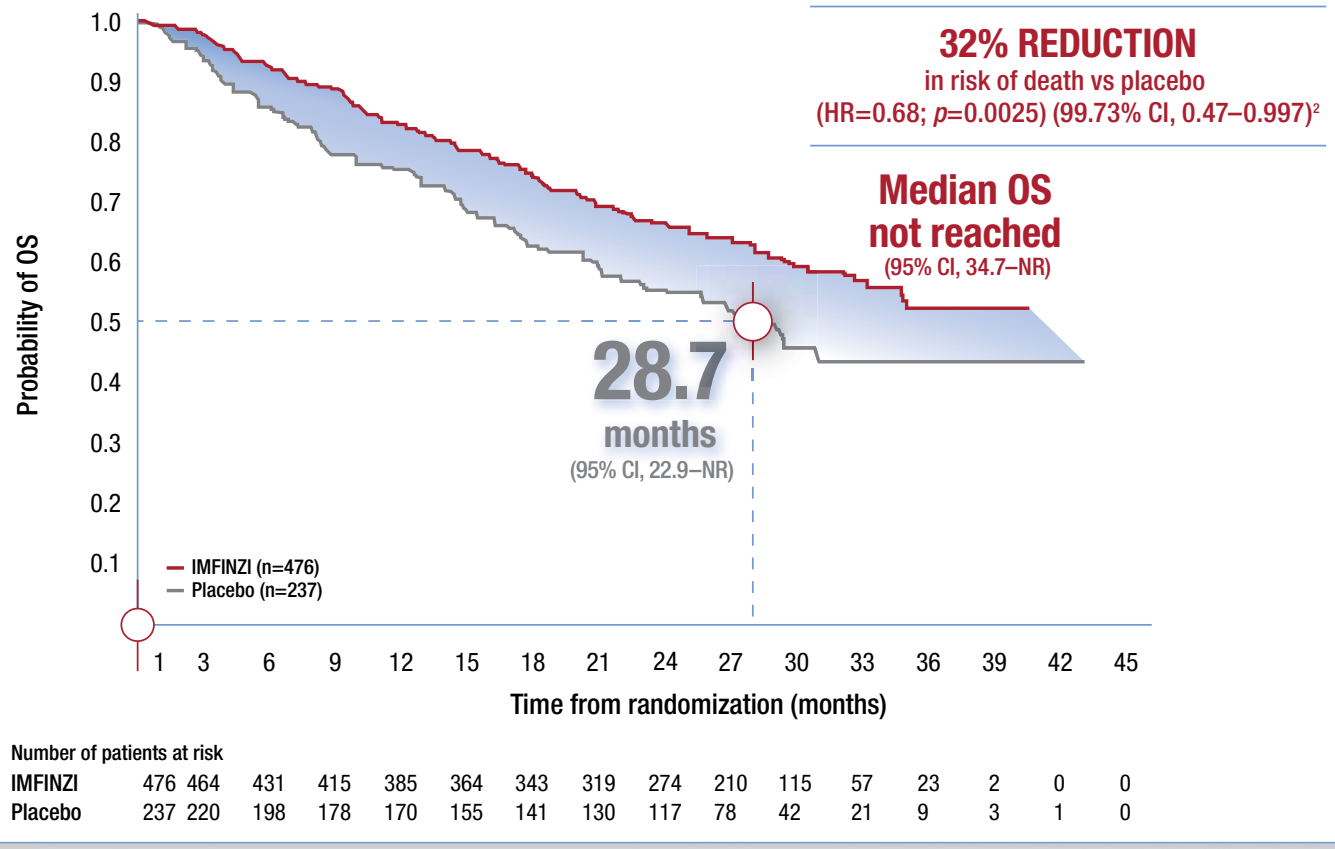
There are no contraindications for IMFINZI® (durvalumab).

IMFINZI can cause serious, potentially fatal adverse reactions including immune-mediated pneumonitis, hepatitis, colitis or diarrhea, endocrinopathies, nephritis, rash or dermatitis, other immune-mediated adverse reactions, infection, and infusion-related reactions. Please refer to the full Prescribing Information for important dosage modification and management information specific to adverse reactions.

PFS: progression-free survival; OS: overall survival; CRT: chemoradiation therapy; NSCLC: non-small cell lung cancer

IMFINZI®
durvalumab
Injection for Intravenous Use 50 mg/mL

Statistically significant OS benefit†[2]



Number of patients at risk

IMFINZI	476	464	431	415	385	364	343	319	274	210	115	57	23	2	0	0
Placebo	237	220	198	178	170	155	141	130	117	78	42	21	9	3	1	0

PACIFIC study design

- A large Phase III, randomized, double-blind, placebo-controlled, multicenter study of 713 patients with unresectable Stage III NSCLC whose disease had not progressed following concurrent platinum-based CRT‡[1,3]
- Enrollment was not restricted to any threshold for the level of PD-L1 expression[3]
- The study was designed to demonstrate superior PFS and OS of IMFINZI vs placebo[1,3]

Safety and tolerability

- At the time of OS analysis, the safety and tolerability profile for IMFINZI remained consistent with that reported at the time of PFS analysis[2]
- Serious, potentially fatal risks were seen with IMFINZI; serious adverse reactions occurred in 29% of patients receiving IMFINZI and 23% receiving placebo[3]
- The most frequent serious adverse reactions (≥2%) were pneumonitis or radiation pneumonitis and pneumonia[1]
- The most common adverse reactions (≥20%) were cough, fatigue, pneumonitis or radiation pneumonitis, upper respiratory tract infections, dyspnea, and rash[1]
- Discontinuation rates due to adverse events (regardless of causality) were 15% in patients receiving IMFINZI and 10% in patients receiving placebo[3]

*Measured based on RECIST v1.1 criteria by blinded independent central review (BICR).[3]

†Based on first planned OS interim analysis (42% maturity) of 299 deaths (61% of planned events).[2]

‡Absence of progression following at least 2 cycles of chemotherapy concurrent with radiation and a WHO performance status of 0 or 1.[3]

Please see additional Important Safety Information on next pages.

Important Safety Information (continued)

Immune-Mediated Pneumonitis

IMFINZI can cause immune-mediated pneumonitis, defined as requiring use of corticosteroids. Fatal cases have been reported. Monitor patients for signs and symptoms of pneumonitis and evaluate with radiographic imaging when suspected. Administer corticosteroids for Grade 2 or greater pneumonitis. Withhold IMFINZI for Grade 2 pneumonitis; permanently discontinue for Grade 3 or 4 pneumonitis.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, pneumonitis occurred in 5% of patients, including Grade 3 (0.8%), Grade 4 (<0.1%), and Grade 5 (0.3%) pneumonitis. Pneumonitis led to discontinuation of IMFINZI in 1.5% of the 1889 patients. In the PACIFIC study, the incidence of pneumonitis (including radiation pneumonitis) was 34%, including Grade 3 (3.4%) and Grade 5 (1.1%) pneumonitis in the IMFINZI arm. In the PACIFIC study, pneumonitis led to discontinuation of IMFINZI in 6% of patients.

Immune-Mediated Hepatitis

IMFINZI can cause immune-mediated hepatitis, defined as requiring use of corticosteroids. Fatal cases have been reported. Monitor patients for signs and symptoms of hepatitis during and after discontinuation of IMFINZI, including clinical chemistry monitoring. Administer corticosteroids for Grade 2 or higher elevations of ALT, AST, and/or total bilirubin. Withhold IMFINZI for ALT or AST greater than 3 but less than or equal to 8 times the ULN or total bilirubin greater than 1.5 but less than or equal to 5 times the ULN; permanently discontinue IMFINZI for ALT or AST greater than 8 times the ULN or total bilirubin greater than 5 times the ULN or concurrent ALT or AST greater than 3 times the ULN and total bilirubin greater than 2 times the ULN with no other cause.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, hepatitis occurred in 12% of patients, including Grade 3 (4.4%), Grade 4 (0.4%), and Grade 5 (0.2%) hepatitis. Hepatitis led to discontinuation of IMFINZI in 0.7% of the 1889 patients.

Immune-Mediated Colitis

IMFINZI can cause immune-mediated colitis, defined as requiring use of corticosteroids. Administer corticosteroids for Grade 2 or greater colitis or diarrhea. Withhold IMFINZI for Grade 2 colitis or diarrhea; permanently discontinue for Grade 3 or 4 colitis or diarrhea.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, colitis or diarrhea occurred in 18% of patients, including Grade 3 (1.0%) and Grade 4 (0.1%) colitis. Diarrhea or colitis led to discontinuation of IMFINZI in 0.4% of the 1889 patients.

Immune-Mediated Endocrinopathies

IMFINZI can cause immune-mediated endocrinopathies, including thyroid disorders, adrenal insufficiency, type 1 diabetes mellitus, and hypophysitis/hypopituitarism. Monitor patients for clinical signs and symptoms of endocrinopathies.

- **Thyroid disorders**—Monitor thyroid function prior to and periodically during treatment. Initiate hormone replacement therapy or medical management of hyperthyroidism as clinically indicated. Withhold IMFINZI for Grades 2–4 hyperthyroidism, until clinically stable. Continue IMFINZI for hypothyroidism.

  In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, hypothyroidism occurred in 11% of patients, while hyperthyroidism occurred in 7% of patients. Thyroiditis occurred in 0.9% of patients, including Grade 3 (<0.1%). Hypothyroidism was preceded by thyroiditis or hyperthyroidism in 25% of patients.
- **Adrenal insufficiency**—Administer corticosteroids as clinically indicated and withhold IMFINZI until clinically stable for Grade 2 or higher adrenal insufficiency. In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, adrenal insufficiency occurred in 0.7% of patients, including Grade 3 (<0.1%) adrenal insufficiency.
- **Type 1 diabetes mellitus**—Initiate treatment with insulin as clinically indicated. Withhold IMFINZI for Grades 2–4 type 1 diabetes mellitus, until clinically stable. In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, type 1 diabetes mellitus occurred in <0.1% of patients.
- **Hypophysitis**—Administer corticosteroids and hormone replacement as clinically indicated and withhold IMFINZI until clinically stable for Grade 2 or higher hypophysitis. Hypopituitarism leading to adrenal insufficiency and diabetes insipidus occurred in <0.1% of 1889 patients with various cancers who received IMFINZI.

Immune-Mediated Nephritis

IMFINZI can cause immune-mediated nephritis, defined as evidence of renal dysfunction requiring use of corticosteroids. Fatal cases have occurred. Monitor patients for abnormal renal function tests prior to and periodically during treatment with IMFINZI. Administer corticosteroids as clinically indicated. Withhold IMFINZI for creatinine greater than 1.5 to 3 times the ULN; permanently discontinue IMFINZI and administer corticosteroids in patients with creatinine greater than 3 times the ULN.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, nephritis (reported as any of the following: increased creatinine or urea, acute kidney injury, renal failure, decreased glomerular filtration rate, tubulointerstitial nephritis, decreased creatinine clearance, glomerulonephritis, and nephritis) occurred in 6.3% of the patients including Grade 3 (1.1%), Grade 4 (0.2%), and Grade 5 (0.1%) nephritis. IMFINZI was discontinued in 0.3% of the 1889 patients.

Immune-Mediated Dermatologic Reactions

IMFINZI can cause immune-mediated rash. Bullous dermatitis and Stevens Johnson Syndrome (SJS)/toxic epidermal necrolysis (TEN) have occurred with other products in this class. Administer corticosteroids for Grade 2 rash or dermatitis lasting for more than 1 week or for Grade 3 or 4 rash or

dermatitis. Withhold IMFINZI for Grade 2 rash or dermatitis lasting longer than 1 week or Grade 3 rash or dermatitis; permanently discontinue IMFINZI in patients with Grade 4 rash or dermatitis.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, 26% of patients developed rash or dermatitis and 0.4% of the patients developed vitiligo. Rash or dermatitis led to discontinuation of IMFINZI in 0.1% of the 1889 patients.

Other Immune-Mediated Adverse Reactions

IMFINZI can cause severe and fatal immune-mediated adverse reactions. These immune-mediated reactions may involve any organ system. While immune-mediated reactions usually manifest during treatment with IMFINZI, immune-mediated adverse reactions can also manifest after discontinuation of IMFINZI. For suspected immune-mediated adverse reactions, exclude other causes and initiate corticosteroids as clinically indicated. Withhold IMFINZI for Grade 3 immune-mediated adverse reactions, unless clinical judgment indicates discontinuation; permanently discontinue IMFINZI for Grade 4 adverse reactions.

The following clinically significant, immune-mediated adverse reactions occurred at an incidence of less than 1% each in 1889 patients who received IMFINZI: aseptic meningitis, hemolytic anemia, immune thrombocytopenic purpura, myocarditis, myositis, and ocular inflammatory toxicity, including uveitis and keratitis. Additional clinically significant immune-mediated adverse reactions have been seen with other products in this class (see Warnings and Precautions Section 5.7 of IMFINZI full Prescribing Information).

Infection

IMFINZI can cause serious infections, including fatal cases. Monitor patients for signs and symptoms of infection and treat as clinically indicated. Withhold IMFINZI for Grade 3 or 4 infection, until clinically stable.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, infections occurred in 43% of patients, including Grade 3 (8%), Grade 4 (1.9%), and Grade 5 (1.0%). In patients with Stage III NSCLC in the PACIFIC study, the most common Grade 3 or higher infection was pneumonia, which occurred in 5% of patients.

Infusion-Related Reactions

IMFINZI can cause severe or life-threatening infusion-related reactions. Monitor patients for signs and symptoms of an infusion-related reaction. Interrupt or slow the rate of infusion for Grades 1–2 infusion-related reactions; permanently discontinue for Grades 3–4 infusion-related reactions.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI, infusion-related reactions occurred in 2.2% of patients, including Grade 3 (0.3%).

Embryo-Fetal Toxicity

Based on its mechanism of action and data from animal studies, IMFINZI can cause fetal harm when administered to a pregnant woman. There are no data on the use of IMFINZI in pregnant women. Advise pregnant women of the potential risk to a fetus and advise women of reproductive potential to use effective contraception during treatment and for at least 3 months after the last dose of IMFINZI.

Lactation

There is no information regarding the presence of IMFINZI in human milk; however, because of the potential for adverse reactions in breastfed infants from IMFINZI, advise women not to breastfeed during treatment and for at least 3 months after the last dose.

Most Common Adverse Reactions

- In patients with Stage III NSCLC in the PACIFIC study (IMFINZI n=475), the most common adverse reactions (≥20% of patients) were cough (40%), fatigue (34%), pneumonitis or radiation pneumonitis (34%), upper respiratory tract infections (26%), dyspnea (25%), and rash (23%). The most common Grade 3 or 4 adverse reaction (≥3%) was pneumonia (7%).
- In patients with Stage III NSCLC in the PACIFIC study (IMFINZI n=475), discontinuation due to adverse reactions occurred in 15% of patients in the IMFINZI arm. Serious adverse reactions occurred in 29% of patients receiving IMFINZI. The most frequent serious adverse reactions (≥2% of patients) were pneumonitis or radiation pneumonitis (7%) and pneumonia (6%). Fatal pneumonitis or radiation pneumonitis and fatal pneumonia occurred in <2% of patients and were similar across arms.

The safety and effectiveness of IMFINZI have not been established in pediatric patients.

Please see Brief Summary of complete Prescribing Information on adjacent pages.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.FDA.gov/medwatch or call 1-800-FDA-1088.

References: 1. IMFINZI® (durvalumab) [Prescribing Information]. Wilmington, DE: AstraZeneca Pharmaceuticals LP; 2018. **2.** Antonia SJ, Villegas A, Daniel D, et al. Overall survival with durvalumab after chemoradiotherapy in stage III NSCLC [published online ahead of print September 25, 2018]. *N Engl J Med.* 2018. http://dx.doi.org/10.1056/NEJMoa1809697. Accessed September 25, 2018. **3.** Antonia SJ, Villegas A, Daniel D, et al. Durvalumab after chemoradiotherapy in stage III non-small-cell lung cancer. *N Engl J Med.* 2017;377(20):1919-1929.

AstraZeneca

IMFINZI®
durvalumab
Injection for Intravenous Use 50 mg/mL

IMFINZI® (durvalumab) injection, for intravenous use

Brief Summary of Prescribing Information. For complete prescribing information consult official package insert.

INDICATIONS AND USAGE

Non-Small Cell Lung Cancer

IMFINZI is indicated for the treatment of patients with unresectable Stage III non-small cell lung cancer (NSCLC) whose disease has not progressed following concurrent platinum-based chemotherapy and radiation therapy.

DOSAGE AND ADMINISTRATION

Recommended Dosage for NSCLC

The recommended dose of IMFINZI is 10 mg/kg administered as an intravenous infusion over 60 minutes every 2 weeks until disease progression, unacceptable toxicity, or a maximum of 12 months.

Dosage Modifications for Adverse Reactions

No dose reductions are recommended. Withhold or discontinue IMFINZI to manage adverse reactions as described in Table 1.

Table 1. Recommended Dosage Modifications for Adverse Reactions

Adverse Reaction	Severity[1]	Dosage Modification
Pneumonitis *[see Warnings and Precautions (5.1)]*	Grade 2	Withhold dose until Grade 1 or resolved and corticosteroid dose is less than or equal to prednisone 10 mg per day (or equivalent).
	Grade 3 or 4	Permanently discontinue
Hepatitis *[see Warnings and Precautions (5.2)]*	For ALT or AST greater than 3 but less than or equal to 8 times the ULN or Total bilirubin greater than 1.5 but less than or equal to 5 times the ULN	Withhold dose until Grade 1 or resolved and corticosteroid dose is less than or equal to prednisone 10 mg per day (or equivalent).
	ALT or AST greater than 8 times the ULN or total bilirubin greater than 5 times the ULN or Concurrent ALT or AST greater than 3 times the ULN and total bilirubin greater than 2 times the ULN with no other cause	Permanently discontinue
Colitis or diarrhea *[see Warnings and Precautions (5.3)]*	Grade 2	Withhold dose until Grade 1 or resolved and corticosteroid dose is less than or equal to prednisone 10 mg per day (or equivalent).
	Grade 3 or 4	Permanently discontinue
Hyperthyroidism *[see Warnings and Precautions (5.4)]*	Grade 2-4	Withhold dose until clinically stable
Adrenal insufficiency or Hypophysitis/ Hypopituitarism *[see Warnings and Precautions (5.4)]*	Grade 2-4	Withhold dose until clinically stable
Type 1 Diabetes Mellitus *[see Warnings and Precautions (5.4)]*	Grade 2-4	Withhold dose until clinically stable
Nephritis *[see Warnings and Precautions (5.5)]*	For Creatinine greater than 1.5 to 3 times the ULN	Withhold dose until Grade 1 or resolved and corticosteroid dose is less than or equal to prednisone 10 mg per day (or equivalent).
	For Creatinine greater than 3 times the ULN	Permanently discontinue
Rash or dermatitis *[see Warnings and Precautions (5.6)]*	Grade 2 for longer than 1 week or Grade 3	Withhold dose until Grade 1 or resolved and corticosteroid dose is less than or equal to prednisone 10 mg per day (or equivalent).
	Grade 4	Permanently discontinue
Infection *[see Warnings and Precautions (5.8)]*	Grade 3 or 4	Withhold dose until clinically stable
Infusion-related reactions *[see Warnings and Precautions (5.9)]*	Grade 1 or 2	Interrupt or slow the rate of infusion
	Grade 3 or 4	Permanently discontinue
Other immune-mediated adverse reactions *[see Warnings and Precautions (5.7)]*	Grade 3	Withhold dose until Grade 1 or resolved and corticosteroid dose is less than or equal to prednisone 10 mg per day (or equivalent).
	Grade 4	Permanently discontinue
Persistent Grade 2 or 3 adverse reaction (excluding endocrinopathies)	Grade 2 or 3 adverse reaction that does not recover to Grade 0 or 1 within 12 weeks after last IMFINZI dose	Permanently discontinue
Inability to taper corticosteroid	Inability to reduce to less than or equal to prednisone 10 mg per day (or equivalent) within 12 weeks after the last IMFINZI dose	Permanently discontinue
Recurrent Grade 3 or 4 adverse reaction	Recurrent Grade 3 or 4 (severe or life-threatening) adverse reaction	Permanently discontinue

1 National Cancer Institute Common Terminology Criteria for Adverse Events, version 4.03.
ALT: alanine aminotransferase; AST: aspartate aminotransferase; ULN: upper limit of normal.

Preparation and Administration

Preparation

- Visually inspect drug product for particulate matter and discoloration prior to administration, whenever solution and container permit. Discard the vial if the solution is cloudy, discolored, or visible particles are observed.
- Do not shake the vial.
- Withdraw the required volume from the vial(s) of IMFINZI and transfer into an intravenous bag containing 0.9% Sodium Chloride Injection, USP or 5% Dextrose Injection, USP. Mix diluted solution by gentle inversion. Do not shake the solution. The final concentration of the diluted solution should be between 1 mg/mL and 15 mg/mL.
- Discard partially used or empty vials of IMFINZI.

Storage of Infusion Solution

- IMFINZI does not contain a preservative.
- Administer infusion solution immediately once prepared. If infusion solution is not administered immediately and needs to be stored, the total time from vial puncture to the start of the administration should not exceed:
  - 24 hours in a refrigerator at 2°C to 8°C (36°F to 46°F)
  - 4 hours at room temperature up to 25°C (77°F)
- Do not freeze.
- Do not shake.

Administration

- Administer infusion solution intravenously over 60 minutes through an intravenous line containing a sterile, low-protein binding 0.2 or 0.22 micron in-line filter.
- Do not co-administer other drugs through the same infusion line.

CONTRAINDICATIONS

None.

WARNINGS AND PRECAUTIONS

Immune-Mediated Pneumonitis

IMFINZI can cause immune-mediated pneumonitis, defined as requiring use of corticosteroids. Fatal cases have been reported.

Monitor patients for signs and symptoms of pneumonitis. Evaluate patients with suspected pneumonitis with radiographic imaging. Administer corticosteroids, prednisone 1 to 2 mg per kg per day or equivalent for moderate (Grade 2) pneumonitis or prednisone 1 to 4 mg per kg per day or equivalent for more severe (Grade 3-4) pneumonitis, followed by taper. Interrupt or permanently discontinue IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI *[see Adverse Reactions (6.1) in the full Prescribing Information]*, pneumonitis occurred in 5% of patients, including Grade 3 (0.8%), Grade 4 (< 0.1%) and Grade 5 (0.3%) immune-mediated pneumonitis. The median time to onset was 1.8 months (range: 1 day to 13.9 months) and the median time to resolution was 4.9 months (range: 0 days to 13.7 months).

Pneumonitis led to discontinuation of IMFINZI in 1.5% of the 1889 patients. Pneumonitis resolved in 54% of patients. Systemic corticosteroids were required in 3.5% of the 1889 patients, with 2.5% requiring high-dose corticosteroids (prednisone ≥ 40 mg per day or equivalent) and 0.1% requiring infliximab.

The incidence of pneumonitis (including radiation pneumonitis) was higher in patients in the PACIFIC study who completed treatment with definitive chemoradiation within 42 days prior to initiation of IMFINZI (34%) compared to patients in other clinical studies (2.3%) in which radiation therapy was generally not administered immediately prior to initiation of IMFINZI.

In the PACIFIC study, the incidence of Grade 3 pneumonitis was 3.4% and the incidence of Grade 5 pneumonitis was 1.1% in the IMFINZI arm. The median time to onset of pneumonitis was 1.8 months and the median duration was 2.1 months (range: 3 days to 18.7 months). Pneumonitis led to discontinuation of IMFINZI in 6% of patients. Pneumonitis resolved in 47% of patients experiencing pneumonitis. Systemic corticosteroids were required in 21% of patients, with 12% requiring high-dose corticosteroids and 0.1% requiring infliximab.

Immune-Mediated Hepatitis

IMFINZI can cause immune-mediated hepatitis, defined as requiring use of corticosteroids. Fatal cases have been reported.

Monitor patients for signs and symptoms of hepatitis, during and after discontinuation of IMFINZI, including clinical chemistry monitoring. Administer corticosteroids, prednisone 1 to 2 mg per kg per day or equivalent, followed by taper for Grade 2 or higher elevations of ALT, AST, and/or total bilirubin. Interrupt or permanently discontinue IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI *[see Adverse Reactions (6.1) in the full Prescribing Information]*, hepatitis occurred in 12% of patients, including Grade 3 (4.4%), Grade 4 (0.4%) and Grade 5 (0.2%) immune-mediated hepatitis. The median time to onset was 1.2 months (range: 1 day to 13.6 months). Hepatitis led to discontinuation of IMFINZI in 0.7% of the 1889 patients. Hepatitis resolved in 49% of patients. Systemic corticosteroids were required in 2.7% of patients, with 1.7% requiring high-dose corticosteroids and 0.1% requiring mycophenolate.

Immune-Mediated Colitis

IMFINZI can cause immune-mediated colitis, defined as requiring use of corticosteroids.

Monitor patients for signs and symptoms of diarrhea or colitis. Administer corticosteroids, prednisone 1 to 2 mg per kg per day or equivalent, for moderate (Grade 2) or more severe (Grade 3-4) colitis, followed by taper. Interrupt or permanently discontinue IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI *[see Adverse Reactions (6.1) in the full Prescribing Information]*, diarrhea or colitis occurred in 18% of patients, including Grade 3 (1%) and Grade 4 (0.1%) immune-mediated colitis. The median time to onset was 1.4 months (range: 1 day to 14 months). Diarrhea or colitis lead to discontinuation of IMFINZI in 0.4% of the 1889 patients. Diarrhea or colitis resolved in 78% of the patients. Systemic corticosteroids were required in 1.9% of patients, with 1% requiring high-dose corticosteroids and 0.1% requiring other immunosuppressants (e.g., infliximab, mycophenolate).

Immune-Mediated Endocrinopathies

IMFINZI can cause immune-mediated endocrinopathies, including thyroid disorders, adrenal insufficiency, type 1 diabetes mellitus and hypophysitis/hypopituitarism.

Thyroid Disorders: Monitor thyroid function prior to and periodically during treatment with IMFINZI. Initiate hormone replacement therapy or medical management of hyperthyroidism as clinically indicated. Continue IMFINZI for hypothyroidism and interrupt for hyperthyroidism based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients who received IMFINZI *[see Adverse Reactions (6.1) in the full Prescribing Information]*, hypothyroidism occurred in 11% of patients and hyperthyroidism occurred in 7% of patients. Thyroiditis occurred in 0.9% of patients, including Grade 3 (< 0.1%) thyroiditis. Hypothyroidism was preceded by thyroiditis or hyperthyroidism in 25% of patients.

Adrenal Insufficiency: Monitor patients for clinical signs and symptoms of adrenal insufficiency. For Grade 2 or higher adrenal insufficiency, initiate prednisone 1 to 2 mg per kg per day or equivalent, followed by corticosteroid taper and hormone replacement as clinically indicated. Interrupt IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients who received IMFINZI, adrenal insufficiency occurred in 0.7% of patients, including Grade 3 (< 0.1%) adrenal insufficiency. Systemic corticosteroids were required in 0.4% of patients, including 0.1% of patients who required high-dose corticosteroids.

Type 1 Diabetes Mellitus: Monitor patients for hyperglycemia or other signs and symptoms of diabetes. Initiate treatment with insulin as clinically indicated. Interrupt IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients who received IMFINZI, type 1 diabetes mellitus occurred in < 0.1 % of patients. The median time to onset was 1.4 months.

Hypophysitis: For Grade 2 or higher hypophysitis, initiate prednisone 1 to 2 mg per kg per day or equivalent, followed by corticosteroid taper and hormone replacement therapy as clinically indicated. Interrupt IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

Hypopituitarism leading to adrenal insufficiency and diabetes insipidus occurred in < 0.1% of 1889 patients who received IMFINZI in clinical studies.

Immune-Mediated Nephritis

IMFINZI can cause immune-mediated nephritis defined as evidence of renal dysfunction, requirement for corticosteroids. Fatal cases have occurred.

Monitor patients for abnormal renal function tests prior to and periodically during treatment with IMFINZI. Initiate prednisone 1 to 2 mg per kg per day or equivalent, for moderate (Grade 2) or severe (Grade 3-4) nephritis, followed by taper. Interrupt or permanently discontinue IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI *[see Adverse Reactions (6.1) in the full Prescribing Information]*, nephritis (reported as any of the following increased creatinine or urea, acute kidney injury, renal failure, decreased glomerular filtration rate, tubulointerstitial nephritis, decreased creatinine clearance, glomerulonephritis, and nephritis) occurred in 6.3% of patients including Grade 3 (1.1%), Grade 4 (0.2%) and Grade 5 (0.1%) immune-mediated nephritis. The median time to onset was 2 months (range: 1 day to 14.2 months). IMFINZI was discontinued in 0.3% of the 1889 patients. Nephritis resolved in 50% of patients. Systemic corticosteroids were required in 0.6% of patients, with 0.4% receiving high-dose corticosteroids.

Immune-Mediated Dermatologic Reactions

IMFINZI can cause immune-mediated rash; bullous dermatitis, Stevens Johnson Syndrome (SJS)/toxic epidermal necrolysis (TEN) have occurred with other products in this class *[see* Warnings and Precautions (5.7)*]*.

Monitor for signs and symptoms of rash. Initiate prednisone 1 to 2 mg per kg per day or equivalent, for moderate (Grade 2) rash or dermatitis lasting for more than 1 week or severe (Grade 3-4) rash or dermatitis followed by taper. Interrupt or permanently discontinue IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI *[see Adverse Reactions (6.1) in the full Prescribing Information]*, 26% of patients developed rash or dermatitis and 0.4% of the patients developed vitiligo. Rash or dermatitis led to discontinuation of IMFINZI in 0.1% of the 1889 patients. Rash resolved in 62% of patients. Systemic corticosteroids were required in 2.0% of patients, including high-dose corticosteroids in 1% of patients.

Other Immune-Mediated Adverse Reactions

IMFINZI can cause severe and fatal immune-mediated adverse reactions. These immune-mediated reactions may involve any organ system. While immune-mediated reactions usually manifest during treatment with IMFINZI, immune-mediated adverse reactions can also manifest after discontinuation of IMFINZI.

For suspected Grade 2 immune-mediated adverse reactions, exclude other causes and initiate cortico-steroids as clinically indicated. For severe (Grade 3 or 4) adverse reactions, administer corticosteroids, prednisone 1 to 4 mg per kg per day or equivalent, followed by taper. Interrupt or permanently discontinue IMFINZI, based on the severity of the reaction *[see Dosage and Administration (2.3) in the full Prescribing Information]*. If uveitis occurs in combination with other immune-mediated adverse reactions, evaluate for Vogt-Koyanagi-Harada syndrome, which has been observed with other products in this class and may require treatment with systemic steroids to reduce the risk of permanent vision loss.

The following clinically significant, immune-mediated adverse reactions occurred at an incidence of less than 1% each in 1889 patients who received IMFINZI: aseptic meningitis, hemolytic anemia, immune thrombocytopenic purpura, myocarditis, myositis, and ocular inflammatory toxicity, including uveitis and keratitis *[see Adverse Reactions (6.1) in the full Prescribing Information]*. The following clinically significant, immune-mediated adverse reactions have been reported with other products in this class: bullous dermatitis, Stevens Johnson Syndrome (SJS)/toxic epidermal necrolysis (TEN), pancreatitis, systemic inflammatory response syndrome, rhabdomyolysis, myasthenia gravis, histiocytic necrotizing lymphadenitis, demyelination, vasculitis, hemolytic anemia, iritis, encephalitis, facial and abducens nerve paresis, demyelination, polymyalgia rheumatica, autoimmune neuropathy, Guillain-Barré syndrome and Vogt-Koyanagi-Harada syndrome.

Infection

IMFINZI can cause serious infections, including fatal cases.

Monitor patients for signs and symptoms of infection. For Grade 3 or higher infections, withhold IMFINZI and resume once clinically stable *[see Dosage and Administration (2.3) in the full Prescribing Information]*.

In clinical studies enrolling 1889 patients with various cancers who received IMFINZI *[see Adverse Reactions (6.1) in the full Prescribing Information]*, infections occurred in 43% of patients, including Grade 3 (8%), Grade 4 (1.9%), and Grade 5 (1.0%). In the PACIFIC study the most common Grade 3 or higher infection was pneumonia, which occurred in 5% of patients. The overall incidence of infections in IMFINZI-treated patients (56%) in the PACIFIC study was higher compared to patients in other studies (38%) in which radiation therapy was generally not administered immediately prior to initiation of IMFINZI.

Infusion-Related Reactions

IMFINZI can cause severe or life-threatening infusion-related reactions.

Monitor for signs and symptoms of infusion-related reactions. Interrupt, slow the rate of, or permanently discontinue IMFINZI based on the severity *[see Dosage and Administration (2.3) in the full Prescribing Information]*. For Grade 1 or 2 infusion-related reactions, consider using pre-medications with subsequent doses.

In clinical studies enrolling 1889 patients with various cancers *[see Adverse Reactions (6.1) in the full Prescribing Information]*, infusion-related reactions occurred in 2.2% of patients, including Grade 3 (0.3%).

Embryo-Fetal Toxicity

Based on its mechanism of action and data from animal studies, IMFINZI can cause fetal harm when administered to a pregnant woman. In animal reproduction studies, administration of durvalumab to cynomolgus monkeys from the onset of organogenesis through delivery resulted in increased premature delivery, fetal loss and premature neonatal death. Advise pregnant women of the potential risk to a fetus. Advise females of reproductive potential to use effective contraception during treatment with IMFINZI and for at least 3 months after the last dose of IMFINZI *[see Use in Specific Populations (8.1, 8.3) in the full Prescribing Information]*.

ADVERSE REACTIONS

The following adverse reactions are discussed in greater detail in other sections of the labeling.

- Immune-Mediated Pneumonitis *[see Warnings and Precautions (5.1) in the full Prescribing Information]*.
- Immune-Mediated Hepatitis *[see Warnings and Precautions (5.2) in the full Prescribing Information]*.
- Immune-Mediated Colitis *[see Warnings and Precautions (5.3) in the full Prescribing Information]*.
- Immune-Mediated Endocrinopathies *[see Warnings and Precautions (5.4) in the full Prescribing Information]*.
- Immune-Mediated Nephritis *[see Warnings and Precautions (5.5) in the full Prescribing Information]*.
- Immune-Mediated Dermatologic Reactions *[see Warnings and Precautions (5.6) in the full Prescribing Information]*.
- Other Immune-Mediated Adverse Reactions *[see Warnings and Precautions (5.7) in the full Prescribing Information]*.
- Infection *[see Warnings and Precautions (5.8) in the full Prescribing Information]*.
- Infusion-Related Reactions *[see Warnings and Precautions (5.9) in the full Prescribing Information]*.

Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

The data described in the Warnings and Precautions section reflect exposure to IMFINZI in 1889 patients from the PACIFIC study (a randomized, placebo-controlled study that enrolled 475 patients with Stage III NSCLC), Study 1108 (an open-label, single-arm, multicohort study that enrolled 191 patients with urothelial carcinoma and 779 patients with various other solid tumors), and an additional open-label, single-arm trial that enrolled 444 patients with metastatic lung cancer, an indication for which durvalumab is not approved. Across all studies, IMFINZI was administered at a dose of 10 mg/kg intravenously every 2 weeks. Among the 1889 patients, 38% were exposed for 6 months or more and 18% were exposed for 12 months or more.

The data described in this section reflect exposure to IMFINZI in patients with Stage III NSCLC enrolled in the PACIFIC study.

Non-Small Cell Lung Cancer

The safety of IMFINZI in patients with Stage III NSCLC who completed concurrent platinum-based chemoradiotherapy within 42 days prior to initiation of study drug was evaluated in the PACIFIC study, a multicenter, randomized, double-blind, placebo-controlled study. A total of 475 patients received IMFINZI 10 mg/kg intravenously every 2 weeks. The study excluded patients who had disease progression following chemoradiation, with active or prior autoimmune disease within 2 years of initiation of the study or with medical conditions that required systemic immunosuppression *[see Clinical Studies (14.2) in the full Prescribing Information]*.

The study population characteristics were: median age of 64 years (range: 23 to 90), 45% age 65 years or older, 70% male, 69% White, 27% Asian, 75% former smoker, 16% current smoker, and 51% had WHO performance status of 1. All patients received definitive radiotherapy as per protocol, of which 92% received a total radiation dose of 54 Gy to 66 Gy. The median duration of exposure to IMFINZI was 10 months (range: 0.2 to 12.6).

IMFINZI was discontinued due to adverse reactions in 15% of patients. The most common adverse reactions leading to IMFINZI discontinuation were pneumonitis or radiation pneumonitis in 6% of patients. Serious adverse reactions occurred in 29% of patients receiving IMFINZI. The most frequent serious adverse reactions reported in at least 2% of patients were pneumonitis or radiation pneumonitis (7%) and pneumonia (6%). Fatal pneumonitis or radiation pneumonitis and fatal pneumonia occurred in < 2% of patients and were similar across arms. The most common adverse reactions (occurring in ≥ 20% of patients) were cough, fatigue, pneumonitis or radiation pneumonitis, upper respiratory tract infections, dyspnea and rash.

Table 4 summarizes the adverse reactions that occurred in at least 10% of patients treated with IMFINZI.

Table 4. Adverse Reactions Occurring in ≥ 10% Patients in the PACIFIC Study

	IMFINZI N=475		Placebo[1] N=234	
Adverse Reaction	All Grades (%)	Grades 3-4 (%)	All Grades (%)	Grades 3-4 (%)
Respiratory, Thoracic and Mediastinal Disorders				
Cough/Productive Cough	40	0.6	30	0.4
Pneumonitis[2]/Radiation Pneumonitis	34	3.4	25	3.0
Dyspnea[3]	25	1.5	25	2.6
Gastrointestinal Disorders				
Diarrhea	18	0.6	19	1.3
Abdominal pain[4]	10	0.4	6	0.4
Endocrine Disorders				
Hypothyroidism[5]	12	0.2	1.7	0
Skin and Subcutaneous Tissue Disorders				
Rash[6]	23	0.6	12	0
Pruritus[7]	12	0	6	0
General Disorders				
Fatigue[8]	34	0.8	32	1.3
Pyrexia	15	0.2	9	0
Infections				
Upper respiratory tract infections[9]	26	0.4	19	0
Pneumonia[10]	17	7	12	6

1 The PACIFIC study was not designed to demonstrate statistically significant difference in adverse reaction rates for IMFINZI, as compared to placebo, for any specific adverse reaction listed in Table 4
2 includes acute interstitial pneumonitis, interstitial lung disease, pneumonitis, pulmonary fibrosis
3 includes dyspnea and exertional dyspnea
4 includes abdominal pain, abdominal pain lower, abdominal pain upper, and flank pain
5 includes autoimmune hypothyroidism and hypothyroidism
6 includes rash erythematous, rash generalized, rash macular, rash maculopapular, rash papular, rash pruritic, rash pustular, erythema, eczema, rash and dermatitis
7 includes pruritus generalized and pruritus
8 includes asthenia and fatigue
9 includes laryngitis, nasopharyngitis, peritonsillar abscess, pharyngitis, rhinitis, sinusitis, tonsillitis, tracheobronchitis, and upper respiratory tract infection
10 includes lung infection, pneumocystis jirovecii pneumonia, pneumonia, pneumonia adenoviral, pneumonia bacterial, pneumonia cytomegaloviral, pneumonia haemophilus, pneumonia klebsiella, pneumonia necrotising, pneumonia pneumococcal, and pneumonia streptococcal

Other adverse reactions occurring in less than 10% of patients treated with IMFINZI were dysphonia, dysuria, night sweats, peripheral edema, and increased susceptibility to infections.

Table 5 summarizes the laboratory abnormalities that occurred in at least 20% of patients treated with IMFINZI.

Table 5. Laboratory Abnormalities Worsening From Baseline Occurring in ≥ 20% of Patients in the PACIFIC Study

	IMFINZI		Placebo	
Laboratory Abnormality	**All Grades[1] (%)[2]**	**Grade 3 or 4 (%)**	**All Grades[1] (%)[2]**	**Grade 3 or 4 (%)**
Chemistry				
Hyperglycemia	52	8	51	8
Hypocalcemia	46	0.2	41	0
Increased ALT	39	2.3	22	0.4
Increased AST	36	2.8	21	0.4
Hyponatremia	33	3.6	30	3.1
Hyperkalemia	32	1.1	29	1.8
Increased GGT	24	3.4	22	1.7
Hematology				
Lymphopenia	43	17	39	18

1 Graded according to NCI CTCAE version 4.0
2 Each test incidence is based on the number of patients who had both baseline and at least one on-study laboratory measurement available: IMFINZI (range: 464 to 470) and placebo (range: 224 to 228)

Immunogenicity

As with all therapeutic proteins, there is a potential for immunogenicity. The detection of antibody formation is highly dependent on the sensitivity and specificity of the assay. Additionally, the observed incidence of antibody (including neutralizing antibody) positivity in an assay may be influenced by several factors including assay methodology, sample handling, timing of sample collection, concomitant medications, and underlying disease. For these reasons, comparison of the incidence of antibodies to durvalumab to the incidence of antibodies to other products may be misleading.

Due to the limitations in assay performance, the incidence of antibody development in patients receiving IMFINZI may be underestimated. Of 1570 patients who were treated with IMFINZI 10 mg/kg every 2 weeks and evaluable for the presence of anti-drug antibodies (ADAs), 45 (2.9%) patients tested positive for treatment-emergent ADAs. The development of treatment-emergent ADA against durvalumab appears to have no clinically relevant effect on its pharmacokinetic profile. There are insufficient numbers of patients with ADA to determine whether ADA alters the safety or efficacy of durvalumab.

USE IN SPECIFIC POPULATIONS

Pregnancy

Risk summary

Based on its mechanism of action and data from animal studies, IMFINZI can cause fetal harm when administered to a pregnant woman *[see Clinical Pharmacology (12.1) in the full Prescribing Information]*. There are no data on the use of IMFINZI in pregnant women.

In animal reproduction studies, administration of durvalumab to pregnant cynomolgus monkeys from the confirmation of pregnancy through delivery resulted in an increase in premature delivery, fetal loss and premature neonatal death *(see Data)*. Human immunoglobulin G1 (IgG1) is known to cross the placental barrier; therefore, durvalumab has the potential to be transmitted from the mother to the developing fetus. Apprise pregnant women of the potential risk to a fetus.

In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2-4% and 15-20%, respectively.

Data

Animal Data

As reported in the literature, the PD-1/PD-L1 pathway plays a central role in preserving pregnancy by maintaining maternal immune tolerance to the fetus. In mouse allogeneic pregnancy models, disruption of PD-L1 signaling was shown to result in an increase in fetal loss. The effects of durvalumab on prenatal and postnatal development were evaluated in reproduction studies in cynomolgus monkeys. Durvalumab was administered from the confirmation of pregnancy through delivery at exposure levels approximately 6 to 20 times higher than those observed at the recommended clinical dose of 10 mg/kg (based on AUC). Administration of durvalumab resulted in premature delivery, fetal loss (abortion and stillbirth) and increase in neonatal deaths. Durvalumab was detected in infant serum on postpartum Day 1, indicating the presence of placental transfer of durvalumab. Based on its mechanism of action, fetal exposure to durvalumab may increase the risk of developing immune-mediated disorders or altering the normal immune response and immune-mediated disorders have been reported in PD-1 knockout mice.

Lactation

Risk Summary

There is no information regarding the presence of durvalumab in human milk, the effects on the breastfed infant, or the effects on milk production. Human IgG1 is excreted in human milk. Durvalumab was present in the milk of lactating cynomolgus monkeys and was associated with premature neonatal death *(see Data)*.

Because of the potential for adverse reactions in breastfed infants, advise women not to breastfeed during treatment with IMFINZI and for at least 3 months after the last dose.

Data

In lactating cynomolgus monkeys, durvalumab was present in breast milk at about 0.15% of maternal serum concentrations after administration of durvalumab from the confirmation of pregnancy through delivery at exposure levels approximately 6 to 20 times higher than those observed at the recommended clinical dose of 10 mg/kg (based on AUC). Administration of durvalumab resulted in premature neonatal death.

Females and Males of Reproductive Potential

Contraception

Females

Based on its mechanism of action and data from animal studies, IMFINZI can cause fetal harm when administered to a pregnant woman *[see Use in Specific Populations (8.1) in the full Prescribing Information]*. Advise females of reproductive potential to use effective contraception during treatment with IMFINZI and for at least 3 months following the last dose of IMFINZI.

Pediatric Use

The safety and effectiveness of IMFINZI have not been established in pediatric patients.

Geriatric Use

Of the 476 patients treated with IMFINZI in the PACIFIC study, 45% were 65 years or older, while 7.6% were 75 years or older. No overall differences in safety or effectiveness were observed between patients 65 years or older and younger patients. The PACIFIC study did not include sufficient numbers of patients aged 75 years and over to determine whether they respond differently from younger patients.

OVERDOSAGE

There is no information on overdose with IMFINZI.

PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Medication Guide).

Inform patients of the risk of immune-mediated adverse reactions that may require corticosteroid treatment and interruption or discontinuation of IMFINZI, including:

- Pneumonitis: Advise patients to contact their healthcare provider immediately for any new or worsening cough, chest pain, or shortness of breath *[see Warnings and Precautions (5.1) in the full Prescribing Information]*.
- Hepatitis: Advise patients to contact their healthcare provider immediately for jaundice, severe nausea or vomiting, pain on the right side of abdomen, lethargy, or easy bruising or bleeding *[see Warnings and Precautions (5.2) in the full Prescribing Information]*.
- Colitis: Advise patients to contact their healthcare provider immediately for diarrhea, blood or mucus in stools, or severe abdominal pain *[see Warnings and Precautions (5.3) in the full Prescribing Information]*.
- Endocrinopathies: Advise patients to contact their healthcare provider immediately for signs or symptoms of hypothyroidism, hyperthyroidism, adrenal insufficiency, type 1 diabetes mellitus, or hypophysitis *[see Warnings and Precautions (5.4) in the full Prescribing Information]*.
- Nephritis: Advise patients to contact their healthcare provider immediately for signs or symptoms of nephritis *[see Warnings and Precautions (5.5) in the full Prescribing Information]*.
- Dermatological Reactions: Advise patients to contact their healthcare provider immediately signs or symptoms of severe dermatological reactions *[see Warnings and Precautions (5.6) in the full Prescribing Information]*.
- Other Immune-Mediated Adverse Reactions: Advise patients to contact their healthcare provider immediately for signs or symptoms of aseptic meningitis, thrombocytopenic purpura, myocarditis, hemolytic anemia, myositis, uveitis and keratitis *[see Warnings and Precautions (5.7) in the full Prescribing Information]*.
- Infection: Advise patients to contact their healthcare provider immediately for infection *[see Warnings and Precautions (5.8) in the full Prescribing Information]*.
- Infusion-Related Reactions: Advise patients to contact their healthcare provider immediately for signs or symptoms of infusion-related reactions *[see Warnings and Precautions (5.9) in the full Prescribing Information]*.
- Embryo-Fetal Toxicity: Advise females of reproductive potential that IMFINZI can cause harm to a fetus and to inform their healthcare provider of a known or suspected pregnancy *[see Warnings and Precautions (5.10) and Use in Specific Populations (8.1, 8.3) in the full Prescribing Information]*.
  Advise females of reproductive potential to use effective contraception during treatment and for at least 3 months after the last dose of IMFINZI *[see Use in Specific Populations (8.3) in the full Prescribing Information]*.
- Lactation: Advise female patients not to breastfeed while taking IMFINZI and for at least 3 months after the last dose *[see Warnings and Precautions (5.10) and Use in Specific Populations (8.2) in the full Prescribing Information]*.

Manufactured for: AstraZeneca Pharmaceuticals LP, Wilmington, DE 19850

By: AstraZeneca UK Limited, 1 Francis Crick Ave., Cambridge, England CB2 0AA
US License No. 2043

Issued: 02/18 US-13054 3/18

New ASTRO/ASCO/AUA guideline for early-stage prostate cancer supports use of shortened courses of radiation therapy

ASTRO, the American Society of Clinical Oncology (ASCO) and the American Urological Association (AUA) recently issued a new clinical guideline for physicians treating men with early-stage prostate cancer using external beam radiation therapy (EBRT).

Developed by a panel of experts from the three medical societies, the new guideline recommends offering patients hypofractionated radiation therapy as an alternative to conventional courses of radiation. The guideline was published in *Practical Radiation Oncology*.

The recommendations apply to patients who require or prefer treatment instead of surveillance and have opted for EBRT instead of radical prostatectomy, brachytherapy or other treatment options for localized prostate cancer. Key recommendations include:

- For men who have opted for EBRT, moderate hypofractionation (fraction size of 240-340 centigray (cGy)) should be offered as an alternative to conventional fractionation (180-200 cGy) regardless of cancer risk group, patient age, comorbidity, anatomy or baseline urinary function.
- Suggested regimens for moderate hypofractionation include the two schedules used with the largest number of patients in randomized clinical trials: 6,000 cGy delivered in 20 fractions of 300 cGy over four weeks, or 7,000 cGy delivered in 28 fractions of 250 cGy over five and a half weeks.
- While moderately hypofractionated EBRT confers similar early cancer control and side effects to conventional fractionation, physicians should counsel patients about a small increased risk of short-term gastrointestinal toxicity and discuss how data are limited for oncologic outcomes beyond five years post-treatment.
- Ultrahypofractionation (≥500 cGy) guidance varies by prostate-cancer risk: for low-risk patients who have opted for EBRT, it may be offered as an alternative to conventional fractionation; for intermediate-risk disease, it may be offered, but the expert panel strongly encourages treating these patients as part of a clinical trial or multi-institutional registry; for high-risk disease, the panel does not suggest offering ultrahypofractionation outside of a trial or registry. Recommendations for ultrahypofractionation were graded by the panel as "conditional," reflecting the limited base of current evidence on this approach.
- Suggested regimens for ultrahypofractionation include the two schedules used most commonly in published studies: 3,500 cGy in five fractions of 700 cGy, or 3,625 cGy in five fractions of 725 cGy. For five-fraction regimens, the expert panel recommends against total radiation doses larger than 3,625 cGy outside of clinical trials or registries. Consecutive daily treatments also should be avoided when using five fractions.

The guideline has been endorsed by the Society of Urologic Oncology (SUO), the European Society for Radiotherapy and Oncology (ESTRO) and the Royal Australian and New Zealand College of Radiologists (RANZCR).

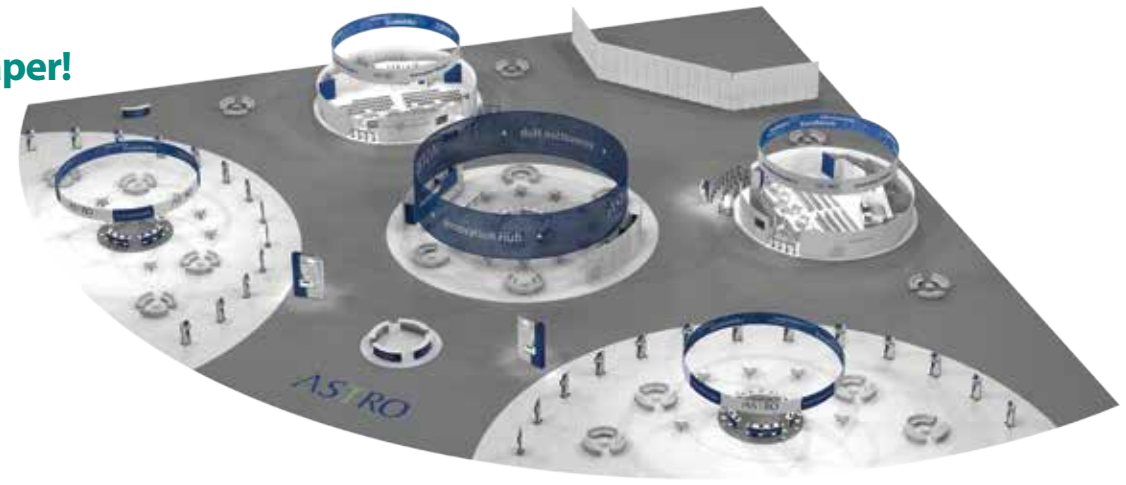
View "Hypofractionated Radiation Therapy for Localized Prostate Cancer: An ASTRO, ASCO, and AUA Evidence-Based Guideline" in *PRO* at https://doi.org/10.1016/j.prro.2018.08.002.

Also, be sure to listen to the podcast by Howard Sandler, MD, MS, FASTRO, and Scott Morgan, MD, MSc, as they discuss guideline highlights.

Exciting new features in the Innovation and Solution Showcase at ASTRO 2018

Exhibit Hall is open Sunday through Tuesday, 10:00 a.m. to 5:00 p.m.

All electronic posters. No more paper!



Improved visibility of posters.

More opportunities for networking!

On demand viewing.

Be sure to plan time in your Annual Meeting schedule to visit ASTRO's Innovation and Solution Showcase (Exhibit Hall). Located in Halls 1-4 of the Henry B. González Convention Center, more than 200 companies will feature the latest technology, products and services in cancer treatment during this three-day exhibition.

We are debuting an exciting new area in the Innovation and Solution Showcase at this year's Annual Meeting. The Innovation Hub features the new ALL-DIGITAL posters, the popular Industry-Expert Theaters and a central lounge area offering attendees a place to share knowledge, learn about the latest research in the field and network with colleagues.

Industry-Expert Theaters

The popular Industry-Expert Theaters are now part of the Innovation Hub. Explore relevant topics with ASTRO's industry partners in one of the Industry-Expert Theaters. Seating is available on a first-come, first-served basis. For a schedule of Industry-Expert Theater times, see page 22.

The Industry-Expert Theater content and views expressed therein are those of the exhibitor and not of ASTRO. Lunch or refreshments may be provided by Industry-Expert Theater companies, which may subject you to reporting under the Federal Sunshine Act or other state laws.

Digital Posters and Poster Viewing Q&A Sessions

NEW this year, no more paper posters! All posters are displayed digitally on large touch-screens in the Innovation and Solution Showcase. Posters will be grouped by disease site, and poster authors will present a brief overview of their poster in a timed, fast-paced format during the Poster Viewing Q&A Sessions. View the schedule of Poster Viewing Q&A Sessions on MyASTROApp, the official meeting app, or the Schedule at a Glance on pages 3-4. In addition, you may view any poster at your convenience at Poster On Demand stations located in the Innovation Hub, which is open 10:00 a.m. to 5:00 p.m., Sunday through Tuesday.

Meet the Editors

For the first time at the Annual Meeting, stop by the Innovation Hub to connect with editors of all three of ASTRO's journals! Anthony Zietman, MD, FASTRO, Sue Yom, MD, PhD, W. Robert Lee, MD, MS, MEd, and Robert C. Miller, MD, MBA, FASTRO, will be available to answer questions and share insights about journal scope, the review process, groundbreaking research and more. Learn more about ASTRO's three journals, *International Journal of Radiation Oncology • Biology • Physics*, *Practical Radiation Oncology* and *Advances in Radiation Oncology*. See the following page for the Meet the Editors schedule.

Book Signing

Authors of the book *Stereotactic Radiosurgery and Stereotactic Body Radiation Therapy (SBRT)* will be on hand Monday, October 22, 10:30 a.m. - 11:00 a.m. to sign copies of their book. Bring your copy or purchase a copy during the book signing. The book signing will take place in the Innovation Hub.

BACK THIS YEAR ARE THE ASTRO CONNECT BOOTHS WITH A SPECIALTY FOCUS. These booths provide a comfortable spot for networking with colleagues with similar interests and a place to recharge electronic devices and check email. Top posters in each disease site are on display electronically, with experts available during designated times to answer your questions. ASTRO thanks the following sponsors for their support: UPMC (Breast ASTRO Connect); Novocure (Central Nervous System ASTRO Connect); and CIVCO Radiotherapy (Head and Neck ASTRO Connect). Below is the schedule of Meet the Experts sessions:

MEET THE EXPERT SCHEDULE

Breast – Booth #423		
Sunday, October 21	10:45 a.m. – 11:30 a.m.	**Abram Recht, MD, FASTRO**
	1:45 p.m. – 2:30 p.m.	**Julia White, MD, FASTRO**
	4:15 p.m. – 5:00 p.m.	**Jennifer Bellon, MD, FASTRO**
Monday, October 22	11:15 a.m. – 12:00 p.m.	**Atif Khan, MD, MS**
	4:15 p.m. – 5:00 p.m.	**Rachel Jimenez, MD**
Tuesday, October 23	10:45 a.m. – 11:30 a.m.	**Steven Chmura, MD, PhD**
	1:30 p.m. – 2:15 p.m.	**Corey Speers, MD, PhD, BS** and **Reshma Jagsi, MD, PhD, FASTRO**
	3:15 p.m. – 4:00 p.m.	**Dana Casey, MD** and **Nadeem Riaz, MD, MS**
	4:15 p.m. – 5:00 p.m.	**Gary Freedman, MD**

Central Nervous System – Booth #2245		
Sunday, October 21	10:45 a.m. – 11:30 a.m.	**Yoshiya Yamada, MD**
	1:45 p.m. – 2:30 p.m.	**Joshua S. Silverman, MD, PhD**
	4:15 p.m. – 5:00 p.m.	**Eric Chang, MD, FASTRO**
Monday, October 22	11:15 a.m. – 12:00 p.m.	**Stephanie Weiss, MD, FASTRO**
	4:15 p.m. – 5:00 p.m.	**Lia M. Halasz, MD**
Tuesday, October 23	10:45 a.m. – 11:30 a.m.	**Vinai Gondi, MD and Minesh Mehta, MD, ChB, FASTRO**
	1:30 p.m. – 2:15 p.m.	**Tony Wang, MD**
	3:15 p.m. – 4:00 p.m.	**Kristin Redmond, MD, MPH**
	4:15 p.m. – 5:00 p.m.	**Christina Irene Tsien, MD**

Genitourinary – Booth #4045		
Sunday, October 21	10:45 a.m. – 11:30 a.m.	**Anthony D'Amico, MD, PhD, FASTRO**
	1:45 p.m. – 2:30 p.m.	**Karen Hoffman, MD**
	4:15 p.m. – 5:00 p.m.	**Glenn Stuart Bauman, MD**
Monday, October 22	11:15 a.m. – 12:00 p.m.	**Daniel A. Hamstra, MD, PhD**
	4:15 p.m. – 5:00 p.m.	**Vladimir Avkshtol, MD and Alan Pollack, MD, PhD**
Tuesday, October 23	10:45 a.m. – 11:30 a.m.	**Daniel E. Spratt, MD**
	1:30 p.m. – 2:15 p.m.	**Neha Vapiwala, MD**
	3:15 p.m. – 4:00 p.m.	**Robert Den, MD**
	4:15 p.m. – 5:00 p.m.	**Howard Sandler, MD, MS, FASTRO**

Head and Neck – Booth #1520		
Sunday, October 21	10:45 a.m. – 11:30 a.m.	**Beth Beadle, MD, PhD**
	1:45 p.m. – 2:30 p.m.	**Gary Walker, MD, MS, MPH**
	4:15 p.m. – 5:00 p.m.	**David Brizel, MD, FASTRO**
Monday, October 22	11:15 a.m. – 12:00 p.m.	**Jessika Contreras, MD and Wade Thorstad, MD**
	4:15 p.m. – 5:00 p.m.	**Caitlin Schonewolf, MD, MS and John Lukens, MD**
Tuesday, October 23	10:45 a.m. – 11:30 a.m.	**Dwight Heron, MD, MBA**
	1:30 p.m. – 2:15 p.m.	**David Raben, MD, FASTRO**
	3:15 p.m. – 4:00 p.m.	**Min Yao, MD, PhD, FASTRO**
	4:15 p.m. – 5:00 p.m.	**Danielle Margalit, MD, MPH**

Physics – Booth #3145		
Sunday, October 21	10:45 a.m. – 11:30 a.m.	**Lei Dong, PhD**
	1:45 p.m. – 230 p.m.	**Ke Sheng, PhD**
	4:15 p.m. – 5:00 p.m.	**Sunan Cui, BS and Issam El Naqa, PhD, MS**
Monday, October 22	11:15 a.m. – 12:00 p.m.	**Kristy Brock, PhD**
	4:15 p.m. – 5:00 p.m.	**Harald Paganetti, PhD**
Tuesday, October 23	10:45 a.m. – 11:30 a.m.	**Emily Kowalski, MD and Elizabeth M. Nichols, MD**
	1:30 p.m. – 2:15 p.m.	**Jeffrey Burkeen, MD, MS and Jona A. Hattangadi-Gluth, MD**
	3:15 p.m. – 4:00 p.m.	**Mary Feng, MD**
	4:15 p.m. – 5:00 p.m.	**Percy Lee, MD**

MEET THE EDITORS SCHEDULE

Sunday, October 21, 2018

1:30 p.m. – 2:00 p.m.
Robert Lee (*PRO*)

2:00 p.m. – 2:30 p.m.
Anthony Zietman (Red Journal)

2:15 p.m. – 2:45 p.m.
Robert Miller (*Advances*)

Monday, October 22, 2018

11:00 a.m. – 11:30 a.m.
Anthony Zietman (Red Journal)

11:30 a.m. – 12:00 p.m.
Robert Lee (*PRO*)

12:30 p.m. – 1:00 p.m.
Robert Miller (*Advances*)

4:00 p.m. – 4:30 p.m.
Sue Yom (Red Journal)

Tuesday, October 23, 2018

1:30 p.m. – 2:00 p.m.
Anthony Zietman (Red Journal)

2:30 p.m. – 3:00 p.m.
Robert Miller (*Advances*)

4:30 p.m. – 5:00 p.m.
Sue Yom (Red Journal)

MEET THE AUTHORS

Monday, October 22, 2018
Innovation Hub
10:30 a.m. – 11:00 a.m.

Join authors Dr. Dwight E. Heron, Dr. Joseph M. Herman and Dr. M. Saiful Huq for a special book signing of *Stereotactic Radiosurgery and Stereotactic Body Radiation Therapy (SBRT)*.

Don't have the book?
Copies will be available for purchase at the book signing.

Book Signing:
Stereotactic Radiosurgery and Stereotactic Body Radiation Therapy (SBRT)

Author(s):
Dwight E. Heron MD
Joseph M. Herman MD, MSc
M. Saiful Huq PhD, DABR, FAAPM, FInstP

2018 Research Award Winners Recognized During Tuesday Session

ASTRO is proud to support research efforts in the field of radiation oncology through our Research Grants program, which funds the research vital to improving patient care. This year, ASTRO partnered with some outside organizations to increase our funding value. Below is a short snapshot of each awardee's background and current research interests.

ASTRO-Breast Cancer Research Foundation (BCRF) Career Development Award to End Breast Cancer: Corey Speers, MD, PhD, is an assistant professor at the University of Michigan Rogel Cancer Center. He received his MD and PhD from Baylor College of Medicine before completing residency at the University of Michigan. His laboratory focuses on "bench-to-bedside" research into targeted therapies, such as PARP and CDK4/6 inhibitors as agents for radiosensitization. His ASTRO-funded project will explore the mechanism behind radioresistance mediated by cell-cycle-regulating kinases.

ASTRO-Prostate Cancer Foundation (PCF) Career Development Award to End Prostate Cancer: Brandon Mahal, MD, went to Harvard Medical School, and is currently a resident at the Dana-Farber Cancer Institute/Brigham and Women's Hospital. He will investigate the clinical and genomic drivers of racial disparities in prostate cancer outcomes. Despite evidence suggesting men of African descent have poorer prostate cancer outcomes, risk stratification tools are not currently able to incorporate race in a clinically meaningful way. By identifying novel associations between the genomic/mutational spectrum and aggressive forms of prostate cancer in men of African descent, he hopes to identify those most likely to be at risk for adverse prostate cancer outcomes.

ASTRO-American Association of Physicists in Medicine (AAPM) Physics Resident/Postdoctoral Fellow Seed Grant: Khadija Sheikh, PhD, received her doctorate in medical biophysics from the University of Western Ontario in London, Ontario, and is currently a physics resident at Johns Hopkins University. Her research focuses on using imaging to create a personalized model of treatment-induced toxicity prediction for every head and neck cancer patient based on quantitative imaging features, dosimetric parameters and demographic and clinical data.

ASTRO Residents/Fellows in Radiation Oncology Seed Grant: Christien Kluwe, MD, PhD, received his doctorate from the University of Texas and his medical degree from the Galveston branch of the UT system, and is currently in residency at the Vanderbilt University Medical Center. His research interests focus on radiation-triggered metabolic changes in the phenotype of cells, specifically increases in the glutamate pool, and how interruption of this mechanism can limit the incidence and aggression of lung tumors. Using murine models, he hopes to examine the importance of xCT in this metabolic pathway as well as tease out the specific metabolic changes produced using mass spectroscopy, RNA sequencing and epigenetic analysis.

ASTRO Residents/Fellows in Radiation Oncology Seed Grant: Everett Moding, MD, PhD, worked in the lab of David Kirsch, MD, PhD, at Duke University, where he studied the response of tumors to radiation therapy using genetically engineered mice. He is currently a resident at Stanford University, pursuing the Holman research pathway in the laboratory of Maximilian Diehn. He is investigating whether changes in the levels of circulating tumor DNA during radiation therapy can serve as a prognostic biomarker for patients with non-small cell lung cancer.

Please join us in congratulating our award winners by attending our Research Spotlight session at the ASTRO Annual Meeting, on Tuesday at 2:45 p.m. in Room 005, during which we will recognize our new awardees and highlight the successes of our past awardees, who will be presenting their ASTRO-supported research findings. For more information and to apply for our research grants, visit www.astro.org/fundingopps.

COREY SPEERS, MD, PHD

BRANDON MAHAL, MD

KHADIJA SHEIKH, MD, PHD

CHRISTIEN KLUWE, MD, PHD

EVERETT MODING, MD, PHD

Product Showcase returns to ASTRO 2018

The Product Showcase will once again feature products and services in the radiation oncology field, prominently displayed in the main lobby at the Hall 3 entrance to the Innovation and Solution Showcase. Attendees will be able to search products by category and view photos, videos and detailed information about each product. Turn-by-turn directions are provided to the company's booth to easily find these products once inside the hall. You can also view the ASTRO 2018 Product Showcase via MyASTROApp, the official meeting app, and the conference planner, online at www.astro.org/conferenceplanner.

Company Name: Accuray Incorporated
Booth Number: 2511
Product Name: Radixact®

Company Name: Augmenix
Booth Number: 3133
Product Name: SpaceOAR® Hydrogel

Company Name:
Blue Earth Diagnostics, Inc.
Booth Number: 2163
Product Name: Axumin® (fluciclovine F 18) injection

Company Name:
Carl Zeiss Meditec, Inc.
Booth Number: 1133
Product Name: INTRABEAM® 600

Company Name: C-RAD
Booth Number: 3747
Product Name: cBreath™

Company Name: C-RAD
Booth Number: 3747
Product Name: cBrain™

Company Name: Elekta
Booth Number: 2433
Product Name: AQUA

Company Name: Novocure
Booth Number: 2525
Product Name: Optune®

Company Name: Qfix
Booth Number: 1913
Product Name: Symphony™

Company Name: Qfix
Booth Number: 1913
Product Name:
Portrait™ with Integrated Shim

Company Name: RaySearch Laboratories AB (publ)
Booth Number: 1833
Product Name: RayCare

Company Name:
Radiation Oncology Institute (ROI)
Booth Number: 1540
Product Name: RadOnc Toolbox App

Company Name: RaySearch Laboratories AB (publ)
Booth Number: 1833
Product Name: Ray Station

Company Name: Sensus Healthcare
Booth Number: 1017
Product Name: SRT 100 Vision ™

Company Name: Varian Medical Systems
Booth Number: 1403
Product Name: Halcyon™ System

Company Name: Varian Medical Systems
Booth Number: 1403
Product Name:
Bravos™ afterloader system

Company Name: Vision RT, Ltd.
Booth Number: 623
Product Name: AlignRT

Stay Connected
#ASTRO18

The ROI is Rolling Out Research Results at the Annual Meeting

By Emily Connelly

Radiation Oncology Institute (ROI) researchers are presenting results from their grants at the 2018 ASTRO Annual Meeting. Session attendees will learn about what the ROI's talented investigators are discovering with the help of ROI backing.

Data from a study using activity trackers led by Nitin Ohri, MD, MS, will be part of the presentation, *Cardiac Dosing Predicts Activity Decline During Concurrent Chemoradiation for Locally Advanced Lung Cancer*, in the Lung-Toxicity scientific session on Tuesday that starts at 2:45 p.m. in Room 007 C/D.

Todd McNutt, PhD, and his team of investigators will present five abstracts from their ROI-supported research, which uses big data techniques to build predictive models for head and neck cancer.

- *Dose-Volume Histogram (DVH) Patterns within the Salivary Glands and Clinical Parameters Predict Xerostomia in Head and Neck Cancer (HNC) Patients, from Injury to Recovery,* Monday, 10:45 a.m. – 12:15 p.m., Innovation Hub
- *Dosimetric Risk Factors for Patient-reported Dysphagia among Head and Neck Cancer Patients Receiving Definitive Radiation Therapy,* Tuesday, 2:45 p.m. – 4:15 p.m., Innovation Hub
- *Machine Learning Methods Uncover Radio-morphologic Dose Patterns in Salivary Glands that Predict Xerostomia in Head and Neck Cancer Patients,* Tuesday, 5:09 p.m. – 5:15 p.m., Room 217 C/D
- *Radio-morphology: Parametric Shape-based Features for Outcome Prediction in Radiation Therapy,* Tuesday, 5:15 p.m. – 5:21 p.m., Room 217 C/D
- *Role of Imaging in Predicting Radiation-induced Xerostomia,* Tuesday, 5:55 p.m. – 6:05 p.m., Room 304

Attendees can speak with Dr. McNutt or Dr. Ohri during one of the "Meet Our Researchers" sessions at the ROI booth, number 1540, in the Innovation and Solution Showcase (Exhibit Hall). These sessions will also feature some of the ROI's newest grantees, the 2018 Innovative Projects in Radiation Oncology award winners. The topics of these grants were guided by the feedback provided by attendees at last year's Annual Meeting when they answered the question, "How do we improve our ability to get radiation to the patients who need it?" Financial toxicity, access, awareness and stereotactic body radiation therapy (SBRT) emerged as critical areas of need for the field of radiation oncology, and the ROI awarded more than $200,000 in new research grants this year to help address them, including grants to:

Fumiko Chino, MD, with Duke University, mentored by Yvonne Mowery, MD, PhD, and David Brizel, MD, FASTRO, recently began her study to prospectively quantify and investigate the impact of high treatment costs for head and neck cancer patients receiving radiation therapy.

Chad Tang, MD, with MD Anderson Cancer Center, and his team are conducting an analysis to understand the barriers to access and costs associated with four treatment options for patients with prostate cancer—surgery, external beam radiation therapy, brachytherapy and active surveillance.

Rachel Conklin, MMS, PA-C, with Vanderbilt University Medical Center, and her team are exploring using telehealth to increase access to their radiation oncology survivorship program for patients who receive care at a community facility, which is in a rural area approximately 50 miles from their main campus.

Nima Nabavizadeh, MD, with Oregon Health & Science University, is prospectively studying if SBRT can be safely used to help patients with hepatocellular carcinoma (HCC) and advanced cirrhosis as they await a liver transplant.

Karen Hoffman, MD, MHSc, MPH, with MD Anderson Cancer Center, is prospectively surveying prostate cancer patients to study how receiving counseling from a radiation oncologist in a multidisciplinary clinic increases their awareness of radiation therapy as a treatment option with a favorable side effect profile, and whether it changes their treatment choice.

During the Annual Meeting, look for ROI researchers wearing buttons like the one pictured, and be sure to ask them about their ROI-funded research!

Annual Meeting
ROI Meet Our Researchers

SUNDAY, OCTOBER 21, 2018
10:00 a.m. – 11:00 a.m
Chad Tang, MD

11:00 a.m. – 12:00 p.m.
Fumiko Chino, MD

Nima Nabavizadeh, MD

MONDAY, OCTOBER 22, 2018
12:30 p.m. – 1:30 p.m.
Rachel Conklin, MMS, PA-C

2:00 p.m. – 3:00 p.m.
Todd McNutt, PhD

2:30 p.m. – 3:30 p.m.
Nitin Ohri, MD, MS

TUESDAY, OCTOBER 23, 2018
2:00 p.m. – 3:00 p.m.
Karen Hoffman, MD, MHSc, MPH

Welcome continued from page 1

On Tuesday, London-based entrepreneur, innovator and author of the best-selling book "The Optimist's Guide to the Future," Mark Stevenson, will share insights on how we can address health care problems and social issues in the future more effectively and efficiently. Then, on Wednesday, I will moderate a panel discussion, **"Trailblazers Contemplate the Legacy and Future of Radiation Oncology."** Joining me for this fireside chat are three former ASTRO gold medalists: Sarah S. Donaldson, MD, FASTRO, Carlos A. Perez, MD, FASTRO, and Lester J. Peters, MD, FASTRO, who will discuss changes that the field has experienced through the years and offer their thoughts about the future in the field.

In my **Presidential Address** on Monday afternoon, "Radiation Oncology at a Crossroads," I will consider the value of combining the best of modern technology with cutting-edge cancer biology. Modern biology is identifying new molecular approaches to cancer care, and if we partner these effectively with current radiation techniques, we can position the field of radiation oncology as a frontrunner in the effort to eradicate cancer.

New programs and technology this year will make the ASTRO attendee experience more informative and efficient than ever before, including our **Practical Radiation Oncology (PRO) program,** which began yesterday, for community physicians. The two-day program will offer practical treatment updates and guidelines that these providers can take back to their practice immediately and will include disease-site reviews, interactive case-based discussions, a coding update and a scientific overview.

Back again this year are the **Science Highlights Sessions**. These 30-minute sessions will be held on Monday, Tuesday and Wednesday morning and will provide a brief overview of the top science being presented at the meeting in the most commonly treated disease sites in our field.

You may be wondering where to find the posters. Paper posters have been replaced with electronic posters. This will increase visibility and you can easily peruse ***e*posters** at times most convenient for you in the Innovation Hub in the Exhibit Hall. For more on the Innovation Hub, please see page 17.

An abundance of advances in cancer research and clinical care are showcased throughout this meeting, along with the opportunity to connect to a phenomenal network of radiation oncology professionals around the world. I hope this experience offers you not only valuable clinical practice guidelines, but also a provocative glimpse into the future of cancer research and treatment for tomorrow.

Presidential Symposium continued from page 9

We need better and more refined tools to aid in individualized cases. Liquid biopsies have the potential to detect cancers in much earlier stages, especially where there are no good existing screening tools. Liquid biopsies can also help us understand how individual patients' tumors may be responding to therapies.

What are the key takeaways for attendees from this session?

Frequently, our best ability to detect residual or recurrent disease is through imaging techniques, which can only detect tumors after they have grown to more than several million cells. Liquid biopsies may detect cancers that are much smaller and reoccur at a much earlier phase. Liquid biopsies have the potential to provide clues as to the mutational profile and biology of individual tumors, which could help doctors identify more effective therapies. This could ultimately lead to more effective treatments, better outcomes and lower cost.

How has your background helped prepare you for this topic?

I am a physician-scientist with expertise in breast cancer biology and treatment. My investigations in cancer biology and as a clinician have given me experience and background to understand the role that liquid biopsies and cell-free DNA from tumors could play in the practice of oncology.

The Presidential Symposium begins at 8:55 a.m. on Sunday morning in the Stars at Night Ballroom.

INDUSTRY SATELLITE SYMPOSIA

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

Sunday, October 21, 2018

6:30 p.m. – 9:30 p.m. | Symposium

Advances in SBRT in the Management of Prostate Cancer
Venue Location: Marriott Riverwalk, Alamo Ballroom C
Dinner will be provided.

Accreditation: NYU Winthrop Hospital is Accredited with Commendation by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CME Credits: NYU Winthrop Hospital designates this live activity for a maximum of 2.75 *AMA PRA Category 1 Credit(s)* ™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

For more information and to register please visit www.StereotacticRadiosurgeryCME.org or contact Keyana.Golds@nyulangone.org.

This activity is hosted by Accuray.

Monday, October 22, 2018

6:30 p.m. – 7:00 p.m. | Registration and Dinner
7:00 p.m. – 9:00 p.m. | Symposium

Medical Crossfire®: Overcoming Clinical Inertia in Glioblastoma Multiforme: The Experts Weigh-in on Recent Data Sets and Next Steps to Move the Field Forward

Venue Location: Grand Hyatt San Antonio, Lone Star Ballroom B/C
Dinner will be provided.

Accreditation: Physicians' Education Resource®, LLC, is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

CME Credits: Physicians' Education Resource, LLC, designates this live activity for a maximum of 2.0 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

For more information, please visit gotoper.com/go/MXGBM18 or contact Anthony Battaglia at ABattaglia@gotoper.com or 609-250-4311.

This activity is supported by an educational grant from Novocure.

Monday, October 22, 2018

6:45 p.m. -7:15 p.m. | Registration and Dinner
7:15 p.m. - 8:45 p.m. | Symposium

The Era of Immunotherapy in Stage III NSCLC: Exploring the Evidence and Practicalities of Integrating Checkpoint Inhibition into the Multimodal Treatment Arsenal

Venue Location: Grand Hyatt San Antonio, Texas Ballroom C
Dinner will be provided.

Accreditation: This activity will be planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Medical Learning Institute, Inc. and PVI, PeerView Institute for Medical Education. The Medical Learning Institute, Inc. is accredited by the ACCME to provide continuing medical education for physicians.

CME Credits: The Medical Learning Institute, Inc. designates this live activity for a maximum of 1.5 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

For more information please visit www.peerview.com/radNSCLC or contact live@peerview.com.

This activity is supported by an independent educational grant from AstraZeneca.
This CME activity is jointly provided by Medical Learning Institute, Inc. and PVI, PeerView Institute for Medical Education.

INDUSTRY-EXPERT THEATERS

This activity allows companies to present their noteworthy, new products and services through live presentations. Seating is available on a first-come, first-served basis. The Industry-Expert Theater content and views expressed therein are those of the companies and not of ASTRO.

Lunch or other food and beverages may be provided by the companies, which may subject you to reporting under the Federal Sunshine Act (the Open Payments Program) or other state laws. Otherwise, food may be available for purchase prior to the start of an event in the ASTRO Bistro and concession areas.

Theaters 1 and 2 are located in the Innovation Hub in the Innovation and Solution Showcase (Exhibit Hall). Room 216 A/B is located on the Meeting Level.

Sunday, October 21

Theater 1, Innovation Hub

Detecting and Localizing Recurrent Prostate Cancer with Axumin® (fluciclovine F 18) injection
12:15 p.m. - 1:15 p.m.
Company: Blue Earth Diagnostics Inc.

Theater 2, Innovation Hub

Breast Cancer: Your Challenges Today – Our Solutions for Tomorrow
12:15 p.m. - 1:15 p.m.
Company: Accuray Incorporated

Session Room 216 A/B

A Case-based Program: Immunotherapy for Patients with Unresectable Stage III Non-small Cell Lung Cancer Following Chemoradiation Therapy
12:15 p.m. - 1:15 p.m.
Company: AstraZeneca

Theater 1, Innovation Hub

MRI-guided Radiotherapy: Imaging of Tumor Response to Therapy
2:45 p.m. - 3:45 p.m.
Company: View Ray

Monday, October 22

Theater 1, Innovation Hub

From Early Adoption to Widespread Use: The Impact of the Prostate Hydrogel Spacer on Prostate Radiotherapy
12:30 p.m. - 1:30 p.m.
Company: Augmenix

Theater 2, Innovation Hub

Dynamic Tracking and Motion Correction: Over 15 Years of Accuray Leadership
12:30 p.m. - 1:30 p.m.
Company: Accuray Incorporated

Theater 1, Innovation Hub

Xofigo (Radium Ra 223 dichloride): 6 Facts on Identifying Appropriate Patients
3:45 p.m. - 4:45 p.m.
Company: Bayer

Theater 2, Innovation Hub

The Big Road Ahead for Nanoparticles and Radiation Therapy
3:45 p.m. - 4:45 p.m.
Company: Nanobiotix

Tuesday, October 23

Theater 2, Innovation Hub

SGRT: Advances in Accuracy and Improved Patient Experience
10:15 a.m. - 11:15 a.m.
Company: Vision RT Ltd.

Theater 1, Innovation Hub

MRI-guided Radiotherapy Clinical Outcomes: A Summary of Prospective Trials
12:30 p.m. - 1:30 p.m.
Company: View Ray

KEYTRUDA®

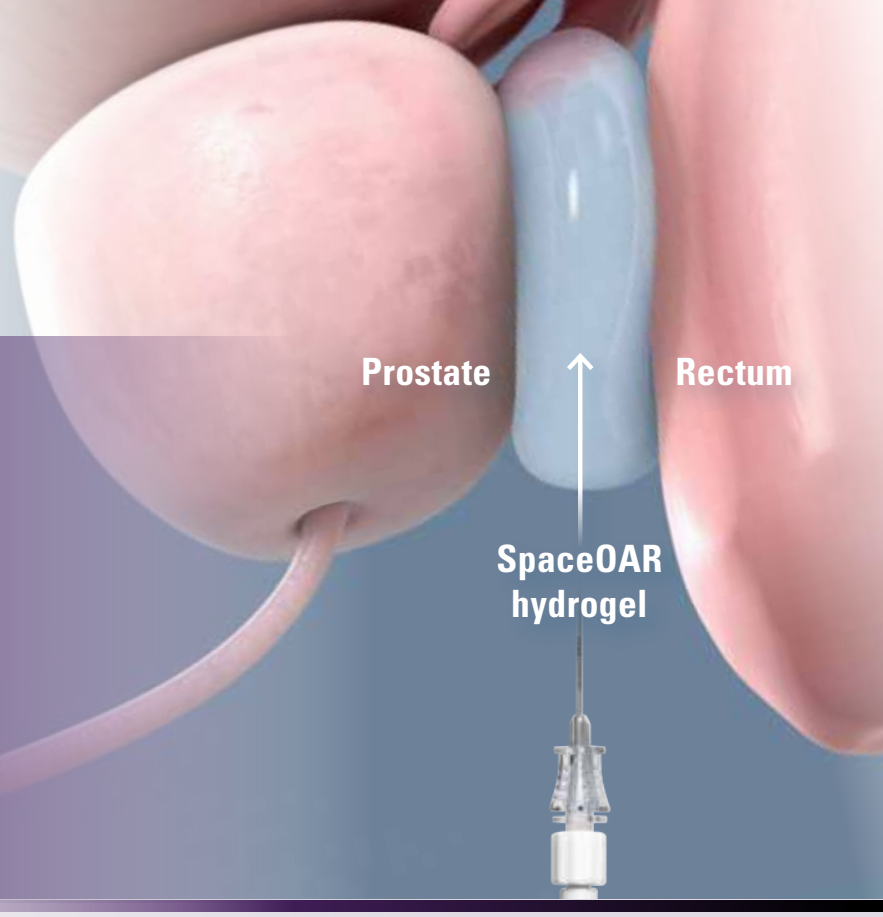
(pembrolizumab) Injection 100 mg

Visit the Merck Booth and Learn More About KEYTRUDA

- Approved indications
- Resources for health care professionals
- The Merck Access Program
- KEY+YOU Patient Support Program

MERCK

Space OAR® Hydrogel



INDUSTRY-EXPERT THEATER

From early adoption to widespread use: The impact of prostate hydrogel spacing on prostate radiotherapy

Date: **Monday October 22, 12:30 p.m. – 1:30 p.m.**
Registration on site. Lunch will be provided.

Location: **Theater 1, Innovation Hub**

Moderator:

Steven J. Frank, MD
Professor and Deputy Head, Radiation Oncology
Medical Director, Proton Therapy Center
The UT MD Anderson Cancer Center

Speakers:

Michael J. Zelefsky, MD
Professor of Radiation Oncology
Vice-Chair, Department of Radiation Oncology
Chief, Brachytherapy Services
Memorial Sloan Kettering Cancer Center

Brian J. Davis, MD PhD
Professor of Radiation Oncology
Rochester, Minnesota USA

Marcio Fagundes, MD
Medical Director
Radiation Oncology Department
Miami Cancer Institute

Snap A Pic and Change Lives.

Augmenix is committed to Prostate Cancer Awareness and Research. When you stop by the Augmenix booth #3133 and have your photo taken, we will make a donation to two worthy causes:

ROI Radiation Oncology Institute

VPCa Veterans Prostate Cancer Awareness

Veterans Prostate Cancer Awareness is dedicated to promoting and educating on prostate cancer awareness, early detection and treatment options to Veterans and Active Duty Military members. Our nation's Veterans have a higher incidence of Prostate Cancer!

The **Radiation Oncology Institute (ROI)** is a nonprofit foundation of ASTRO working to heighten the critical role of radiation therapy in the treatment of cancer through research and education. Since 2006 ROI has invested over $1 million in prostate cancer research.

Booth #3133
spaceoar.com

Augmenix®

If you take a box lunch, you may be subject to reporting under the Federal Sunshine Act (the "Open Payments Program") or other state laws.
The Industry-Expert Theater content and views expressed therein are those of the exhibitor and not of ASTRO.
Industry-Expert Theaters are not accredited for continuing medical education credits. ML 000 Rev X