ARE ALL TREATMENTS CREATED EQUAL?

ROI's National Radiation Oncology Registry to provide real-time comparative effectiveness data on common cancer treatments

PLUS:
THE HISTORY OF ASTRO’S SAMS OFFERINGS
AN OVERVIEW OF RADIATION ONCOLOGY IN NORWAY
Understanding your unique needs—and those of your patients—is at the center of everything Accuray does. We are committed to creating precise and individualized radiation oncology solutions that make sense—so you can personalize treatment and achieve the best possible outcome for each and every patient.
14 Self-assessment modules
Learn about ASTRO’s self-assessment modules as a component of Maintenance of Certification.

18 Radiation oncology in Norway
Read the latest article in the “News from the old world” series detailing the development of Norway’s radiation oncology program.

21 NROR forum
The Radiation Oncology Institute holds a stakeholder forum as the next step in establishing the National Radiation Oncology Registry.
CANCER DIVIDES.
SO WE UNITE.

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THE ONGOING SAGA OF SELF-REFERRAL

BY THE TIME THIS ISSUE OF ASTRONEWS REACHES YOUR HANDS, the United States Supreme Court may have altered the mechanics of the American health care system by either striking down or significantly changing the Affordable Care Act. This is one of the inherent difficulties with writing a column three months in advance of publication: no crystal ball. But beyond this larger struggle to enact meaningful, functional health care reform, there remain a number of less visible skirmishes that involve smaller segments of the house of medicine. In ASTRO’s little corner of the cosmos, the singular issue that has dominated discussions on Capitol Hill and beyond for the past several years is the subject of self-referral.

The question of self-referral arose more than 20 years ago when a study was published demonstrating that physicians who owned their own laboratories ordered more lab tests than those who did not have ownership arrangements. Tucked into the language of the Omnibus Budget Reconciliation Act of 1989 (OBRA) was verbiage drafted by Rep. Pete Stark, D-Calif., that banned this practice for clinical laboratory services under Medicare beginning in January 1992.

In the 1993 OBRA, Stark added several additional services but at the same time created an expanded list of exceptions to the law, including radiation oncology. The in-office ancillary services exception was designed to allow large health care organizations, such as the Mayo Clinic, to self-refer within their own multidisciplinary system, as well as to permit certain basic studies to be done on site sans outside referral and subsequent diagnostic delays. Radiation oncology services fall under this exception, thus allowing the practice of self-referral in our field.

Approximately seven years ago, when the use of IMRT began to rise and urology reimbursement took a major hit when the plug was pulled on Lupron, enterprising urologists took full advantage of the exemption and began building radiotherapy units in a number of markets, hiring their own radiation oncologists and then referring patients to these facilities. The effect on practice patterns in these markets has been pronounced with a significant shift away from less expensive and equally appropriate alternatives, such as brachytherapy or active surveillance, to more costly treatment with IMRT. The “justification” offered for this unscrupulous arrangement is to streamline care for patients, but the reality is that patients are often forced to bypass more convenient radiotherapy centers to be treated at facilities owned by their urologist.

(Continued on Page 6)
Closing the radiation oncology self-referral loophole will not single-handedly balance the budget, but ASTRO estimates that if such legislation included verbiage removing anatomic pathology and advanced diagnostic imaging from the exemption list as well, the savings to taxpayers could be significant.

For the past several years, ASTRO has worked tirelessly to have radiotherapy services removed from the in-office ancillary services exception list. The task has proven to be daunting but not without some measure of success. The Society has met with Stark, Rep. Henry Waxman, D-Calif., and Rep. Sander Levin, D-Mich., and obtained a request for a Government Accountability Office (GAO) study of self-referral in radiation oncology.

ASTRO leadership then met with the GAO and conducted an education session to enable investigators to better understand the central role of radiation oncology in cancer treatment. A major exposé on the unsavory role of some urology practices in self-referral abuses was published in *The Wall Street Journal* as well as a smaller but no less damning item in *The Lancet Oncology*.

Working at the grassroots level, the Society, through the Government Relations Committee and its state captains, has succeeded in blunting the advance of these arrangements in several states, including a robust piece of legislation in Maryland banning self-referral for radiotherapy services that has withstood multiple challenges from its opponents.

The most recent media exposure came in the April 2012 issue of Health Affairs that was devoted entirely to “Issues in Cancer Care: Value, Costs and Quality.” A poignant article by Jean M. Mitchell, PhD, a professor of public policy at Georgetown University, examined the effects of self-referral for the use of surgical pathology services by urologists.

Not surprisingly, Dr. Mitchell’s research discovered that self-referring urologists billed Medicare for 4.3 more specimens per biopsy than the adjusted mean of six specimens by their non-self-referring colleagues, a difference of nearly 72 percent. Perhaps more disturbing was the 12 percent higher cancer detection rate for non-self-referring urologists. How does this translate into dollars and cents? The journal *Laboratory Economics* looked at this issue in 2011 and found 300 urology practices that had “in-office” pathology labs, with each urologist generating approximately $150,000 in pathology revenue annually.

Dr. Mitchell is no stranger to the issue of self-referral. She has published over 80 articles, many of which have been devoted to this critical and costly issue. Her study of self-referral in Florida in the early 1990s resulted in the aforementioned language in the 1993 OBRA known as Stark II.

Dr. Mitchell was engaged by ASTRO over two years ago to investigate the effects of self-referral with respect to radiotherapy services, specifically to study the issue of urology ownership of radiation oncology facilities. Her report is forthcoming and should prove to be the strongest evidence to date in support of closing the in-office loophole for radiotherapy services.

And so it goes. In data published by the Organization for Economic Cooperation and Development (OECD), the U.S. continues to lead in health care expenditure per capita at $7,920, over 2.5 times as much as the average for all OECD countries and 17.4 percent of our GDP. Closing the radiation oncology self-referral loophole will not single-handedly balance the budget, but ASTRO estimates that if such legislation included verbiage removing anatomic pathology and advanced diagnostic imaging from the exemption list as well, the savings to taxpayers could be significant.

As the late Sen. Everett Dirksen so famously said, “A billion here, a billion there and pretty soon you’re talking real money.” Yes, it may look like chump change, but the reality is that greed exists in our health care system. Closing this loophole and others like it sends a clear message that physicians are expected to be practicing evidence-based medicine, not economics-based. Regardless of how the Supreme Court has ruled, equitable and affordable health care for all will continue to be a long-term objective. Ending self-referral would be a small but measurable step in the right direction.

Dr. Eichler is the medical director of radiation oncology at the Thomas Johns Cancer Hospital in Richmond, Va. He welcomes comments on his editorial at communications@astro.org.
ACHIEVING THE PROPER “WORK-LIFE BALANCE” is a challenge to those in the medical profession and in many other professions or occupations. Too often, we fall into a habit of dealing with professional pressures by “working harder and longer.” The problem is that this approach can lead to professional burnout with associated findings of emotional exhaustion, perception of ineffectiveness and depersonalization with colleagues and patients.

Outcomes of burnout impact the physician (and family), the patient and the health care organization. For the physician this may include an increased risk of medical errors, deterioration in physician/patient relationships and strained family relationships/marital discord. Patients may have decreased satisfaction with their care. The health care organization may be impacted by decreased productivity and malpractice litigation.

An early personal lesson with the danger of “working harder and longer” was after I was recruited to Massachusetts General Hospital (MGH) by Herman Suit, MD, DPhil, FASTRO, in the mid 1970s. My professional schedule was to be an 80/20 split of clinical practice (four days per week) and clinical research (one day per week). However, my actual schedule ended up being clinical practice five days per week and clinical research from 9:00 p.m. - 2:00 a.m. (while brain dead), as I felt the need to show my new MGH colleagues that I was a compassionate, available clinician.

This unwise schedule ultimately resulted in a bleeding ulcer and a permanent need for good sleep habits to avoid recurring symptoms. I felt the need to re-negotiate my professional work schedule of 80/20 with a return of the 20 percent clinical research time. Dr. Suit’s response was “Len, I never took away your research day, you just didn’t use it!” Subsequently, I spent one day per week in my home office doing clinical research while fresh and alert and found I could see the same number of new and follow-up patients in four days per week by being more efficient.

Individual/personal strategies for achieving balance have been discussed by Shanfelt et al. relative to those in medical careers (J Clin Oncol 2006). These include the following:

- Identify professional goals and choose the optimal practice/career.
- Identify professional goals/priorities (time devoted to patient care, extent of practice, schedule, intellectual rewards, financial compensation, recognition).
- Integrate “work-life values” (examine priorities, set limits, find time for spouses/kids/partners).

“Engrossed late and soon in professional cares, you may so lay waste your powers, that you may find, too late, with hearts given way, that there is no place in your habit-stricken souls for those gentler influences which make life worth living.”

—Sir William Osler (1849-1919)
• Identify work stressors, and deal with them (paperwork, trying to keep up with everything).
• Identify home stressors and personal issues and deal with them (family time—consider sharing a position if you have young children, block calendar, hobbies—schedule time and do not violate).

Strategies by health care organizations to allow employees to achieve balance in their lives have also been discussed by Shanafelt et al. (Minn Med 2008). The aim of the “Mayo Plan” was to establish written guidelines on “Work-Life Balance.” Of the seven principles in the “Mayo Plan” my favorites are:
• Opportunities for Professional Development.
• Autonomy and Flexible Scheduling.
• Culture that Values and Encourages Life Outside of Work.

In an ASCO 2011 education session on work-life balance, David Johnson, MD, discussed the topic of “Becoming More Productive” and included some of the following suggestions:
• Learn to use your time and manage your activities (involves change!).
• Find better ways to do what you want to do (not to cram more into your life).
• Whatever system you use will take time to get used to (ultimately should make life easier, not harder).
• Take time to plan your week not your day (I also prefer to plan by the month/three months).
• Stay flexible and don’t over schedule (remember to schedule “down time”).
• Set goals and prioritize (list the top five to 10 goals in each of your areas of interest and prioritize).
• Use a “to-do” list and or weekly/monthly planner (highlight items with specific deadlines; many long-term goals need sequential short-term goals, which can be calendared by the week/month/three months).

My wife and I found it both helpful and necessary to create goals and then calendar our lives in order to achieve a healthy “work-life balance”—especially important while raising our six children. We valued family time centered on family meals, kids’ activities, vacations and church. We enjoyed having fun together (boating, tennis) but also benefitted from working together (garden, fall leaves). Date nights were important, for my wife and me, to nurture and maintain our relationship (~50 years’ duration) in preparation for “life after children.”

Personal lessons in calendaring/prioritizing and achieving balance in my life have been gained over the years in both personal and professional settings. While serving as a lay church leader, I received valuable calendaring advice from another ecclesiastic leader (also a physician) on how to balance my time and responsibilities:
• Sunday plus one evening per week – church meetings/work.
• Monday evening – family home evening lessons/activities.
• Tuesday/Thursday evenings – Professional writing/CME.
• Friday evening – date night with spouse.
• Saturday – home projects/family activities.

The above calendaring schedule plus learning to say no selectively within each aspect of my life, has helped me maintain work-life balance (note: it’s not OK to say no only to your family/partner). The combination of an 80/20 professional schedule and use of two nights per week for scholarly activity allowed me to meet many goals for academic productivity during my professional career.

In summary, work-life balance is essential in making us better physicians/physicists/scientists/health care workers, spouses/partners, parents and individuals. In view of life’s uncertainties, we cannot wait until retirement to develop meaningful relationships with family and friends. I am grateful for a personal relationship with each member of my family. Hopefully, what I have learned from personal experience and from others will assist you in your efforts to achieve better balance in your busy lives.

As noted by Sir William Osler and David O. McKay, we need to have/find life outside of work. Do what is necessary to nurture and mature this component of your life.

“No other success can compensate for failure in the home.”
—David O. McKay (1873–1970)
A SNEAK PEAK AT ASTRO’S 54TH ANNUAL MEETING

IT IS MY PLEASURE TO INVITE YOU TO ATTEND THE 54TH ANNUAL MEETING OF THE AMERICAN SOCIETY FOR RADIATION ONCOLOGY (October 28–31, 2012) in historic Boston. Less than 15 minutes from Boston’s Logan International Airport, the spectacular Boston Convention and Exhibition Center offers a world class venue for the ASTRO Annual Meeting—the largest radiation oncology scientific meeting in the world and the premier forum for sharing science and discussing new ideas in our specialty.

Only minutes away is the beautiful Massachusetts seashore and downtown Boston, offering visitors the best in culture and the arts as well as many historic landmarks of our country’s founding. ASTRO 2012 is designed to meet the educational needs of physician clinicians and scientists, medical physicists, biologists, nurses, dosimetrists and therapists.

The theme for this year’s meeting is “Advancing Patient Care Through Innovation.” Changing demographics, a physician based delivery system predicted by many to be unable to meet future demand, dramatic growth in science and technology transfer, shifts in patient attitudes and expectations, and all in the context of a health care delivery system that is becoming increasingly unaffordable represent important societal trends that will force change in how health care will be conceived and delivered.

These trends will have untold effects on radiation oncology care as well. Many health policy experts see “innovation” as the solution for these challenges to our health care system—not only technological innovation but innovation in the delivery of care to achieve improved outcomes while bending the cost curve. Our meeting will not only feature our traditional exceptional scientific presentations and educational sessions but will also offer the opportunity to explore the emerging notion of “innovation” in health care, seeking answers to questions regarding how our specialty may enhance access, control costs and improve quality of care for our patients within our rapidly changing health care environment.

The meeting opens with the Presidential Symposium, titled “Transforming Care Through Innovation.” Taking its inspiration from the Institute of Medicine symposium on the subject, the Presidential Symposium will consider how the developing concept of health care innovation relates specifically to radiation oncology, including exploring the possibilities for redesign, repurposing and restructuring of our care delivery model as well as taking a new innovative look at radiobiology, safety and development of clinical evidence.

(Continued on Page 31)

Many health policy experts see “innovation” as the solution for these challenges to our health care system—not only technological innovation but innovation in the delivery of care to achieve improved outcomes while bending the cost curve.
ASTRO participates in Washington-area breast health campaign

BY ANNA ARNONE, VICE-PRESIDENT FOR MEMBER RELATIONS AND COMMUNICATIONS

On Wednesday, March 28, The Washington Post published “Breast Health,” an insert discussing treatment options for breast cancer, how patients can manage their treatment and what resources are available. The insert was distributed to over 580,000 people, and ASTRO participated by including a banner ad that touted the benefits of radiation as an effective treatment option for breast cancer.

The ad also encouraged patients to call ASTRO headquarters for a free copy of the Radiation Therapy for Breast Cancer patient brochure.

Washington-area radiation oncologists received an email from ASTRO notifying them to watch for The Washington Post insert. To view the full insert online visit www.astro.org/breasthealthinsert.

ASTRO is proud to represent radiation therapy in this manner and encourages members to spread the word as well. Visit www.rtanswers.org to:
• Download a free copy of the patient brochure Radiation Therapy for Breast Cancer.
• Order printed copies of the brochure to give to patients.
• Learn about other breast cancer resources for patients.

Be sure to encourage all of your patients to visit www.rtanswers.org to find valuable information and resources about radiation therapy for many disease sites and to view ASTRO’s new patient video, “Understanding External Beam Radiation Therapy.”

In Memoriam

ASTRO has recently learned that the following members have passed away.
Our condolences go out to their families and friends.

James J. Fischer, MD
Wesley Glisson, MD
Chiu-Chen Wang, MD
Santosh K. Shetty, MD

The Radiation Oncology Institute (ROI) graciously accepts gifts in memory of or in tribute to individuals.
For more information, call 1-800-962-7876 or visit www.roinstitute.org.
2012 Ambassador Recognition

ASTRO proudly recognizes our 2012 Corporate Ambassadors for their outstanding year-round leadership and support of radiation oncology.
ASTRO Career Center recognized with national award

NOW IN ITS THIRD YEAR, THE ASTRO CAREER CENTER was recognized during the National Healthcare Career Network (NHCN) fall conference for exceptional performance. ASTRO received the NHCN Distinguished Achievement Award for the largest increase in applications in the category of Career Center in operation for less than two years.

“We created the Career Center when we recognized the growing demand for radiation oncology professionals in the health care market and wanted to give our members a place to easily find and post jobs,” Anna Arnone, vice-president for member relations and communications, said. “To be honored for the success of the center so soon after its inception is very rewarding.”

ASTRO launched its new Career Center in March of 2010 to allow job seekers to more easily browse and view jobs based on their personally selected criteria. Employers can also search for qualified candidates, post available jobs and create an online resume agent to receive email notifications from interested candidates.

In establishing the Career Center, ASTRO partnered with NHCN, an organization compiling job postings from more than 200 health care associations, to give Career Center job announcements more exposure and present more opportunities for job seekers.

John Bell, managing partner of NHCN and CEO of Boxwood Technology, said, “The collective efforts of the NHCN’s nearly 270 health care trade associations and professional societies are the envy of the online recruiting industry. Our Network Partners inspire the NHCN’s leadership team to continue to create products and services that bring valuable results and ROI for health care employers seeking high-quality hires.”

To learn more, employers and job seekers should visit www.astro.org/Practice-Management/Career-Center/Index.aspx.

ASTRO volunteers at local Boys and Girls Club

BY NICOLE NAPOLI, COMMUNICATIONS MANAGER, NICOLEN@ASTRO.ORG

MAY 4, ASTRO HELD ITS ANNUAL VOLUNTEER DAY and 20 staff members rolled up their sleeves to help the Alexandria, Va., chapter of the Boys and Girls Clubs of America. The event was coordinated as part of Spring for Alexandria, a four-day community service event benefiting the city of Alexandria, Va. In total, over 400 people participated in 50 service projects.

ASTRO was assigned to the Boys and Girls Club and was tasked with weeding the garden, painting accent walls and organizing the club’s library.

“Thank you so very much, [ASTRO] did a wonderful job,” Elliott Brown Jr., program director for the Boys and Girls Clubs of Greater Washington, said. “We are all very appreciative of the work that you guys did.”

ASTRO began hosting an annual volunteer day six years ago and since then has dedicated one day each spring to helping a local organization. This is the first year ASTRO has participated in Spring for Alexandria, and staff who participated agreed the day was a success.

“It was a very rewarding and satisfying feeling to help the staff and children of the Alexandria Boys and Girls Club,” Angela Maggard, ASTRO accounting coordinator and Volunteer Day participant, said.

The Boys and Girls Club was founded in 1906 as a youth service organization serving children ages 6-18. The Alexandria, Va., branch opened in 1936 and provides after school and summer programs for more than 400 local members. Some of the services offered are tutoring, arts and crafts lessons, dance classes, sports leagues and financial management classes.

For more information on the Boys and Girls Clubs, visit www.bgca.com
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  - Plan Review
  - Plan Scoring Tools
ASTRO SAMS PROVIDE CONVENIENT WAY TO MEET CERTIFICATION REQUIREMENTS

BY SARA BETH DAVIS, ELEARNING PROGRAM MANAGER, SARAD@ASTRO.ORG

THE AMERICAN BOARD OF RADIOLOGY (ABR) began issuing time-limited certificates to radiation oncologists beginning in 1995. Before this, physicians were board-certified for life with no continuing education requirements. Now, strict education standards in four ABR component areas must be met every 10 years to maintain board certification. ASTRO provides learning opportunities in two of the four components of Maintenance of Certification (MOC): Lifelong Learning and Self-Assessment and Practice Quality Improvement. This article is the first in a three-part series on ASTRO’s MOC offerings.

Self-Assessment Modules (SAMs)
In January 2005, ASTRO launched Self-Assessment Modules (SAMs) in an effort to help its membership meet the Lifelong Learning and Self-Assessment component of the ABR’s MOC program. SAMs are educational activities made up of instruction and a self-administered examination to gauge participants’ understanding.

SAMs are one component of MOC, which also includes professional standing, cognitive expertise and practice quality improvement. Physicians who were board certified after 1995 received time-limited certificates and are required to meet these MOC requirements every 10 years.

SAMs are specialty-specific and relevant to the physician’s practice patterns. Since ASTRO developed SAMs in an online self-paced format, physicians are able to log in and take courses at their leisure from their home or office.

“CME activities are being increasingly scrutinized by federal and state agencies, the Accreditation Council for Continuing Medical Education and the American Board of Medical Specialties (ABMS) member boards,” Paul Wallner, DO, FASTRO, said. “In this regard, as there is a realization that CME program attendance and teaching does not by definition translate to actual learning and awareness, the importance of Self-Assessment modules is becoming more apparent.”

Each SAM is developed by subject matter experts who not only present the content material but also create the assessment that follows. Many SAMs are created by repurposing educational sessions from ASTRO’s many meetings, and attendees of those meetings can take courses at a discounted rate.

Each SAM contains a 90-minute content presentation (synchronized audio/slides), an assessment that measures participant understanding and an evaluation. Each participant in an online SAM can earn up to 1 SAM Credit and 1.5 AMA PRA Category 1 Credits™. Most physicians need eight SAM credits per 10-year MOC cycle.

“It is highly likely that over the next several years CME hour requirements will decline, to be replaced by a greater focus on SAM programming. This change in emphasis is compatible with the
ABMS movement toward demonstration of knowledge and competence,” Dr. Wallner said.

The first SAMs launched consisted of a three-part Multidisciplinary Breast Cancer Management Series that focused on surgical radiation and medical issues. Since that time, ASTRO has expanded its online offerings and has SAMs in safety and 14 disease specific areas. ASTRO currently offers over 35 online SAMs in these areas, including one complimentary SAM for members titled “Quality Assurance for Advanced Technology Radiation Therapy,” which was developed as part of Target Safely, ASTRO’s patient protection initiative.

In the past five years alone over 4,600 online SAM courses have been completed.

In 2011, ASTRO began working with the American Brachytherapy Society (ABS) to develop online SAMs from their disease site-specific courses. By turning these sessions into SAMs, ASTRO and ABS are able to help fulfill the SAM requirements of the ABR’s new Focused Practice Recognition in Brachytherapy. Currently courses are provided in brachytherapy for cervical cancer, vaginal cancer and prostate cancer. Additional courses are being developed.

The first two Live SAMs were held at the ASTRO 2011 Spring Refresher Course and had over 175 participants. Unlike online SAM participants who view the lecture and take the assessment online, Live SAM participants view the lecture.

ASTRO CURRENTLY OFFERS ONLINE SAMS IN THE FOLLOWING AREAS:

- Breast Cancer
- Central Nervous System Tumors
- Gastrointestinal Cancers
- Genitourinary Cancers
- Gynecological Cancers
- Head and Neck Cancers
- Lymphomas and Leukemias
- Palliation
- Pediatric Cancers
- Radiation Biology
- Radiation Physics
- Safety
- Sarcomas/Cutaneous Tumors
- Thoracic Malignancies
- Brachytherapy

(Continued on Page 16)
and take the assessment on-site at the conclusion of the lecture. These Live SAMs were held in conjunction with select educational sessions during the meeting and participants took a paper-based assessment at the conclusion of the session. Three similar Live SAMs were held at ASTRO’s 2011 Annual Meeting. Almost 900 physicians participated in Live SAMs in 2011. The 2012 Spring Refresher Course Live SAMs saw further development of the Live SAM experience through the use of audience response systems. Participants used these devices to complete their assessments and evaluations after the SAM session. Five Live SAMs are being developed for ASTRO’s 54th Annual Meeting in Boston.

Learn More
Learn more or register for one of ASTRO’s SAMs by visiting www.astro.org/MOC. Questions on SAMs or MOC can be answered by ASTRO staff at education@astro.org.

MOST RECENT SAMS

**Intracranial SRS/SRT**
Presented by Michael T. Milano, MD, PhD, Timothy D. Salberg, PhD, and Eric Lin Chang, MD.

**Cancer of the Colon, Rectum and Anus**
Presented by Lisa A. Kachnic, MD, and Karyn A. Goodman, MD.

**Interactions of Radiation with Novel Chemotherapy and Biological Targeting Agents**
Presented by Jacqueline P. Williams, PhD, and Kevin A. Campbalsous, MD.

**Breast Cancer Management Part I: Early Stage Disease**
Presented by Julia White, MD, and Meena Moran, MD.

**Updated Roles and Rules for Radiation Therapy of Indolent and Aggressive Lymphomas**
Presented by Andrea K. Ng, MD, MPH, and Joachim Yabalon, MD.

**Error Reduction Techniques in Radiation Therapy**
Presented by Michael T. Gillin, PhD, FASTRO, Michael Milosevic, MD, C. Leland Rogers, MD, and Russell Tarver, MS.

**Quality Assurance for IGRT**
Presented by Jean-Pierre Bissonnette, PhD, and Katja M. Langen, PhD.

**Breast Cancer Management II: Adjuvant Systemic Therapy and Loco Regional Radiotherapy in Stage I/II Breast Cancer**
Presented by: Janet Horton, MD, and Jennifer Specht, MD.

**Interstitial Brachytherapy for Prostate Cancer: LDR and HDR, Alone and with External Beam Therapy**
Presented by I-Chow J. Hsu, MD, and Mira Keyes, MD.

**Management of Pediatric Tumors**
Presented by Torunn Yock, MD, at the 2011 ASTRO Spring Refresher Course.

The BEST Forum is an educational resource to obtain the latest findings and research in brachytherapy and gain insights into best practices and available technology. Both online and in person, BEST Forum brings together world-renowned thought leaders in the field of breast cancer care to discuss their extensive experiences and research in brachytherapy, treatment, and clinical outcomes.

**VOLUME 1**

Robert Kuske, MD, FAACE

**Practical Application of Patient Selection Criteria**

*Treating select cautionary and other patient types with APBI*

Dr. Kuske discusses the origin and common misconceptions about current ASTRO guidelines, and reviews the emerging APBI data, focused on controversial subsets such as women with ER negative tumors, DCIS, and younger age (<60 years).

**VOLUME 2 – COMING JULY 2012!**

Catheryn Yashar, MD

**Lower Toxicities With Strut-based Brachytherapy: 4-year Results**

Dr. Yashar provides an in-depth analysis on published data from the SAVI Collaborative Research Group, including acute and late toxicity, local recurrence rates and how strut-based brachytherapy can expand patient eligibility for APBI.
HERITAGE AND DEVELOPMENT
The Norwegian Rolf Widerøe invented the first linear accelerator in his doctoral thesis while working in Dresden, Germany, in 1928. The inventor and accelerator builder Odd Dahl, who had worked at the Massachusetts Institute of Technology in Boston, built the sixth Van der Graf accelerator in Bergen, Norway, in 1943. This machine was in clinical use until 1967, and then Haukeland University Hospital received a Cobalt unit.

The focus on radiation was then strengthened by the appointment of Bengt Rosengren as a professor in 1977, a former pupil of Professor Rolf Strandqvist of Sweden. Our first professor in radiation physics was Arne Dahler, who had been a clinical physicist at Memorial Sloan-Kettering Cancer Center in New York, under the leadership of Professor John S. Laughlin.

The development of the department was also strongly influenced by the members of the British Radiotherapy Visiting Society, with impact from Professor Emeritus Frank Ellis from the University of Oxford and Professor Norman Bleehen from the University of Cambridge.

The department is today a modern oncology unit with both radiation oncology and medical oncology. We have six linacs, with arc and stereotactic possibilities, dedicated eye brachytherapy, afterloading brachytherapy, CT simulator, a Leksell GammaKnife, and integrated MRI and PET imaging in the treatment planning. We also use deep hyperthermia with a BSD 2000 machine. The ward has 65 beds and a staff of 35 MDs.

MOHN CANCER RESEARCH LABORATORY
With generous support from Bergen Medical Research Foundation (BMRF) and Haukeland University Hospital, Helse Bergen HF (a health trust), we could start work in our own 500 square meter laboratory that employs 20-25 people. The BMRF, based on a generous gift from Trond Mohn, owner and CEO of Norwegian company Frank Mohn AS, granted 12 MNOK (just over $2 million) toward the start of the laboratory. The idea was to shorten the distance between patient care and molecular biology, which determines the clinical development of malignant diseases and also influences therapy resistance.

As a dedicated translational research laboratory, we have chosen an approach where we not only take tissue samples and apply advanced techniques, but we have kept the old device—hypothesis driven research. This means that we try to identify the key

(Continued on Page 20)
The members of Professor Per Eystein Lønning’s breast cancer research group have conducted translational research on endocrine therapy with emphasis on aromatase inhibitors for the past 30 years. (Bottom, Left) (Photo courtesy of: Haukeland Universitetssykehus) Haukeland University Hospital in Bergen, Norway, is one of the largest hospitals in the country. (Bottom, right) The Bryggen (Norwegian for wharf) area of Bergen, Norway, is the oldest part of the city and a popular tourist destination.
driving mechanisms for a process, knowing that very seldom is a single target responsible for an effect. Most often a function will be salvaged by alternative circuits; therefore, we are most interested in pathways, while keeping an open eye for the fact that different mutations can lead to the same response.

PROFESSOR OLAV DAHL’S RESEARCH GROUP
My research group is focusing on gastrointestinal cancer oncology, where radiation for rectal cancer and chemotherapy for colon cancer has been studied. By tissue microarrays we have especially focused on predictive factors (Dahl et al. Acta Oncol 2009, Fluge et al. Br J Ca 2009), and recently we have studied splice variants of cyclin D1 in colon and rectal cancer.

In anal cancer we have collected fresh tumor samples and analyzed mRNA microarrays, microRNA and immunohistochemistry to disclose regulating mechanisms (Bruoland et al. Br J Ca 2009, Myklebust et al Br J Ca 2011). Our recent finding of a functional role of desmosomal proteins corresponding to the role of —catenin in colon cancer is a novel finding (Myklebust et al. Br J Ca 2012). Ongoing studies aim at identifying new therapeutic targets in colorectal cancer.


We have collected DNA from long-term survivors. The first polymorphism analysis was published (Kristiansen et al. Human Reprod 2012) and exome sequencing data is now under analysis. One of the main research areas has been clinical and experimental use of hyperthermia. We have also used tumor samples from the laboratory and fresh tumor samples collected from patients during treatment for molecular studies (Borkamo et al. Int J Radiat Oncol Biol Phys. 2009; Borkamo et al. Radiother Oncol 2008; Borkamo et al. Int J Hyperth 2008). Currently, the role of hyperthermia added to radiation and chemotherapy in locally advanced rectal cancer is being studied.

PROFESSOR PER EYSTEIN LØNNING’S BREAST CANCER RESEARCH GROUP
The university’s breast cancer group has conducted translational research on endocrine therapy with particular emphasis on aromatase inhibitors for three decades. In collaboration with Professor Mitch Dowsett, PhD, BSc’s, team at the Royal Marsden Hospital, the group evaluated in vivo aromatase inhibition with the different compounds, revealing clinically important differences with respect to biochemical efficacy of the different compounds (Geisler et al., 2002 J Clin Oncol 20, 751-757; Lønning, 2011 Ann Oncol 22, 503-514) as well as the mechanisms for normal breast and breast cancer tissue estrogen regulation (Lønning et al., 201 Clin Cancer Res 17, 4948-4958).

The group is also working on the molecular mechanisms of drug resistance toward anthracycline therapy (Chrisanthar et al., 2011 Plos One 6, e19249, s19241-19241; Aas et al., 1996 Nature Med 2, 811-814; Knappskog S et al. Breast Cancer Research 2012, 14:R47) as well as genetic risk factors related to breast and ovarian cancer (Knappskog et al., 2011 Cancer Cell 19, 273-282). Current work is focused on epigenetic regulation and the biological function of splice variants in genes involved in cellular apoptosis/senescence and DNA damage repair.

Dr. Dahl is a professor at the Haukeland University Hospital Department of Oncology in Bergen, Norway.
THE RADIATION ONCOLOGY INSTITUTE (ROI) hosted a National Radiation Oncology Registry (NROR) stakeholder forum on April 19, 2012, in Arlington, Va., to bring together physicians, patient advocacy leaders, cancer survivors, health care society leaders, industry leaders, government agency principals and private payers to discuss the future of radiation oncology.

“We’re trying to create a collaborative dialog that is going to help things move forward,” Sean Tunis, MD, MSc, president and CEO of the Center for Medical Technology Policy (CMTP) and facilitator of the forum, said. “We’re hoping to develop and enforce working relationships that will be essential for the registry.”

The NROR is a first of its kind registry that aims to collect global data on patient treatment planning, modalities used, and physician- and patient-reported outcomes that will ultimately be used for comparative effectiveness and quality improvement in radiation therapy cancer treatments.

The forum was one step in the process toward completing the registry. To date, radiation oncology treatment team members have been surveyed on their research needs, a patient forum has been held to gather patient views on radiation therapy treatments, the NROR Data Dictionary has been developed, IT user requirements for the database have been written and legal agreements are in progress with the IT vendor chosen to build the NROR infrastructure.
ROI registry

The ROI has made a strong commitment toward ensuring that the NROR involves all stakeholder groups in the development and implementation of the registry. They chose to contract with CMTP to identify and gather the group of stakeholders and lead the forum where stakeholders were introduced to the vision, mission, goals and progress of the NROR.

“Bringing together all of these key radiation oncology stakeholders is such an important step in the future of our specialty,” Christopher Rose, MD, FASTRO, co-chairman of the NROR Executive Committee, said. “The discussions coming out of this forum and the data that will ultimately come out of this registry are vital for radiation oncologists and our patients. By collecting real world data, we will better understand our outcomes, treat patients more effectively, improve quality and save health care dollars by more efficiently using our technologies.”

The forum showcased the unique aspects of the NROR design, including collecting data from electronic medical records supplemented with Web-based forms and novel strategies using leading and emerging technologies for collecting patient reported outcomes. It also raised awareness of the NROR, served to gather recommendations from the group and fostered long-term involvement from the radiation oncology community.

Multiple group discussions were held where stakeholders established their research needs and the outcomes that mattered most to them. The conversations were broken into four topic areas: discussion of key clinical and research questions in radiation therapy, registry fundamentals, NROR as a platform for quality improvement in radiation oncology, new payment models for radiation oncology, and technology, innovation and novel approaches to quality improvement.

“Stakeholder discussion was very encouraging,” Colleen Lawton, MD, FASTRO, ASTRO president-elect and a member of the NROR Executive Committee, said. “Everyone had good input on how to be successful and was pushing us to do this. They want us to be successful, as we all desperately need the data.”

Each stakeholder spoke for five minutes during a pre-determined time slot and shared their experiences and insights related to one of the topics above. The floor then opened up for group discussions.

Several key conclusions were reached to move the registry into the next phase.

A strong emphasis was placed on the need for patient-reported outcomes and building data collection methods into the treatment workflows that are already established in radiation therapy facilities. Participants felt strongly that if the process for entering data involved too many additional steps on top of the normal procedure for entering patient information, then participation would drop.

“If we are going to use this data to make conclusions about real world outcomes, then it is important that selection biases are minimized. If we only register our best patients, then we will reach inappropriate conclusions,” Dr. Rose said. “We will strive
BIG CHANGES ARE HAPPENING at ASTRO’s scientific research journal, the *International Journal of Radiation Oncology•Biology•Physics* (Red Journal), and they are making a real difference to both readers and authors. The main changes so far are a substantially reduced time to publication, faster decisions for authors, new article types and an easier-to-read article design.

These improvements reflect the hard work and dedication of a new and energetic editorial board and a dedicated staff of professionals who are behind the scenes every day to improve your journal experience.

SPEEDIER PUBLICATION

The most significant change for authors is a much faster time from acceptance to publication. Authors today can expect to see their article in print less than nine months from acceptance, down from 15 months just last year. Our goal is to reduce this to six months in 2013.

Under the leadership of previous editor James D. Cox, MD, FASTRO, the number of submissions to the Red Journal exploded. Manuscripts rose from 794 in 1999 to 2,022 in 2010. The quality of the work attracted to the journal also rose under Dr. Cox, as the impact factor spiked from 2.4 in 1995 to 4.5 in 2010.

This influx of excellent submissions led to a backlog, which grew despite Dr. Cox’s efforts to lower the acceptance rate and reduce manuscript length. We worked with Dr. Cox and our publisher, Elsevier, to obtain extra pages and convert some papers from print publication to electronic only. These combined efforts have significantly lowered the time to publication.

It will not have escaped anyone’s attention that the Red Journal became substantially thicker in the first few months of this year. Once the backlog is cleared, it will be back to its former, thinner self.

SPEEDIER DECISIONS

Another big improvement is a huge reduction in the time from submission to first decision—authors now receive notification of the decision within an average of four weeks. This has occurred because of the incredible energy of the incoming editorial board members who have been magnificent stewards of the process.

In the past six months, the editorial board has been significantly expanded to nine senior editors and 41 associate editors. Each senior editor is responsible for managing a group of associate editors who in turn are responsible for finding reviewers, ensuring reviews are completed on time and recommending a decision to the senior editor. The senior editor and editor-in-chief reach the final decision based not only on the quality of the paper but also on its originality and potential to change practice. Only 20 percent of papers submitted can find their way into print, and hard decisions have to be made as we select from well-reviewed manuscripts.

With more than 2,000 papers coming in each year, we can no longer formally review every single article. The Red Journal has now followed the practice of other high-volume/low-acceptance journals by declining to review as many as 30 percent of submissions. These decisions are made by the editorial group working in teams and are made after serious thought.

If a paper is declined, we do still provide pertinent feedback to help the authors resubmit or prepare the article for alternate publications. An additional advantage is that we no longer overload the reviewer base, hardworking practitioners like you, with papers that are unlikely to be accepted. If you would like to volunteer to be a reviewer, email your CV to redjournal@astro.org.

SPEEDIER REVISIONS

To ensure readers have the latest research as soon as possible, authors are now required to return their revised manuscripts within two

(Continued on Page 24)
months for major revisions and one month for minor revisions. Manuscripts that are returned after the due date must begin again as a new submission.

**“ONCOLOGY SCAN”**

We are working to make the journal more enjoyable by introducing new article types, such as “Oncology Scan.” This feature article is written by a member of the editorial board who examines the literature outside the Red Journal in his or her area of interest and provides a mini review explaining why the article is important to others in practice. With columns already featuring breast cancer, colorectal cancer, physics and biology, it has quickly become a fun and quick must-read for everyone in the specialty.

**IMPROVED DESIGN**

The most noticeable change in the design is the cover art, which provides an opportunity for members of the radiation oncology community to submit their artwork for consideration as the cover image. So far, we have featured photographs and paintings reflecting the incredible diversity in talent and perspectives within our community. Please consider submitting your work via the submission website at http://ees.elsevier.com/rob/default.asp.

Starting with the May 1 print issue, we unveiled a new design aimed at improving the reader experience. In addition to a fresh new look, the design features a summary box that gives a 75-word synopsis of the work. Since many radiation oncologists are subspecialized and thus only read the articles related to their specific practice, this helps the casual reader scan the literature to keep abreast of other articles of interest.

**RED JOURNAL BY THE NUMBERS**

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<th>Category</th>
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<td>56 new submissions (as of May 1, 2012)</td>
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<td>4.8 percent were accepted*</td>
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<td>8.5 percent were asked for minor revisions</td>
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<td>33.4 percent were declined</td>
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<td>0.5 days - how long it takes from submission to editor assignment, on average</td>
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<td>6.6 days - how long it takes to secure reviewers, on average</td>
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<td>19.3 days - how long it takes the first editor to make a decision, on average</td>
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<td>26.7 days - how long it takes for the author to receive final notice from the editor-in-chief</td>
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*Definition of terms: Accepted: paper accepted without additional edits and will move on to production. Minor revision: paper will be accepted after minor revisions are made. Major revision: editors felt the article contained information of potential importance, but a number of major issues were raised; editors will reconsider after corrections are made; acceptance is not guaranteed. Reject: after undergoing review, the editors felt the paper did not contribute to the existing literature in radiation oncology. Decline: the paper is rejected by the editors without undergoing peer review.

**MEET THE PUBLICATIONS STAFF**

ASTRO has hired several new faces to support the activities of the Red Journal and its companion journal, *Practical Radiation Oncology*. They can be reached during office hours at 703-502-1550, pro@astro.org or redjournal@astro.org.

**KATHERINE EGAN BENNETT** spent nearly a decade in journalism and public relations prior to joining ASTRO in 2001 as the director of communications. In 2010, she managed the launch of *PRO* and the Red Journal transition before being named managing editor of scientific publications, directing all aspects from peer review to print publication.

**MORGAN FINCHAM** came to ASTRO in fall 2011 from a similar medical society where she worked on two journals with a combined impact factor of more than 13. As assistant managing editor, Morgan’s expertise is managing editorial boards and improving the peer review process.

**REBECCA BERTRAND** worked for the previous Red Journal editor, James D. Cox, MD, FASTRO, at MD Anderson Cancer Center in Houston. We are delighted Becky agreed to stay on remotely as publications coordinator to continue working on the journal, most specifically on new submissions.

**CALLY GRACE** joined ASTRO in late 2011 from the National Institutes of Health where she helped researchers prepare their manuscripts for publication. As publications coordinator, Calley works on *PRO* and the Red Journal, primarily working on revised manuscripts, author guidelines and page proofs.
THE ASTRO HEALTH POLICY COMMITTEE is comprised of five subcommittees, each with unique responsibilities focused on the economic well being of radiation oncology. One of the most critical functions, however, is interfacing with the Centers for Medicare and Medicaid Services (CMS) and private payers, which falls under the purview of the Regulatory subcommittee.

Like all ASTRO committees, the Regulatory subcommittee is comprised of a devoted group of physician volunteers with staff support from the Society. The subcommittee works to ensure that CMS and private insurers provide suitable coverage for medically appropriate and widely accepted radiation oncology technologies. In recent years, the subcommittee has developed a series of Model Policies to offer guidance for payers on specific aspects of radiation oncology. These policies are updated regularly to reflect changes in a particular process of care using current literature for support and are the basis for reviewing and responding to CMS Local Coverage Determinations (LCDs) and National Coverage Determinations (NCDs), in addition to private carrier and managed care medical policies. Subcommittee members may also be called upon to participate in technical assessment forums and, more recently, to engage radiation oncology benefit managers (ROBMs).

COMMUNICATION WITH CMS AND PRIVATE PAYERS

The Regulatory subcommittee articulates ASTRO’s position regarding medically appropriate and necessary radiation oncology services through its Model Policies. There are six such documents: external beam radiation therapy (EBRT), brachytherapy, intensity modulated radiation therapy (IMRT), stereotactic radiosurgery (SRS), stereotactic body radiation therapy (SBRT) and microspheres. Each Model Policy includes a description of the procedure, a comprehensive list of diagnoses for which it is appropriate and a list of applicable CPT codes. These policies are prepared with the aid of recognized experts in their respective fields and then thoroughly vetted by the Regulatory subcommittee before posting. An updated brachytherapy Model Policy was issued recently and can be accessed through the ASTRO website.

Although CMS can make National Coverage Determinations, most often the local Medicare Administrative Contractor (MAC) determines whether a particular service is “reasonable and necessary” in the form of an LCD. There are currently 15 MACs that will be consolidated into 10 MAC jurisdictions that cover both Part A and Part B providers. ASTRO regularly comments on MAC draft radiation therapy policy LCDs related to IMRT, SRS, SBRT, EBRT and brachytherapy. The MACs are not required to adopt any or all of our comments; however, we have often been successful in assuring that they define the services appropriately, cover services for the diagnoses ASTRO feels are appropriate and allow the use of proper billing codes.

The committee also has an analogous function with private payers and health technical assessment entities. The committee advocates for appropriate coverage of radiation oncology services by engaging in discussions with and responding to private payers’ requests for input regarding medical coverage policies that impact payment determinations. The committee has established relationships with private payers such as Aetna, UnitedHealthcare and WellPoint and has had several face-to-face and conference call meetings with them. Subcommittee members recently submitted comments regarding draft medical coverage policies on IMRT, accelerated partial

The subcommittee works to ensure that CMS and private insurers provide suitable coverage for medically appropriate and widely accepted radiation oncology technologies.

(Continued on Page 26)
breast irradiation, SRS and SBRT. The subcommittee also reviews medical coverage policies of private payers on behalf of members requesting assistance.

State health technical assessment entities like the California Technology Assessment Forum (CTAF) and Washington State Healthcare Authority (WSHA) are tasked with reviewing the cost, safety and efficacy of medical treatments and services to ensure they are safe and improve health outcomes.

The Regulatory subcommittee has commented in person at CTAF meetings, the most recent one related to a discussion on SBRT for the treatment of early stage non-small cell lung cancer in medically inoperable patients. In addition, ASTRO submitted a written response to a WSHA request for input on their draft technology assessments of IMRT, SRS and SBRT.

The subcommittee continues to monitor the coverage and reimbursement policies of these entities and participates in the technical reviews as well as responds to member initiated requests for coverage determinations.

ENGAGING THE ROBMS

ROBMs operate as intermediaries between private payers and radiation oncologists by managing the pre-authorization process. Private insurers have turned to ROBMs as a result of the increased utilization of high-value radiation oncology procedures and the wide variation of coding and usage among radiation oncology practices. Many ASTRO members have expressed concern regarding the impact of ROBMs on the delivery of timely and appropriate care. The Regulatory subcommittee actively monitors ROBM activity and provides ongoing feedback to both ROBMs and private payers based on member concerns. ASTRO has met with two of the larger ROBMs to discuss these issues and has recently established communication with other ROBMs in the hope of facilitating dialogue and feedback regarding their programs.

In support of this effort, ASTRO has created a “hassle form” that allows physicians and other members of the radiation oncology treatment team to share their experiences and concerns. The form is available on the Benefits Manager section of the ASTRO website and asks for information pertaining to the ROBM company and health plan, the treatment modality in question, the type of problem (i.e., delay in preauthorization process or denial of preauthorization), a description of the issue/experience you are having with the ROBM process and how ASTRO may be of assistance.

ASTRO COVERAGE RESOURCES

There are a number of resources available on our website to help members stay abreast of ASTRO’s position on radiation oncology coverage and reimbursement.

Medicare coverage policies
This section includes ASTRO’s comment letters to various MACs on their new and revised LCDs.

Managed care and other entities
Members can find ASTRO’s comments to private payers and health technical assessment entities on their medical coverage policies and technical assessments.
www.astro.org/Practice-Management/Reimbursement/Private-Insurance/Managed-Care.aspx

Model Policies
This section includes recently updated Model Policies, which are developed to communicate what ASTRO believes to be correct coverage policies for radiation oncology services.
www.astro.org/Practice-Management/Reimbursement/Model-Policies.aspx

Benefit managers
Members can visit this section for additional information on ROBMs. The ASTRO hassle form can also be downloaded in this section.
AMONG IMAGING MODALITIES, MAGNETIC RESONANCE IMAGING (MRI) has played a central role in the continuous refinement of treatment planning in radiation oncology. The inherent superior anatomical soft tissue contrast of MRI in differentiating tumor from normal structures is augmented by MRI’s functional imaging capabilities that define not only morphologic but also physiological–biological properties of the tumor target.

Similar to image-guided interventions in surgery and interventional radiology, MRI-based refined imaging of the target during therapy delivery with hybrid MRI—linac systems holds the promise to advance image-guidance through more precise delineation, inter- and intra-fraction motion control and intra-treatment tumor response monitoring.

TECHNOLOGIES IN DEVELOPMENT
Several groups are working on the development of hybrid systems incorporating combined MRI—linac or MRI—Cobalt-60 delivery technologies. These systems are currently in the conceptual, prototype and non-human-use research stage.

TYPES OF HYBRID MRI-THERAPY SYSTEMS
There are two fundamental system configurations based on the geometry of the main magnet with respect to the patient: fixed (stationary) and rotational configuration.

1. The fixed magnet geometry includes a split-open or closed stationary solenoid magnet with the magnetic field parallel to the patient’s cranio-caudal axis. The radiation source, either a linac or a $^{60}$Co unit, rotates around the patient in the transverse plane.

In the open fixed MRI scanner—$^{60}$Co concept, a low-field-strength, split-open scanner is combined with a $^{60}$Co unit capable of double-focused MLC-based IMRT delivery at 6 Gy/min. A vertical gap in the MRI unit allows access of a gantry-mounted axial radiation beam with three heads/sources (Figure 1). Measurements showed that the $^{60}$Co source, MLC and radiation unit assembly does not cause significant magnetic field distortion, and the impact of the MR unit’s magnetic field on the $^{60}$Co dose distribution is negligible. Commissioning of the first clinical unit is underway and FDA clearance for human use is pending.

In the closed fixed MRI scanner—linac concept of the Utrecht design (Figure 2), a modified closed-bore magnet is used, where the gradient coil is split open for beam transmission from an IMRT-capable 6 MV linac. A prototype was recently designed, and the ability to generate diagnostic quality 1.5T MRI with the radiation beam on has been demonstrated. Although higher 1.5T field strength provides excellent diagnostic imaging quality, active magnetic shielding is needed to minimize magnetic interference with the linac and accelerator-induced susceptibility-based distortions of the MRI. Early studies investigating magnetic field...
effects on MLCs and ionization chambers and developing optimization algorithms for IMRT delivery suggest that problems with magnetic field effects on the radiation dose distribution can be resolved.

2. The rotating biplanar geometry
This configuration includes a biplanar MRI and linac, which are mounted either parallel (Figure 3) or 90 degrees to each other in the same transverse plane, rotating simultaneously around the patient on a single gantry. Based on simulation studies, this system may reduce the shielding requirements from magnetic interferences induced by the linac. In the University of Alberta design, a 6 MV linac is mounted on one open end of a biplanar low-field-strength MRI. A 0.2T head system has been built, and a whole body system, using a 6 MV linac and a 0.6T MRI, is currently under installation.

ADVANTAGES AND OPPORTUNITIES
Improved in-room visualization of the tumor target and inter- and intra-motion fraction through integrated MRI—therapy delivery systems have the potential to further reduce PTV margins by real-time volumetric image guidance, thereby facilitating further dose escalation and hypofractionation. The need for invasive procedures to manage tumor motion, e.g., fiducial marker implantation, may be obviated. MRI’s lack of radiation exposure may alleviate concerns of added whole body dose from in-room imaging, particularly in pediatric patients.

CHALLENGES AND RISKS
Effects of radiofrequency interference between accelerator and magnetic field on radiation dose distribution and MR image quality must be resolved through optimized shielding designs, management of geometric distortion and treatment planning algorithms. Challenges with MRI-based planning related to geometrical distortion and lack of electron density information must be investigated. Development of optimal MR imaging sequences and efficient real-time solutions for image segmentation and interpretation is required. Clinical decision making algorithms to encounter the increased complexity of imaging are needed to provide real-time, online reconstruction of the accumulated dose and enable adaptive approaches. Safety and QA procedures as well as risk management must be considered.

Lastly, educational efforts are required to advance the expertise of radiation oncologists and therapists in novel MRI-based paradigms.

This article was submitted on behalf of the ASTRO Radiation Physics Committee.

REFERENCES
ASTRO SUPPORTS EDUCATIONAL PROGRAMS IN SUDAN, INDIA

“IN AFRICA, WE NEED MORE EXPERT LECTURERS” to help in training African doctors and physicists to manage our patients in a good way” and “…only Cobalt machines in my country, but we follow good practice as initiated in the guidelines…” were just two of the many comments received in a survey on the teaching sessions by Arno Mundt, MD, ASTRO visiting professor in Sudan, Africa.

ASTRO supported this teaching course, organized by the International Atomic Energy Agency (IAEA), with experts in gynecologic radiation oncology and brachytherapy. The course was held November 20-24, 2011, in Sudan’s RICK (Radiation and Isotope Center Khartoum), one of the few facilities in the country that provide external beam radiation and also brachytherapy.

Attendees included radiation oncologists, physicists and trainees alike.

“The attendees spent the longest time debating about the DVH; I was amazed considering that many of them work with only one medical physicist with over 150 patients treated per day on two cobalt units,” Dr. Mundt said about one of the contouring sessions.

The International Education Subcommittee is working to develop strong feedback mechanisms for attendees of ASTRO-sponsored international meetings to better understand the educational needs specific to regions around the world. The goal is to provide targeted educational offerings tailored to the status of available technology, educational needs, social/economic environment and disease prevalence.

A task force has been assembled with members from around the world gathering detailed information on these questions. Further, the subcommittee strives to develop ways for measuring educational success.

In the Sudan course, 74 percent of those surveyed responded they will change their practice of gynecologic radiation oncology based on ASTRO’s teaching sessions. More such data will accumulate in upcoming educational events to help us determine if and how “we made a difference.”

The most recent ASTRO-sponsored international education event was the AROI/ASTRO Teaching Course and Workshop on Head and Neck Cancer, which concluded March 25, 2012, at Tata Memorial Hospital in Mumbai, India. The course was designed in collaboration with Association of Radiation Oncologists of India and provided intense training in head and neck radiation oncology from clinical, technical and physics aspects, as well as on external beam, brachytherapy and survivorship/quality of life perspectives.

The course used traditional lectures combined with small-group discussion and practical treatment planning/contouring sessions. Renowned experts in the field, Louis Harrison, MD, FASTRO, Brian O’Sullivan, MD, FASTRO, David Brizel, MD, FASTRO, and Ping Xia, PhD, covered the clinical and physics aspects, respectively, of radiation therapy for head and neck malignancies. The course was attended by approximately 300 radiation oncologists, physicists and related specialists and was very successful.

Meanwhile, ASTRO has launched a new effort to provide educational grants to trainees. In the first round of the ASTRO-ARRO Global Health Scholar’s Award, three grants have been awarded to fund radiation oncology resident rotations abroad with the goal to expand international health care experience for the next generation of radiation oncologists and foster global collaboration in radiation oncology.
THE EMERGING TECHNOLOGY COMMITTEE (ETC) was formed with the mission to evaluate new technology or new applications of old technology. Over the years, the ETC has evaluated topics such as electronic brachytherapy, the use of stereotactic radiosurgery in the treatment of prostate cancer, image guided radiotherapy and proton beam therapy. These reports have or will be published in peer-reviewed journals after public comment and review by ASTRO and have been used by many in the health policy arena.

During the last year, however, the focus of the ETC has shifted and it is now a part of the Health Policy Council. The ETC will monitor technology in its early stage of development with the goal of providing vital technical and clinical information to the members of the Health Policy Council for use in code development or CPT code revaluation, instead of evaluating relatively mature technology and writing formal reports as it has in the past.

High priority, high practice impact ETC projects include the use of PET and MR imaging in the treatment planning process and 4-D simulation.

The ETC is also monitoring the use of MR guided brachytherapy and real-time MR guided external beam radiotherapy. The use of MR guided external beam radiotherapy is a technology that is not quite “ready for prime time” but is a technology that could, nonetheless, have an impact on the practice of radiotherapy in the future.

Although the use of systemic radiotherapy is falling out of favor with some radiation oncologists, the ETC is monitoring the use of Radium-223 and other systemic radionuclides in the treatment of advanced and metastatic cancer.

Dr. Konski is chairman of the Wayne State University Department of Radiation Oncology in Detroit.

The ETC will now monitor technology in its early stage of development with the goal of providing vital technical and clinical information to the members of the Health Policy Council for use in code development or CPT code revaluation instead of evaluating relatively mature technology and writing formal reports as it has in the past.

(Continued from Page 22)

ROI registry

for 100 percent participation. To the extent that we fail we will have to use statistical adjustments, and it is unclear whether these will normalize the data completely.”

It was also determined that the NROR needs to be able to integrate with other registries so that different treatments can be compared, such as surgery versus IMRT. There are 1,400 cancer registry systems currently in the United States.

“The issue of collaborating with other registries is obvious in that cancer patients often have multiple aspects to their care and coordinating with other registries could help to capture anything that we might have missed,” Dr. Lawton said. “In addition, for patients who chose to have non-radiation care, we can compare outcomes via collaboration with other specialties.”

Amid all the discussions, the conversation kept coming back to patients. One participant said that the radiation oncology treatment team needs to be accountable to their patients and understand that the results of registry data will impact the critical treatment decisions patients make every day.

Discussions will continue among the stakeholders and another forum will likely be held next year after the completion of the registry’s pilot prostate program, where 25 to 30 facilities will contribute real-time, real-world reliable information on radiation treatment delivery and health outcomes for actual prostate cancer patients they are treating. Other disease sites will follow.

The Radiation Oncology Institute’s (ROI) National Radiation Oncology Registry (NROR) is funded through the ROI, ASTRO and the Federal Share of program income earned by Massachusetts General Hospital on C06 CA059267.
Our keynote speakers, who will set an uplifting tone for our meeting and challenge us with new ideas about health care delivery, are Edward “Ted” Kennedy Jr., co-founder and CEO of the Marwood Group, a leading health care futurist, Art Kellermann, MD, vice-president of the Rand Corporation and director of Rand Health, the leading think tank in health policy, and Michael Porter, professor at Harvard Business School and the leading proponent of value-based medical care.

The Annual Meeting scientific chairman and vice-chairman, Lynn Wilson, MD, MPH, FASTRO, and Benjamin Movsas, MD, and the Annual Meeting Education Committee chair and vice-chairman Andrea Ng, MD, and Catherine Park, MD, PhD, have put together an exceptional program featuring a diverse group of expert invited speakers and session moderators for 20 panel discussions and 50 educational sessions.

The scientific oral and poster presentations promise to be the most comprehensive in ASTRO’s history with a record 2,721 abstract submissions. The meeting’s Plenary Session will feature the latest in cutting edge clinical science and our widely popular eContouring Learning Lab sessions will be expanded and enhanced. In addition to the scientific and educational program, attendees will again have the opportunity to network with friends and colleagues. Be sure to visit the Exhibit Hall featuring the world’s largest exhibition of the latest in radiation oncology technologies, products, services and publications valuable to you and your practice.

Registration opens in June. We look forward to your participation in radiation oncology’s leading forum for the presentation of the latest clinical, biological, medical physics and health policy thinking in our field—the 54th Annual Meeting of the American Society for Radiation Oncology in Boston.

Dr. Steinberg is a professor and chairman of radiation oncology at UCLA. He welcomes comments on his column at communications@astro.org.

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changing demographics, shifts in patient attitudes and expectations, dramatic growth in science and technology, and a health care delivery system that is becoming increasingly unaffordable. Many health experts assert that the solution to these health care challenges is innovation.

I invite you to come and witness the wonderful innovations taking place in our field at ASTRO’s 54th Annual Meeting. It is through wide distribution of research and face-to-face discussions that we can begin to answer many of these challenges and learn how “Advancing Patient Care through Innovation,” the theme of this year’s meeting, is truly possible.

MICHAEL STEINBERG, MD, FASTRO
President, ASTRO
Chairman, Annual Meeting Steering Committee
At Elekta, relationships matter

You’re more than a number

We understand a relationship is built on more than transactions. It involves a dedicated interest in your clinic and a higher level of personal care. Whether your focus is on transforming your cancer center or integrating advanced technology, collaborating with the right partner makes all the difference. We believe it’s an approach that nurtures long-lasting relationships. Visit us at elekta.com/experience.

Visit Elekta in Booth 845 at the AAPM 54th Annual Meeting and Exhibition

Experience the Elekta Difference
Fiducial Innovations

CIVCO’s latest fiducial marker innovations provide solutions for MRI/CT Fusion, SBRT treatments and improved prostate IGRT.

Experience the CIVCO Difference

Implantable fiducials provide a highly effective method of ensuring accurate target localization. CIVCO stays on the leading edge of marker research and development and provides an extensive line of fiducials for a wide variety of clinical applications.

- **FusionCoil Marker**: The FusionCoil Marker images equally as well in CT as it does in MR. It consists of an open spiral gold coil with a biocompatible segmented flexible metallic core that appears as a clear black dot in MR. This is the first of its kind providing superior reference for image fusion as well as precise IGRT.

- **PointCoil Marker**: Implanted gold markers help guide SBRT treatment of the lung. There are several techniques by which these markers are placed at or near the treatment site. CIVCO’s new PointCoil SBRT Kit includes 4 PointCoil markers and a special Trocar Needle designed specifically for SBRT marker placement.

- **SureLock Marker**: New SureLock Markers have a unique circular projection and design to ensure accurate daily localization and inhibit migration. These markers are ideal for prostate IGRT.

CIVCO’s dedicated customer support staff provides personalized service, we are here to help you! We also offer reimbursement support and guidance to our fiducial customers helping you get paid.

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