Each month the editor of Newsline selects articles on diagnostic, therapeutic, research, and practice issues from a range of international publications. Most selections come from outside the standard canon of nuclear medicine and radiology journals. These briefs are offered as a monthly window on the broad arena of medical and scientific endeavor in which nuclear medicine now plays an essential role. The lines between diagnosis and therapy are sometimes blurred, as radiolabels are increasingly used as adjuncts to therapy and/or as active agents in therapeutic regimens, and these shifting lines are reflected in the briefs presented here. We have also added a small section on noteworthy reviews of the literature.

^{89}Zr-Trastuzumab PET/CT and HER2 Tumor Status

Dehdashti et al. from the Washington University School of Medicine (St. Louis, MO), Yale University School of Medicine (New Haven, CT), and the University of Alabama at Birmingham reported on February 13 ahead of print in *Breast Cancer Research and Treatment* on a study evaluating the utility of ^{89}Zr-trastuzumab tumor uptake on PET/CT in distinguishing HER2-positive from HER2-negative breast cancer. The study included 34 women with HER2-positive and 16 with HER2-negative disease who underwent PET/CT imaging at 5 ± 2 d after ^{89}Zr-trastuzumab administration. Immunohistochemistry and/or fluorescence in situ hybridization were used to determine HER2 status, which was correlated with SUV_{max} in tumors. PET/CT was found to be positive in 30 (88.2%) of the HER2-positive and negative in 15 (93.7%) of the HER2-negative patients. Overall, SUV_{max} did not differ significantly between patients with HER2-positive and -negative disease. When hepatic lesions were excluded from the analysis, however, tumor SUV_{max} was significantly higher in HER2-positive than -negative patients. Using an SUV_{max} cutoff value of 3.2, ^{89}Zr-trastuzumab tumor uptake on PET/CT showed positive and negative predictive values of 83.3% and 50%, respectively; sensitivity of 75.8%; and specificity of 61.5% for differentiating HER2-positive from -negative disease. In patients with multiple lesions, intrapatient heterogeneity was seen in 20%. The authors concluded that ^{89}Zr-trastuzumab "has the potential to characterize the HER2 status of the complete tumor burden in patients with breast cancer, thus obviating repeat or multiple tissue sampling to assess intrapatient heterogeneity of HER2 status."

Breast Cancer Research and Treatment

^{18}F-NaF PET/CT vs. Planar Bone Scintigraphy in Prostate Tx Response

In an article e-published on February 15 ahead of print in *Acta Oncologica*, Fonager et al. from Aalborg University and Aalborg University Hospital (Denmark), Regional Hospital West Jutland (Herning and Holstebro, Denmark), and Herley Hospital (Denmark) reported on a study comparing the effectiveness of ^{18}F-sodium fluoride (^{18}F-NaF) PET/CT with that of ^{99m}Tc-labeled diphosphonate scanning in monitoring bone metastases in patients with prostate cancer undergoing treatment. The study included 64 patients who underwent baseline scanning before androgen-deprivation therapy (28 patients), next-generation hormonal therapy (16 patients), or chemotherapy (20 patients), with 1–3 additional scans during 6 mo of treatment. Scans were assessed as progressive or nonprogressive disease using the criteria of the Prostate Cancer Working Group 2 (PCWG-2) and were also categorized by clinical response and changing prostate-specific antigen levels. No significant difference was noted between the 2 imaging techniques in detection of progressive and nonprogressive disease during treatment, with moderate agreement seen. Overall agreement between scintigraphy and ^{18}F-NaF PET/CT was 86% (89% for androgen-deprivation therapy, 88% for next-generation hormonal therapy, and 80% for chemotherapy). Where results were discordant, scintigraphy identified progressive disease when PET/CT did not or did so on an earlier scan. Biochemical progression (27%) was noted more frequently than was progression on imaging (scintigraphy, 22%; ^{18}F-NaF PET/CT, 14%). Clinical progression (11%) was seen almost exclusively in patients treated with chemotherapy. The authors concluded that despite the finding that detection rates for progressive and nonprogressive disease were similar between ^{18}F-NaF PET/CT and bone scanning, ^{99m}Tc-labeled diphosphonate bone scanning "seemingly detects progressive disease by the PCWG-2 criteria earlier than ^{18}F-NaF PET, which might be explained by the fact that ^{18}F-NaF PET is more sensitive at the baseline scan."

Acta Oncologica

PET/CT and Gut Microbiota

Boursi et al. from the Perelman School of Medicine at the University of Pennsylvania (Philadelphia), Tel Aviv University (Israel), and Sheba Medical Center (Ramat Gan, Israel) reported online on February 15 in *PLoS One* (2018;13(2):e0192747) on a study evaluating the novel use of ^{18}F-FDG PET/CT for functional imaging of changes in glucose metabolism resulting from specific interactions between gut microbiota and the human host. The study included 7 individuals who underwent ^{18}F-FDG PET/CT and gut microbiota sampling before and after administration of broad-spectrum antibiotics. These patients were part of a larger study of the effects of diet and antibiotics on the stool microbiome and fecal/plasma metabolome. Total and regional physiologic colonic ^{18}F-FDG uptake (measured as SUV_{mean} and SUV_{max}) were assessed. Significant increases in physiologic colonic ^{18}F-FDG uptake were seen in all study participants after antibiotic treatment, with an expected significant reduction in gut bacterial load. The mean increase in

SUV_{max} was 0.63 ± 0.37 SD, with a median increase of 0.42. The mean increase in SUV_{mean} was 0.31 ± 0.24 SD, with a median increase of 0.41. The authors suggested that a likely explanation for these observations is a shift in colonocyte metabolism to glycolysis resulting from a shortage of short-chain fatty acids. They concluded that "colonic ^{18}F-FDG uptake may represent a novel imaging approach to capturing the functional consequence of the microbiota–host interaction" and "may provide in the future a simple tool for early detection of a large number of diseases that are associated with change in the microbiota."

PLoS One

^{18}F-AV-1451 PET in Primary Progressive Aphasia

In an article e-published on February 16 ahead of print in *Annals of Neurology*, Josephs et al. from the Mayo Clinic (Rochester, MN) reported on a study assessing PET uptake patterns of the tau tracer ^{18}F-AV-1451 in the 3 variants of primary progressive aphasia (PPA): logopenic, semantic, and agrammatic. The study also looked at regional uptake patterns of the tracer independent from clinical diagnoses and compared the diagnostic effectiveness of ^{18}F-AV-1451 PET, ^{18}F-FDG PET, and MR imaging in differentiating among PPA variants. The study included 40 patients with PPA (logopenic, 14; semantic, 13; agrammatic, 13) and 80 age- and sex-matched cognitively normal and ^{11}C-labeled Pittsburgh Compound B–negative controls. Statistical parametric mapping of uptake was compared between the 2 groups, and principal component analysis of regional PET SUV_{ratio} focused on ^{18}F-AV-1451 uptake independent of clinical diagnosis. Diagnostic utility was assessed with penalized multinomial regression analyses. Patients with logopenic PPA showed significant and distinct uptake throughout the neocortex, particularly the temporoparietal junction, whereas patients with semantic and agrammatic PPA showed milder patterns of focal ^{18}F-AV-1451 uptake. Patients with semantic PPA had higher uptake in the anteromedial temporal lobes (left over right) than controls or patients with agrammatic PPA. Patients with agrammatic PPA had higher uptake (left over right) throughout prefrontal white matter and in subcortical grey matter structures than controls or patients with semantic-PPA. Two dimensions were identified in principal component analysis of regional ^{18}F-AV-1451 uptake: a severity dimension that differentiated logopenic from agrammatic and semantic PPA, and frontal-vs-temporal contrast that differentiated agrammatic from semantic PPA. The diagnostic utility of ^{18}F-AV-1451was determined to be superior to that of MR imaging and "at least equal" to that of ^{18}F-FDG PET. The authors concluded that ^{18}F-AV-1451 binding characteristics differ across PPA variants and were excellent at distinguishing between these variants in ways that "were as good or better than other brain imaging modalities utilized in clinical practice, suggesting that ^{18}F-AV-1451 may have clinical diagnostic utility in PPA."

Annals of Neurology

Amyloid and Tau in Young Adults with Early-Onset AD Mutation

Quiroz et al. from the Massachusetts General Hospital/Harvard Medical School (Boston), the Universidad de Antioquia (Medellín, Colombia), the Massachusetts Institute of Technology (Cambridge), and Banner Alzheimer's Institute (Phoenix, AZ) reported on February 12 ahead of print in *JAMA Neurology* on a study using PET imaging to characterize associations between amyloid and tau deposits in the brains of cognitively unimpaired and impaired carriers of the presenilin 1 (PSEN1) E280A mutation, associated with early-onset Alzheimer disease (AD). The study included 24 related participants (ages, 28–55 y; mean age, 38.0 y), including 12 carriers (9 cognitively unimpaired, 3 with mild cognitive impairment [MCI]) and 12 cognitively unimpaired noncarriers. Participants underwent ^{11}C-labeled Pittsburgh Compound B (^{11}C-PiB) and ^{18}F-flortaucipir PET imaging for cross-sectional comparison of measurable tau deposition as a function of each individual's age in relation to expected onset of clinical dementia symptoms (~44 y in carriers). Cognitively unimpaired carriers in their late 20s had higher mean cortical ^{11}C-PiB distribution volume ratio levels than noncarriers, and 7 of 9 carriers >30 y old had reached the preidentified threshold for amyloidosis. Elevated tau was seen in the medial temporal lobes in amyloid-positive mutation carriers 6 y before expected clinical onset of AD. Significant tau deposition in the neocortex was seen in 1 asymptomatic carrier and individuals with MCI. β-amyloid uptake was widely elevated in unimpaired carriers at ~15 y before expected onset of MCI. Higher levels of tau deposition were associated with worse performance in carriers on the Mini-Mental State Examination and the Consortium to Establish a Registry for AD Word List Delayed Recall assessment. The authors concluded that these findings "add to the growing evidence that molecular markers can characterize biological changes associated with AD in individuals who are still cognitively unimpaired" and also that "tau PET imaging may be useful as a biomarker to distinguish individuals at high risk to develop the clinical symptoms of AD and to track disease progression."

JAMA Neurology

^{68}Ga-PSMA PET/CT for Primary Dx of Prostate Cancer

In an article e-published on January 31 ahead of print in *The Journal of Urology*, Lopci et al. from the Humanitas Clinical and Research Hospital (Milan, Italy) reported on an analysis of ^{68}Ga–prostate-specific membrane antigen (^{68}Ga-PSMA) PET/CT in patients with persistently elevated prostate-specific antigen and/or a prostate health index suspicious for prostate cancer and with negative digital rectal examinations and at least 1 negative biopsy. The study included 45 such men (median age, 64 y) referred to ^{68}Ga-PSMA PET/CT. Participants had either equivocal multiparametric MR imaging findings or an absolute or relative contraindication for MR imaging. Sensitivities, specificities, and confidence intervals with PET/CT were assessed and compared against histopathology.

Optimal cutoff values of ^{68}Ga-PSMA uptake for identification of clinically significant prostate cancer (Gleason score ≥7) were derived. Twenty-five (55.5%) of the referred patients had positive PET findings and underwent biopsy. Region of interest uptake values included a median SUV_{max} of 5.34 (range, 2.25–30.41) and SUV_{ratio} of 1.99 (range, 1.06–14.42). Mean and median uptake values on ^{68}Ga-PSMA PET/CT were significantly higher in Gleason score 7 lesions than in Gleason score 6 or benign lesions. On receiver operating characteristic analysis, an SUV_{max} of 5.4 and SUV_{ratio} of 2 could identify clinically relevant prostate cancer with specificities of 76% and 88%, respectively, and equal overall sensitivities of 100%. The authors concluded that these findings "support the use of ^{68}Ga-PSMA PET/CT for primary detection of prostate cancer in a specific subset of men."

The Journal of Urology

^{18}F-NaF Uptake in Abdominal Aortic Aneurysms: SoFIA3 Study

Forsythe et al. from the University of Edinburgh (UK) and the Royal Infirmary of Edinburgh (UK) reported in the February 6 issue of the *Journal of the American College of Cardiology* (2018;71:513–523) on a study assessing whether ^{18}F-sodium fluoride (^{18}F-NaF) uptake on PET/CT can predict abdominal aortic aneurysm growth and clinical outcomes. This analysis was part of the Sodium Fluoride Imaging of Abdominal Aortic Aneurysms trial. The study included 20 case-control individuals (aortic diameter <30 mm) and 72 patients with abdominal aortic aneurysm (aortic diameter >40 mm; baseline aneurysm diameter, 48.8 ± 7.7 mm; mean age, 73 ± 7 y; 85% men, 15% women) who underwent abdominal ultrasound, ^{18}F-NaF PET/CT, CT angiography, and calcium scoring. The authors found that uptake of ^{18}F-NaF was higher in abdominal aortic aneurysms than in nonaneurysm regions within the same aortas and higher than in the aortas of control subjects. ^{18}F-NaF uptake was also localized to areas of aneurysm and active calcification. In the 72 patients, 19 aneurysm repairs (26.4%) and 3 ruptures (4.2%) were documented during a follow-up of 510 ± 196 d. Aneurysms in the highest statistical third of ^{18}F-NaF uptake expanded 2.5 times more rapidly than those in the lowest third and were almost 3 times more likely to undergo repair or experience rupture. The authors concluded that ^{18}F-NaF PET/CT is "a novel and promising approach to the identification of disease activity in patients with abdominal aortic aneurysms and is an additive predictor of aneurysm growth and future clinical events."

Journal of the American College of Cardiology

Preoperative PET/CT and DCIS

In an article in the February issue of *Annals of Surgical Treatment and Research* (2018;94:63–68), Kim et al. from Mothers Hospital, Inje University College of Medicine, and Busan PET (all in Busan, Republic of Korea) reported on the utility of ^{18}F-FDG PET/CT in preoperative evaluation of ductal carcinoma in situ (DCIS). The study included 102 patients preoperatively diagnosed with DCIS who then underwent definitive surgery. Each patient underwent PET/CT before surgery, and the results were graded visually and semiquantitatively, analyzing SUV_{max} and clinicopathologic variables to determine optimal cutoff values for SUV_{max}. Fifteen (14.7%) patients were upgraded to invasive breast cancer after surgery. SUV_{max} was found to be higher in these patients. Overall, SUV_{max} was significantly higher in patients with symptoms, palpable masses, lesions >2 cm, and BI-RAD category 5. Both visual and semiquantitative analyses were significant predictors for previous underestimation of invasive breast cancer, and an SUV_{max} cutoff of 2.65 predicted this underestimation. The authors concluded that "PET/CT can be used as a complementary evaluation tool to predict the underestimation of DCIS combined with the lesion size, palpable mass, symptomatic lesion, and BI-RAD category."

Annals of Surgical Treatment and Research

Ankle SPECT/CT and Supramalleolar Osteotomy

Gross et al. from the Medical University of South Carolina (Charleston) and the Kantonsspital Baselland Standort (Bruderholz, Switzerland) reported on February 10 ahead of print in the *Journal of Orthopaedic Research* on a study designed to determine whether uptake in specific locations in the ankle joint on SPECT/CT can be associated with clinical outcomes and can predict the success of supramalleolar osteotomy. This procedure is used to treat distal tibular angular deformities as well as arthritis of the ankle joint. The study included 85 patients (varus, 37; valgus, 41; and neutral alignment of the hindfoot, 7) who underwent SPECT/CT before osteotomy. The authors found that patients with medial gutter activation had significantly worse American Orthopaedic Foot and Ankle Society (AOFAS) alignment scores before surgery. Patients with varus or valgus alignment showed no difference in Visual Analogue Scale pain scores, but those with valgus alignment had worse AOFAS pain scores. Those with cystic lesions had worse Foot and Ankle Outcome scores before surgery. Ten (12.5%) patients experienced a treatment failure, and pre- and postoperative alignment did not correlate with treatment failure. The only statistically significant prognostic indicator of poor outcomes was a bipolar lesion on SPECT/CT. The authors concluded that a "preoperative SPECT/CT evaluation of an ankle before a supramalleolar osteotomy can be used to clinically correlate patient-specific factors, such as pain and function in the pre- and postoperative period." They also cautioned against performing a supramalleolar osteotomy in patients with bipolar activation on preoperative SPECT/CT imaging.

Journal of Orthopaedic Research

^{18}F-FDG PET/CT Screening in MEN 1

In an article e-published on February 15 in *Clinical Endocrinology (Oxford),* So et al. from the Royal Hobart Hospital (Australia) and the University

of Tasmania (Hobart, Australia) reported on a retrospective study to evaluate ^{18}F-FDG PET/CT in the identification and prognostic assessment of thoracic lesions in multiple endocrine neoplasia type 1 (MEN 1). The study included 50 patients with MEN-1 who underwent ^{18}F-FDG PET/CT screening. Thirteen (26%) patients were found to have pulmonary nodules, and 9 (18.0%) had multiple nodules. Four patients had 13 tracer-avid nodules (mean size, 10.1 ± 9.1 mm), and 9 had 26 nonavid nodules (mean size, 6.9 ± 5.8 mm. One tumor was identified as a thymic carcinoid. All ^{18}F-FDG–avid lesions increased in size (mean doubling time, 24.2 mo), whereas 11 nonavid lesions increased in size but at a slower mean rate (mean doubling time, 48.6 mo). The authors concluded that "thoracic imaging with ^{18}F-FDG PET/CT effectively identifies pulmonary nodules and thymic carcinoid," adding that "^{18}F-FDG–avid pulmonary lesions are significantly more likely to progress than nonavid lesions."

Clinical Endocrinology (Oxford)

PD-L1 Expression and ^{18}F-FDG Uptake in TNBC

Choi et al. from the Yonsei University College of Medicine (Seoul, Republic of Korea) reported on February 6 ahead of print in the *American Journal of Clinical Oncology* on the clinical utility of programmed death ligand 1 (PD-L1), tumor metabolism, and other factors in predicting clinical outcomes in triple-negative breast cancer (TNBC). The study included 117 women with newly diagnosed TNBC who had undergone initial staging with ^{18}F-FDG PET and whose tumor samples could be evaluated for PD-L1 expression. Median follow-up was 53 mo. The authors found that both strong PD-L1 expression and tumor hypermetabolism were significantly associated with increased risk of recurrence. The systemic recurrence rate was higher in the strong than in the weak PD-L1 group (35% and 11%, respectively); similar differences were not seen in locoregional failure (8% in both groups). Tumor hypermetabolism was correlated with overall recurrences but not with type of recurrence (local vs systematic). The relationship between PD-L1 expression and survival outcomes was robust even after adjusting for potential risk factors. The authors concluded that "PD-L1 and tumor metabolism might have a role in predicting an increase in treatment failures," and that strong PD-L1 expression status, which was associated with distant metastasis–dominant recurrence patterns, may have special applications in pointing management to intensive systemic therapy.

American Journal of Clinical Oncology

^{18}F-FDG PET/CT and Anterior Mediastinal Lesions

In an article published online on February 6 in *BMJ Open* (2018;8[2]: e019471), Proli and other members of the UK Thoracic Surgery Research Collective reported on a multi-institutional study to determine the value and diagnostic performance of ^{18}F-FDG PET/CT in differentiating benign from malignant lesions in patients presenting with an anterior mediastinal mass. Data collected for this report came from the 7-site UK Diagnostic Performance of PET-CT for Anterior Mediastinal Lesions (DECiMaL) study. The study included a total of 134 patients (69 men, 65 women; mean age, 55 y), all of whom had presented with an anterior mediastinal mass and underwent PET/CT before proceeding to surgery. Histopathology of the surgical specimen was included in the analysis. The sensitivity and specificity of PET/CT in correctly identifying malignant disease were 83% and 58%, respectively, The positive and negative predictive values were 90% and 42%, respectively. The authors concluded that these results imply that "a negative PET/CT is useful to rule out the diagnosis of malignant disease, whereas a positive result has no value in the discrimination between malignant and benign diseases of the anterior mediastinum."

BMJ Open

Prognostic Value of Baseline MTV in Early-Stage HL

Cottereau, from the Hôpital Chochin (Paris, France), and a consortium of researchers from Italy, Denmark, France, The Netherlands, and Belgium reported on February 1 ahead of print in *Blood* on the use of baseline PET/CT to assess total tumor volume in early-stage Hodgkin lymphoma and thereby better identify high-risk patients. This study was a part of the "Fludeoxyglucose F 18 PET scan-guided therapy or standard therapy in treating patients with previously untreated stage I or stage II Hodgkin's lymphoma" (H10) trial. The study group included 258 patients with stage I–II Hodgkin lymphoma (101 favorable and 157 unfavorable according to the European Organisation for Research and Treatment of Cancer [EORTC] and the Groupe d'Etude des Lymphomes de l'Adulte [GELA] criteria) and with available baseline PET and interim PET after 2 cycles of doxorubicine, bleomycin, vinblastine, and dacarbazine. Total metabolic tumor volume (TMTV) was assessed on baseline PET, and the second scan was interpreted as positive or negative on the Deauville scale (DS). Over a median follow-up of 55 mo, baseline TMTV was a significant predictor of progression-free (PFS) and overall survival (OS) (86% and 84% specificity, respectively). Five-y PFS and OS were 71% and 83% in the high TMTV (>147 cm^3) group and 92% and 98% in the low TMTV (≤ 147 cm^3) group. In multivariable analyses, TMTV was the only baseline prognosticator when compared with the current staging systems proposed by EORTC/GELA and other groups. When combined, TMTV and the second PET scan data were independently prognostic and together identified 4 risk groups: low (TMTV $\leq$ 147 + DS 1–3; 5-y PFS, 95%), low-intermediate (TMTV $>$ 147 + DS 1–3; 5-y PFS, 81.6%), high-intermediate (TMTV $\leq$ 147 + DS 4–5; 5-y PFS, 50%), and high (TMTV $>$ 147 + DS 4–5; 5-y PFS, 25%). The authors concluded that "TMTV improves baseline

risk stratification of early-stage Hodgkin leukemia patients compared to current staging systems and the predictive value of early PET response as well."

Blood

PET/CT and Response Prediction in Esophageal Cancer

In an article e-published on February 8 ahead of print in the *British Journal of Surgery*, Harustiak et al. from Charles University, Motol University, General University Hospital, and Na Homolce Hospital (all in Prague, Czech Republic) reported on a study assessing whether ^{18}F-FDG PET can be used to predict histopathologic response early in neoadjuvant chemotherapy in adenocarcinoma of the esophagus and esophagogastric junction. The study included 126 patients, with a scanning protocol including 3 PET/CT studies: a baseline scan, a second scan in the third wk of the first cycle of neodjuvant therapy, and a third after chemotherapy to evaluate tumor resectability and to exclude distant metastases. The authors followed the PET Response Criteria in Solid Tumors (PERCIST 1.0) in evaluating metabolic response. Of the 90 patients who underwent surgery, 27 had a histopathologic response, but no association was found between this response and median changes in SUV_{peak} or median total lesion glycolysis. A follow-up analysis in 47 patients who underwent the second imaging ≤16 d after initiation of chemotherapy showed that changes in total lesion glycolysis (but not SUV_{peak}) were associated with histopathologic response. The optimal cutoff value for change in total lesion glycolysis was ≥66%. The authors concluded that ^{18}F-FDG PET/CT after the first cycle of chemotherapy "does not predict histopathological response in patients with adenocarcinoma of the esophagus and esophagogastric junction."

British Journal of Surgery

Reviews

Review articles offer an important way to stay up to date on the latest topics and approaches by providing valuable summaries of pertinent literature. The Newsline editor recommends several reviews accessioned into the PubMed database in late January and February. In an article in the February 1 issue of *Current Pain and Headache Reports* (2018;22:7), Howard et al. from Duke University Medical Center and Durham Veterans Affairs Medical Center (both in Durham, NC) summarized the current "Utility of radionuclide bone scintigraphy in complex regional pain syndrome." Villemagne et al. from Austin Health (Heidelberg and Parkville), the University of Melbourne, the Royal Brisbane and Women's Hospital (Herston), and CSIRO Health and Biosecurity (Melbourne and Parkville) (all in Australia) reviewed "Imaging tau and amyloid-β proteinopathies in Alzheimer disease" on February 16 ahead of print in *Nature Reviews. Neurology.* On January 29, ahead of print in *Current Pharmaceutical Design*, Signore et al. from the Sapienza University of Rome (Italy) and the Clínica Colsanitas Bogota (Colombia) described the "Current status of molecular imaging in inflammatory and autoimmune disorders." Maurer et al. from the Technische Universität Munich (Germany) reported in the March issue of *Current Opinion in Urology* (2018;28:191–196) on "Prostate-specific membrane antigen-guided salvage lymph node dissection in recurrent prostate cancer: A novel technology to detect lymph node metastases." In the February 11 online issue of *Diagnostics (Basel)*, Lenzo et al. from Theranostics Australia (East Fremantle) and the University of Western Australia (Nedlands) published a "Review of gallium-68 PSMA PET/CT imaging in the management of prostate cancer." On January 30, Lamichhane et al. from the University of Maryland School of Medicine (Baltimore) and the University of Maryland College Park reviewed "Liposomes: Clinical applications and potential for image-guided drug delivery" online in *Molecules (Basel).*

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molecular imaging, radiation safety, and understanding clinical trials, there will be breakout sessions on neuroendocrine tumors, prostate cancer, and lymphoma.

In addition, SNMMI-TV will again be reporting on each day's news and conducting interviews—providing one more way to stay abreast of all that is happening. The virtual meeting and virtual poster hall will also extend the availability of programming.

I look forward to seeing you in Philadelphia for an exciting 4 days of learning and collaboration!