Proceedings from the 15th Annual

Winter Lung Cancer Conference

CME Information

TARGET AUDIENCE

This educational activity has been designed to meet the educational needs of medical oncologists, hematology-oncology fellows and other allied cancer professionals involved in the treatment of lung cancer.

OVERVIEW OF ACTIVITY

Lung cancer is a devastating disease with broad-reaching impact on public health as it accounts for 14% of all new cancer cases in the United States and the most cancer-related deaths among both men and women. In the year 2018, it is estimated that more than 234,030 individuals will be diagnosed and more than 154,050 will die from the disease. Importantly, despite the many advances over the past few decades related to surgery, radiation therapy and chemotherapy, death rates attributable to lung cancer have remained relatively unchanged. Today, however, this field is seeing renewed optimism that these trends have already started to change as recent research advances have led to an explosion in lung cancer genetic and biologic knowledge among scientists and clinicians working in this area of cancer medicine. Over the past several years major clinical trials in lung cancer have witnessed a host of promising successes, many of which are already being operationalized in clinical practice. Even so, these achievements will doubtlessly continue to be dissected in the upcoming years and will further challenge the collective understanding of the biology and optimal management of this disease. Several consensus- and evidence-based treatment guidelines are currently available and aim to assist clinicians with making lung cancer treatment decisions in the face of this dynamic clinical environment, but despite the existence of these tools, many areas of controversy persist within academic and community settings.

These video proceedings from a live CME symposium feature the perspectives of a multidisciplinary panel of clinical investigators on key challenges and controversies in the treatment of lung cancer. By providing information on the latest research developments and their potential application to routine practice, this activity will assist medical oncologists, hematology-oncology fellows and other allied cancer professionals in staying up to date in a continuously evolving therapeutic environment.

LEARNING OBJECTIVES

- Design evidence-based strategies for the diagnosis and management of Stage I to Stage III non-small cell lung cancer (NSCLC), considering the potential contributions of systemic and/or local therapeutic modalities.
- Appreciate the FDA approval of durvalumab and available Phase III data documenting the benefit of sequential anti-PD-L1 therapy after the completion of chemoradiation therapy for Stage III NSCLC, and consider the role of this therapeutic approach for appropriate patients.
- Recognize available and emerging research information validating the utility of diagnostic assays designed to measure EGFR, ALK, ROS1, BRAF and PD-L1 status, select optimal testing platforms and appropriately apply the results to individualize first- and later-line therapy for patients with NSCLC according to their potential response or resistance to a specific treatment.
- Review published research data documenting the safety and efficacy of anti-PD-1/PD-L1 antibodies used as monotherapy or in combination with chemotherapy for patients with newly diagnosed metastatic NSCLC.
- Consider age, performance status, PD-L1 tumor proportion score and other patient or disease characteristics to guide the selection of induction and maintenance systemic therapy for patients with metastatic NSCLC without an identifiable driver mutation.
- Employ an understanding of personalized medicine to individualize the use of available EGFR inhibitors in the long-term management of EGFR mutation-positive NSCLC.
- Communicate the efficacy and safety of approved and investigational ALK inhibitors to appropriate patients with NSCLC, considering the predictive utility of ALK mutation testing.
- Assess other oncogenic pathways mediating the growth of tumors in unique subsets, and recall emerging data with commercially available and experimental agents exploiting these targets.
- Describe ongoing trials evaluating novel applications of immune checkpoint inhibitors alone or in combination

with other systemic approaches (eg, anti-PD-1/PD-L1 antibodies in combination with other checkpoint inhibitors, chemotherapy or targeted therapy) for diverse lung cancer variants, and counsel appropriately selected patients about participation.

- Formulate management strategies for small cell lung cancer, considering the contributory roles of local and systemic therapy in addition to current research studies evaluating novel immuno-therapeutic and targeted approaches.
- Consider the use of multimodality therapy for appropriate patients with mesothelioma who might be cured with this approach, and devise optimal management strategies for those with advanced disease, including the option of clinical trial participation.

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Please note, this program has been specifically designed for the following ABIM specialty: **medical oncology**.

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A high-speed Internet connection
A monitor set to 1280 x 1024 pixels or more
Internet Explorer 11 or later, Firefox 56 or later,
Chrome 61 or later, Safari 11 or later, Opera 48 or later
Adobe Flash Player 27 plug-in or later
Adobe Acrobat Reader
(Optional) Sound card and speakers for audio

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Select Publications

Improving Patient and Physician Communication

Ethan M Basch, MD, MSc

Atkinson TM et al. **Reliability of adverse symptom event reporting by clinicians.** Qual Life Res 2012;21(7):1159-64.

Basch E et al. **Overall survival results of a randomized trial assessing patient-reported outcomes for symptom monitoring during routine cancer treatment.** *Proc ASCO* 2017;**Abstract LBA2**.

Basch E. **The missing voice of patients in drug-safety reporting.** *N Engl J Med* 2010;362(10):865-9.

Basch E et al. **Patient online self-reporting of toxicity symptoms during chemotherapy.** *J Clin Oncol* 2005;23(15):3552-61.

Detmar SB et al. **Health-related quality-of-life assessments and patient-physician communication: A randomized controlled trial.** *JAMA* 2002;288(23):3027-34.

Dueck AC et al; National Cancer Institute PRO-CTCAE Study Group. **Validity and reliability of the US National Cancer Institute's Patient-Reported Outcomes Version of the Common Terminology Criteria for Adverse Events (PRO-CTCAE).** *JAMA Oncol* 2015;1(8):1051-9.

Hay JL et al; NCI PRO-CTCAE Study Group. **Cognitive interviewing of the US National Cancer Institute's Patient-Reported Outcomes version of the Common Terminology Criteria for Adverse Events (PRO-CTCAE).** *Qual Life Res* 2014;23(1):257-69.

Kotronoulas G et al. **What is the value of the routine use of patient-reported outcome measures toward improvement of patient outcomes, processes of care, and health service outcomes in cancer care? A systematic review of controlled trials.** *J Clin Onco*l 2014;32(14):1480-501.

Snyder CF et al. **Implementing patient-reported outcomes assessment in clinical practice: A review of the options and considerations.** *Qual Life Res* 2012;21(8):1305-14.

Velikova G et al. **Measuring quality of life in routine oncology practice improves communication and patient well-being: A randomized controlled trial.** *J Clin Oncol* 2004;22(4):714-24.

Session 1: Management of Non-Small Cell Lung Cancer (NSCLC) with a Targetable Mutation — Part 1

Anne S Tsao, MD

Garon EB et al; KEYNOTE-001 Investigators. **Pembrolizumab for the treatment of non-small-cell lung cancer.** *N Engl J Med* 2015;372(21):2018-28.

Lindeman N et al. **Updated molecular testing guideline for the selection of lung cancer patients for treatment with targeted tyrosine kinase inhibitors.** *J Thorac Oncol* 2018;13(3):323-58.

Gregory J Riely, MD, PhD

A phase 2 study of poziotinib in patients with non-small cell lung cancer, locally advanced or metastatic, with EGFR or HER2 Exon 20 insertion mutation (POZITIVE20-1). **NCT03318939**

Jänne PA et al. **AZD9291 in EGFR inhibitor-resistant non-small-cell lung cancer.** *N Engl J Med* 2015;372(18):1689-99.

Maemondo M et al; North-East Japan Study Group. **Gefitinib or chemotherapy for non-small-cell lung cancer with mutated EGFR.** *N Engl J Med* 2010;362(25):2380-8.

Mok TS et al. **Gefitinib or carboplatin-paclitaxel in pulmonary adenocarcinoma.** *N Engl J Med* 2009;361(10):947-57.

Soria JC et al; FLAURA Investigators. **Osimertinib in untreated EGFR-mutated advanced non-small-cell lung cancer.** *N Engl J Med* 2018;378(2):113-25.

Yu HA et al. **Analysis of tumor specimens at the time of acquired resistance to EGFR-TKI therapy in 155 patients with EGFR-mutant lung cancers.** *Clin Cancer Res* 2013;19(8):2240-7.

Lecia V Sequist, MD, MPH

Gainor JF, Shaw AT. **Emerging paradigms in the development of resistance to tyrosine kinase inhibitors in lung cancer.** *J Clin Oncol* 2013;31(31):3987-96.

Jänne PA et al. **AZD9291 in EGFR inhibitor-resistant non-small-cell lung cancer.** *N Engl J Med* 2015;372(18):1689-99.

Lee JK et al. **Clonal history and genetic predictors of transformation into small-cell carcinomas from lung adenocarcinomas.** *J Clin Oncol* 2017;35(26):3065-75.

Marcoux N et al. **Clinical outcomes for EGFR-mutant adenocarcinomas (AC) that transform to small cell lung cancer (SCLC).** *Proc ESMO* 2017;**Abstract 1531PD**.

Niederst MJ et al. **The allelic context of the C797S mutation acquired upon treatment with third-generation EGFR Inhibitors impacts sensitivity to subsequent treatment strategies.** *Clin Cancer Res* 2015;21(17):3924-33.

Piotrowska Z et al. **MET amplification (amp) as a resistance mechanism to osimertinib.** *Proc ASCO* 2017;**Abstract 9020**.

Sequist LV et al. **Genotypic and histological evolution of lung cancers acquiring resistance to EGFR inhibitors.** *Sci Transl Med* 2011;3(75):75ra26.

Yu HA et al. **Analysis of tumor specimens at the time of acquired resistance to EGFR-TKI therapy in 155 patients with EGFR-mutant lung cancers.** *Clin Cancer Res* 2013;19(8):2240-7.

Matthew Gubens, MD, MS

Drilon A et al. **Efficacy of larotrectinib in TRK fusion-positive cancers in adults and children.** *N Engl J Med* 2018;378(8):731-9.

Drilon A et al. **A next-generation TRK kinase inhibitor overcomes acquired resistance to prior TRK kinase inhibition in patients with TRK fusion-positive solid tumors.** *Cancer Discov* 2017;7(9):963-72.

Gainor JF et al. **Molecular mechanisms of resistance to first- and second-generation ALK inhibitors in ALK-rearranged lung cancer.** *Cancer Discov* 2016;6(10):1118-33.

Johnson TW et al. **Discovery of (10*R*)-7-amino-12-fluoro-2,10,16-trimethyl-15-oxo-10,15,16,17-tetrahydro-*2H*-8,4-(metheno) pyrazolo[4,3-*h*][2,5,11]-benzoxadiazacyclotetradecine-3-carbonitrile (PF-06463922), a macrocyclic inhibitor of anaplastic lymphoma kinase (ALK) and c-ros oncogene 1 (ROS1) with preclinical brain exposure and broad-spectrum potency against ALK-resistant mutations.** *J Med Chem* 2014;57(11):4720-44.

Kim DW et al. **Brigatinib in patients with crizotinib-refractory anaplastic lymphoma kinase-positive non-small-cell lung cancer: A randomized, multicenter phase II trial.** *J Clin Oncol* 2017;35(22):2490-8.

Lim SM et al. **Open-label, multicenter, phase II study of ceritinib in patients with non-small-cell lung cancer harboring ROS1 rearrangement.** *J Clin Oncol* 2017;35(23):2613-8.

Peters S et al; ALEX Trial Investigators. **Alectinib versus crizotinib in untreated *ALK*-positive non–small-cell lung cancer.** *N Engl J Med* 2017;377(9):829-38.

Shaw AT et al. **Efficacy and safety of lorlatinib in ALK+ non-small cell lung cancer (NSCLC) patients (pts) with >1 prior ALK tyrosine kinase inhibitor (TKI): A phase 1/2 study.** *Proc ASCO* 2017;**Abstract 9006**.

Shaw AT, Engelman JA. **Ceritinib in ALK-rearranged non-small-cell lung cancer.** *N Engl J Med* 2014;370(26):2537-9.

Solomon BJ et al; PROFILE 1014 Investigators. **First-line crizotinib versus chemotherapy in *ALK*-positive lung cancer.** *N Engl J Med* 2014;371(23):2167-77.

Soria JC et al. **First-line ceritinib versus platinum-based chemotherapy in advanced ALK-rearranged non-small-cell lung cancer (ASCEND-4): A randomised, open-label, phase 3 study.** *Lancet* 2017;389(10072):917-29.

Session 2: Management of NSCLC with a Targetable Mutation — Part 2

Leena Gandhi, MD, PhD

Awad MM et al. **MET exon 14 mutations in non-small-cell lung cancer are associated with advanced age and stage-dependent MET genomic amplification and c-Met overexpression.** *J Clin Oncol* 2016;34(7):721-30.

Bahcall M et al. **Acquired METD1228V mutation and resistance to MET inhibition in lung cancer.** *Cancer Discov* 2016;6(12):1334-41.

Caparica R et al. **Responses to crizotinib can occur in high-level MET-amplified non-small cell lung cancer independent of MET exon 14 alterations.** *J Thorac Oncol* 2017;12(1):141-4.

Cardarella S et al. **Clinical, pathologic, and biologic features associated with BRAF mutations in non-small cell lung cancer.** *Clin Cancer Res* 2013;19(16):4532-40.

Frampton GM et al. **Activation of MET via diverse exon 14 splicing alterations occurs in multiple tumor types and confers clinical sensitivity to MET inhibitors.** *Cancer Discovery* 2015;5(8):850-9.

Jorge SE et al. **Responses to the multitargeted MET/ALK/ROS1 inhibitor crizotinib and co-occurring mutations in lung adenocarcinomas with MET amplification or MET exon 14 skipping mutation.** *Lung Cancer* 2015;90(3):369-74.

Kong-Beltran M et al. **Somatic mutations lead to an oncogenic deletion of met in lung cancer.** *Cancer Res* 2006;66(1):283-9.

Kris MG et al. **Using multiplexed assays of oncogenic drivers in lung cancers to select targeted drugs.** *JAMA* 2014;311(19):1998-2006.

Li A et al. **Acquired *MET* Y1248H and D1246N mutations mediate resistance to MET inhibitors in non-small cell lung cancer.** *Clin Cancer Res* 2017;23(16):4927-37.

Noeparast A et al. **Non-V600 BRAF mutations recurrently found in lung cancer predict sensitivity to the combination of trametinib and dabrafenib.** *Oncotarget* 2016;8(36):60094-108.

Paik P et al. **Response to MET inhibitors in patients with stage IV lung adenocarcinomas harboring *MET* mutations causing exon 14 skipping.** *Cancer Discov* 2015;5(8):842-9.

Planchard D et al. **Dabrafenib plus trametinib in patients with previously untreated BRAFV600E-mutant metastatic non-small-cell lung cancer: An open-label, phase 2 trial.** *Lancet Oncol* 2017;18(10):1307-16.

Planchard DE et al. **Dabrafenib in patients with BRAF(V600E)-positive advanced non-small-cell lung cancer: A single-arm, multicentre, open-label, phase 2 trial.** *Lancet Oncol* 2016;17(5):642-50.

Nasser H Hanna, MD

Drilon A et al. **Cabozantinib in patients with advanced RET-rearranged non-small-cell lung cancer: An open-label, single-centre, phase 2, single-arm trial.** *Lancet Oncol* 2016;17(12):1653-60.

Lai WV et al. **Afatinib in patients with metastatic HER2-mutant lung cancers: An international multicenter study.** *Proc ASCO* 2017;**Abstract 9071**.

Lee SH et al. **Vandetanib in pretreated patients with advanced non-small cell lung cancer-harboring RET rearrangement: A phase II clinical trial.** *Ann Oncol* 2017;28(2):292-7.

Li BT et al. **Ado-trastuzumab emtansine in patients with HER2 mutant lung cancers: Results from a phase II basket trial.** *Proc ASCO* 2017;**Abstract 8510**.

Mazières J et al. **Lung cancer patients with HER2 mutations treated with chemotherapy and HER2-targeted drugs: Results from the European EUHER2 cohort.** *Ann Oncol* 2016;27(2):281-6.

Mazières J et al. **Lung cancer patients with HER2 mutations treated with chemotherapy and HER2 targeted drugs: Results from the EUHER2 cohort study.** *Proc ASCO* 2015;**Abstract 11076**.

Park CK et al. **Efficacy of afatinib in a previously-treated patient with non-small cell lung cancer harboring *HER2* mutation: Case report.** *J Korean Med Sci* 2018;33(1):e7.

Sarfaty M et al. **RET fusion lung carcinoma: Response to therapy and clinical features in a case series of 14 patients.** *Clin Lung Cancer* 2017;18(4):e223-32.

Velcheti V et al. **Phase 2 study of lenvatinib (LN) in patients (Pts) with RET fusion-positive adenocarcinoma of the lung.** *Proc ESMO* 2016;**Abstract 1204PD**.

Yoh K et al. **Vandetanib in patients with previously treated *RET*-rearranged advanced non-small-cell lung cancer (LURET): An open-label, multicentre phase 2 trial.** *Lancet Respir Med* 2017;5(1):42-50.

Zhou C et al. ***HER-2* mutations in Chinese lung adenocarcinoma patients with negative *EGFR* mutations.** *Proc ASCO* 2015;**Abstract e12649**.

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Arbour KC et al. **Twice weekly pulse and daily continuous-dose erlotinib as initial treatment for patients with epidermal growth factor receptor-mutant lung cancers and brain metastases.** *Cancer* 2018;124(1):105-9.

Barnholtz-Sloan JS et al. **Incidence proportions of brain metastases in patients diagnosed (1973 to 2001) in the Metropolitan Detroit Cancer Surveillance System.** *J Clin Oncol* 2004;22(14):2865-72.

Costa DB et al. **CSF concentration of the anaplastic lymphoma kinase inhibitor crizotinib.** *J Clin Oncol* 2011;29(15):e443-5.

Gadgeel SM et al. **Pooled analysis of CNS response to alectinib in two studies of pretreated patients with ALK-positive non-small-cell lung cancer.** *J Clin Oncol* 2016;34(34):4079-85.

Magnuson WJ et al. **Management of brain metastases in tyrosine kinase inhibitor-naïve epidermal growth factor receptor-mutant non-small-cell lung cancer: A retrospective multi-institutional analysis.** *J Clin Oncol* 2017;35(10):1070-7.

Ou SHI et al. **Clinical benefit of continuing ALK inhibition with crizotinib beyond initial disease progression in patients with advanced *ALK*-positive NSCLC.** *Ann Oncol* 2014;25(2):415-22.

Park SJ et al. **Efficacy of epidermal growth factor receptor tyrosine kinase inhibitors for brain metastasis in non-small cell lung cancer patients harboring either exon 19 or 21 mutation.** *Lung Cancer* 2012;77(3):556-60.

Peters S et al; ALEX Trial Investigators. **Alectinib versus crizotinib in untreated *ALK*-positive non–small-cell lung cancer.** *N Engl J Med* 2017;377(9):829-38.

Soria JC et al; FLAURA Investigators. **Osimertinib in untreated EGFR-mutated advanced non-small-cell lung cancer.** *N Engl J Med* 2018;378(2):113-25.

Wardak Z, Choy H. **Improving treatment options for brain metastases from ALK-positive non-small-cell lung cancer.** *J Clin Oncol* 2014;34(34):4064-5.

Lecia V Sequist, MD, MPH

Garassino M et al. **Durvalumab in ≥ 3rd-line EGFR mutant/ALK+, locally advanced or metastatic NSCLC: Results from the phase 2 ATLANTIC study.** *Proc ELCC* 2017;**Abstract 820**.

Hellmann MD et al. **CheckMate 012: Safety and efficacy of first-line (1L) nivolumab (nivo; N) and ipilimumab (ipi; I) in advanced (adv) NSCLC.** *Proc ASCO* 2016;**Abstract 3001**.

Lee CK et al. **Clinical and molecular characteristics associated with survival among patients treated with checkpoint inhibitors for advanced non-small cell lung carcinoma: A systematic review and meta-analysis.** *JAMA Oncol* 2018;4(2):210-6.

Oshima Y et al. **EGFR-TKI-associated interstitial pneumonitis in nivolumab-treated patients with non-small cell lung cancer.** *JAMA Oncol* 2018;[Epub ahead of print].

Reck M et al. **Primary PFS and safety analyses of a randomized phase III study of carboplatin + paclitaxel +/– bevacizumab, with or without atezolizumab in 1L non-squamous metastatic NSCLC (IMPOWER150).** *Proc ESMO Immuno Oncology* 2017;**Abstract LBA1_PR**.

Sabari JK et al. **PD-L1 expression and response to immunotherapy in patients with MET exon 14-altered non-small cell lung cancers (NSCLC).** *Proc ASCO* 2017;**Abstract 8512**.

Session 3: Current and Future Application of Immunotherapy in Lung Cancer — Part 1: NSCLC

Matthew Gubens, MD, MS

Borghaei H et al. **Nivolumab versus docetaxel in advanced nonsquamous non-small-cell lung cancer.** *N Engl J Med* 2015;373(1):1627-39.

Brahmer J et al. **Nivolumab versus docetaxel in advanced squamous-cell non-small-cell lung cancer.** *N Engl J Med* 2015;373(2):123-35.

Carbone DP et al; CheckMate 026 Investigators. **First-line nivolumab in stage IV or recurrent non-small-cell lung cancer.** *N Engl J Med* 2017;376(25):2415-26.

Gandara D et al. **Blood-based biomarkers for cancer immunotherapy: Tumor mutational burden in blood (bTMB) is associated with improved atezolizumab (atezo) efficacy in 2L+ NSCLC (POPLAR and OAK).** *Proc ESMO* 2017;**Abstract 12950**.

Hansen AR, Siu LL. **PD-L1 testing in cancer: Challenges in companion diagnostic development.** *JAMA Oncol* 2016;2(1):15-6.

Lawrence MS et al. **Mutational heterogeneity in cancer and the search for new cancer-associated genes.** *Nature* 2013;499(7457):214-8.

Rimm DL et al. **A prospective, multi-institutional, pathologist-based assessment of 4 immunohistochemistry assays for PD-L1 expression in non-small cell lung cancer.** *JAMA Oncol* 2017;3(8):1051-8.

Yuan J et al. **Novel technologies and emerging biomarkers for personalized cancer immunotherapy.** *J Immunother Cancer* 2016;4:3.

Nasser H Hanna, MD

Ahn JS et al. **Multinational randomized phase III trial with or without consolidation chemotherapy using docetaxel and cisplatin after concurrent chemoradiation in inoperable stage III non-small-cell lung cancer: KCSG-LU05-04.** *J Clin Oncol* 2015;33(24):2660-6.

Antonia SJ et al; PACIFIC Investigators. **Durvalumab after chemoradiotherapy in stage III non-small-cell lung cancer.** *N Engl J Med* 2017;377(20):1919-29.

Durm GA et al. **Safety and feasibility of consolidation pembrolizumab following concurrent chemoradiation for unresectable stage III non-small cell lung cancer: Hoosier Cancer Research Network LUN14-179.** *Proc ASCO* 2017;**Abstract 8523**.

Hanna N et al; Hoosier Oncology Group and US Oncology. **Phase III study of cisplatin, etoposide, and concurrent chest radiation with or without consolidation docetaxel in patients with inoperable stage III non-small-cell lung cancer: The Hoosier Oncology Group and US Oncology.** *J Clin Oncol* 2008;26(35):5755-60.

Tsujino K et al. **Is consolidation chemotherapy after concurrent chemo-radiotherapy beneficial for patients with locally advanced non-small-cell lung cancer? A pooled analysis of the literature.** *J Thorac Oncol* 2013;8(9):1181-9.

Edward B Garon, MD, MS

A randomized, double-blind, phase III study of platinum+pemetrexed chemotherapy with or without pembrolizumab (MK-3475) in first line metastatic non-squamous non-small cell lung cancer subjects (KEYNOTE-189). NCT02578680

Garon EB et al. **Efficacy of pembrolizumab (MK-3475) and relationship with PD-L1 expression in patients with non-small cell lung cancer: Findings from KEYNOTE-001.** *Proc AACR* 2015;**Abstract CT104**.

Hall RD et al. **Phase 3 study of platinum-based chemotherapy with or without pembrolizumab for first-line metastatic, nonsquamous non–small cell lung carcinoma (NSCLC): KEYNOTE-189.** *Proc ASCO* 2016;**Abstract TPS9104**.

Hui R et al. **Pembrolizumab as first-line therapy for patients with PD-L1-positive advanced non-small cell lung cancer: A phase 1 trial.** *Ann Oncol* 2017;28(4):874-81.

Langer CJ et al. **Randomized, phase 2 study of carboplatin and pemetrexed with or without pembrolizumab as first-line therapy for advanced NSCLC: KEYNOTE-021 cohort G.** *Proc ESMO* 2016;**Abstract LBA46_PR**.

Reck M et al. **KEYNOTE-024: Pembrolizumab (pembro) vs platinum-based chemotherapy (chemo) as first-line therapy for advanced NSCLC with a PD-L1 tumor proportion score (TPS) ≥50%.** *Proc ESMO* 2016;**Abstract LBA8_PR**.

Socinski M et al. **CheckMate 026: A phase 3 trial of nivolumab vs investigator's choice (IC) of platinum-based doublet chemotherapy (PT-DC) as first-line therapy for stage IV/recurrent programmed death ligand 1 (PD-L1)–positive NSCLC.** *Proc ESMO* 2016;**Abstract LBA7_PR**.

Mark A Socinski, MD

A phase III randomized, open-label, multi-center, global study of MEDI4736 in combination with tremelimumab therapy or MEDI4736 monotherapy versus standard of care platinum-based chemotherapy in first line treatment of patients with advanced or metastatic non small-cell lung cancer (NSCLC) (MYSTIC). NCT02453282

An open-label, randomized phase 3 trial of nivolumab, or nivolumab plus ipilimumab, or nivolumab plus platinum doublet chemotherapy versus platinum doublet chemotherapy in subjects with chemotherapy-naïve stage IV or recurrent non-small cell lung cancer (NSCLC). NCT02477826

Chen DS, Mellman I. **Oncology meets immunology: The cancer-immunity cycle.** *Immunity* 2013;39(1):1-10.

Facciabene A et al. **Tumour hypoxia promotes tolerance and angiogenesis via CCL28 and T(reg) cells.** *Nature* 2011;475(7355):226-30.

Ferrara N et al. **Discovery and development of bevacizumab, an anti-VEGF antibody for treating cancer.** *Nat Rev Drug Discov* 2004;3(5):391-400.

Gabrilovich DI, Nagaraj S. **Myeloid-derived suppressor cells as regulators of the immune system.** *Nat Rev Immunol* 2009;9(3):162-74.

Gabrilovich DI et al. **Production of vascular endothelial growth factor by human tumors inhibits the functional maturation of dendritic cells.** *Nat Med* 1996;2(10):1096-103.

Goel S et al. **Normalization of the vasculature for treatment of cancer and other diseases.** *Physiol Rev* 2011;91(3):1071-121.

Herbst RS et al. **Interim safety and clinical activity in patients with advanced NSCLC from a multi-cohort phase 1 study of ramucirumab (R) plus pembrolizumab (P).** *Proc ESMO* 2016;**Abstract LBA38**.

Hodi FS et al. **Bevacizumab plus ipilimumab in patients with metastatic melanoma.** *Cancer Immunol Res* 2014;2(7):632-42.

Motz GT et al. **Tumor endothelium FasL establishes a selective immune barrier promoting tolerance in tumors.** *Nat Med* 2014;20(6):607-15.

Oyama T et al. **Vascular endothelial growth factor affects dendritic cell maturation through the inhibition of nuclear factor-kappa B activation in hemopoietic progenitor cells.** *J Immunol* 1998;160(3):1224-32.

Reck M et al. **Primary PFS and safety analyses of a randomized phase III study of carboplatin + paclitaxel +/– bevacizumab, with or without atezolizumab in 1L non-squamous metastatic NSCLC (IMPOWER150).** *Proc ESMO Immuno Oncology* 2017;**Abstract LBA1_PR**.

Roland CL et al. **Cytokine levels correlate with immune cell infiltration after anti-VEGF therapy in preclinical mouse models of breast cancer.** *PLoS One* 2009;4(11):e7669.

Voron T et al. **VEGF-A modulates expression of inhibitory checkpoints on CD8+ T cells in tumors.** *J Exp Med* 2015;212(2):139-48.

Wallin JJ et al. **Atezolizumab in combination with bevacizumab enhances antigen-specific T-cell migration in metastatic renal cell carcinoma.** *Nat Commun* 2016;7:12624.

Session 4: Current and Future Application of Immunotherapy in Lung Cancer — Part 2: Small Cell Lung Cancer and Malignant Pleural Mesothelioma

Edward B Garon, MD, MS

Gandara DR et al. **Atezolizumab treatment beyond disease progression in advanced NSCLC: Results from the randomized ph III OAK study.** *Proc ASCO* 2017;**Abstract 9001**.

Kazandjian D et al. **Characterization of outcomes in patients with metastatic non-small cell lung cancer treated with programmed cell death protein 1 inhibitors past RECIST version 1.1-defined disease progression in clinical trials.** *Semin Oncol* 2017;44(1):3-7.

Spigel DR et al. **Randomized results of fixed-duration (1-yr) vs continuous nivolumab in patients (pts) with advanced non-small cell lung cancer (NSCLC).** *Proc ESMO* 2017;**Abstract 1297O**.

Rogerio C Lilenbaum, MD

Champiat A et al. **Hyperprogressive disease is a new pattern of progression in cancer patients treated by anti-PD-1/PD-L1.** *Clin Cancer Res* 2016;23(8):1920-8.

Ferrara R et al. **Hyperprogressive disease (HPD) is frequent in non-small cell lung cancer (NSCLC) patients (pts) treated with anti PD1/PD-L1 monoclonal antibodies (IO).** *Proc ESMO* 2017;**Abstract 1306PD**.

Kato S et al. **Hyperprogressors after immunotherapy: Analysis of genomic alterations associated with accelerated growth rate.** *Clin Cancer Res* 2017;23(15):4242-50.

Leena Gandhi, MD, PhD

Antonia SJ. **Nivolumab alone and nivolumab plus ipilimumab in recurrent small-cell lung cancer (CheckMate 032): A multi-centre, open-label, phase 1/2 trial.** *Lancet Oncol* 2016;17(7):883-95.

Hellmann MD et al. **Nivolumab (nivo) ± ipilimumab (ipi) in advanced small-cell lung cancer (SCLC): First report of a randomized expansion cohort from CheckMate 032.** *Proc ASCO* 2017;**Abstract 8503**.

Ott PA et al. **Safety and antitumor activity of pembrolizumab in advanced programmed death ligand 1-positive endometrial cancer: Results from the KEYNOTE-028 study.** *J Clin Oncol* 2017;35(22):2535-41.

Oze I et al. **Twenty-seven years of phase III trials for patients with extensive disease small-cell lung cancer: Disappointing results.** *PLoS One* 2009;4(11):e7835.

Rudin CM et al. **Rovalpituzumab tesirine, a DLL3-targeted antibody-drug conjugate, in recurrent small-cell lung cancer: A first-in-human, first-in-class, open-label, phase 1 study.** *Lancet Oncol* 2017;18(1):42-51.

Schultheis AM et al. **PD-L1 expression in small cell neuroendocrine carcinomas.** *Eur J Cancer* 2015;51(3):421-6.

Anne S Tsao, MD

Alley EW et al. **Clinical safety and activity of pembrolizumab in patients with malignant pleural mesothelioma (KEYNOTE-028): Preliminary results from a non-randomised, open-label, phase 1b trial.** *Lancet Oncol* 2017;18(5):623-30.

Calabro L et al. **Tremelimumab plus durvalumab in first- or second-line mesothelioma patients: Final analysis of the NIBIT-MESO-1 study.** *Proc IASLC* 2017;**Abstract MA 19.02**.

Disselhorst M et al. **Ipilimumab and nivolumab in the treatment of recurrent malignant pleural mesothelioma: A phase II study.** *Proc IASLC* 2017;**Abstract OA 02.02**.

Goto Y et al. **A phase II study of nivolumab: A multicenter, open-label, single arm study in malignant pleural mesothelioma (MERIT).** *Proc IASLC* 2017;**Abstract MA 19.01**.

Hassan R et al. **Avelumab (MSB0010718C; anti-PD-L1) in patients with advanced unresectable mesothelioma from the JAVELIN solid tumor phase Ib trial: Safety, clinical activity, and PD-L1 expression.** *Proc ASCO* 2016;**Abstract 8503**.

Kindler H et al. **Phase II trial of pembrolizumab in patients with malignant mesothelioma (MM): Interim analysis.** *Proc IASLC* 2017;**Abstract OA13.02**.

Mansfield AS et al. **B7-H1 expression in malignant pleural mesothelioma is associated with sarcomatoid histology and poor prognosis.** *J Thorac Oncol* 2014;9(7):1036-40.

Quispel-Janssen J et al. **A phase II study of nivolumab in malignant pleural mesothelioma (NivoMes): With translational research (TR) biopsies.** *Proc IASLC* 2017;**Abstract OA13.01**.

Scherpereel A et al. **Second- or third-line nivolumab (Nivo) versus nivo plus ipilimumab (Ipi) in malignant pleural mesothelioma (MPM) patients: Results of the IFCT-1501 MAPS2 randomized phase II trial.** *Proc ASCO* 2017;**Abstract LBA8507**.

Zalcman G et al. **Second or 3rd line nivolumab (Nivo) versus nivo plus ipilimumab (Ipi) in malignant pleural mesothelioma (MPM) patients: Updated results of the IFCT-1501 MAPS2 randomized phase 2 trial.** *Proc ESMO* 2017;**Abstract LBA58_PR**.

Session 5: Meet the Professors: Palliative Care and Psychiatric Support for Patients with NSCLC

Jennifer M Kapo, MD

Adelson K et al. **Standardized criteria for palliative care consultation on a solid tumor oncology service reduces downstream health care use.** *J Oncol Pract* 2017;13(5):e431-40.

Campbell ML, Field BE. **Management of the patient with do not resuscitate status: Compassion and cost containment.** *Heart Lung* 1991;20(4):345-8.

Campbell ML, Frank RR. **Experience with an end-of-life practice at a university hospital.** *Crit Care Med* 1997;25(1):197-202.

Du Pen SL et al. **Implementing guidelines for cancer pain management: Results of a randomized controlled clinical trial.** *J Clin Oncol* 1999;17(1):361-70.

El-Jawahri A et al. **Effects of early integrated palliative care on caregivers of patients with lung and gastrointestinal cancer: A randomized clinical trial.** *Oncologist* 2017;22(12):1528-34.

Morrison RS et al. **Palliative care consultation teams cut hospital costs for Medicaid beneficiaries.** *Health Aff (Millwood)* 2011;30(3):454-63.

Morrison RS et al. **Cost savings associated with US hospital palliative care consultation programs.** *Arch Intern Med* 2008;168(16):1783-90.

Portenoy RK. **Pharmacologic management of cancer pain.** *Semin Oncol* 1995;22(2 Suppl 3):112-20.

Scibetta C et al. **The costs of waiting: Implications of the timing of palliative care consultation among a cohort of decedents at a comprehensive cancer center.** *J Palliat Med* 2016;19(1):69-75.

Shear MK et al. **Complicated grief and related bereavement issues for DSM-5.** *Depress Anxiety* 2011;28(2):103-17.

Temel JS et al. **Early palliative care for patients with metastatic non-small-cell lung cancer.** *N Engl J Med* 2010;363(8):733-42.

Von Roenn JH et al. **Physician attitudes and practice in cancer pain management. A survey from the Eastern Cooperative Oncology Group.** *Ann Intern Med* 1993;119(2):121-6.

Whitford K et al. **Impact of a palliative care consult service.** *Am J Hosp Palliat Care* 2014;31(2):175-82.

Jesse R Fann, MD, MPH

Andersen BL et al. **Screening, assessment, and care of anxiety and depressive symptoms in adults with cancer: An American Society of Clinical Oncology guideline adaptation.** *J Clin Oncol* 2014;32(15):1605-19.

Carlson LE et al. **Screening for distress in lung and breast cancer outpatients: A randomized controlled trial.** *J Clin Oncol* 2010;28(33):4884-91.

Crump C et al. **Comorbidities and mortality in persons with schizophrenia: A Swedish national cohort study.** *Am J Psychiatry* 2013;170(3):324-33.

Derogatis LR et al. **The prevalence of psychiatric disorders among cancer patients.** *JAMA* 1983;249(6):751-7.

Flanagan RJ, Dunk L. **Haematological toxicity of drugs used in psychiatry.** *Hum Psychopharmacol* 2008;23(Suppl 1):27-41.

Hatcher S, Arroll B. **Assessment and management of medically unexplained symptoms.** *BMJ* 2008;336(7653):1124-8.

Hollingworth W et al. **Are needs assessments cost effective in reducing distress among patients with cancer? A randomized controlled trial using the Distress Thermometer and Problem List.** *J Clin Oncol* 2013;31(29):3631-8.

Hopwood P, Stephens RJ. **Depression in patients with lung cancer: Prevalence and risk factors derived from quality-of-life data.** *J Clin Oncol* 2000;18(4):893-903.

Kroenke K et al. **Anxiety disorders in primary care: Prevalence, impairment, comorbidity, and detection.** *Ann Intern Med* 2007;146(5):317-25.

Lehto RH. **Psychosocial challenges for patients with advanced lung cancer: Interventions to improve well-being.** *Lung Cancer (Auckl)* 2017;8:79-90.

Li J, Girgis A. **Supportive care needs: Are patients with lung cancer a neglected population?** *Psychooncology* 2006;15(6):509-16.

Li M et al. **Systematic review and meta-analysis of collaborative care interventions for depression in patients with cancer.** *Phychooncology* 2017;26(5):573-87.

Lu D et al. **Clinical diagnosis of mental disorders immediately before and after cancer diagnosis: A nationwide matched cohort study in Sweden.** *JAMA Oncol* 2016;2(9):1188-96.

McCormick TR, Conley BJ. **Patients' perspectives on dying and on the care of dying patients.** *West J Med* 1995;163(3):236-43.

Misono S et al. **Incidence of suicide in persons with cancer.** *J Clin Oncol* 2008;26(29):4731-8.

Ostuzzi G et al. **Antidepressants for the treatment of depression in people with cancer.** *Cochrane Database Syst Rev* 2015;(6):CD011006.

Rueda JR et al. **Non-invasive interventions for improving well-being and quality of life in patients with lung cancer.** *Cochrane Database Syst Rev* 2011;(9):CD004282.

Sanders SL et al. **Supportive care needs in patients with lung cancer.** *Psychooncology* 2010;19(5):480-9.

Sarna L et al. **Quality of life of long-term survivors of non-small-cell lung cancer.** *J Clin Oncol* 2002;20(13):2920-9.

Vodermaier A et al. **Anxiety after diagnosis predicts lung cancer-specific and overall survival in patients with stage III non-small cell lung cancer: A population-based cohort study.** *J Pain Symptom Manage* 2017;53(6):1057-65.

Walker J et al. **Prevalence, associations, and adequacy of treatment of major depression in patients with cancer: A cross-sectional analysis of routinely collected clinical data.** *Lancet Psychiatry* 2014;1(5):343-50.

Walker J et al. **Treatment of depression in people with lung cancer: A systematic review.** *Lung Cancer* 2013;79(1):46-53.

Zabora J et al. **The prevalence of psychological distress by cancer site.** *Psychooncology* 2001;10(1):19-28.

Session 6: Surgery, Radiation Therapy and Other Issues in the Management of NSCLC

Billy W Loo Jr, MD, PhD, DABR

Ashworth AB et al. **An individual patient data metaanalysis of outcomes and prognostic factors after treatment of oligometastatic non-small-cell lung cancer.** *Clin Lung Cancer* 2014;15(5):346-55.

Chance WW. **Stereotactic ablative radiotherapy for adrenal gland metastases: Factors influencing outcomes, patterns of failure, and dosimetric thresholds for toxicity.** *Pract Radiat Oncol* 2017;7(3):e195-203.

Chun SG et al. **Impact of intensity-modulated radiation therapy technique for locally advanced non-small-cell lung cancer: A secondary analysis of the NRG oncology RTOG 0617 randomized clinical trial.** *J Clin Oncol* 2017;35(1):56-62.

Eaton BR et al. **Institutional enrollment and survival among NSCLC patients receiving chemoradiation: NRG Oncology Radiation Therapy Oncology Group (RTOG) 0617.** *J Natl Cancer Inst* 2016;108(9).

Gensheimer MF et al. **Mid-radiotherapy PET/CT for prognostication and detection of early progression in patients with stage III non-small cell lung cancer.** *Radiother Oncol* 2017;125(2):338-43.

Gomez DR et al. **Local consolidative therapy versus maintenance therapy or observation for patients with oligometastatic non-small-cell lung cancer without progression after first-line systemic therapy: A multicentre, randomised, controlled, phase 2 study.** *Lancet Oncol* 2016;17(12):1672-82.

Liu F et al. **Tumor control probability modeling for stereotactic body radiation therapy of early-stage lung cancer using multiple bio-physical models.** *Radiother Oncol* 2017;122(2):286-94.

Liu MB et al. **Clinical impact of dose overestimation by effective path length calculation in stereotactic ablative radiation therapy of lung tumors.** *Pract Radiat Oncol* 2013;3(4):294-300.

Machtay M et al. **Higher biologically effective dose of radiotherapy is associated with improved outcomes for locally advanced non-small cell lung carcinoma treated with chemoradiation: An analysis of the Radiation Therapy Oncology Group.** *Int J Radiat Oncol Biol Phys* 2012;82(1):425-34.

Mauguen A et al. **Hyperfractionated or accelerated radiotherapy in lung cancer: An individual patient data meta-analysis.** *J Clin Oncol* 2012;30(22):2788-97.

Ohri N et al. **Local control after stereotactic body radiation therapy for liver tumors.** *Int J Radiat Oncol Biol Phys* 2018;[Epub ahead of print].

Walraven I et al. **Long-term follow-up of patients with locally advanced non-small cell lung cancer receiving concurrent hypofractionated chemoradiotherapy with or without cetuximab.** *Radiother Oncol* 2016;118(3):442-6.

Wang J et al. **Comparison of locoregional versus extended locoregional radiation volumes for patients with nonmetastatic gastro-esophageal junction carcinomas.** *J Thorac Oncol* 2015;10(3):518-26.

Douglas E Wood, MD

Aberle DR et al. National Lung Screening Trial Research Team. **Reduced lung-cancer mortality with low-dose computed tomographic screening.** *N Engl J Med* 2011;365(5):395-409.

Altorki NK et al; I-ELCAP Investigators. **Sublobar resection is equivalent to lobectomy for clinical stage 1A lung cancer in solid nodules.** *J Thorac Cardiovasc Surg* 2014;147(2):754-62.

Boffa DJ et al. **Lymph node evaluation by open or video-assisted approaches in 11,500 anatomic lung cancer resections.** *Ann Thorac Surg* 2012;94(2):347-53.

Cao C et al. **Meta-analysis of intentional sublobar resections versus lobectomy for early stage non-small cell lung cancer.** *Ann Cardiothorac Surg* 2014;3(2):134-41.

Cao C et el. **A meta-analysis of unmatched and matched patients comparing video-assisted thoracoscopic lobectomy and conventional open lobectomy.** *Ann Cardiothorac Surg* 2012;1(1):16-23.

Farjah F et al. **Safety and efficacy of video-assisted versus conventional lung resection for lung cancer.** *J Thorac Cardiovasc Surg* 2009;137(6):1415-21.

Flores R. **Balancing curability and unnecessary surgery in the context of computed tomography screening for lung cancer.** *J Thorac Cardiovasc Surg* 2014;147(5):1619-26.

Gopaldas RR et al. **Video-assisted thoracoscopic versus open thoracotomy lobectomy in a cohort of 13,619 patients.** *Ann Thorac Surg* 2010;89(5):1563-70.

Gøtzsche PC, Nielsen M. **Screening for breast cancer with mammography.** *Cochrane Database Syst Rev* 2011;(1):CD001877.

Licht PB et al. **A national study of nodal upstaging after thoracoscopic versus open lobectomy for clinical stage I lung cancer.** *Ann Thorac Surg* 2013;96(3):943-9.

Ma J et al. **Annual number of lung cancer deaths potentially avertable by screening in the United States.** *Cancer* 2013;119(7):1381-5.

McKee BJ et al. **Experience with a CT screening program for individuals at high risk for developing lung cancer.** *J Am Coll Radiol* 2015;12(2):192-7.

Parente Lamelas I et al. **Clinical characteristics and survival in never smokers with lung cancer.** *Arch Bronconeumol* 2014;50(2):62-6.

Richardson A. **Screening and the number needed to treat.** *J Med Screen* 2001;8(3):125-7.

Wood DE. **What is most important in improving outcomes after pulmonary lobectomy: The surgeon or the approach?** *Eur J Cardiothorac Surg* 2013;43(4):817-9.

Yendamuri S et al. **Temporal trends in outcomes following sublobar and lobar resections for small (≤ 2 cm) non-small cell lung cancers — A Surveillance Epidemiology End Results database analysis.** *J Surg Re*s 2013;183(1):27-32.

Jeffrey Crawford, MD

Ashworth A et al. **Is there an oligometastatic state in non-small cell lung cancer? A systematic review of the literature.** *Lung Cancer* 2013;82(2):197-203.

Detterbeck F et al. **The eighth edition lung cancer stage classification.** *Chest* 2017;151(1):193-203.

Gan GN et al. **Stereotactic radiation therapy can safely and durably control sites of extra-central nervous system oligoprogressive disease in anaplastic lymphoma kinase-positive lung cancer patients receiving crizotinib.** *Int J Rad Oncol Biol Phys* 2014;88(4):892-8.

Gomez DR et al. **Local consolidative therapy versus maintenance therapy or observation for patients with oligometastatic non-small-cell lung cancer without progression after first-line systemic therapy: A multicentre, randomised, controlled, phase 2 study.** *Lancet Oncol* 2016;17(12):1672-82.

Hellman S, Weichselbaum RR. **Oligometastases.** *J Clin Oncol* 1995;13(1):8-10.

Iyengar P et al. **Phase II trial of stereotactic body radiation therapy combined with erlotinib for patients with limited but progressive metastatic non-small-cell lung cancer.** *J Clin Oncol* 2014;32(34):3824-30.

Macdermed D et al. **A rationale for the targeted treatment of oligometastases with radiotherapy.** *J Surg Oncol* 2008;98(3):202-6.

Parikh RB et al. **Definitive primary therapy in patients presenting with oligometastatic non-small cell lung cancer.** *Int J Rad Oncol Biol Phys* 2014;89(4):880-7.

Pastorino U et al. **Long-term results of lung metastasectomy: Prognostic analyses based on 5206 cases.** *J Thorac Cardiovasc Surg* 1997;113(1):37-49.

Salama AK et al. **Irradiation and immunotherapy: From concept to the clinic.** *Cancer* 2016;122(11):1659-71.

Timmerman RD et al. **Local surgical, ablative, and radiation treatment of metastases.** *Cancer J Clin* 2009;59(3):145-70.

Torok JA et al. **Patterns of distant metastases after surgical management of non-small-cell lung cancer.** *Clin Lung Cancer* 2017;18(1):e57-70.

Naiyer Rizvi, MD

A phase III prospective double blind placebo controlled randomized study of adjuvant MEDI4736 in completely resected non-small cell lung cancer. NCT02273375

A randomized, phase 3 trial with anti-PD-1 monoclonal antibody pembrolizumab (MK-3475) versus placebo for patients with early stage NSCLC after resection and completion of standard adjuvant therapy (PEARLS). NCT02504372

Adjuvant nivolumab in resected lung cancers (ANVIL) — A randomized phase III study of nivolumab after surgical resection and adjuvant chemotherapy in non-small cell lung cancers. NCT02595944

Butts C et al. **Tecemotide (L-BLP25) versus placebo after chemoradiotherapy for stage III non-small-cell lung cancer (START): A randomised, double-blind, phase 3 trial.** *Lancet Oncol* 2014;15(1):59-68.

Forde PM et al. **Checkmate 816: A phase 3, randomized, open-label trial of nivolumab plus ipilimumab vs platinum-doublet chemotherapy as neoadjuvant treatment for early-stage NSCLC.** *Proc ASCO* 2017;**Abstract TPS8577**.

Liu J et al. **Improved efficacy of neoadjuvant compared to adjuvant immunotherapy to eradicate metastatic disease.** *Cancer Discov* 2016;6(12):1382-99.

Randomized, openlabel, phase 3 trial of nivolumab plus ipilimumab or nivolumab plus platinum doublet chemotherapy versus platinum doublet chemotherapy in early stage NSCLC. NCT02998528

Weber J et al. **Adjuvant nivolumab versus ipilimumab in resected stage III or IV melanoma.** *N Engl J Med* 2017;377(19):1824-35.

Session 7: Practical Clinical Issues in the Treatment of Locally Advanced NSCLC in the Current Era

Douglas E Wood, MD

Allen MS et al. **Bronchogenic carcinoma with chest wall invasion.** *Ann Thor Surg* 1991;51(6):948-51.

Cetinkaya E et al. **Comparison of clinical and surgical-pathologic staging of the patients with non-small cell lung carcinoma.** *Eur J Cardiothorac Surg* 2002;22(6):1000-5.

Downey RJ et al. **Extent of chest wall invasion and survival in patients with lung cancer.** *Ann Thorac Surg* 1999;68(1):188-93.

Mehran RJ et al. **Survival related to nodal status after sleeve resection for lung cancer.** *J Thorac Cardiovasc Surg* 1994;107(2):576-83.

Pitz CC et al. **Surgical treatment of 125 patients with non-small cell lung cancer and chest wall involvement.** *Thorax* 1996;51(8):846-50.

Rendina EA et al. **Bronchovascular sleeve resection. Technique, perioperative management, prevention, and treatment of complications.** *J Thorac Cardiovasc Surg* 1993;106(1):73-9.

Tedder M et al. **Current morbidity, mortality, and survival after bronchoplastic procedures for malignancy.** *Ann Thor Surg* 1992;54(2):387-91.

Billy W Loo Jr, MD, PhD, DABR

Aupérin A et al. **Meta-analysis of concomitant versus sequential radiochemotherapy in locally advanced non-small-cell lung cancer.** *J Clin Oncol* 2010;28(13):2181-90.

Bradley JD et al. **Standard-dose versus high-dose conformal radiotherapy with concurrent and consolidation carboplatin plus paclitaxel with or without cetuximab for patients with stage IIIA or IIIB non-small-cell lung cancer (RTOG 0617): A randomised, two-by-two factorial phase 3 study.** *Lancet Oncol* 2015;16(2):187-99.

Chen M et al. **Involved-field radiotherapy versus elective nodal irradiation in combination with concurrent chemotherapy for locally advanced non-small cell lung cancer: A prospective randomized study.** *Biomed Res Int* 2013;2013:371819.

Choi NC et al. **Phase I study to determine the maximum-tolerated dose of radiation in standard daily and hyperfractionated-accelerated twice-daily radiation schedules with concurrent chemotherapy for limited-stage small-cell lung cancer.** *J Clin Oncol* 1998;16(11):3528-36.

Chun SG et al. **Impact of intensity-modulated radiation therapy technique for locally advanced non-small-cell lung cancer: A secondary analysis of the NRG Oncology RTOG 0617 randomized clinical trial.** *J Clin Oncol* 2017;35(1):56-62.

Cox JD et al. **Toxicity criteria of the Radiation Therapy Oncology Group (RTOG) and the European Organization for Research and Treatment of Cancer (EORTC).** *Int J Radiat Oncol Biol Phys* 1995;31(5):1341-6.

Curran WJ Jr et al. **Sequential vs concurrent chemoradiation for stage III non-small cell lung cancer: Randomized phase III trial RTOG 9410.** *J Natl Cancer Inst* 2011;103(19):1452-60.

Everitt S et al. **Acute radiation oesophagitis associated with 2-deoxy-2-[18F]fluoro-d-glucose uptake on positron emission tomography/CT during chemo-radiation therapy in patients with non-small-cell lung cancer.** *J Med Imaging Radiat Oncol* 2017;61(5):682-8.

Palma DA et al. **Predicting esophagitis after chemoradiation therapy for non-small cell lung cancer: An individual patient data meta-analysis.** *Int J Radiat Oncol Biol Phys* 2013;87(4):690-6.

Palma DA et al. **Predicting radiation pneumonitis after chemoradiation therapy for lung cancer: An international individual patient data meta-analysis.** *Int J Radiat Oncol Biol Phys* 2013;85(2):444-50.

Yuan S et al. **A randomized study of involved-field irradiation versus elective nodal irradiation in combination with concurrent chemotherapy for inoperable stage III nonsmall cell lung cancer.** *Am J Clin Oncol* 2007;30(3):239-44.

Naiyer Rizvi, MD

Champiat S et al. **Management of immune checkpoint blockade dysimmune toxicities: A collaborative position paper.** *Ann Oncol* 2016;27(4):559-74.

Chianchini G et al. **Treatment of severe pemphigus with rituximab: Report of 12 cases and a review of the literature.** *Arch Dermatol* 2007;143(8):1033-8.

Pollack MH et al. **Safety of resuming anti-PD-1 in patients with immune-related adverse events (irAEs) during combined anti-CTLA-4 and anti-PD1 in metastatic melanoma.** *Ann Oncol* 2018;29(1):250-5.

Sznol M et al. **Pooled analysis safety profile of nivolumab and ipilimumab combination therapy in patients with advanced melanoma.** *J Clin Oncol* 2017;35(34):3815-22.

Weber JS et al. **Safety profile of nivolumab monotherapy: A pooled analysis of patients with advanced melanoma.** *J Clin Oncol* 2017;35(7):785-92.

Jeffrey Crawford, MD

Abdel-Wahab N et al. **Use of immune checkpoint inhibitors in the treatment of patients with cancer and preexisting autoimmune disease: A systematic review.** *Ann Intern Med* 2018;168(2):121-30.

Brahmer JR et al. **Management of immune-related adverse events in patients treated with immune checkpoint inhibitor therapy: American Society of Clinical Oncology Clinical Practice Guideline summary.** *J Oncol Pract* 2018;[Epub ahead of print].

Khan SA et al. **Prevalence of autoimmune disease among patients with lung cancer: Implications for immunotherapy treatment options.** *JAMA Oncol* 2016;2(11):1507-8.

Nishijima TF et al. **Comparison of efficacy of immune checkpoint inhibitors (ICIs) between younger and older patients: A systematic review and meta-analysis.** *Cancer Treat Rev* 2016;45:30-7.