

Five Things Patients and Physicians Should Question (2012)¹²

1. Don't use cancer-directed therapy for solid tumor patients with the following characteristics: low performance status (3 or 4), no benefit from prior evidence-based interventions, and no strong evidence supporting the clinical value of further anti-cancer treatment.

Azzoli CG, Temin S, Aliff T, et al: 2011 focused update of 2009 American Society of Oncology clinical practice guideline update on chemotherapy for stage IV non-small cell lung cancer. J Clin Oncol 29:3825–3831, 2011

Ettinger DS, Akerley W, Bepler G, et al: Non-small cell lung cancer. J Natl Compr Canc Netw 8:740–801, 2010

Carlson RW, Allred DC, Anderson BO, et al: Breast cancer. J Natl Compr Canc Netw 7:122–192, 2009
Engstrom PF, Benson AB 3rd, Chen YJ, et al: Colon cancer clinical practice guidelines. J Natl Compr Canc Netw 3:468–491, 2005

Smith TJ, Hillner BE: Bending the cost curve in cancer care. N Engl J Med 364:2060–2065, 2011
Peppercorn JM, Smith TJ, Helft PR, et al: American Society of Clinical Oncology statement: Toward individualized care for patients with advanced cancer. J Clin Oncol 29:755–760, 2011

2. Don't perform PET, CT, and radionuclide bone scans, or newer imaging scans in the staging of early prostate cancer at low risk for metastasis.

Makarov DV, Desai RA, Yu JB, et al: The population level prevalence and correlates of appropriate and inappropriate imaging to stage incident prostate cancer in the Medicare population. J Urol 187:97-102, 2012

National Comprehensive Cancer Network: NCCN clinical practice guidelines in oncology (NCCN guidelines)-Prostate cancer. Version 4.2011

Thompson I, Thrasher JB, Aus G, et al: Guideline for the management of clinically localized prostate cancer: 2007 update. J Urol 177:2106–2130, 2007

3. Don't perform PET, CT, and radionuclide bone scans in the staging of early breast cancer at low risk for metastasis.

Carlson RW, Allred DC, Anderson BO, et al: Invasive breast cancer. J Natl Compr Canc Netw 9:136–222, 2011

4. Don't perform surveillance testing (biomarkers) or imaging (PET, CT, and radionuclide bone scans) for asymptomatic individuals who have been treated for breast cancer with curative intent.

Locker GY, Hamilton S, Harris J, et al: ASCO 2006 update of recommendations for the use of tumor markers in gastrointestinal cancer. J Clin Oncol 24:5313–5327, 2006

Desch CE, Benson AB 3rd, Somerfield MR, et al: Colorectal cancer surveillance: 2005 update of an American Society of Clinical Oncology practice guideline. *J Clin Oncol* 23:8512-8519, 2005

Carlson RW, Allred DC, Anderson BO, et al: Breast cancer. *J Natl Compr Canc Netw* 7:122–192, 2009
Khatcheressian JL, Wolff AC, Smith TJ, et al: American Society of Clinical Oncology 2006 update of the breast cancer follow-up and management guideline in the adjuvant setting. *J Clin Oncol* 24: 5091–5097, 2006

Harris L, Fritsche H, Mennel R, et al: American Society of Clinical Oncology 2007 update of recommendations for the use of tumor markers in breast cancer. *J Clin Oncol* 25:5287–5312, 2007

5. Don't use prophylactic white cell stimulating factors unless the expected risk of febrile neutropenia associated with a chemotherapy agent or regimen is equal to or greater than 20%.

Smith TJ, Khatcheressian J, Lyman GH, et al: ASCO 2006 update of recommendations for the use of white blood cell growth factors: An evidence based clinical practice guideline. *J Clin Oncol* 24:3187–3205, 2006

Five More Things Patients and Physicians Should Question (2013)³

6. Don't give patients starting on a chemotherapy regimen that has a low or moderate risk of causing nausea and vomiting antiemetic drugs intended for use with a regimen that has a high risk of causing nausea and vomiting.

Basch E, Prestrud AA, Hesketh PJ, Kris MG, Feyer PC, Somerfield MR, Chesney M, Clark-Snow RA, Flaherty AM, Freundlich B, Morrow G, Rao KV, Schwartz RN, Lyman GH; American Society of Clinical Oncology. Antiemetics: American Society of Clinical Oncology clinical practice guideline update. *J Clin Oncol*. 2011 Nov 1;29:4189–98.

Saito M, Aogi K, Sekine I, Yoshizawa H, Yanagita Y, Sakai H, Inoue K, Kitagawa C, Ogura T, Mitsunashi S. Palonosetron plus dexamethasone versus granisetron plus dexamethasone for prevention of nausea and vomiting during chemotherapy: a double-blind, double-dummy, randomized, comparative phase III trial. *Lancet Oncol*. 2009 Feb;10(2):115–24.

Aapro M, Fabi A, Nole F, Medici M, Steger G, Bachmann C, Roncoroni S, Roila F. Double-blind, randomised, controlled study of the efficacy and tolerability of palonosetron plus dexamethasone for 1 day with or without dexamethasone on days 2 and 3 in the prevention of nausea and vomiting induced by moderately emetogenic chemotherapy. *Ann Oncol*. 2010 May;21(5):1083–8.

Yu Z, Liu W, Wang L, Liang H, Huang Y, Si X, Zhang H, Liu D, Zhang H. The efficacy and safety of palonosetron compared with granisetron in preventing highly emetogenic chemotherapy-induced vomiting in the Chinese cancer patients: a phase II, multicenter, randomized, double-blind, parallel, comparative clinical trial. *Support Care Cancer*. 2009 Jan;17(1):99–102.

Schleicher SM, Bach PB, Matsoukas K, Korenstein D. Medication overuse in oncology: current trends and future implications for patients and society. *Lancet Oncol*. 2018;19(4):e200–e208. (PMID 29611528)

Encinosa W, Davidoff AJ. Changes in Antiemetic Overuse in Response to Choosing Wisely Recommendations. *JAMA Oncol.* 2017;3(3):320-326. (PMID 27632203)

7. Don't use combination cytotoxic chemotherapy (multiple drugs) instead of chemotherapy with one drug when treating an individual for metastatic breast cancer unless the patient needs a rapid response to relieve tumor-related symptoms.

Cardoso F, Costa A, Norton L, Cameron D, Cufer T, Fallowfield L, Francis P, Gligorov J, Kyriakides S, Lin N, Paganì O, Senkus E, Thomssen C, Aapro M, Bergh J, Di Leo A, El Saghir N, Ganz PA, Gelmon K, Goldhirsch A, Harbeck N, Houssami N, Hudis C, Kaufman B, Leadbeater M, Mayer M, Rodger A, Rugo H, Sacchini V, Sledge G, van't Veer L, Viale G, Krop I, Winer E. 1st International consensus guidelines for advanced breast cancer (ABC 1). *Breast.* 2012 Jun;21(3):242–52.

Carrick S, Parker S, Thornton CE, Ghersi D, Simes J, Wilcken N. Single agent versus combination chemotherapy for metastatic breast cancer. *Cochrane Database Syst Rev.* 2009 Apr 15;(2):CD003372. National Comprehensive Cancer Network: NCCN clinical practice guidelines in oncology (NCCN Guidelines); breast cancer version: 1.2013.

Slamon DJ, Leyland-Jones B, Shak S, Fuchs H, Paton V, Bajamonde A, Fleming T, Eiermann W, Wolter J, Pegram M, Baselga J, Norton L. Use of chemotherapy plus a monoclonal antibody against HER2 for metastatic breast cancer that overexpresses HER2. *N Engl J Med.* 2001 mar 15;344(11):783–92.

Howell A, Robertson JF, Quaresma Albano J, Aschermannova A, Mauriac L, Kleeberg UR, Vergote I, Erikstein B, Webster A, Morris C. Fulvestrant, formerly ICI 182,780, is as effective as anastrozole in postmenopausal women with advanced breast cancer progressing after prior endocrine treatment. *J Clin Oncol.* 2002 Aug 15;20(16):3396–403.

Lutz S, Berk L, Chang E, Chow E, Hahn C, Hoskin P, Howell D, Konski A, Kachnic L, Lo S, Sahgal A, Silverman L, von Gunten C, Mendel E, Vassil A, Bruner DW, Hartsell W; American Society for Radiation Oncology (ASTRO). Palliative radiotherapy for bone metastases: an ASTRO evidence-based guideline. *Int J Radiat Oncol Biol Phys.* 2011 mar 15;79(4):965–76.

8. Avoid using PET or PET-CT scanning as part of routine follow-up care to monitor for a cancer recurrence in asymptomatic patients who have finished initial treatment to eliminate the cancer unless there is high-level evidence that such imaging will change the outcome.

Phurrough S, Cano C, Dei Cas R, Ballantine L, Carino T; Centers for Medicare and Medicaid Services. Decision memo for positron emission tomography (FDG) for solid tumors (CAG–00181R4). Baltimore (MD): Centers for Medicare and Medicaid Services; 2003 Jul 8. 55 p. Report No.: CAG–00106R. PET imaging in Ontario [Internet]. Ontario (CA): Cancer Care Ontario; 2012 May 28 [cited 26 Sep 2013]. Available from: www.cancercare.on.ca/ocs/clinicalprogs/imaging/pet.

Labianca R, Nordlinger B, Beretta GD, Brouquet A, Cervantes A; ESMO Guidelines Working Group. Primary colon cancer: ESMO Clinical Practice Guidelines for diagnosis, adjuvant treatment and follow-up. *Ann Oncol*. 2010 May;21 Suppl 5:v70–v7.

9. Don't routinely perform PSA testing for prostate cancer screening in men with no symptoms of the disease.

Raghavan D. PSA – Please Stop Agonizing (over prostate-specific antigen interpretation). *Mayo Clin Proc*. 2013 Jan;88:1–3.

Schroder FH, Hugosson J, Roobol MJ, Tammela TL, Ciatto S, Nelen V, Kwiatkowski M, Lujan M, Lilja H, Zappa M, Denis LJ, Recker F, Páez A, Määttänen L, Bangma CH, Aus G, Carlsson S, Villers A, Rebillard X, van der Kwast T, Kujala PM, Blijenberg BG, Stenman UH, Huber A, Taari K, Hakama M, Moss SM, de Koning HJ, Auvinen A; ERSPC Investigators. Prostate-cancer mortality at 11 years of follow-up. *N Engl J Med*. 2012 Mar 15;366(11):981–90.

Hugosson J, Carlsson S, Aus G, Bergdahl S, Khatami A, Lodding P, Pihl C-G, Stranne J, Holmberg E, Lilja H. Mortality results from the Goteborg randomized populationbased prostate-cancer screening trial. *Lancet Oncol*. 2010 Aug;11(8):725–32.

Andriole GL, Crawford ED, Grubb RL III, Buys SS, Chia D, Church TR, Fouad MN, Gelmann EP, Kvale PA, Reding DJ, Weissfeld JL, Yokochi LA, O'Brien B, Clapp JD, Rathmell JM, Riley TL, Hayes RB, Kramer BS, Izmirlian G, Miller AB, Pinsky PF, Prorok PC, Gohagan JK, Berg CD; PLCO Project Team. Mortality results from a randomized prostate-cancer screening trial. *N Engl J Med*. 2009 Mar 26;360(1):1310–9.

Moyer VA; U.S. Preventive Services Task Force. Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2012 Jul 17;157(2):1–15.

Qaseem A, Barry MJ, Denberg TD, Owens DK, Shekelle P; Clinical Guidelines Committee of the American College of Physicians. Screening for prostate cancer: A guidance statement from the Clinical Guidelines Committee of the American College of Physicians. *Ann Intern Med*. 2013 May 21;158(10):761–9.

Carter HB, Albertson PC, Barry MJ, Etzioni R, Freedland SJ, Greene KL, Holmberg L, Kantoff P, Konety BR, Murad MH, Penson DF, Zietman AL. Early detection of prostate cancer: AUA Guideline. *J Urol*. 2013 Aug;190(2):419–26.

Basch E, Oliver TK, Vickers A, Thompson I, Kantoff P, Parnes H, Loblaw DA, Roth B, Williams J, Nam RK. Screening for prostate cancer with prostate-specific antigen testing: American Society of Clinical Oncology provisional clinical opinion. *J Clin Oncol*. 2012 Aug 20;30(24):3020–5.

Fenton JJ, Weyrich MS, Durbin S, Liu Y, Bang H, Melnikow J. Prostate-Specific Antigen-Based Screening for Prostate Cancer: Evidence Report and Systematic Review for the US Preventive Services Task Force. *JAMA* 2018;319:1914–31. (PMID 29801018)

10. The original Choosing Wisely Statement #10 recommended against using a targeted therapy intended for use against a specific genetic aberration unless a patient's tumor cells have a specific biomarker that predicts an effective response to the targeted therapy. While this statement continues to hold true, it is also currently being incorporated into a forthcoming ASCO Choosing Wisely 2021, which will update the currency and provide further context for this recommendation.

Shaw A, Kim D, Nakagawa K, Seto T, Crinó L, Ahn MJ, De Pas T, Besse B, Solomon BJ, Blackhall F, Wu YL, Thomas M, O'Byrne KJ, Moro-Sibilot D, Camidge DR, Mok T, Hirsh V, Riely GJ, Iyer S, Tassell V, Polli A, Wilner KD, Jänne PA. Crizotinib versus chemotherapy in advanced ALK-positive lung cancer. *N Engl J Med*. 2013 Jun 20;368(25):2385–94.

Sequist L, Yang J, Yamamoto N, O'Byrne K, Hirsh V, Mok T, Geater SL, Orlov S, Tsai CM, Boyer M, Su WC, Bennouna J, Kato T, Gorbunova V, Lee KH, Shah R, Massey D, Zazulina V, Shahidi M, Schuler M. Phase III study of afatinib or cisplatin plus pemetrexed in patients with metastatic lung adenocarcinoma with EGFR mutations. *J Clin Oncol*. 2013 Sep 20;31(27):3327–3334.

Chapman P, Hauschild A, Robert C, Haanen JB, Ascierto P, Larkin J, Dummer R, Garbe C, Testori A, Maio M, Hogg D, Lorigan P, Lebbe C, Jouary T, Schadendorf D, Ribas A, O'Day SJ, Sosman JA, Kirkwood JM, Eggermont AM, Dreno B, Nolop K, Li J, Nelson B, Hou J, Lee RJ, Flaherty KT, McArthur GA; BRIM-3 Study Group. Improved survival with vemurafenib in melanoma with BRAF V600E mutation. *N Engl J Med*. 2011 Jun 30;364(26): 2507–16.

Lynch T, Bell D, Sordella R, Gurubhagavatula S, Okimoto RA, Brannigan BW, Harris PL, Haserlat SM, Supko JG, Haluska FG, Louis DN, Christiani DC, Settleman J, Haber DA. Activating mutations in the epidermal growth factor receptor underlying responsiveness of non-small-cell lung cancer to gefitinib. *N Engl J Med*. 2004 May 20;350(21):2129–39.

Keedy V, Temin S, Somerfield M, Beasley MB, Johnson DH, McShane LM, Milton DT, Strawn JR, Wakelee HA, Giaccone G. American Society of Clinical Oncology provisional clinical opinion: epidermal growth factor receptor (EGFR) mutation testing for patients with advanced non-small-cell lung cancer considering first-line EGFR tyrosine kinase inhibitor therapy. *J Clin Oncol*. 2011 May 20;29(15):2121–7.

Allegra C, Jessup J, Somerfield M, Hamilton SR, Hammond EH, Hayes DF, McAllister PK, Morton RF, Schilsky RL. American Society of Clinical Oncology provisional clinical opinion: testing for KRAS gene mutations in patients with metastatic colorectal carcinoma to predict response to anti-epidermal growth factor receptor monoclonal antibody therapy. *J Clin Oncol*. 2009 Apr 20;27(12):2091–6

ASCO Choosing Wisely

1. Schnipper LE, Smith TJ, Raghavan D, et al. American Society of Clinical Oncology identifies five key opportunities to improve care and reduce costs: the top five list for oncology. *J Clin Oncol*. 2012;30(14):1715-1724.
2. Rocque G, Blayney DW, Jahanzeb M, et al. Choosing Wisely in Oncology: Are We Ready For Value-Based Care? *J Oncol Pract*. 2017;13(11):e935-e943. (PMID 28783425)
3. Schnipper LE, Lyman GH, Blayney DW, et al. American Society of Clinical Oncology 2013 top five list in oncology. *J Clin Oncol*. 2013;31(34):4362-4370.