

Evidence Discussion for Hepatocellular Carcinoma (HCC) ONC 14

General Considerations (ONC 14.1): HCC does not necessarily require a biopsy for diagnosis as a triple phase CT or MRI can support the diagnosis in the absence of biopsy as these lesions are characterized by arterial hypervascularity and “wash out” on portal venous phases unlike the surrounding liver. 1 For individuals who are high-risk for developing HCC (cirrhosis, chronic Hepatitis B or current or prior HCC), if the liver lesion is >1 cm with 2 classic enhancements on triple-phase CT or MRI, the diagnosis is confirmatory and biopsy is not needed. For lesions less than 1 cm or with less than 2 classical enhancements or for any liver lesions in individuals who are not high-risk, a biopsy may be needed for histological confirmation. Serum biomarkers such as AFP are not sensitive or specific enough to establish a diagnosis. 2 PET/CT scan is considered experimental, investigational, or unproven for the diagnosis or staging of HCC due to limited sensitivity. 3

Initial work-up/Staging (14.3): All newly diagnosed individuals require a CT chest with or without contrast in addition to abdominal +/- pelvic imaging that includes CT with or with/without contrast or MRI abdomen/pelvis with and without contrast. Common sites of metastases include lung, adrenal glands, peritoneum and bone. 4

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Restaging/Recurrence (14.4): After initial therapy, for suspected recurrence or new liver lesions, or individuals receiving systemic therapy (every 2 cycles), CT chest with or without contrast in addition to abdominal +/- pelvic imaging that includes CT with or with/without contrast or MRI abdomen/pelvis with and without contrast is indicated. For individuals undergoing liver embolization, CTA abdomen can be obtained immediately prior to this procedure. In addition, either MRI or CT of the abdomen with and without contrast can be obtained immediately prior and 1 month post-ablation. ONC 31.2 provides a broader description of additional appropriate studies prior to and after embolization for liver metastases.

Surveillance/Follow-up (14.5): Individuals treated with surgical resection, embolization or being monitored off therapy, recommendation is to obtain CT chest with or without contrast every 3 months for 2 years then every 6 months until year 5 as well as one of the following: CT abdomen with or with/without contrast, CT abdomen/pelvis with or with/without contrast or MRI abdomen/pelvis with and without contrast. Multiphasic cross-sectional imaging with CT or MRI is preferred due to its reliability in assessing arterial vascularity, which is associated with increased risk of recurrence following treatment. 5 & 6 HCC treated with transplant is addressed in AB 42.3, Liver Transplant and Post-Transplant Imaging.

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References:

1. Breedis C, Young G. The blood supply of neoplasms in the liver. *Am J Pathol* 1954;30:969-977. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/13197542>.
2. Farinati F, Marino D, De Giorgio M, et al. Diagnostic and prognostic role of alpha-fetoprotein in hepatocellular carcinoma: both or neither? *Am J Gastroenterol* 2006;101:524-532. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/16542289>.
3. NCCN Guidelines Version 1.2024 Hepatocellular Carcinoma
4. Natsuizaka M, Omura T, Akaike T, et al. Clinical features of hepatocellular carcinoma with extrahepatic metastases. *J Gastroenterol Hepatol* 2005;20:1781-1787. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/16246200>.
5. Roayaie S, Blume IN, Thung SN, et al. A system of classifying microvascular invasion to predict outcome after resection in patients with hepatocellular carcinoma. *Gastroenterology* 2009;137:850-855. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/19524573>.
6. Sumie S, Nakashima O, Okuda K, et al. The significance of classifying microvascular invasion in patients with hepatocellular carcinoma. *Ann Surg Oncol* 2014;21:1002-1009. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/24254204>.

Evidence Discussion for Gallbladder and Biliary Tumors ONC 14

Initial work-up/Staging (14.6): CT chest with or without contrast plus one of the following: CT abdomen with or with/without contrast, CT abdomen/pelvis with contrast and MRI abdomen/pelvis with and without contrast. High-quality contrast-enhanced cross-sectional imaging (CT and/or MRI) of the chest, abdomen, and pelvis is recommended to evaluate tumor penetration through the wall of the gallbladder and the presence of nodal and distant metastases, and to detect the extent of direct tumor invasion of other organs/biliary system or major vascular invasion. 1 PET/CT for inconclusive findings on CT/MRI keeping in mind false positives related to an inflamed gallbladder are problematic. 2

Restaging/Recurrence (ONC 14.7): See imaging options above (ONC 14.6).

Surveillance/Follow-up (ONC 14.8): Same imaging options in ONC 14.6 to be performed every 6 months for 2 years then annually up to year 5. Biliary cancer treated with liver transplant would follow AB 42.3, Liver Transplant, Post-transplant Imaging.

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2. Lamarca A, Barriuso J, Chander A, et al. (18)F-fluorodeoxyglucose positron emission tomography ((18)FDG-PET) for patients with biliary tract cancer: Systematic review and meta-analysis. *J Hepatol* 2019;71:115-129. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/30797051>.

Evidence Discussion for Gastric Cancer ONC 14

Initial Work-Up/Staging (ONC 14.9): All individuals should get CT CAP with contrast. For T2 or higher stage disease with no metastatic disease by CT, PET/CT recommended to complete staging. FDG-PET alone is not an adequate diagnostic procedure in the detection and preoperative staging of gastric cancer, but can be helpful when used in conjunction with CT. 1,2

Restaging/Recurrence (ONC 14.10): CT CAP should be obtained after initial therapy for presumed resectable disease, post curative chemoradiation (no surgery) and for suspected recurrence. Monitoring chemotherapy response should include CT A/P and include CT chest for known disease, new/worsening pulmonary symptoms or abnormal CXR. PET/CT can be considered with inconclusive findings on conventional imaging.

Surveillance/Follow-up (ONC 14.11): Stage I treated with resection alone does not require routine imaging in the absence of signs/symptoms of recurrence. Stage I treated with systemic therapy, Stages II-III and Stage IV s/p definitive treatment of all measurable disease or being observed off therapy should undergo CT CAP every 6 months for 2 years then annually up to 5 years. 3 Measurable metastatic disease on maintenance therapy or being monitored off therapy should undergo CT CAP every 3 months for up to 5 years after completion of active treatment.

1. Dassen AE, Lips DJ, Hoekstra CJ, et al. FDG-PET has no definite role in preoperative imaging in gastric cancer. *Eur J Surg Oncol* 2009;35:449- 455. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/19147324>.
2. Lim JS, Yun MJ, Kim M-J, et al. CT and PET in stomach cancer: preoperative staging and monitoring of response to therapy. *Radiographics* 2006;26:143-156. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/16418249>.
3. NCCN Guidelines Version 1.2024, Gastric Cancer