



Effective Health Care

Investigational and Existing Imaging Techniques for the Primary Diagnosis and Staging of Hepatocellular Carcinoma Nomination Summary Document

Results of Topic Selection Process & Next Steps

- Investigational and existing imaging techniques for the primary diagnosis and staging of hepatocellular carcinoma will go forward for refinement as a systematic review. The scope of this topic, including populations, interventions, comparators, and outcomes, will be further developed in the refinement phase.
- When key questions have been drafted, they will be posted on the AHRQ Web site and open for public comment. To sign up for notification when this and other Effective Health Care (EHC) Program topics are posted for public comment, please go to <http://effectivehealthcare.ahrq.gov/index.cfm/join-the-email-list1/>.

Topic Description

Nominator: Organization

Nomination Summary: The nominator is interested in the comparative effectiveness of investigational and existing imaging techniques for the primary diagnosis and staging of hepatocellular carcinoma (HCC).

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Population(s):

- 1) Patients at risk of HCC, especially patients with chronic liver disease due to viral hepatitis and cirrhosis
- 2) Patients diagnosed with HCC who require staging

Intervention(s): Investigational techniques, including multidetector computed tomography (MDCT), spiral computed tomography (CT), magnetic resonance imaging (MRI) with novel contrast agents like gadolinium ethoxybenzyl diethylenetriamine pentaacetic acid (Gd-EOB-DTPA) and superparamagnetic iron oxide (SPIO) and fluorodeoxyglucose positron emission tomography (FDG-PET) with different tracers including fluorine-18 (18F), fluorine-18 fluorothymidine (FLT), 11C choline and 11C methionine.

Comparator(s): Existing imaging techniques including ultrasonography (US), conventional CT, and MRI without contrast

Outcome(s):

- 1) Recurrence of HCC

- 2) Overall mortality or survival
- 3) Recurrence-free survival
- 4) Quality of life, measured using standardized scales like Short-Form Health Survey and EQ5D
- 5) Adverse effects or harms associated with testing and associated treatments, e.g., exposure to radiation, harm caused by false positives (such as unnecessary biopsies, increased medical cost, increased stress due to medical diagnoses and treatments), under-diagnosis resulting in failure to achieve early diagnosis and early intervention, risk of a missed metastases diagnosis, errors in pre-therapy staging that may cause unnecessary medical treatments and stress

**Key Questions
from Nominator:**

1. Which is the best imaging test to diagnose liver cancer and tell how advanced it is or how widely it has spread?

Considerations

- The topic meets all EHC Program selection criteria. (For more information, see <http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/>.)
- The confirmation of HCC diagnosis and its clinical stage has an impact on therapeutic decision making; however, there are risks associated with imaging, including harms posed to by radiation overexposure by repeated testing with existing technologies, underdiagnosis leading to increased morbidity and mortality, and overdiagnosis leading to unnecessary medical tests and psychosocial stress. US, CT, and MRI are the currently established imaging techniques for HCC. New investigational techniques exist that may address the drawbacks of the older techniques.
- No recent review was identified that comprehensively addresses the literature related to diagnostic imaging for HCC. Therefore, a new review on this topic would have impact at this time. It will be important for a review to include information on diffusion of new techniques, appropriate patient subgroups (including Asians and Pacific Islanders), and future research needs.