**Supplemental file 1**

**PubMed search strategy**

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| #1 | Search ((((((Magnetic Resonance Imaging [Mesh]) OR ((((((((((((((((((((((((((((((((((((Imaging, Magnetic Resonance [Title/Abstract]) OR NMR Imaging [Title/Abstract]) OR Imaging, NMR [Title/Abstract]) OR Tomography, NMR [Title/Abstract]) OR Tomography, MR [Title/Abstract]) OR MR Tomography [Title/Abstract]) OR NMR Tomography [Title/Abstract]) OR Steady State Free precession MRI [Title/Abstract]) OR Steady State Free precession MRI [Title/Abstract]) OR Zeugmatography [Title/Abstract]) OR Imaging, Chemical Shift [Title/Abstract]) OR Chemical Shift Imaging [Title/Abstract]) OR Imaging, Chemical Shift [Title/Abstract]) OR Shift Imaging, Chemical [Title/Abstract]) OR Shift Imaging, Chemical [Title/Abstract]) OR Chemical Shift Imaging [Title/Abstract]) OR Tomography, proton Spin [Title/Abstract]) OR proton Spin Tomography [Title/Abstract]) OR Magnetization Transfer Contrast Imaging [Title/Abstract]) OR MRI Scan [Title/Abstract]) OR MRI Scan [Title/Abstract]) OR Scan, MRI [Title/Abstract]) OR Scan, MRI [Title/Abstract]) OR fMRI [Title/Abstract]) OR MRI, Functional [Title/Abstract]) OR Functional MRI [Title/Abstract]) OR Functional MRI [Title/Abstract]) OR MRIs, Functional [Title/Abstract]) OR Functional Magnetic Resonance Imaging [Title/Abstract]) OR Magnetic Resonance Imaging, Functional [Title/Abstract]) OR Spin Echo Imaging [Title/Abstract]) OR Echo Imaging, Spin [Title/Abstract]) OR Echo Imaging, Spin [Title/Abstract]) OR Imaging, Spin Echo [Title/Abstract]) OR Imaging, Spin Echo [Title/Abstract]) OR Spin Echo Imaging [Title/Abstract])))))) | 488561 |
| #2 | Search ((((((((((((((((((Diffusion-Weighted\*) OR Diffusion Kurtosis\*) OR Intravoxel Incoherent Motion) OR Diffusion Tensor\*) OR DWI) OR Magnetic Resonance Elastography) OR MRE) OR T1WI) OR T2WI) OR Superparamagnetic Iron\*) OR Gd-EOB-DTPA\*) OR perfusion Weighted\*) OR T1 Mapping) OR T1 Rho) OR DCE-MRI [Title/Abstract]) OR Dynamic Contrast Enhanced\* [Title/Abstract] | 73753 |
| #3 | #1 OR #2 | 509654 |
| #4 | Search (((((((((((((((((((((((((Carcinoma, Hepatocellular [Title/Abstract]) OR Hepatocellular Carcinoma [Title/Abstract]) OR Liver Cell Carcinoma, Adult [Title/Abstract]) OR Liver Cancer, Adult [Title/Abstract]) OR Adult Liver Cancer [Title/Abstract]) OR Adult Liver Cancer [Title/Abstract]) OR Cancer, Adult Liver [Title/Abstract]) OR Cancer, Adult Liver [Title/Abstract]) OR Liver Cancer, Adult [Title/Abstract]) OR Liver Cell Carcinoma [Title/Abstract]) OR Carcinoma, Liver Cell [Title/Abstract]) OR Carcinoma, Liver Cell [Title/Abstract]) OR Cell Carcinoma, Liver [Title/Abstract]) OR Cell Carcinoma, Liver [Title/Abstract]) OR Liver Cell Carcinoma [Title/Abstract]) OR Hepatocellular Carcinoma [Title/Abstract]) OR Hepatoma [Title/Abstract]) OR Hepatoma [Title/Abstract])) OR Carcinoma, Hepatocellular [Mesh])))))) | 140982 |
| #5 | Search (((((((((Microvascular Invasion) OR MVI) OR MVI\*) OR MCVI\*) OR Microvascular Invasion\*) OR MCVI)))) OR vascular microinvasion\* [Title/Abstract] | 6099 |
| #6 | #3 AND #4 AND #5 | 69 |

**Embase search strategy**

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| #1 | 'liver cell carcinoma'/exp OR 'liver cell carcinoma' | 172733 |
| #2 | 'primary liver carcinoma\*' OR 'primary hepatic carcinoma\*' OR 'primary liver cancer\*' OR 'primary hepatic cancer\*' OR 'hepatocellular carcinoma\*' OR HCC\* OR 'hepatic cell carcinoma\*' OR 'liver cell carcinoma\*' OR 'hepatic cell cancer\*' OR 'liver cell cancer\*' OR hepatocarcinoma\* OR hepatoma\* | 234004 |
| #3 | #1 OR #2 | 234004 |
| #4 | 'nuclear magnetic resonance imaging\*' OR 'magnetic resonance imaging\*' OR MRI\* OR NMRI\* OR 'MR imaging\*' OR 'magnetic resonance\*' OR MR OR NMR\* OR 'nuclear magnetic resonance\*' | 1573006 |
| #5 | 'diffusion-weighted\*' OR 'diffusion kurtosis\*' OR 'intravoxel incoherent motion' OR 'diffusion tensor\*' OR DWI OR DTI OR IVIM OR DKI OR 'magnetic resonance elastography' OR MRE OR T1WI OR T2WI OR 'superparamagnetic iron\*' OR 'GD-EOB-DTPA\*' OR 'T1 mapping' OR 'T1 rho' OR 'perfusion weighted\*' OR PWI OR 'dynamic contrast enhanced' OR 'susceptibility weighted\*' | 125202 |
| #6 | #4 OR #5 | 1599704 |
| #7 | 'microvascular invasion'/exp OR 'microvascular invasion' | 2008 |
| #8 | 'vascular microinvasion' OR 'mvi\*' | 7900 |
| #9 | #7 OR #8 | 9427 |
| #10 | #3 AND #6 AND #9 | 207 |

**Web of Science search strategy**

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| #1 | (TS=("hepatocellular Carcinoma\*" OR "hepatic cell carcinoma\*" OR "Liver Cell Carcinoma\*" OR "hepatic cell cancer\*" OR "Liver Cell Cancer\*" OR "primary liver carcinoma\*" OR "primary liver cancer\*" OR "primary hepatic carcinoma\*" OR "primary hepatic cancer\*" OR hepatocarcinoma\* OR HCC\* OR hepatoma\*) ) AND language: (English) | 177554 |
| #2 | (TS=("magnetic resonance imaging\*" OR MRI\* OR "MR imaging\*" OR "magnetic resonance\*" OR MR OR NMR\* OR "nuclear magnetic resonance\*" OR NMRI\* OR "nuclear magnetic resonance imaging\*") ) AND Language: (English) | 1094581 |
| #3 | (TS= ("diffusion-weighted\*" OR "diffusion kurtosis\*" OR "intravoxel incoherent motion" OR "diffusion tensor\*" OR DWI OR DTI OR IVIM OR DKI OR "magnetic resonance elastography" OR MRE OR T1WI OR T2WI OR "superparamagnetic iron\*" OR "GD-EOB-DTPA\*" OR "T1 mapping" OR "T1 rho" OR "perfusion weighted\*" OR pWI OR "dynamic contrast enhanced" OR "susceptibility weighted\*") ) AND Language: (English) | 66404 |
| #4 | (TS=("microvascular invasion\*" OR MVI\* OR "mcvi\*" OR "vascular microinvasion\*") ) AND LANGUAGE: (English) | 4059 |
| #5 | (#3 OR #2) AND LANGUAGE: (English) | 1111081 |
| #6 | (#5 AND #4 AND #1) AND LANGUAGE: (English) | 157 |

**Cochrane search strategy**

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| #1 | MeSH descriptor: [Carcinoma, Hepatocellular] explode all trees | 1567 |
| #2 | (Hepatocellular Carcinomas):ti,ab,kw | 170 |
| #3 | (Liver Cell Carcinoma, Adult):ti,ab,kw | 1605 |
| #4 | (Liver Cancer, Adult):ti,ab,kw | 3738 |
| #5 | (Adult Liver Cancer):ti,ab,kw | 3738 |
| #6 | (Adult Liver Cancers):ti,ab,kw | 226 |
| #7 | (Cancer, Adult Liver):ti,ab,kw | 3738 |
| #8 | (Cancers, Adult Liver):ti,ab,kw | 226 |
| #9 | (Liver Cancers, Adult):ti,ab,kw | 226 |
| #10 | (Liver Cell Carcinoma):ti,ab,kw | 3221 |
| #11 | (Carcinoma, Liver Cell):ti,ab,kw | 3221 |
| #12 | (Carcinomas, Liver Cell):ti,ab,kw | 132 |
| #13 | (Cell Carcinomas, Liver):ti,ab,kw | 132 |
| #14 | (Liver Cell Carcinomas):ti,ab,kw | 132 |
| #15 | (Hepatocellular Carcinoma):ti,ab,kw | 4604 |
| #16 | (Hepatoma):ti,ab,kw | 136 |
| #17 | (Hepatomas):ti,ab,kw | 12 |
| #18 | #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 | 8437 |
| #19 | MeSH descriptor: [Magnetic Resonance Imaging] explode all trees | 7778 |
| #20 | (Imaging, Magnetic Resonance):ti,ab,kw OR (NMR Imaging):ti,ab,kw OR (Imaging, NMR):ti,ab,kw OR (Tomography, NMR):ti,ab,kw OR (MR Tomography):ti,ab,kw OR (NMR Tomography):ti,ab,kw OR (NMR Tomography):ti,ab,kw OR (Steady State Free precession MRI):ti,ab,kw OR (Steady State Free Precession MRI):ti,ab,kw OR (Zeugmatography):ti,ab,kw OR (Imaging, Chemical Shift):ti,ab,kw OR (Chemical Shift Imaging):ti,ab,kw OR (Imaging, Chemical Shift):ti,ab,kw OR (Shift Imaging, Chemical):ti,ab,kw OR (Chemical Shift Imaging):ti,ab,kw OR (Tomography, proton Spin):ti,ab,kw OR (proton Spin Tomography):ti,ab,kw OR (Magnetization Transfer Contrast Imaging):ti,ab,kw OR (MRI Scans):ti,ab,kw | 24089 |
| #21 | (Scan, MRI):ti,ab,kw OR (MRI, Functional):ti,ab,kw OR (Functional MRI):ti,ab,kw OR (Functional Magnetic Resonance Imaging):ti,ab,kw OR (Spin Echo Imaging):ti,ab,kw OR (Echo Imaging, Spin):ti,ab,kw OR (Imaging, Spin Echo):ti,ab,kw OR (Spin Echo Imaging):ti,ab,kw | 9763 |
| #22 | #19 OR #20 OR #21 | 26172 |
| #23 | (microvascular invasion):ti,ab,kw | 50 |
| #24 | (mvi):ti,ab,kw OR (mcvi):ti,ab,kw | 86 |
| #25 | #23 OR #24 | 121 |
| #26 | #18 AND #22 AND #25 | 2 |