

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Selective internal radiation therapy with QuiremSpheres for treating unresectable advanced hepatocellular carcinoma (Partial review of TA688)

Final scope

Remit/evaluation objective

To appraise the clinical and cost effectiveness of QuiremSpheres within its approved indication for treating unresectable advanced hepatocellular carcinoma.

Background

Hepatocellular carcinoma (HCC) is the most common form of liver cancer in England.¹ It is commonly associated with cirrhosis (scarring of the liver), which can be caused by viral infections such as hepatitis B or C, excessive alcohol intake, or other diseases that result in chronic inflammation of the liver. In England, between 2016 and 2018, on average 5,148 people were diagnosed with liver cancer every year, and there were 3,537 diagnoses of HCC. HCC accounted for 67% of diagnoses in men and 37% of diagnoses in women.¹

Treatment for HCC depends on the location and stage of the cancer, and how well the liver function is preserved. Treatment options include surgical resection and liver transplantation, radiotherapy, ablation, locoregional transarterial therapies and systemic treatments.

For people with advanced disease, NICE recommends selective internal radiation therapy (SIRT), a locoregional transarterial therapy:

- SIR-Spheres or TheraSphere as an option for treating unresectable advanced HCC only for adults with Child-Pugh grade A liver impairment when conventional transarterial therapies are inappropriate ([TA688](#)).

NICE also recommends systemic treatments for advanced disease:

- cabozantinib as an option for treating advanced HCC only for adults who have had sorafenib, have Child-Pugh grade A liver impairment and an ECOG performance status of 0 or 1 ([TA849](#)).
- atezolizumab plus bevacizumab as an option for treating advanced or unresectable HCC only for adults who have not had previous systemic treatment and have Child-Pugh grade A liver impairment and an ECOG performance status of 0 or 1 ([TA666](#)).
- regorafenib as an option for treating advanced unresectable hepatocellular carcinoma only for adults who have had sorafenib, have Child-Pugh grade A liver impairment and an ECOG performance status of 0 or 1 ([TA555](#)).
- lenvatinib as an option for untreated, advanced, unresectable HCC only for adults with Child-Pugh grade A liver impairment and an ECOG performance status of 0 or 1 ([TA551](#)).

Final scope for the evaluation of selective internal radiation therapy with QuiremSpheres for treating unresectable advanced hepatocellular carcinoma (Partial review of TA688)

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- sorafenib as an option for treating advanced HCC only for people with Child-Pugh grade A liver impairment ([TA474](#)).

QuiremSpheres received a negative recommendation in [TA688](#) evaluating SIRTs in advanced HCC. Based on the [Review of TA688](#), this scope is a partial review of [TA688](#) and focuses only on adults with unresectable advanced hepatocellular carcinoma with Child-Pugh grade A liver impairment when conventional transarterial therapies are inappropriate, a population for which SIR-Spheres and TheraSphere are recommended.

The technology

QuiremSpheres (Terumo) received its CE mark in April 2015. It is classified as an Active Implantable Medical Device by Council Directive 90/385/EEC. It is indicated for treating unresectable liver tumours.

Intervention(s)	QuiremSpheres
Population(s)	Adults with unresectable advanced hepatocellular carcinoma with Child-Pugh grade A liver impairment when conventional transarterial therapies are inappropriate
Comparators	<ul style="list-style-type: none"> • SIR-Spheres • TheraSphere
Outcomes	<p>The outcome measures to be considered include:</p> <ul style="list-style-type: none"> • overall survival • progression-free survival • time-to-progression • response rates • rates of liver transplant or surgical resection • adverse effects of treatment • health-related quality of life

<p>Economic analysis</p>	<p>The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year.</p> <p>If the technology is likely to provide similar or greater health benefits at similar or lower cost than technologies recommended in published NICE technology appraisal guidance for the same indication, a cost comparison may be carried out.</p> <p>The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared.</p> <p>Costs will be considered from an NHS and Personal Social Services perspective.</p> <p>The availability of any commercial arrangements for the intervention, comparator and subsequent treatment technologies will be taken into account.</p>
<p>Other considerations</p>	<p>Guidance will only be issued in accordance with the CE marking. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.</p>
<p>Related NICE recommendations</p>	<p>Related technology appraisals:</p> <p>Cabozantinib for previously treated advanced hepatocellular carcinoma (2022) NICE technology appraisal guidance 849.</p> <p>Selective internal radiation therapies for treating hepatocellular carcinoma (2021) NICE technology appraisal guidance 688.</p> <p>Atezolizumab with bevacizumab for treating advanced or unresectable hepatocellular carcinoma (2020) NICE technology appraisal guidance 666.</p> <p>Regorafenib for previously treated unresectable hepatocellular carcinoma (2019) NICE technology appraisal guidance 555.</p> <p>Lenvatinib for untreated advanced hepatocellular carcinoma (2018) NICE technology appraisal guidance 551.</p> <p>Sorafenib for treating advanced hepatocellular carcinoma (2017) NICE technology appraisal guidance 474.</p> <p>Related interventional procedures:</p> <p>Living-donor liver transplantation (2015) NICE interventional procedure guidance 535</p>

	<p>Selective internal radiation therapy for primary hepatocellular carcinoma (2013) NICE interventional procedure guidance 460</p> <p>Ex-vivo hepatic resection and reimplantation for liver cancer (2009) NICE interventional procedure guidance 298</p> <p>Microwave ablation of hepatocellular carcinoma (2007) NICE interventional procedure guidance 214</p> <p>Radiofrequency-assisted liver resection (2007) NICE interventional procedure guidance 211</p> <p>Laparoscopic liver resection (2007) NICE interventional procedure guidance 135</p> <p>Radiofrequency ablation of hepatocellular carcinoma (2003) NICE interventional procedure guidance 2</p>
<p>Related National Policy</p>	<p>The NHS Long Term Plan, 2019. NHS Long Term Plan NHS England (2018/2019) NHS manual for prescribed specialist services (2018/2019) chapter 131 (page 357): Specialist services for complex liver, biliary and pancreatic diseases in adults.</p>

References

1. Cancer Research UK (2021) [Liver cancer incidence statistics](#) Assessed November 2023.