ICANEQUAL: Reducing inequalities for those at risk and those diagnosed with Hepatocellular carcinoma (HCC)

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VERSION HISTORY:

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-	**Version 1**	**Original**	**26-06-23**

Core ICANEQUAL Partnership members and Project Management Group:

Organisation	Name	Position	Role
University of Aberdeen	S MacLennan	Professor of Psychosocial Oncology, Institute of Applied Health Sciences	Joint Lead Applicant
	M Bekheit	Consultant Liver Surgeon	Joint Lead Applicant
	V Watson	Lead for Preference and Value Research Theme, Health Economics Research Unit	Co-Applicant
	S Treweek	Professor of Health Services Research	Co-Applicant
	P Murchie	Professor of Primary Care	Co-Applicant
	G MacLennan	Professor of Clinical Trials, CHART	Co-Applicant
King's College London	M Van Hemelrijck	Professor of Cancer Epidemiology Head of TOUR	Co-Applicant
Guy's and St Thomas' NHS Foundation Trust	P Ross	Consultant Medical Oncologist	Partner
British Liver Trust	V Hebditch	Director of Communications & Policy	PPI Co-Applicant
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Title: ICANEQUAL: Reducing inequalities for those at risk and those diagnosed with Hepatocellular carcinoma (HCC)

1. BACKGROUND:

What is the problem being addressed?

HCC is the fifth most frequent cancer worldwide, the third most common cause of cancer-related mortality globally (1), and incidence has been rising over the past decade (2). HCC usually develops in the setting of chronic liver disease and prognosis is poor with a 5-year survival of 10-15% (3–6). Treatment options for HCC depend on the tumour burden, the underlying liver function and the performance status. The offer of curative treatment options; including surgical resection, ablation or liver transplant, is limited to a small proportion of the patients affected. Currently, 80% of HCC patients are diagnosed at a stage beyond cure (6,7). Although, early diagnosis and timely and appropriate treatment decisions are key influences of patient outcomes (8), it is useful to acknowledge that the tumour doubling time is relatively short for HCC (9). This indicates that the challenges are multifactorial.

Despite advances in technology and increased awareness, the incidence and related mortality of the disease has increased more than threefold in the past decades (2). Clearly the current screening tools are not meeting their purpose (10), with their low diagnostic yield within the curative window. Furthermore, most of these screening programs are designed for groups with defined criteria and require designated setup in most cases, which are not inclusive for the wider population at risk and make them susceptible to logistic challenges as part of the whole system pressure (11). There is obvious need to understand the underlying challenges leading to this consistently poor and worsening performance. To date, the studies conducted within the UK have demonstrated a modest increase in survival in treated patients over the past ten years but have also highlighted issues of inequalities in diagnosis driven by socioeconomic disadvantage and underserved groups in research. A disproportionate burden of the disease falls upon disadvantaged groups, cementing inequity (12–16). This is the focus of the current NIHR commissioned call for liver disease, including liver cancer. The NIHR has highlighted the need to focus more attention on the historically under-served in research for that research to benefit them as it should (17).

Whilst secondary data analysis can map the extent of the problem, it cannot provide the in-depth understanding of key barriers and facilitators to equitable and appropriate treatment allocation needed to strengthen the HCC clinical pathway. Our formative work with available data within NHS Grampian shows clear gaps within existing primary data (e.g. hospital episodes, cancer registry data) needed for an in-depth understanding of the clinical pathway from presentation with first symptoms to diagnosis, listing and treatment allocation. This includes gaps in recording of time to key points in the pathway, list criteria (transplant criteria that are based on the clinical criteria for eligibility) and appropriateness of treatment allocation and ethnicity. Therefore, we seek to address these gaps in in-depth understanding of the clinical pathway.

Review of existing evidence - How does the existing literature support this proposal?

A scoping review using systematic methods (18) highlighted the importance of timely and appropriate diagnosis of patients when curative treatment is still possible. Delayed diagnosis due to waiting time, organisational delays (6,19) or patient-related delays (such as geographical distance) (14,16) may influence survival; this is further compounded by real world inequality and inappropriate allocation of treatment and health-care professional behaviour related to current diagnosis pathways and listing and prioritisation systems.

Engagement of healthcare professionals within less ‘hepatological’ centered hospitals is a challenge to improving equitable referral (5,15). There is a need to reduce diagnostic delay and optimise treatment allocation to patients who will benefit the most. Our review also highlighted geographical inequity in treatment allocation and considerable variation in referral rates by proximity to specialist transplant centre versus region of greatest disease burden (14,15).

Why is this partnership project important in terms of improving the health and/or wellbeing of the public and/or to patients and health and care services?

Whilst the complexity of the problem and need for appropriate and acceptable pragmatic solutions have been highlighted, no definitive body of work exists that has a strong theoretical basis, which would better inform the appropriate design and delivery of research to address this inequality. Appropriate treatment allocation, geographical inequalities (including rurality and coastal communities), socioeconomic disadvantage and healthcare professional behaviour across the clinical pathway across the UK have not been studied together. Inequity will remain, as it has for decades, unless there is better understanding of how pathways to diagnosis and treatment delivery can be designed to better serve the under-served.

Through developing this partnership (Table 1) and subsequent research projects, we aim to i) identify what equitable and appropriate care looks like across the UK (including understanding barriers and facilitators to diagnosis and appropriate treatment allocation), ii) understand patient experiences of the current clinical pathway and iii) develop, pilot and evaluate an ‘optimal’ new HCC clinical pathway. The development of this partnership will be informed by NIHR INCLUDE Ethnicity Framework (20) and the forthcoming Socioeconomic Disadvantage Framework, both of which were led from Aberdeen.

Table 1: Initial members of ICANEQUAL and their expertise and roles in the Partnership

Organisation	Name	Position	Expertise	Role
University of Aberdeen	S MacLennan	Lead for Research, Institute of Applied Health Sciences	Psychosocial oncology, qualitative research, implementation science	Joint Lead Applicant
	M Bekheit	Consultant liver surgeon	Liver Cancer	Joint Lead Applicant
	V Watson	Lead for Preference and Value Research Theme, Health Economics Research Unit	Health Economics, discrete choice experiments	Co-Applicant
	S Treweek	Professor of Health Services Research	Trial methodology; Trial efficiency; Inclusion in trials; Recruitment; Retention; Communicating research	Co-Applicant
	P Murchie	Professor of Primary Care	Primary care; supporting individuals diagnosed with cancer in remote and rural communities	Co-Applicant
	G MacLennan	Professor of Clinical Trials, CHART	Trial design	Co-Applicant

	A Guntupalli	Senior Lecturer in Global Health	Health Inequalities	Partner
King’s College London	M Van Hemelrijck	Professor of Cancer Epidemiology Head of TOUR	Epidemiology, big data, PPI	Co-Applicant
Guy’s and St Thomas’ NHS Foundation Trust	P Ross	Consultant Medical Oncologist	Primary Liver Cancer	Partner
East Lancashire Teaching Hospitals NHS Trust	Q Nunes	Consultant Hepatopancreatobiliary & General Surgeon Clinical Lead for HPB Surgery	Primary Liver Cancer; underserved costal community	Partner
East Lancashire Teaching Hospitals NHS Trust	S Al-Rubaye	Consultant HCC Hepatologist	Primary Liver Cancer; underserved costal community	Partner
University Hospitals Plymouth NHS Trust	S Aroori	Consultant Hepatobiliary and Transplant Surgeon	Primary Liver Cancer; underserved costal community	Partner
University Hospitals Plymouth NHS Trust	J Acevedo	Consultant Hepatologist	Primary Liver Cancer; underserved costal community	Partner
British Liver Trust	V Hebditch	Director of Communications & Policy	Experts by Experience; PPI organisations	PPI Co-Applicant
Egality	R Sunga	Head of Research & Community Engagement	Experts by Experience; Community groups	PPI Co-Applicant

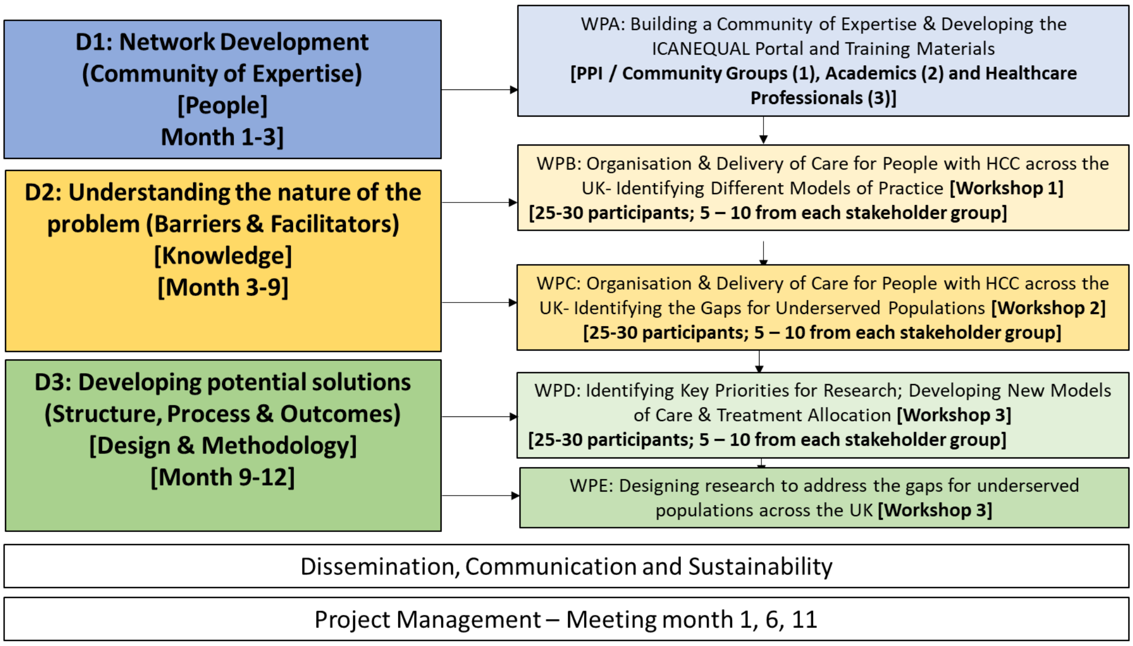
2. AIMS AND OBJECTIVES FOR THE RESEARCH PARTNERSHIP GRANT:

1. To strengthen and consolidate existing collaboration between academics in the area of liver cancer, public health and community health, health services research and implementation science. This is an important step in developing a community of expertise and building sustainable partnerships (Domain 1 - Development of a Community of Expertise; Work Package A).
2. To build sustainable links with key stakeholder groups and communities in the UK, including representatives from healthcare professionals, professional bodies, non-profit and patient advocacy organisations, community and employing organisations (Domain 1 - Development of a Community of Expertise; Work Package A).
3. To strengthen a) understanding of how people seek and are given care, b) identify the gaps for underserved populations and c) highlight appropriate theoretical frameworks to inform research development (Domain 2 - Work Package B and C).
4. To provide a firm foundation of knowledge, data and stakeholder partnerships that will allow us to design and run trials / behavioural interventions in this area (Domain 3 - Work Package D and E).

3. PLANNED PARTNERSHIP ACTIVITY:

There are two elements to the partnership activity: building a Community of Expertise (Domain 1) and conducting a series of three workshops (Domain 2 and 3; see Figure 1). Through the workshops, we will discuss existing process and policies, and map the structures and resources in place to deliver early diagnosis and equitable treatment allocation for HCC (Domain 2), understand and articulate the problem statement and gaps for underserved populations - barriers & facilitators to early presentation for diagnosis and presentation for equitable allocation of treatment (Domain 2), and co-design solutions to the problem statement (Domain 3). This will also further develop stakeholder engagement and the community of expertise (including primary care practitioners, surgeons, oncologists, community leaders, PPI organisations, public health professionals and those diagnosed with HCC) (Domain 1). The planned partnership activity will lay a firm foundation (people; knowledge; design & methodology) for any subsequent research project proposal to NIHR to ensure successful project delivery and sustainability of outcomes.

Figure 1: ICANEQUAL Domains and Work Packages



Domain 1: Building the Community of Expertise

Work package A: Building a Community of Expertise:

The ICANEQUAL partnership's central philosophy is to strengthen and consolidate the existing collaboration to ensure equitable and sustainable partnerships. Central to achieving this is an international network of different sectors, including healthcare, patient advocacy groups and policy. This will be the ICANEQUAL Community of Expertise which will build as part of the partnership project and will be a key part in sustaining the activity of the partnership project. Through this Community of Expertise, we will continue to build links with key stakeholder groups and communities in the UK and globally. This will include patients and patient advocacy organisations, community and employing organisations, academics and healthcare professionals working in liver diseases (e.g. HCC).

The ICANEQUAL partnership will involve several prominent academics within each work package and is firmly committed to promoting equality, diversity and inclusion within the consortium. The medium to long-term objective would be to also develop an ICANEQUAL Training Academy for ECRs.

ICANEQUAL web portal:
This activity will be supported by the development of the ICANEQUAL web portal. To embrace new forms of education (e-learning) and fast exchange of new research ideas we will introduce web-based visual learning tools such as on-line webinars, and on-line presentations/work discussions. In addition, our online platform will host the ICANEQUAL workshop materials, which all members of the Community of Expertise will be able to access. In the medium to long-term objective this will also host training materials (our work with e.g. Egality Health and ethnic minority community organisations has highlighted how important these organisations consider training of researchers in equality issues to be and that some of this training would be best delivered by them), quizzes and assessments to scaffold development and learning and a forum for knowledge exchange and to build a strong and supportive learning network (ICANEQUAL Training Academy for Early Career Researchers).

Workshops:

Participants:
The ICANEQUAL Community of Expertise will support recruitment to the workshops to ensure representation from across the key stakeholder groups (5 – 10 per group). Participants will be asked to join all three workshops, however, if a participant is unable to attend more than one workshop, further representation will be sought from that stakeholder group to ensure balance in each workshop.

Domain 2: Building a shared understanding of the problem: identifying key barriers and facilitators to early HCC diagnosis and equitable treatment allocation

Work package B: Organisation and delivery of care for people with HCC across the UK – Identifying different models of practice

Workshop 1:
We will examine the existing clinical pathway and services for people with HCC across the UK and map examples identified by stakeholders as good practice and problem areas around early diagnosis and treatment allocation. This face to face workshop will allow us to capture the perspectives of a range of stakeholders associated with the care of people with HCC. This will include health and social care professionals within primary, secondary and tertiary care, transplant co-ordinators and healthcare managers to map the current organisation and delivery of care for people with HCC. We will use our professional networks to recruit stakeholders from across the different health boards to include the social and geographical differences within Scotland and across the UK.

The first workshop will be conducted with the key stakeholders (as above) (n = 25 - 30) to discuss understanding of the current HCC clinical pathway. Participants will be asked to share examples of good practice (and why they think it is good) as well as problem areas around early diagnosis and treatment allocation and / or knowledge of key research and service redesign projects that have been conducted or are ongoing within the UK. As part of these discussions, participants will be asked to work in smaller discussion groups to develop a systems map of the behaviours, actors and potential influences on behaviour (meso-level) within the current clinical pathway. This discussion will be facilitated by the ICANEQUAL project management team who will lead the workshop.

The workshop will be audio or video recorded with participants' consent. Data will be transcribed verbatim. This will inform the definition of the current HCC clinical pathway (including key points and time between points) and understanding of the different models available across the UK. A summary of the workshop will be produced by the ICANEQUAL project management team. This summary will be made available to participants prior to Workshop 2 and then discussed within Workshop 2.

All workshops will be conducted in a large well-ventilated space or online.

Work package C: Organisation and delivery of care for people with HCC – Identifying the gaps for underserved populations

Workshop 2:
We will examine the different models that were identified in WP1 and map the barriers and facilitators to equitable early diagnosis and treatment allocation for underserved populations. The perspectives of a range of stakeholders associated with the receipt and delivery of care for people with HCC will be captured during this workshop to support the mapping judgements. This will include academics, health and social care professionals within primary, secondary and tertiary care, transplant co-ordinators and healthcare managers, PPI and Community organisations to map the current organisation and delivery of care for people with HCC.

Stakeholders will be recruited through our preliminary partner network and the developing Community of Expertise. Representation will be sought from across the UK to include the social and geographical differences and disadvantage across the UK and the different stakeholder groups.

Workshop 2 will be an online workshop conducted with the ICANEQUAL stakeholder groups (n = 25-30). During this workshop, participants will be asked to discuss and evaluate the existing HCC clinical pathway and models of early diagnosis and treatment allocation from WP1 and map these to their lived experience of the barriers and facilitators to equitable early diagnosis and treatment allocation for underserved populations. Structured discussion of these models will be informed by pre-workshop completion of the NIHR INCLUDE Ethnicity Framework (20), and the INCLUDE Socioeconomic Disadvantage Framework.

The workshop will be audio or video recorded with participants' consent. Data will be transcribed verbatim. This will inform understanding of the gaps for underserved populations across the UK. A summary of the workshop will be produced by the ICANEQUAL project management team. This summary will be made available to participants prior to Workshop 3 and then discussed within Workshop 3.

Domain 3: Building a shared understanding of the solution: identifying methodologies, frameworks and stakeholders to improve HCC diagnosis and treatment allocation

Workshop 3:
Workshop 3 will focus on a) evaluating key gaps in existing knowledge and prioritising research questions with the HCC clinical pathway (WPD); b) Identifying appropriate theoretical frameworks & implementation strategies (WPE).

Work package D: Identifying key priorities for research and developing new models of care and treatment allocation for people with HCC

The final workshop (Workshop 3) will be conducted online with the ICANEQUAL stakeholder groups (n = 25-30) to discuss key gaps in existing knowledge. Participants will be asked to discuss the identified gaps in knowledge and prioritise research questions within the HCC clinical pathway for future trials and behavioural interventions to facilitate equitable early diagnosis and treatment allocation for underserved populations. This will include consideration of the James Lind Alliance Priority Setting Partnerships (PSP) for Non-alcohol-related Liver and Gallbladder Disorders and Living with and Beyond Cancer (21).

Work package E: Designing research to address the gaps for underserved populations across the UK

Workshop 3 will also aim, through working with the ICANEQUAL stakeholder group, to reach consensus on the prioritised research questions, target behaviours and key outcomes, appropriate methodologies to address these questions and for intervention development, and proposed process and outcome evaluation strategies (logic model).

Our formative work has highlighted the importance of a theory-based approach to intervention development (new model of care and clinical pathway) that involves key stakeholders from the beginning. As with workshop 2, structured discussion will be informed by completion of the NIHR INCLUDE Ethnicity Framework, and the forthcoming INCLUDE Socioeconomic Disadvantage Framework which are led from Aberdeen.

We will also draw on the COM-B (22,23), TDF (24) and the Theoretical Framework of Acceptability (25) as potential frameworks to guide the design of research to address the gaps for underserved populations across the UK. These well-validated global tools for intervention development and implementation science support intervention development at the individual-level and systems-level. The COM-B framework identifies capability, opportunity and motivation as the primary drivers of behaviour change, in this case, the equitable and appropriate allocation of HCC treatment in routine practice. The TDF supports a complete behavioural diagnosis and can inform the identification of appropriate mechanisms of action, behaviour-change techniques and policy options. The Theoretical Framework of Acceptability (specifically developed to explore acceptability of healthcare interventions) is used to inform a richer understanding of acceptability across core constructs.

All comments will be collated by the workshop moderator and fed back to the group. Suggested changes and additions will be flagged as alternative versions and the group will be asked to vote of their preferred version. Consensus will be considered to have been achieved if 70% or more agree.

The workshop will be audio or video recorded with participants’ consent. Data will be transcribed verbatim. This will inform the design of research to address the gaps for underserved populations across the UK. A summary of the workshop will be produced by the ICANEQUAL project management team.

All three workshop summaries will be used to write the final partnership project report.

DISSEMINATION, OUTPUTS AND ANTICIPATED IMPACT

3.1 – Partnership Benefits and Success Criteria:

The aim of this partnership project is build a strong Community of Expertise through which to better understand the gaps for underserved populations in early diagnosis and treatment allocation for HCC and what research to address these gaps would look like. The project will have met the success criteria if we can produce a definitive statement on the gaps for underserved populations in early diagnosis and treatment allocation for HCC and to have developed a research proposal that aims to address this that is grounded in a) a theoretical framework of acceptability and b) stakeholder evaluation informed by the NIHR INCLUDE Ethnicity Framework, and the forthcoming Socioeconomic Disadvantage Framework.

3.2 – Dissemination strategy:

The ICANEQUAL partnership project team is fully aware that senior researchers, in particular, are expected to take a lead in ensuring that research is impactful and results are made accessible to the public whenever the opportunity arises. A clear strategy for dissemination to support sustainable impact will be developed from the beginning of the cycle of activity e.g. the partnership project stage. This will build and increase in size and scope as subsequent research project activity takes place.

This partnership development and subsequent research will inform the work of four different academic, healthcare professional and patient advocacy communities. Arguably, the most important community is that engaged in research and practice for HCC; on the design and delivery of evidence-based equitable health systems and health care professional behaviour for diagnosis, treatment and supportive care. Here the focus will be on appropriate data collection and the interactions between diagnosis, treatment and patient outcomes, on the one hand, and policy, services and practice on the other. The second community is that engaged with research and practice around trial development and methodology. The third community is that involved with the reduction of inequality within the allocation and delivery of healthcare. The fourth community is that involved in the education and training of health and social care staff who have the responsibility for treatment and to engage with clinical care pathways.

The benefits to all four communities are three-fold: first, through the advancement of research theories and objectives and the subsequent gain in knowledge, second, through the focus on identifying gaps in HCC care for underserved populations and the design of future research to address this and, third, through the establishment of a more secure basis for developing knowledge, policy, related systems and practice through the Community of Expertise.

We will disseminate the key findings through the usual academic channels and social media will also be used to promote stakeholder and PPI partner organisation and public engagement using freely available systems such as Twitter, Facebook and Linkedin. The project protocol will be made publicly available and key findings will be disseminated to health care professionals at national and international conferences, and published in peer-reviewed journals. In addition, a project website will be developed to facilitate the developing Community of Expertise and Engagement around the ICANEQUAL partnership project through working with the ICANEQUAL PPI group. This will also support collective working across the different groups during the workshop stage, be a space to host online training materials and to make aspects of the partnership project accessible to stakeholders and the public. This facility will be developed to support the dissemination of the partnership project findings and the project recommendations. It will present lay summaries of research outputs, a publications list including all secondary analyses using the project data, and relevant news relating to the design and delivery of HCC services. The following dissemination resources will be used in particular:

Dissemination strategy	**Target stakeholder**
Training events: This will include interactive online seminars and workshops on ethics, data collection, analytical skills and policy-relevant skills	Academics ICANEQUAL partnership ICANEQUAL PPI group ECRs
Conferences: The ICANEQUAL project group will actively participate in conferences and events relevant to the project activities. This will provide an opportunity to exchange experience and ideas about the latest research achievements and to disseminate the project results as well as starting to embed a	Hepatobiliary specialists Oncologists Pathologists Nurses

systemic change in behaviour of practitioners.	Academics ICANEQUAL partnership ICANEQUAL PPI group Policy makers
Scientific publications and opinion pieces in magazines: Targeted high-impact journals. The multi-sectoral and multi-disciplinary nature of ICANEQUAL will stimulate joint publications involving researchers from the different collaborators.	Hepatobiliary specialists Oncologists Pathologists Nurses Academics Policy makers
Bulletins and briefing notes: Bulletins and briefing notes will be developed with input from the ICANEQUAL PPI group. These will be used to share relevant partnership outcomes to ensure that the gathered knowledge will be shared with all stakeholders that have vested interest in ICANEQUAL's results.	Hepatobiliary specialists Oncologists Pathologists Nurses Academics Policy makers ICANEQUAL partnership ICANEQUAL PPI group
Internal website with forum: An internal website (blackboard; online learning environment) will be developed including a forum to post educational videos and project results in an accessible format.	Academics ICANEQUAL PPI group Public Policy makers Patient advocates
Public engagement activities: The ICANEQUAL project group will actively work with the ICANEQUAL PPI group and our Independent non-profit organisation partners (e.g. Egality Health and the British Liver Trust) and participate in public engagement activities, to promote the project results in an accessible format.	Hepatobiliary specialists Oncologists Pathologists Public Policy makers ICANEQUAL PPI group Patient advocates

5. PROJECT TIMETABLE AND MILESTONES

The partnership project start date is 1st May 2023 with a project duration of 12 months. Milestones; Pre-funding: protocol development and approvals; Months 1-3 D1 start D2 and D3; Months 3-9 complete D2; Months 9-12: complete D3, interpretation of results, write-up summary report and Stage 2 Project proposal.

	1	2	3	4	5	6	7	8	9	10	11	12
Project Set up	▨	▨	▨									
Domain 1												
Develop culturally sensitive recruitment and workshop materials	▨	▨	▨									
Recruitment to Community of Expertise; strategy to reach underserved populations	▨	▨	▨	▨								
Build Web portal to support Community of Expertise	▨	▨	▨	▨	▨							
Domain 2												
Conduct workshop 1				▨	▨	▨						
Analysis; development of W1 summary				▨	▨	▨						
Interim Report				▨	▨	▨						
Conduct workshop 2							▨	▨	▨			
Analysis; development of W2 summary							▨	▨	▨			
Interim Report							▨	▨	▨			
Domain 3												
Conduct workshop 3										▨	▨	▨
Analysis; development of W3 summary										▨	▨	▨
Write up of all Work Packages - Final Report						▨	▨	▨	▨	▨	▨	▨

6. PROJECT MANAGEMENT

The University of Aberdeen is the sponsor for the partnership project, and the Centre for Healthcare Randomised Trials (CHaRT) is the Clinical Trials Unit. CHaRT is a fully registered UK Clinical Research Collaboration CTU and part of the Health Services Research Unit (HSRU), University of Aberdeen. HSRU has internationally recognised expertise in the design, conduct, analysis, and reporting of multicentre trials. The partnership project will be supervised by the Project Management Group (PMG) who will meet every three months. The PMG will comprise of grant holders, representatives from the CHaRT Trial Office and representatives from the ICANEQUAL Community of Expertise.

7. ETHICS

There are no immediate ethical issues relating to this partnership project. This partnership grant is a series of networking events and workshops to build the partnership, map the scope of the problem and begin to develop potential solutions. This is not research per se and workshop participants will be members of the partnership meeting to exchange opinions and ideas.

A letter of invitation to join the Community of Expertise and participate in the partnership, membership of the Community of Expertise and workshops along with terms of reference for the partnership workshops will be developed in collaboration with the PPI group members: BLT and Egality. This will be in line with guidance from the National Research Ethics Service and the University of Aberdeen.

Participants will be asked to consent to be recorded during the workshops and for these recordings to be transcribed by a third-party University approved transcription service.

Data will be collected and stored for 10 years following close of the project in compliance with the University of Aberdeen's standard operating procedures. Documents will be reviewed by the Co-CIs before being destroyed.

8. PATIENT AND PUBLIC INVOLVEMENT

PPI input has been a key element of this project and this will continue throughout the life of the project. The ICANEQUAL Community of Expertise will consist of, among other stakeholders, interested partners and carers via the British Liver Trust and Egality and their work with Can-Survive UK, BME Cancer Communities, Wai Yin Society to contribute to the delivery of the project and dissemination of results. We will work to ensure that this group reflects the diversity of those diagnosed with HCC. Members of the British Liver Trust and Egality have confirmed that this is an important research question to their communities and have been involved in developing this proposal including the project design. Our ICANEQUAL PPI group and Community of Expertise will contribute to discussions on key aspects of project design and delivery. They will also help to raise awareness about this partnership project and will lead innovative recruitment strategies using social media and charity webpages that attract thousands of patients. Egality will also run community workshops with Can-Survive UK, BME Cancer Communities, Wai Yin Society to inform the development of recruitment strategies, workshop design and workshop materials to be culturally appropriate and sensitive.

We anticipate dissemination of the project through the British Liver Trust and Egality and their work with Can-Survive UK, BME Cancer Communities, Wai Yin Society. They will be involved in dissemination of the findings via webinar/ face book page and conferences. At the end of the project, a webinar will be conducted where all participants will be invited learn about the full results of the project and to answer any questions.

9. EXPERTISE AND PROJECT MANAGEMENT GROUP

9.1 Project expertise

The team is led by SJM (co-CI) academic health psychologist, psychosocial oncologist and qualitative researcher with experience in working with vulnerable groups around sensitive aspects of care and MB (co-CI), academic hepatologist with experience in designing and successfully delivering complex surgical RCTs in the field. VW health economist with expertise in discrete choice experiments. The team is supported by a registered CTU (CHaRT) with world class record in design and delivery of similar clinical trials. GM and ST statisticians and trialists experienced in designing RCTs and inclusion of underserved populations in research; HG, qualitative researcher. MVH is an experience cancer epidemiologist, PR is a consultant medical oncologist and PM is an academic GP with expertise in cancer and rural disadvantage.