

## Supplementary information

Supplementary Appendix: The 75 research questions in Phase 2 in no particular order.

<i>Priority</i>	<i>Research Question</i>
1	<i>Can imaging identify those who benefit from PCI over optimal medical treatment?</i>
2	<i>Is there a mortality/morbidity reduction through the wider use of CTCA?</i>
3	<i>Can CTCA replace functional imaging for stable angina?</i>
4	<i>How can the reliability of CTCA in heavily calcified vessels be improved?</i>
5	<i>What is the economic impact of CTFFR in routine practice?</i>
6	<i>How can we limit increases in downstream costs and healthcare utilisation after CTCA?</i>
7	<i>Can cardiovascular imaging be used to predict/improve outcomes in cardiomyopathy imaging?</i>
8	<i>What are the optimal features/markers of the vulnerable plaque?</i>
9	<i>What is the role of CTFFR in clinical practice?</i>
10	<i>Has the change of the NICE guidance resulted in more inappropriate CTCA referrals?</i>
11	<i>How can we limit increases in downstream costs and healthcare utilisation after CTCA?</i>
12	<i>How can we reduce the impact of calcification on CTCA diagnostic accuracy, in a radiation and time efficient manner?</i>

13	<i>Can we use artificial intelligence to enable decision support tools for the use of cardiovascular imaging?</i>
14	<i>Which patients do not need or derive no benefit from cardiovascular imaging?</i>
15	<i>Is there a combination of stenosis/CTFFR/plaque features that identify a situation where the benefit of a stent outweighs its risks?</i>
16	<i>What is the optimum Imaging/investigative strategy in acute coronary syndromes?</i>
17	<i>Can we standardise advanced MRI techniques? (e.g. late gadolinium enhancement quantification, mapping)</i>
18	<i>What is the role of Artificial Intelligence in cardiovascular disease?</i>
19	<i>Can we develop methods to improve accuracy in CTCA assessment of in-stent disease?</i>
20	<i>What are the outcomes of CTCA use in low risk ACS patients?</i>
21	<i>How can we best target cardiac imaging to optimise its yield in terms of outcomes and economic costs?</i>
22	<i>How do different cardiac imaging strategies affect downstream testing?</i>
23	<i>Do any advanced imaging modalities improve outcome in dilated cardiomyopathy?</i>
24	<i>Is there a role for early use of cardiac CT in confirmed / high risk ACS?</i>
25	<i>How useful are TAVI CTs in management decisions when many people who are worked up don't end up getting TAVI, is there a more cost-effective strategy to predict who needs TAVI CT?</i>
26	<i>What is the optimum follow-up interval for imaging of cardiovascular</i>

	<i>disease (e.g aneurysms, dissection)?</i>
27	<i>Can we derive robust T1 mapping reference values for different vendors?</i>
28	<i>Can we Identify and characterise biomarkers of sudden cardiac death/arrhythmias in order to develop better risk stratification tools?</i>
29	<i>Can Cardiac CT be used as a screening tool for high risk patients (such as in diabetes) to predict long term outcome?</i>
30	<i>How do different cardiac imaging strategies affect resource utilization?</i>
31	<i>How can we enhance the role of machine learning across the spectrum of cardiovascular imaging and facilitate its application in clinical practice?</i>
32	<i>Can we enable the molecular phenotyping of cardiomyopathy with cardiovascular imaging through the quantification of fibrosis/scar?</i>
33	<i>How can the availability/accessibility of advanced imaging be improved?</i>
34	<i>Can total plaque quantification provide better prognostic assessment than calcium scoring?</i>
35	<i>What is the impact of CT on outcome in surgical/transcatheter valve insertion?</i>
36	<i>Does CTCA identification of non-obstructive coronary artery disease provide better stratification for the use of novel medical therapies for CAD? (PCSK9, canakinumab, SGLT2 inhibitor)</i>
37	<i>Is CACS superior/inferior/complementary to echo for the detection of severe AS and selecting for surgery/TAVR?</i>
38	<i>What is the value of baseline cross-sectional (MRI &amp; CT) imaging for congenital heart disease?</i>
39	<i>Should CTCA or MRI be the baseline test in new onset dilated</i>

	<i>cardiomyopathy?</i>
40	<i>Is negative research in cardiovascular imaging being published in a useful way?</i>
41	<i>Does on site CFFR facilitate improved work flow and patient outcome?</i>
42	<i>What imaging biomarkers can aid decision making in cardio-oncological patients?</i>
43	<i>Can we develop non-invasive methods for the evaluation of the haemodynamic significance of vascular disease (e.g. computational fluid dynamics) out with the coronary arteries?</i>
44	<i>What is the additional value of cardiac CT in structural heart disease compared with TOE?</i>
45	<i>Does standardized reporting improve communication of cardiac imaging findings?</i>
46	<i>What is the role of CTCA in established CAD?</i>
47	<i>Should cardiac CT be the first line test for aortic prosthetic valve dysfunction instead of TOE?</i>
48	<i>Is there a role for CTA/MRI in surgical valve replacement sizing/patient selection?</i>
49	<i>Can we identify barriers to MRI of all body systems for patients with implanted electronic cardiac devices?</i>
50	<i>How do different vendors/algorithms of FFRCT calculation compare in their impact on decision making and outcomes?</i>
51	<i>Can we examine the roles of CT and MRI in GUCH and develop more robust data for guiding intervention?</i>

52	<i>What is the optimum follow-up interval for imaging in congenital heart disease?</i>
53	<i>How can PET services be better expanded/centralized to optimally meet the needs/demands of the population?</i>
54	<i>Should advice regarding downstream investigation and management be provided in the report of cardiovascular imaging?</i>
55	<i>What are the best ways to decrease side effects/harms of current imaging modalities? (e.g. radiation exposure, contrast agents, pharmacological stressors)</i>
56	<i>What is the best way to explain cardiac imaging to patients?</i>
57	<i>Are research findings being supported by funding where new ideas are being proven or put into clinical practice?</i>
58	<i>What are contemporary radiation doses of all cardiac imaging modalities, including invasive and non-invasive imaging?</i>
59	<i>Can serial assessment of plaque be used as a surrogate marker of disease progression/treatment response?</i>
60	<i>What role does PET imaging have in the assessment of cardiovascular disease when many don't have access to it?</i>
61	<i>Can CTCA + \- MRI replace the need for ICA and biopsy in the follow-up of cardiac transplants?</i>
62	<i>Which biomarkers best aid clinical decision making for valvular heart disease?</i>
63	<i>Does onsite or remote reporting of cardiac CT impact quality/speed/access?</i>

64	<i>Comparison of image quality and radiation dose across all vendors in coronary, valve and functional imaging ?</i>
65	<i>How does exercise impact coronary plaque remodeling?</i>
66	<i>Is assessment of plaque morphology on CTCA improved using ultra high density scanners?</i>
67	<i>What is the role of functional cardiac CT imaging in clinical practice?</i>
68	<i>Can we develop accelerated 4D flow acquisitions and rapid evaluation workflows?</i>
69	<i>What is the impact of Radiomics with respect to imaging biomarkers that inform clinical decision making?</i>
70	<i>What coronary arterial/cardiovascular remodeling occur secondary to ageing?</i>
71	<i>What is the role for molecular cardiovascular imaging?</i>
72	<i>Does low dose radiation dose calcium scoring affect the results of calcium quantification?</i>
73	<i>What is the value of IPH (intraplaque haemorrhage) and other markers of risk in stratifying patients for CEA (carotid endarectomy)?</i>
74	<i>What is the role of CFD (computation fluid dynamics) in transcatheter valve planning, and can this become streamlined/standarised enough to enter clinical practice?</i>
75	<i>Can imaging identify those who benefit from PCI over optimal medical treatment?</i>