Cambridge Cancer Centre

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

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The Cambridge Cancer Centre and Network

Simon Oberst MA FCA, Director of Clinical Development

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wellcome trust sanger institute

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AstraZeneca

Babraham Institute

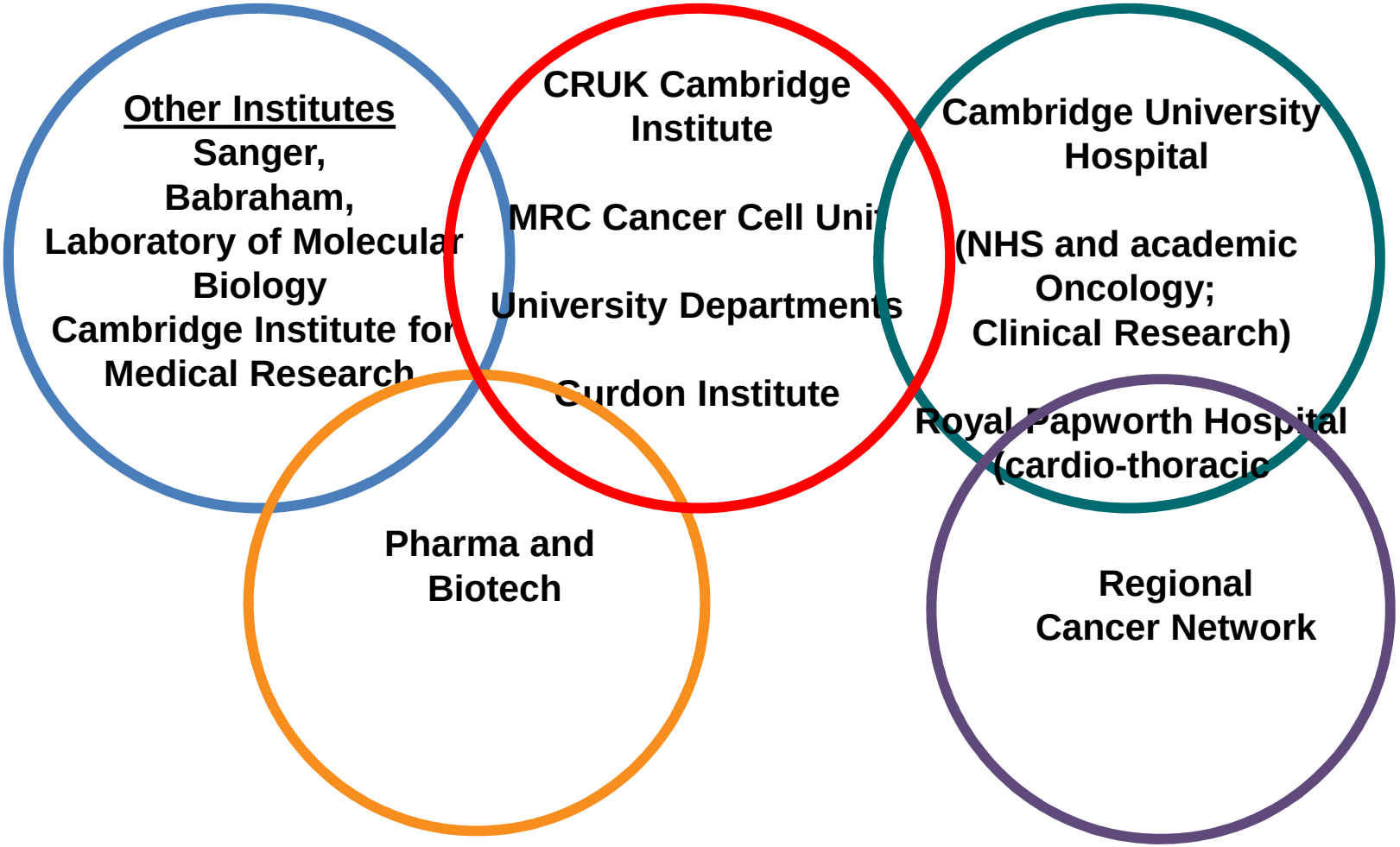
MRC Medical Research Council

Gurdon INSTITUTE

NHS National Institute for Health Research

The mission of the Cambridge Cancer Centre is to end death and disease caused by cancer by translating the wealth of biomedical research in Cambridge into new ways to diagnose, monitor and cure the disease.

The main components of the Cambridge Cancer Centre



Mission & Key Metrics

CCC mission

To end death and disease caused by cancer, through research, treatment and education

24 University Departments

215 laboratory-based principal investigators

2 NHS Major Hospitals

network of 12,000 new cancer patients

138 consultant physicians & surgeons

8 wellcome trust sanger institute world-leading allied institutions

4 AstraZeneca world-class pharmaceutical companies

175 IF >20 papers

1 Noble Laureate

1 Royal Society Fellows

7,740 patients

>230 clinical studies

2 Academy of Medical Sciences

£500M cancer-related active grants

70 Professors

To be the world leader in the development of ways to detect, monitor, and cure cancer

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Babraham
Institute
Enterprise

EMBL-EBI

Cancer Services at Cambridge University Hospitals

- Tertiary referral centre for East of England
- Core population 1.3 million. 7,740 new patients/year
- Extended catchment 2-4 million for:
  - Teenage and young adults
  - Paediatric malignancy
  - Brain and skull base tumours
  - Cancer Genetics
  - Haematological malignancies
  - Lung at Royal Papworth

Surgical Centralisation

- Cambridge is the regional surgical centre for:
  - Upper GI Cancer
  - Urological Cancers
  - Gynaecological Cancer
  - Hepatobiliary Cancer
  - Neurosurgery
  - Anal Cancer

Haemato-Oncology

- Cambridge is the regional transplant unit for:
  - Allografts, Autografts and Stem Cell transplants
  - Regional molecular diagnostics service (HODS)
  - Associated sample banking

Main features of the Cambridge Cancer Network

- It exists because of the integrated nature of the National Health Service in the UK (NHS)
- All hospitals are technically independent (also GPs)
- Cancer care is “commissioned” (paid for) by regional and national clinical commissioners who include GP reps
- The meaningful clinical network is not a legal enitity
- Network hospitals use different IT systems (CUH EPIC) but integration is improving
- MDTs follow national guidelines and protocols and are peer reviewed
- Extended MDTs are videoconferenced between different centres
- Waiting times (referral to diagnosis; diagnosis to treatment) are heavily and centrally regulated, including transfers of care between providers
- Cancer Registry is centralised in England, and survival outcomes are regularly reported

The Anglia Cancer network within the NHS

East Anglia: 4.5 million population.

Each hospital is a separate legal entity <u>within the NHS</u>

Patient pathways were negotiated and formalised by the network

Reimbursement 'contracts' are with the regional NHS commissioners

Clinical research is organised in the network: highlights: oesophagus; prostate; lung,
breast; genetic epidemiology

Highest rate of clinical trials in UK: 35-40%

Highlights of the Cambridge Cancer Centre

- Cancer Research UK Major Centre
  - One of only 2 in UK (Cambridge, Manchester)
- OECI Comprehensive Cancer Centre (with over 1,000 cancer scientists and c. 500 clinicians)
- EACS Designation of Research Excellence (joint first)
- Well established “hub and spoke” Cancer Network
- Strong record of excellent clinical outcomes (in some cases twice as high as the UK average
- 1 publication per week in high impact factor (IF>20) journal

Clinical Quality Measures of the Network

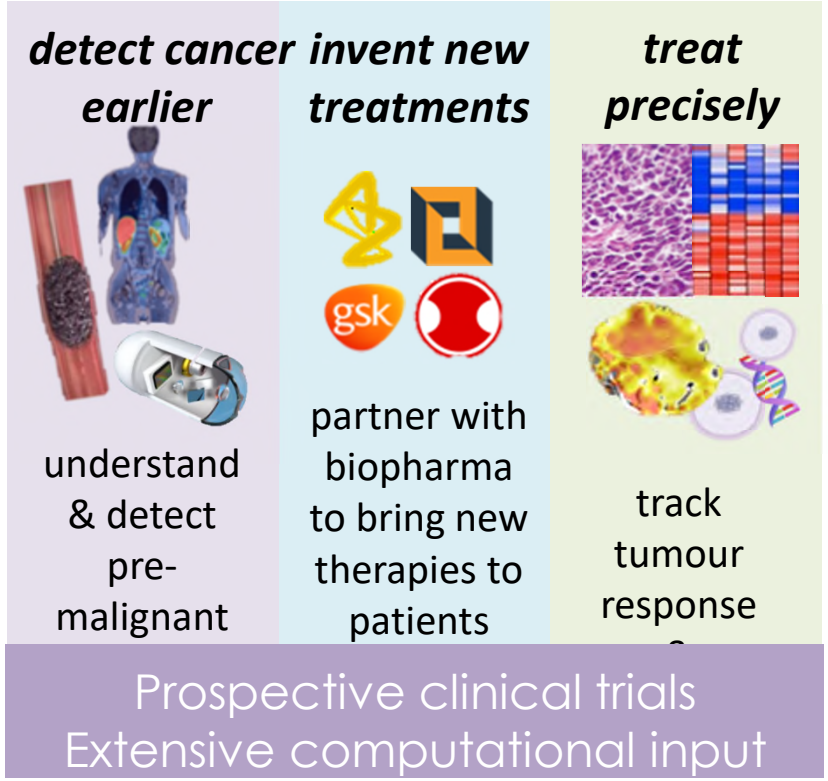
- Good survival figures compared to national benchmarks – 5 year relative (England average)
  - Breast Cancer 88% (83%)
  - Colorectal Cancer 59% (53%)
  - Prostate Cancer 95% (82%)
  - Cervical Cancer 81% (69%)
  - B Cell Lymphoma 62% (48%)
  - Oesophageal Cancer 21% (12%)
  - Pancreatic Cancer 8% (4%)

- Highest network proportion of patients recruited to clinical studies (35-40%)

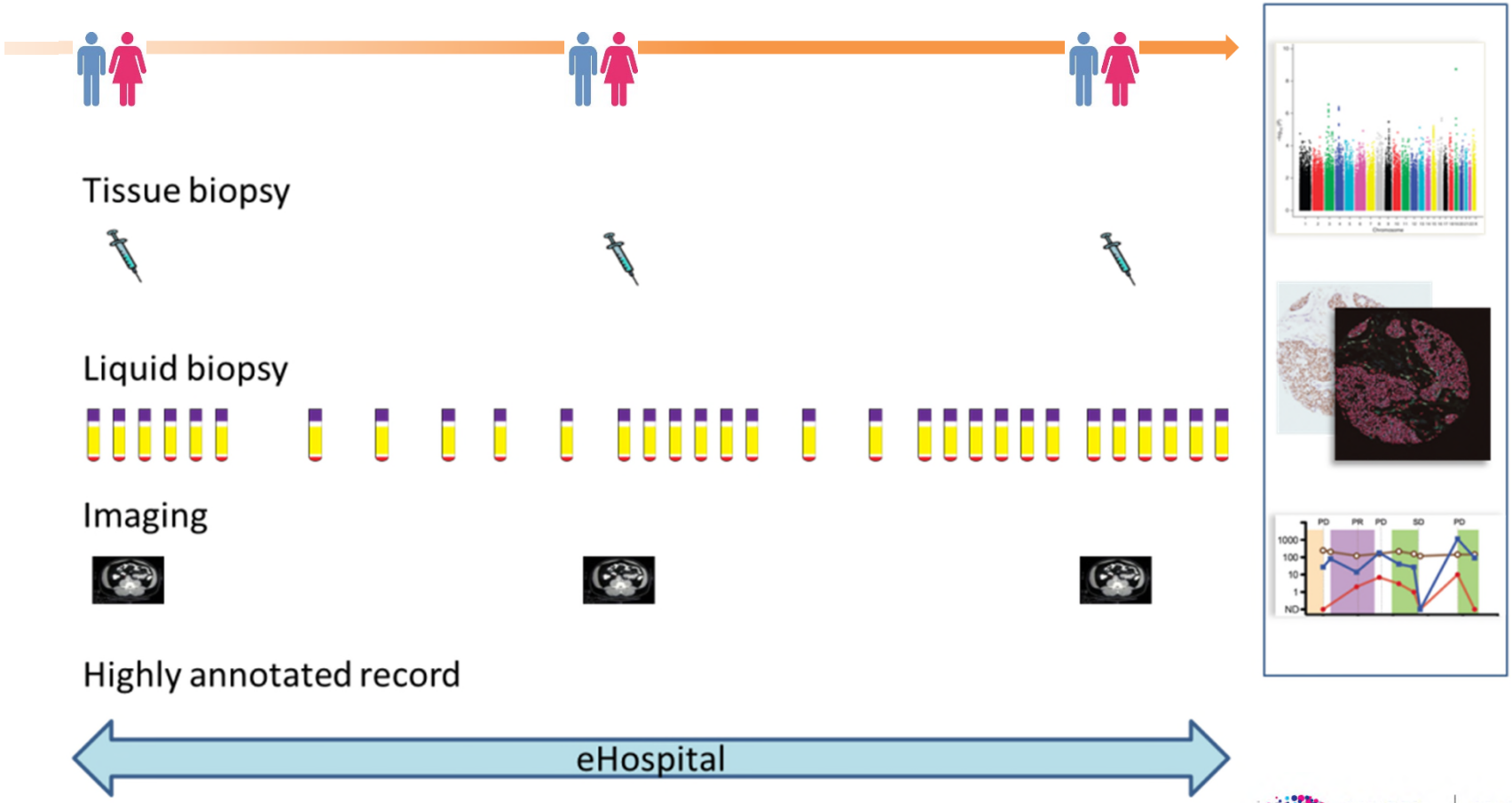
What is Integrated Cancer Medicine?

Vision: To combine advanced imaging, tumour genomic and liquid biopsy (CTC and ctDNA) technologies within standard-of-care for all oncology patients; thereby improving treatment efficiency and effectiveness.

Approach: To test and validate sample collection, analysis technologies, data collection-integration-reporting, and molecular tumour board logistics in prospective clinical trials.



Integrated Cancer Medicine



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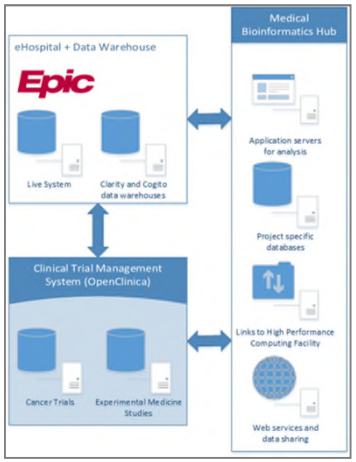
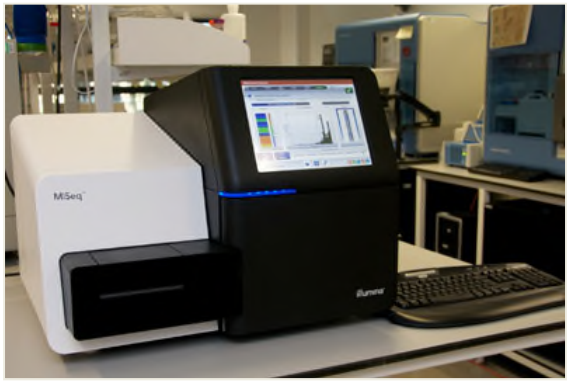
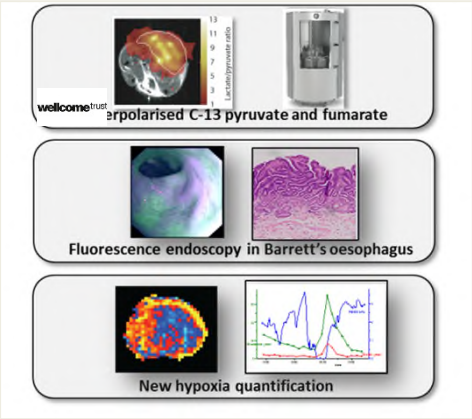
The engine of Integrative Cancer Medicine- leveraging resources



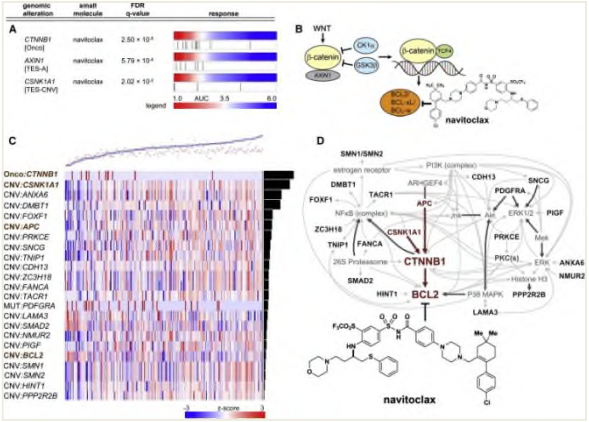
Clinical Data Hub



Cancer Molecular Diagnostics Laboratory



Imaging Centre



Computational Biology

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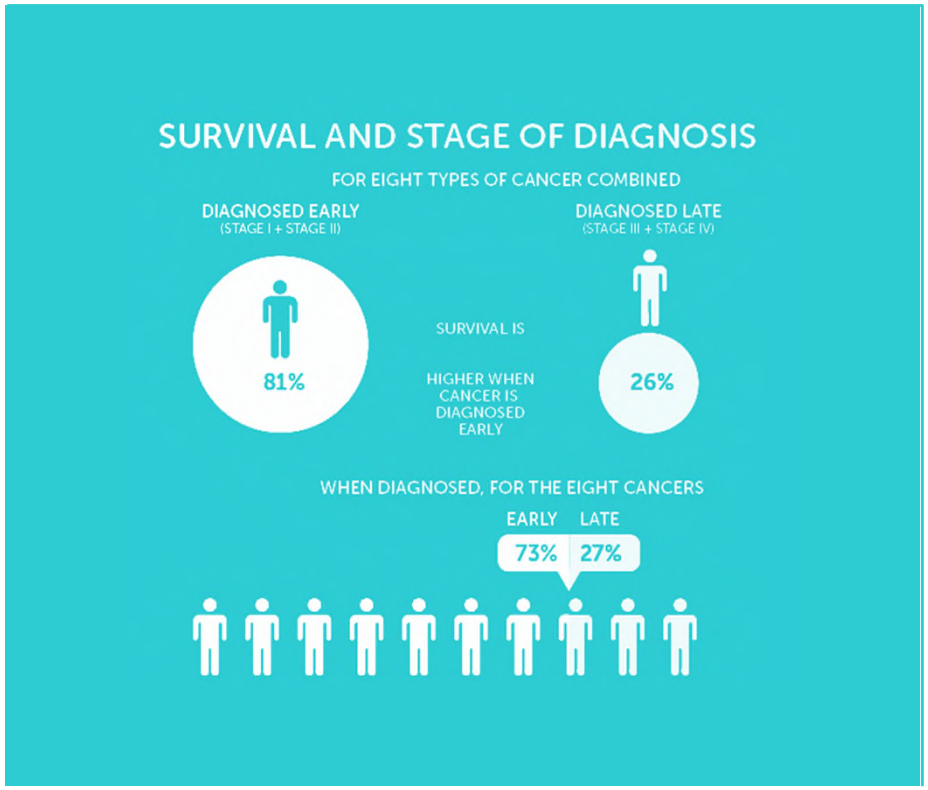
The Challenge of Early Detection of Cancer

- 74% of patients whose cancer is diagnosed late will die from the disease within 10 years.

- In stark contrast, 81% of patients who are diagnosed with the same cancer at an earlier stage are alive at 10 years.



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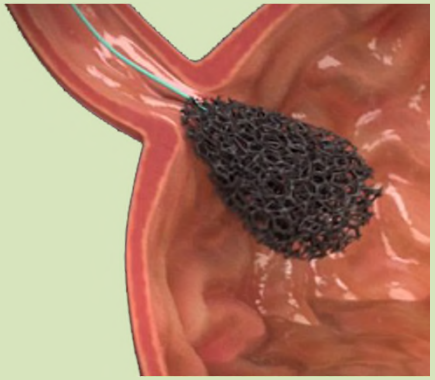
Early Detection of Cancer – our story so far……

Innovative diagnostics:

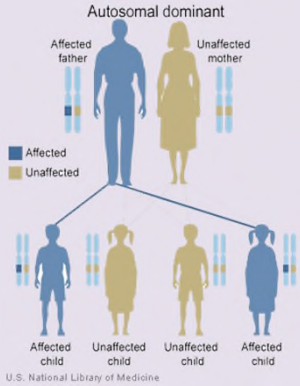
Moving advanced early detection technologies developed by Cambridge scientists into the GP clinic, and wider cancer care services

e.g., CAMPROBE and Cytosponge



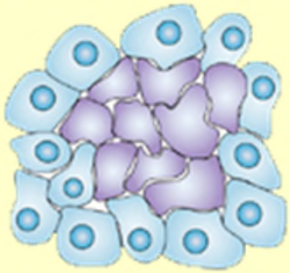
Understanding inherited cancer risk and management:

Aimed at improving the application of genomic tests and the downstream clinical care pathways



The biology of early cancer:

Understanding the basic biology that underlies cancer initiation is key if we are to develop accurate diagnostic tests and interventions for early stage cancers.



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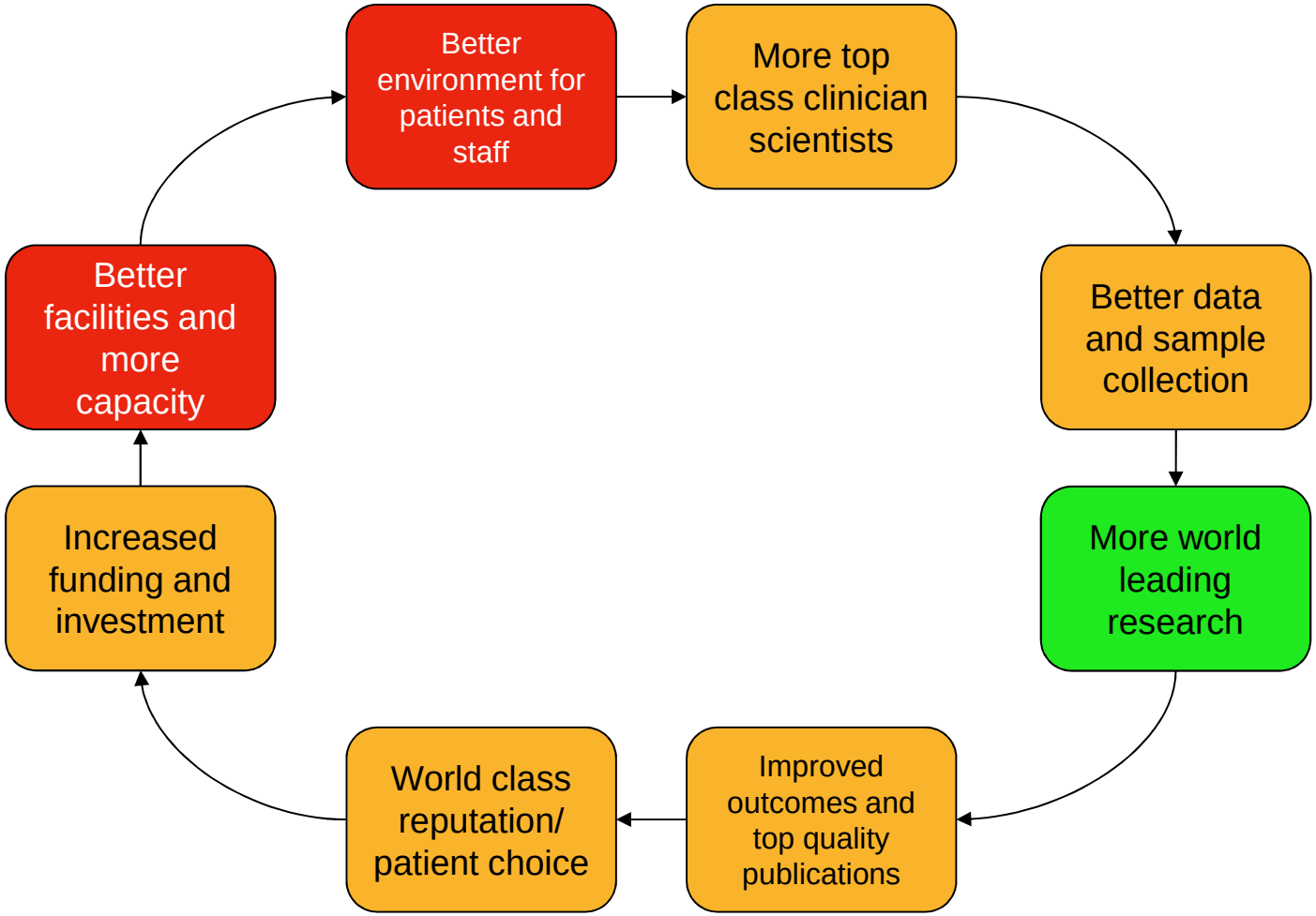
The virtuous circle in a world-class Cancer Centre



Preliminary Conclusions

- The main characteristic of the network is “hub and spoke”
- Legally, each entity (HCP) is responsible for its own patients
- The “hub” (Cambridge) is interested in being (and is!) recognised internationally as a Comprehensive Cancer Centre
- The network is ‘mature’ in terms of patient pathways, extended MDTs, transfers of care
- The secretariat and advisory resources of the network as an organisational entity have now been dissolved (change of government strategy)
- There would be no interest in (or possibility of) the network being Accredited as a “Comprehensive Cancer Network” by an external party

Thank you
and Questions