

Creating data assets for
collaborative partnerships:
the opportunities in the healthcare domain

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**CREATING DATA ASSETS FOR
COLLABORATIVE PARTNERSHIPS:
THE OPPORTUNITIES IN THE HEALTHCARE DOMAIN**

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EPIDEMIOLOGIST

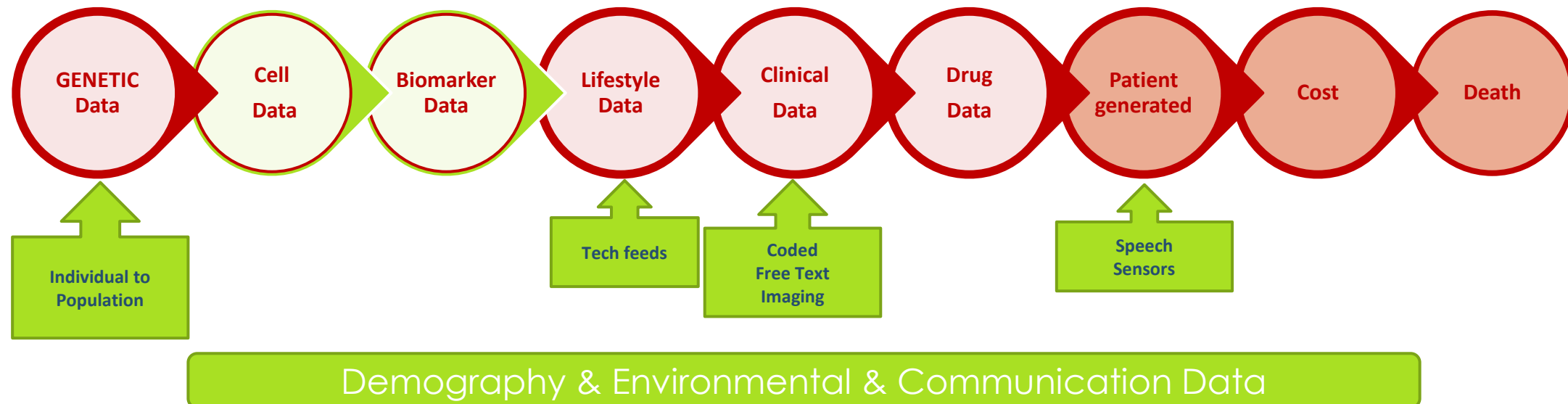
EXAMPLES OF DATA MODALITIES

NHS ID ALLOWS LINKAGE

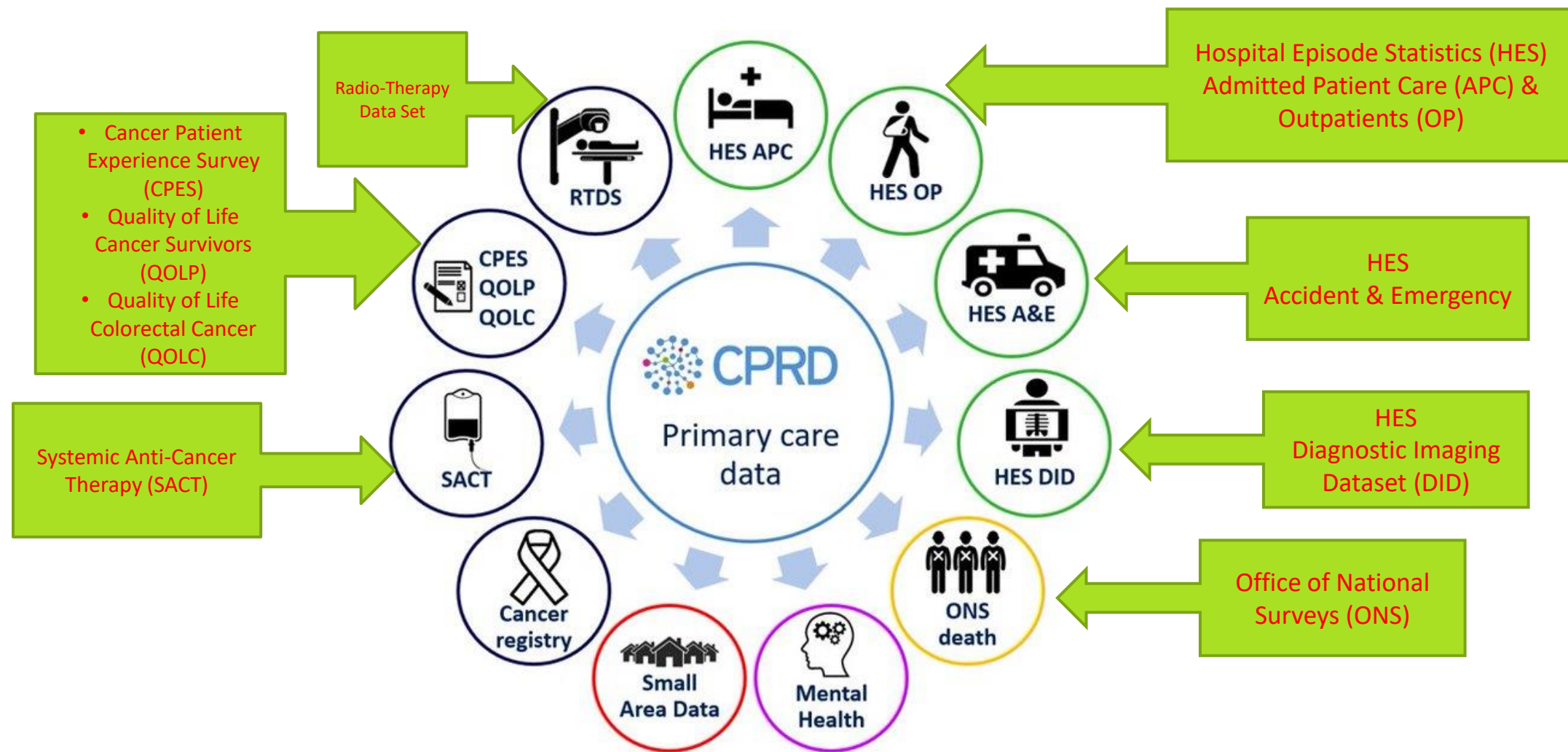
Research Data

Routine Data

Outcomes Data

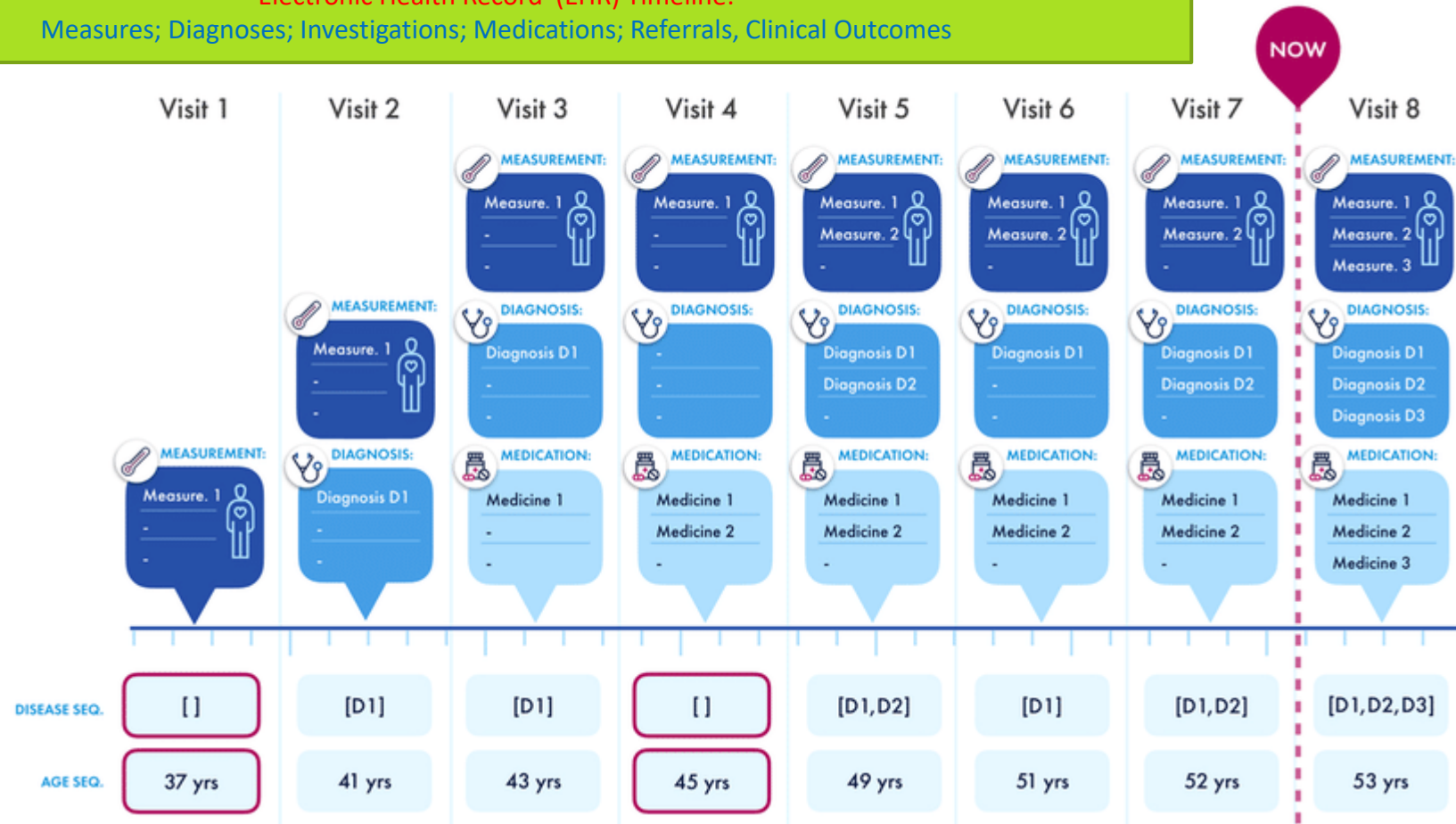


CLINICAL PRACTICE RESEARCH DATALINK (CPRD): A NATIONAL DATASET



POPULATION-BASED PRIMARY CARE: LIFE COURSE PERSPECTIVE

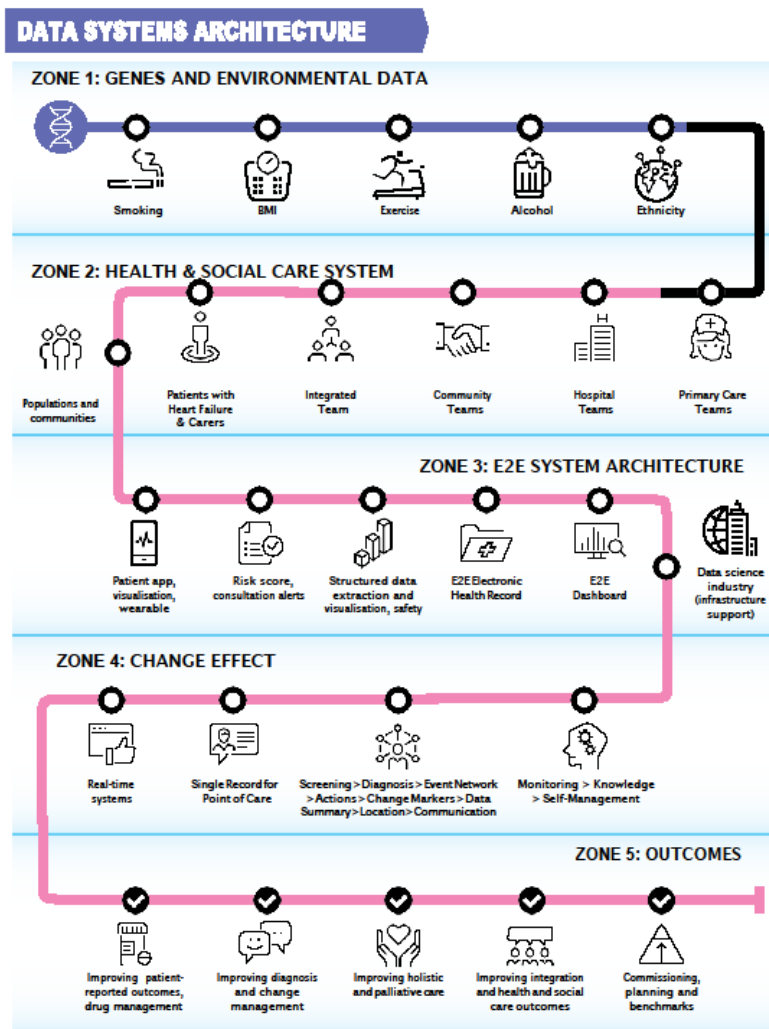
Electronic Health Record (EHR) Timeline:
Measures; Diagnoses; Investigations; Medications; Referrals, Clinical Outcomes



A FRAMEWORK FOR HEALTHCARE DATA

- DATA SYSTEMS ARCHITECTURE
- LIFE COURSE MODELLING

DATA SYSTEMS ARCHITECTURE



DATA SYSTEMS ARCHITECTURE

ZONE 1: GENES AND ENVIRONMENTAL DATA

ZONE 2: HEALTH & SOCIAL CARE SYSTEM

ZONE 3: E2E SYSTEM ARCHITECTURE

ZONE 4: CHANGE EFFECT

ZONE 5: OUTCOMES



Improving patient-reported outcomes, drug management



Improving diagnosis and change management



Improving holistic and palliative care

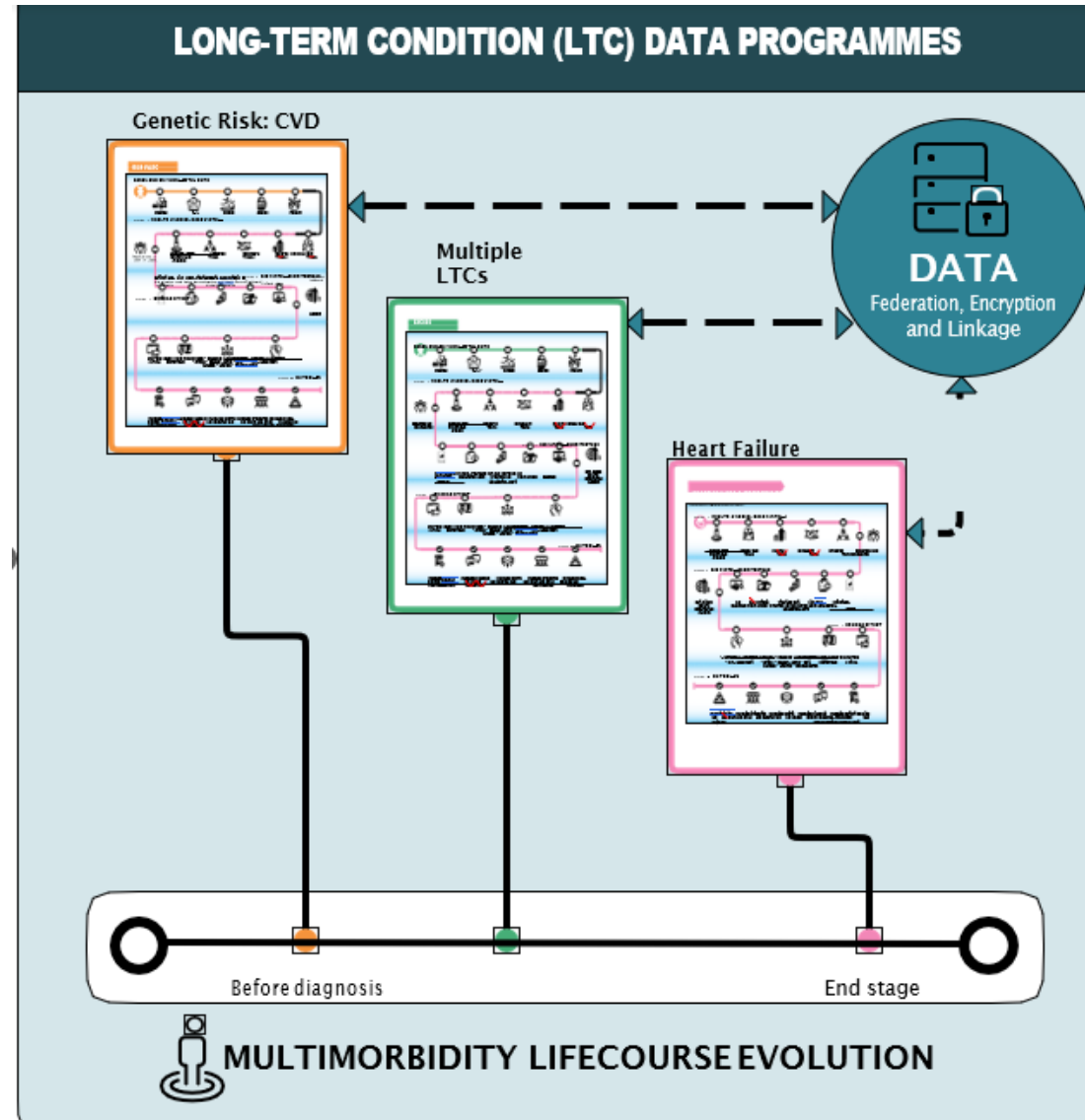


Improving integration and health and social care outcomes



Commissioning, planning and benchmarks

LIFE COURSE MODELLING



CPRD DATA ASSETS

1. HEART FAILURE PROGRAMME

- PRIMARY GOAL – DATA CARE MODELS TO ASSIST CLINICAL DECISION-MAKING

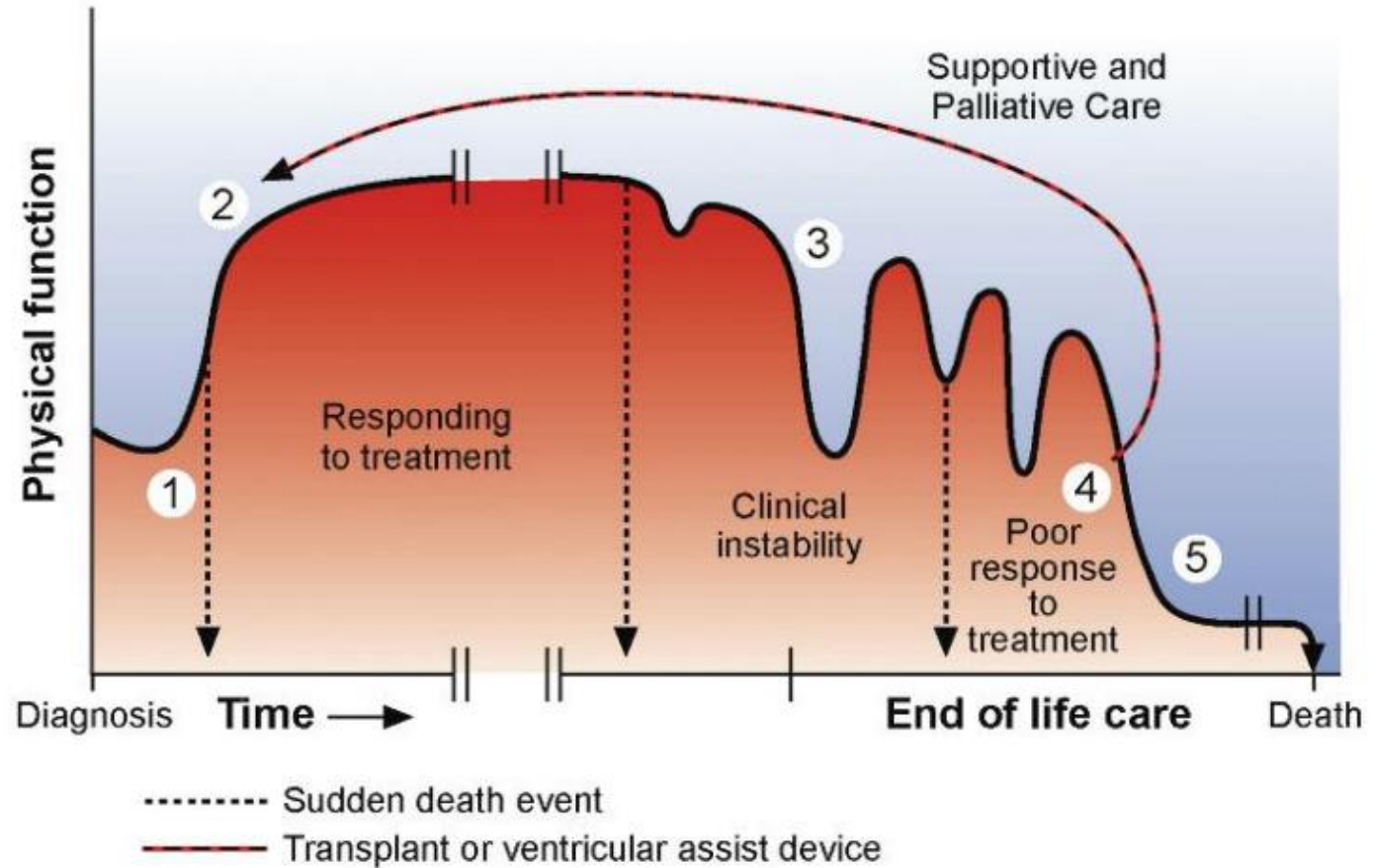
2. CARDIO-ONCOLOGY PROGRAMME

- PRIMARY GOAL – RISK CHANGE TRAJECTORIES AND OUTCOMES

3. MULTIPLE LONGTERM CONDITIONS & FRAILTY

- PRIMARY GOAL – LIFE COURSE TRAJECTORIES

HEART FAILURE PROGRAMME

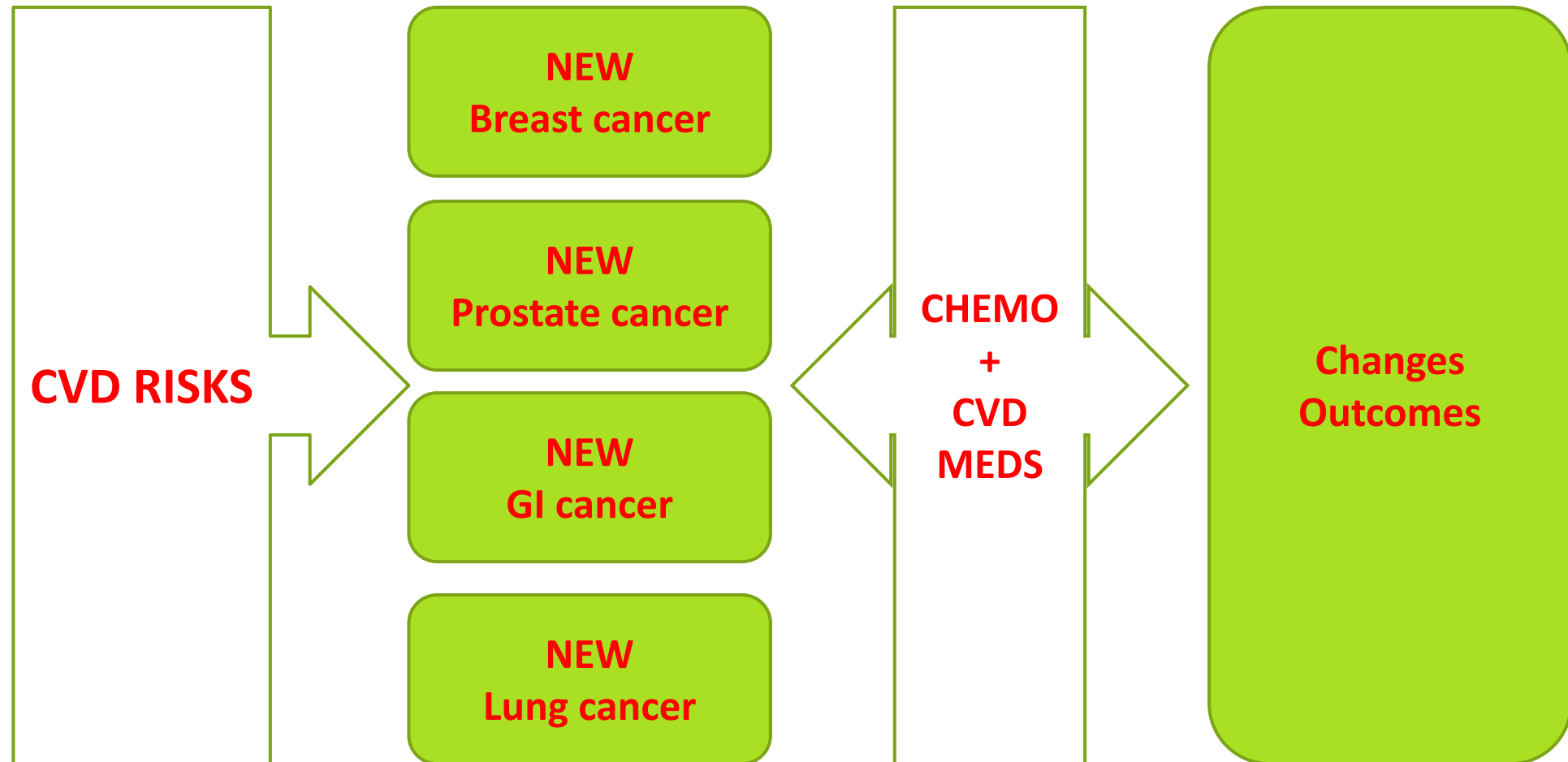


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HEART FAILURE PROGRAMME

- LIFESTYLE RISK FACTORS
- CARDIO-METABOLIC CAUSES – HYPERTENSION, DIABETES, ISCHAEMIC HEART DISEASE
- TWO TYPES DIFFERENTLY TREATED
- OLDER AGE GROUP – SO MULTIPLE CONDITIONS & MEDICATIONS & OUTCOMES
- HIGH HEALTHCARE COSTS – 2% OF NHS BUDGET AND 5% OF HOSPITAL ADMISSIONS

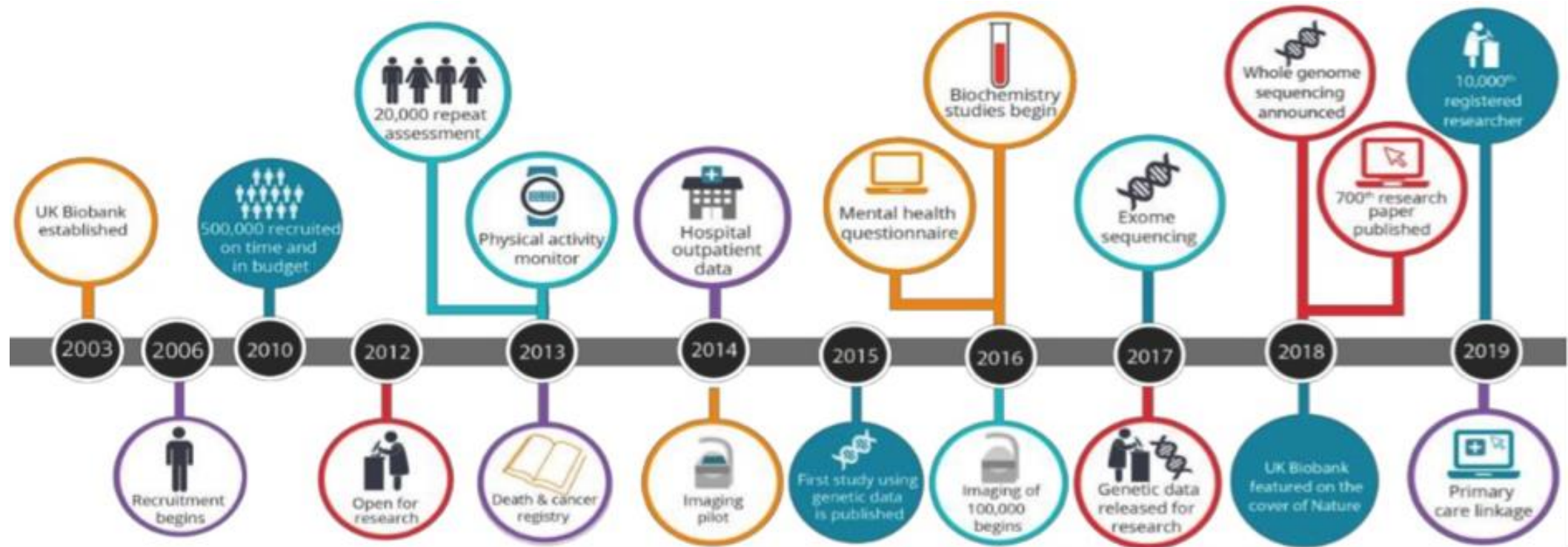
CARDIO-ONCOLOGY CPRD PROGRAMME



MULTIPLE LONGTERM CONDITIONS & FRAILTY




UK Biobank: another data asset




CAVEATS!

- REAL WORLD DATA IS CHALLENGING AND REQUIRES TEAMWORK
- APPROVALS REQUIRED
- DATA MEASURES AND ATTRIBUTES VARY – UNCERTAINTY & BIAS
- BUT *POTENTIAL FOR REAL WORLD IMPACTS*

PRACTICAL EXAMPLE: REAL SYSTEM APPLICATION


Case Management Tool



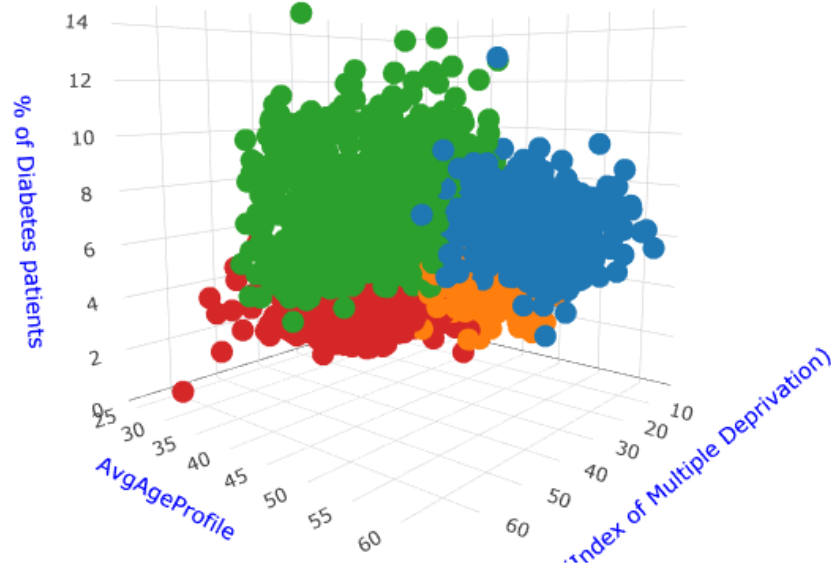
 Staffordshire and Lancashire
 Commissioning Support Unit

Locality: CCG <input type="checkbox"/> Locality <input type="checkbox"/> Practice <input type="checkbox"/> Care Home <input type="checkbox"/> IC Cluster <input type="checkbox"/>	No. Long Term Conditions: ◀ 1 6 11 17 ▶	Vascular: Hypertension <input type="checkbox"/> Diabetes <input type="checkbox"/> AF <input type="checkbox"/> CHD <input type="checkbox"/> Heart Failure <input type="checkbox"/> CKD <input type="checkbox"/> TIA <input type="checkbox"/> Stroke <input type="checkbox"/> Dementia <input type="checkbox"/>	Use of Care: A&E Admission <input type="checkbox"/> A&E Frequent Flyer <input type="checkbox"/> Unplanned Admission <input type="checkbox"/> Palliative Care <input type="checkbox"/>
Patient Age Range: ▶ 1 38 75 112 ▶	Respiratory: Asthma <input type="checkbox"/> COPD <input type="checkbox"/>	Neurological: Multiple Sclerosis <input type="checkbox"/> Parkinson's disease <input type="checkbox"/>	No. Unplanned Admissions: ▶ 0 16 31 121 ▶
Patient Groups: Age <input type="checkbox"/> Age Group <input type="checkbox"/> Sex <input type="checkbox"/> Mosaic Group <input type="checkbox"/> Mosaic Type <input type="checkbox"/> Risk Category <input type="checkbox"/> Kadam MI <input type="checkbox"/> Case/Area <input type="checkbox"/> Learning Difficulties <input type="checkbox"/>	Gastrointestinal: Ulcerative Colitis <input type="checkbox"/> Crohn's disease <input type="checkbox"/>	Other: Epilepsy <input type="checkbox"/> Hypothyroidism <input type="checkbox"/> Hyperthyroidism <input type="checkbox"/>	No. A&E Attendances: ▶ 0 5 9 19 ▶
Lifestyle: Smoker <input type="checkbox"/> Alcohol Units <input type="checkbox"/> BMI <input type="checkbox"/> BMI Group <input type="checkbox"/> Obesity <input type="checkbox"/>	Musculoskeletal: Osteoporosis <input type="checkbox"/> Osteoarthritis <input type="checkbox"/> Rheumatoid Arthritis <input type="checkbox"/>	Cancer: Cancer <input type="checkbox"/> Breakdown of cancers <input type="checkbox"/>	
	Mental Health: Anxiety/Depression <input type="checkbox"/> Bipolar/Schizophrenia <input type="checkbox"/>		

No. Patients: 136,688
View Selected Population

PRACTICAL EXAMPLE: 3D-DATA VISUALISATION

Cluster Analysis of General Practices in UK



GP related information

Practice Code:

PracticeName:

TotalSize:

Area Code and Name:

Average Age:

% aged 65+ years:

Diabetic Patient Count:

Hypertension Patient Count:

IMD:

- 3
- 1
- 2
- 0

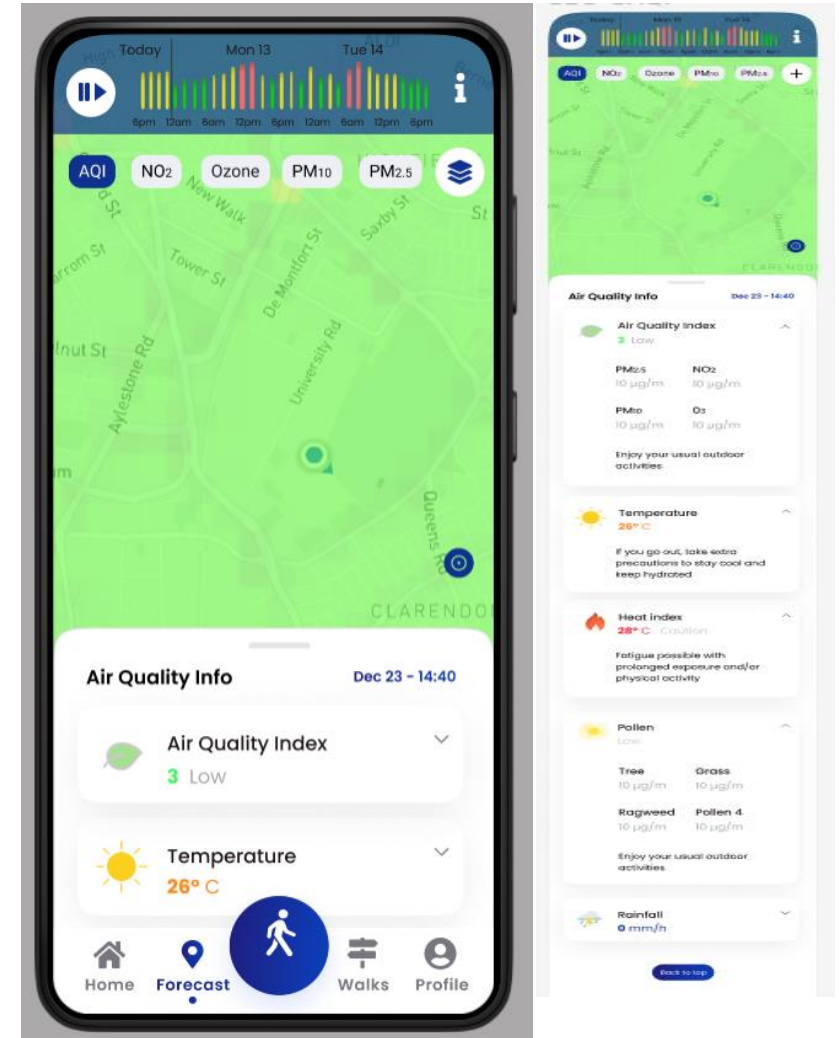
X-Axis

Y-Axis

DrugGroups

Costs related information

PRACTICAL EXAMPLE: APP DEVELOPMENT



THANK YOU FOR LISTENING

