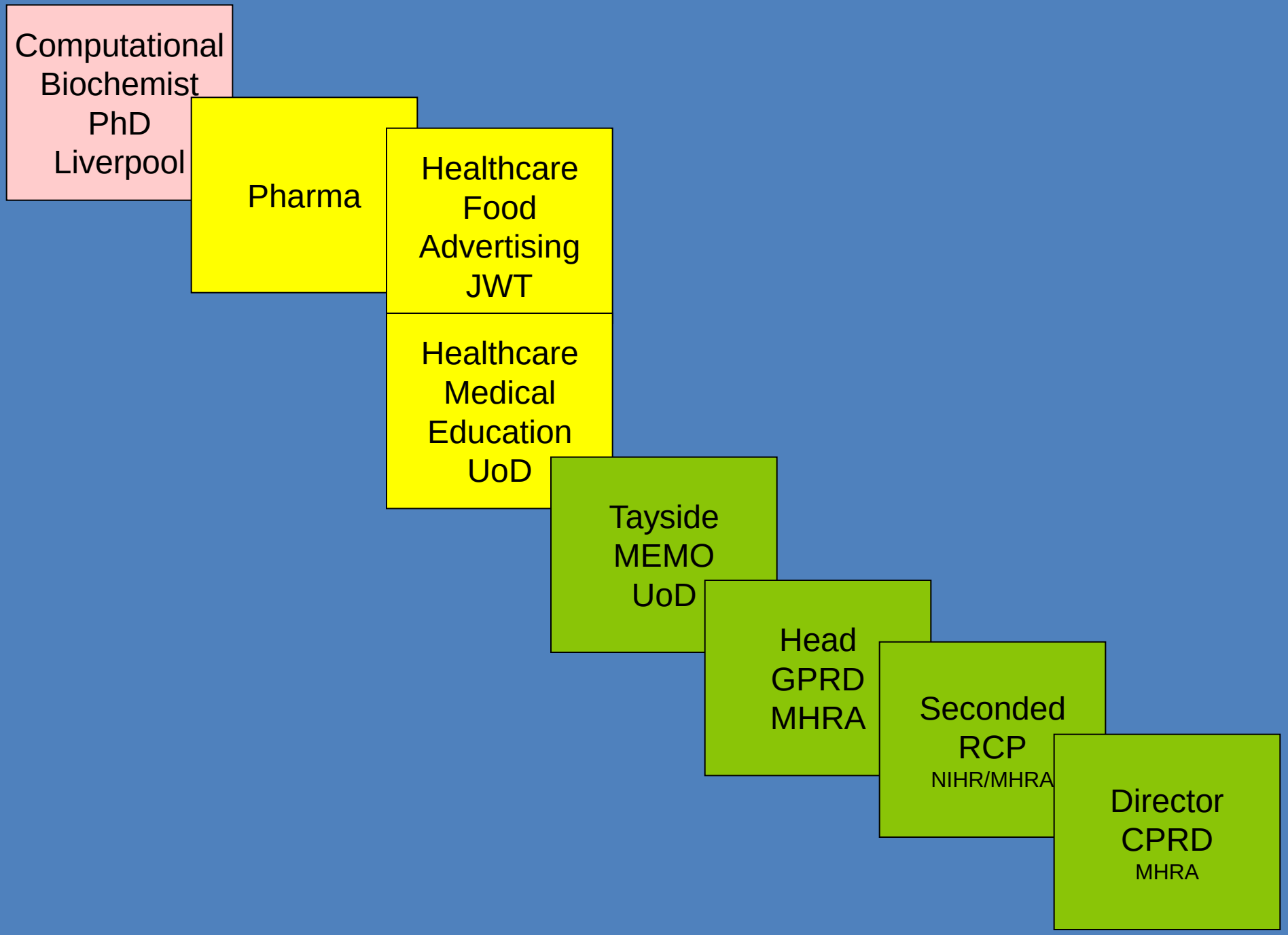
CPRD

Clinical Practice Research Datalink

john.parkinson@cprd.com

Scotland Meeting

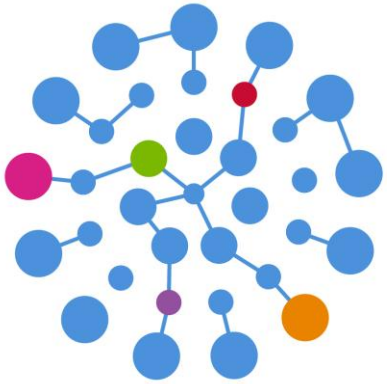
May 2012


Computational Biochemist PhD Liverpool
Pharma
Healthcare Food Advertising JWT
Healthcare Medical Education UoD
Tayside MEMO UoD
Head GPRD MHRA
Seconded RCP NIHR/MHRA
Director CPRD MHRA

GPRD

GPRD

Excellence in Public Health Research



CPRD

MORE DIMENSIONS TO DATA

Clinical Practice Research Datalink

Quality • NHS Clinical • Linkage • Real world • Randomised • PROs • Population 52M+

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CPRD
MORE DIMENSIONS TO DATA

CPRD – more dimensions to data

Quality Metrics and validation, Gold and Silver, metadata

NHS Clinical Gatekeeper approach, universal, free at point of care

Linkage Unique, universally adopted NHS number

Real World Well coded data

Randomised Point of Care and P3/4 trials

PROs NHS and specifically collected

52M+ Large population, age, sex, s-e class, ethnicity
Many national datasets

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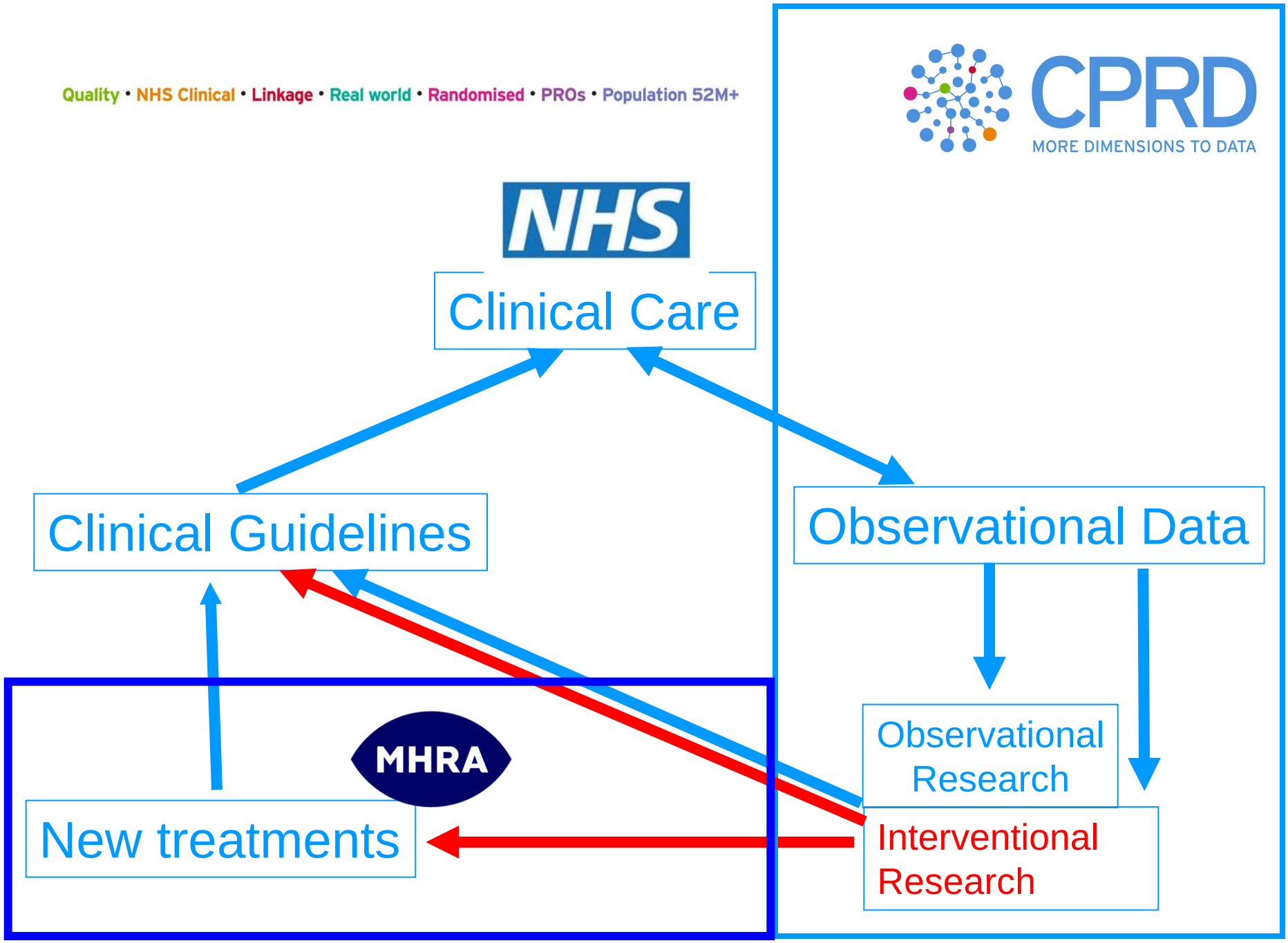
MORE DIMENSIONS TO DATA



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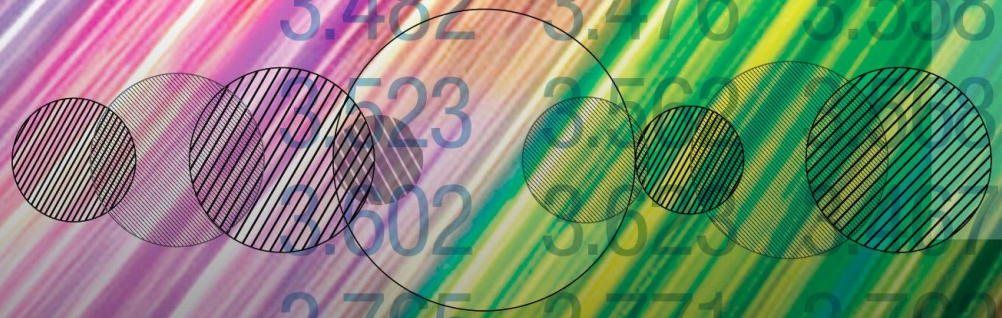
MORE DIMENSIONS TO DATA

Unlocking the potential of NHS Patient Data in Research

+ other

Observational & Interventional



MHRA Medicines and Healthcare products Regulatory Agency

NHS National Institute for Health Research

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Other Data

Any data, included in an approved protocol

…Tesco Club Card data?

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NHS National Institute for Health Research

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All England 52 million

+ 12 million – Scotland, Wales and NI.

by agreement

Incremental approach

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UK wide data

Rare diseases and outcomes

Risk Management Tracking new products

4 nation studies (NICE and SMC)

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Health and Wealth Agenda

All research studies benefit the NHS in some way

CPRD welcomes research from Pharma, Biotech, Devices & CROs

Duke Medical School
900 global CTs
50/50 funding

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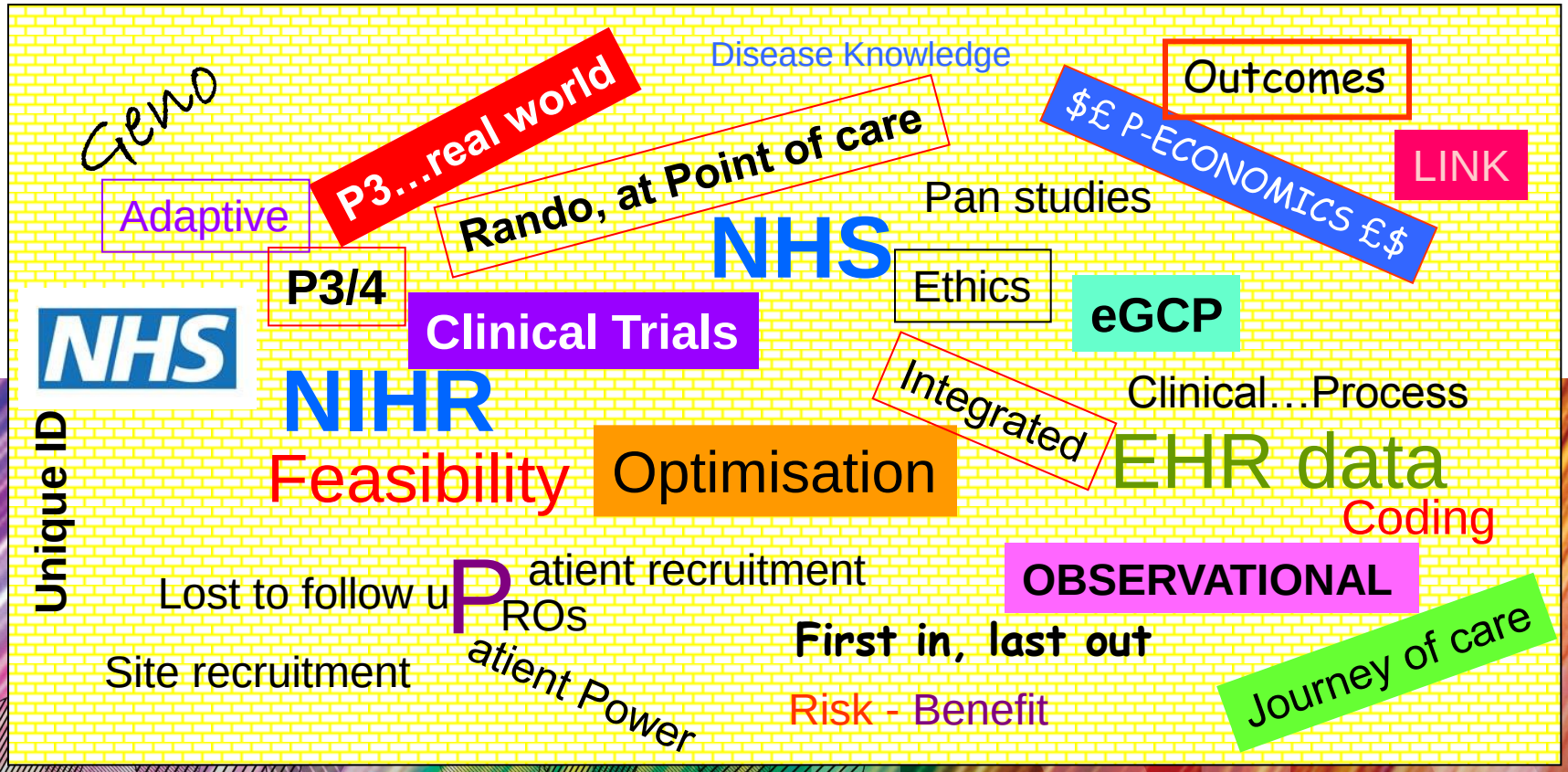

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Partnerships

- **NIHR**
  - NHS Research Networks
  - Topic specific Diabetes, Mental Health, Children, Cancer, Stroke, Neurod.
  - Primary Care
  - Comprehensive.
  - Thousands of **Researchers**
  - Thousands of **Sites**
  - Detailed and specific **expertise**
- **HSC Information Centre**

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CPRD – HSC Information Centre

- Undertaking all linkage
- NHS number
- Unique Research ID
- Research = CPRD
- Audit = IC
- Surveillance = IC
- Complex surveillance CPRD/IC

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CPRD – 3 key services

- **Real world data and linked data**
  - NHS
  - Social Care
  - Other health related
- **Interventional**
  - Clinical Trials
  - PROs
  - Bio-samples
- **Pharmaco-epi Research team- full service**

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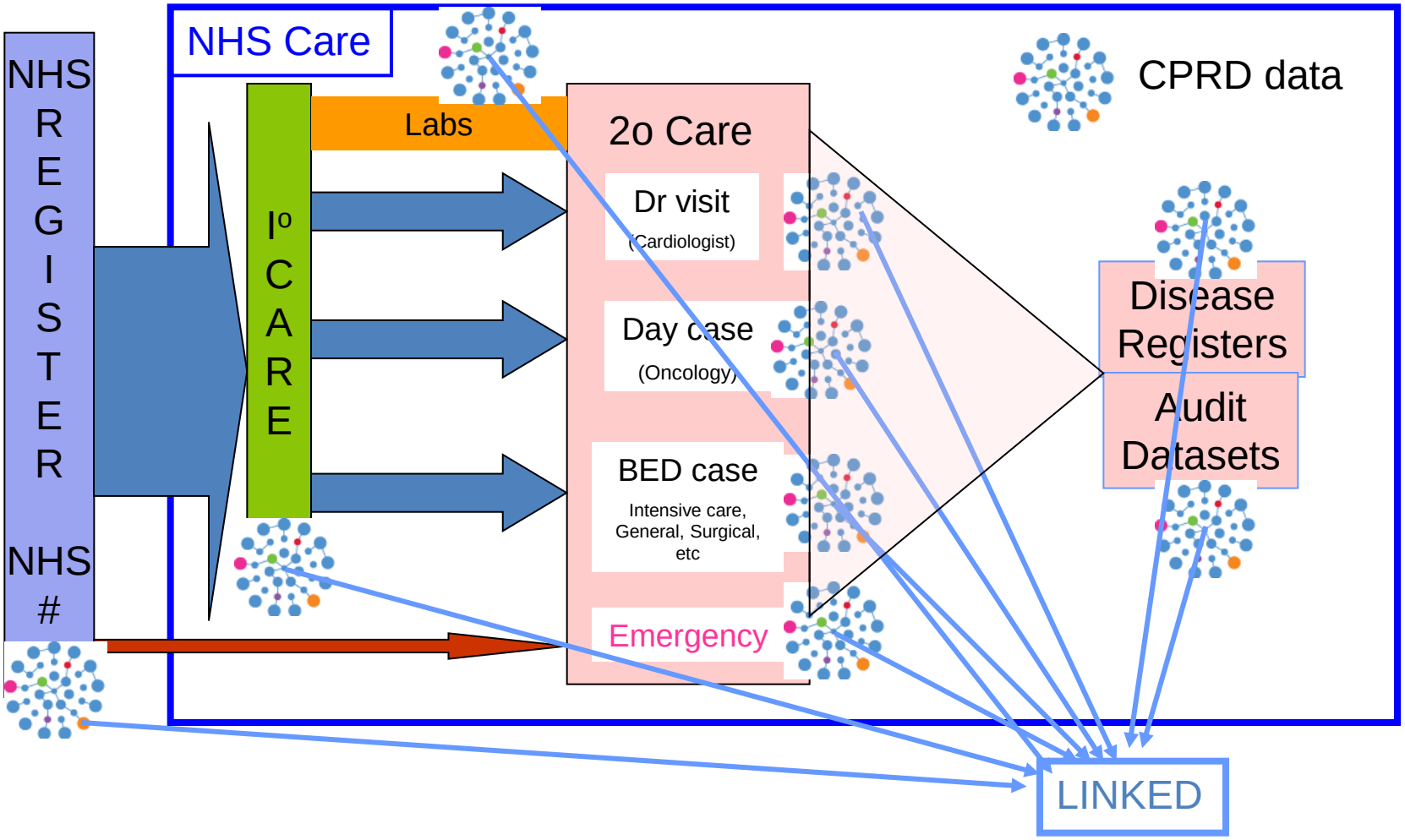
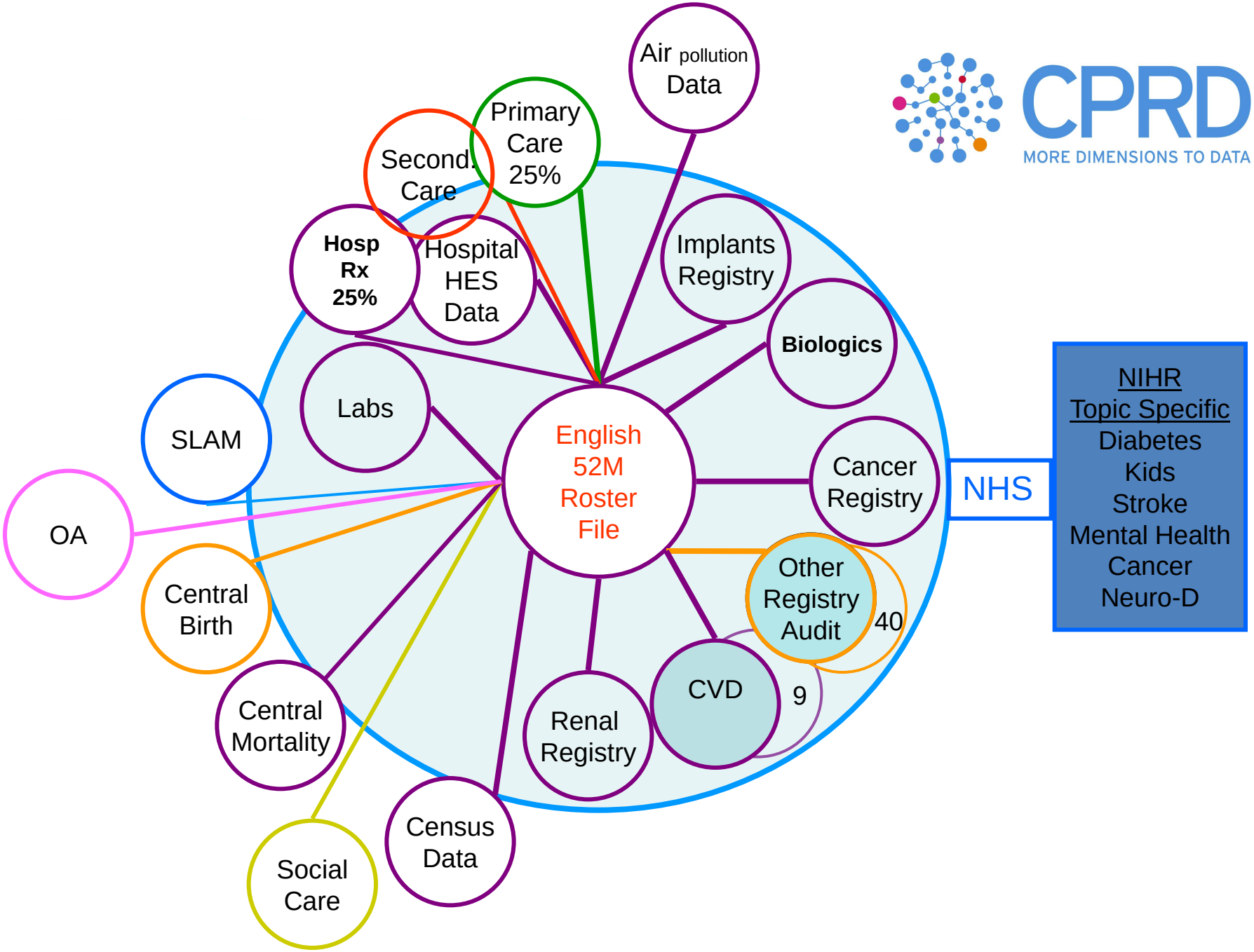
CPRD NHS Linked data




Air pollution Data
Primary Care 25%
Second Care
Hosp Rx 25%
Hospital HES Data
Implants Registry
Biologics
Labs
SLAM
OA
English 52M Roster File
Cancer Registry
Central Birth
Other Registry Audit
40
Central Mortality
CVD
9
Renal Registry
Census Data
Social Care
NHS
NIHR
Topic Specific
Diabetes
Kids
Stroke
Mental Health
Cancer
Neuro-D

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CPRD, during 2012

Primary Care population cover

- Will be continually growing (PCRN, 1500- 18%)
- From EMIS, Vision, TPP, Isoft(CSC),

National datasets for linkage to above

- Growing range
- **46 National Audit Datasets**

Scotland and Wales - for “national studies”

Drugs used in Hospital
(IMS Health partner)

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MORE DIMENSIONS TO DATA

CPRD Data access

Gp OnLine Data

GOLD

+ For added Power

Data Cuts based upon cohort

GP Data Cut

SILVER

+ detailed Hospital Data HES

+ Disease Regs.

+ Audit data

+ other

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CPRD "TRACK"-marts

- Pregnancy - TRACK
  - **From first coded notification- Primary Care Data**
  - **Primary care (clinical events, prescriptions, labs etc)**
  - **Birth record- HES and Primary Care**
  - **Central Birth record**
  - **BINOCAR**
- Kids – TRACK

  In-utero events- surgery

  Birth record

  Primary and Secondary care to age 18

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MORE DIMENSIONS TO DATA

CPRD TRACK-marts

- Drug Track
- Device Track
- Cohort Track
- Cost Track
- Vac Track
- Niche Track
- PRO Track
- Gen Track
- OUT Track

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CPRD Interventional

efficiency

* Clinical Trials
  Working in partnership with NIHR

  Point of Care randomisation

  eCRF P3/P4
* Samples
* PRO collections enabled

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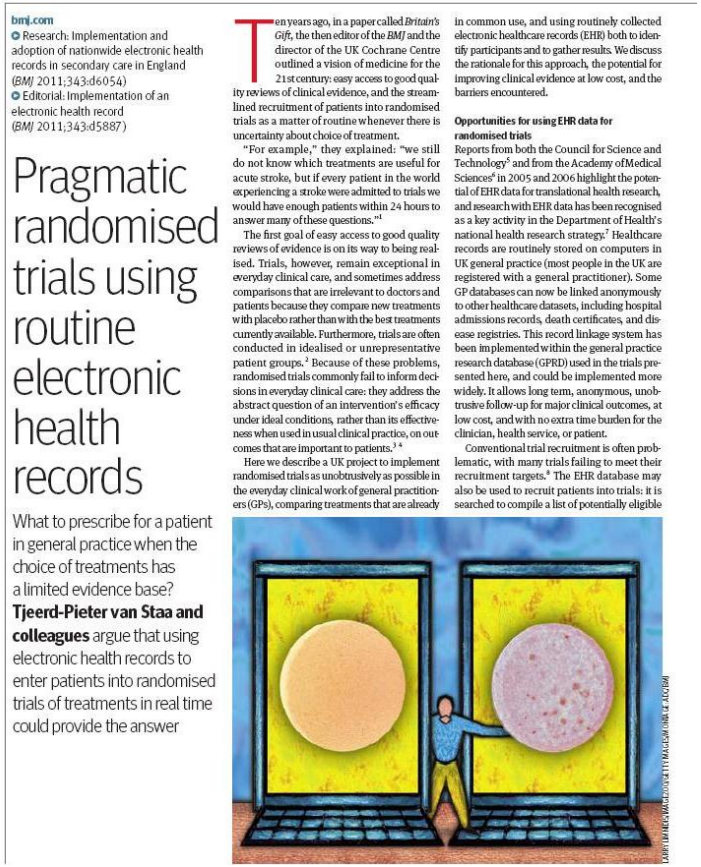
CPRD Point of Care randomisation

In one GP EHR - InPS
On-going inclusion in EMIS/TPP

- Auto-detection of patients via EHR
- On screen messages
- Randomisation
- Normal prescription
- All data in EHR



bmj.com

Research: Implementation and adoption of nationwide electronic health records in secondary care in England (*BMJ* 2011;343:d6054)

Editorial: Implementation of an electronic health record (*BMJ* 2011;343:d5887)

Pragmatic randomised trials using routine electronic health records

What to prescribe for a patient in general practice when the choice of treatments has a limited evidence base? **Tjeerd-Pieter van Staa and colleagues** argue that using electronic health records to enter patients into randomised trials of treatments in real time could provide the answer

Ten years ago, in a paper called *Britain's Gift*, the then editor of the *BMJ* and the director of the UK Cochrane Centre outlined a vision of medicine for the 21st century: easy access to good quality reviews of clinical evidence, and the streamlined recruitment of patients into randomised trials as a matter of routine whenever there is uncertainty about choice of treatment.

"For example," they explained: "we still do not know which treatments are useful for acute stroke, but if every patient in the world experiencing a stroke were admitted to trials we would have enough patients within 24 hours to answer many of these questions."[1]

The first goal of easy access to good quality reviews of evidence is on its way to being realised. Trials, however, remain exceptional in everyday clinical care, and sometimes address comparisons that are irrelevant to doctors and patients because they compare new treatments with placebo rather than with the best treatments currently available. Furthermore, trials are often conducted in idealised or unrepresentative patient groups.[2] Because of these problems, randomised trials commonly fail to inform decisions in everyday clinical care: they address the abstract question of an intervention's efficacy under ideal conditions, rather than its effectiveness when used in usual clinical practice, on outcomes that are important to patients.[3 4]

Here we describe a UK project to implement randomised trials as unobtrusively as possible in the everyday clinical work of general practitioners (GPs), comparing treatments that are already in common use, and using routinely collected electronic healthcare records (EHR) both to identify participants and to gather results. We discuss the rationale for this approach, the potential for improving clinical evidence at low cost, and the barriers encountered.

Opportunities for using EHR data for randomised trials

Reports from both the Council for Science and Technology[5] and from the Academy of Medical Sciences[6] in 2005 and 2006 highlight the potential of EHR data for translational health research, and research with EHR data has been recognised as a key activity in the Department of Health's national health research strategy.[7] Healthcare records are routinely stored on computers in UK general practice (most people in the UK are registered with a general practitioner). Some GP databases can now be linked anonymously to other healthcare datasets, including hospital admissions records, death certificates, and disease registries. This record linkage system has been implemented within the general practice research database (GPRD) used in the trials presented here, and could be implemented more widely. It allows long term, anonymous, unobtrusive follow-up for major clinical outcomes, at low cost, and with no extra time burden for the clinician, health service, or patient.

Conventional trial recruitment is often problematic, with many trials failing to meet their recruitment targets.[8] The EHR database may also be used to recruit patients into trials: it is searched to compile a list of potentially eligible

CPRD Interventional

Efficacy…….effectiveness….real world P3….adaptive

efficiency

Feasibility

- Real World Data Powerful Tool

Optimisation

- Real World Data Powerful Tool

NIHR Sites

e

eCRFs

Linked

- **EHR**

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So what's different

National 52M, NHS, secondary care datasets

Drugs in hospital/day care

Larger and growing population cover of Primary care

Partnership with NIHR (Observational/Interventional)

Point of Care randomisation

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So what's different

New rapid online system
New Quality metrics
New CT systems
Devices data
Multiple linkages
Track datasets
Commitment to extended operation

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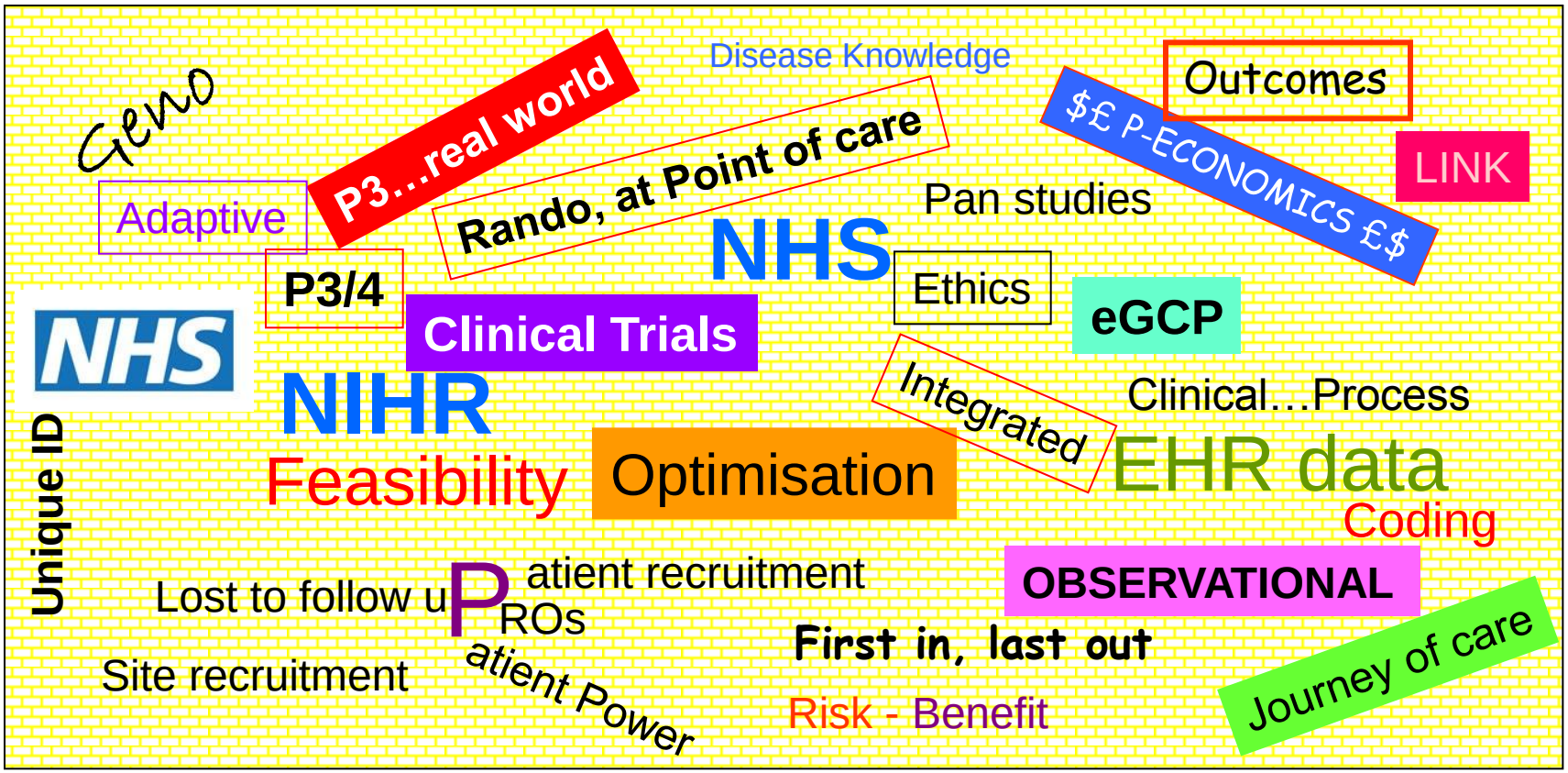

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Medication and devices **D**rug utilisation-compliance and persistence **P**harmacovigilance **P**harmacoepidemiology **P**harmacoeconomics **L**ife cycle planning **L**icence extension research **C**omparative effectiveness research

Clinical outcomes **P**atient Reported Outcomes

Public health research **E**pidemiology **H**ealth Services research **R**isk management research **R**isk-benefit research **R**isk score development

Cutting edge research **C**linical trials **G**enetic, geno-pheno studies

CPRD observational data resources and services **D**isease and drug registers **P**an **E**uropean and **US** data

Particular Disease areas CNS, Gastro, CVD, Diabetes, Skin, Oncology etc

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Thank you

john.parkinson@cprd.com