THE CIPHA PROGRAMME

MARCH 2022

Combined Intelligence for Population Health Action

CIPHA
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ICS TRE

Cheshire and Merseyside

Greater Manchester

Putting research into action

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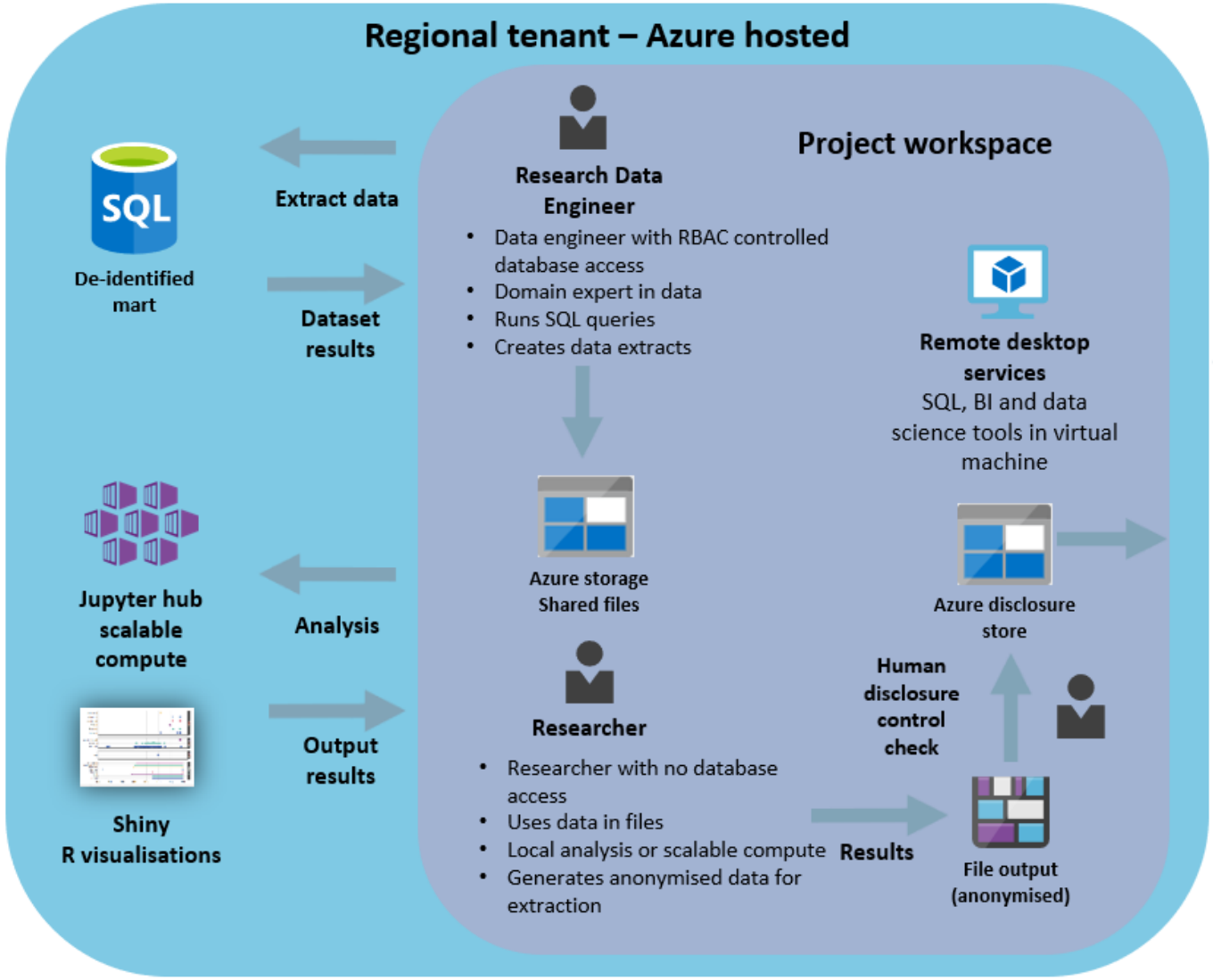

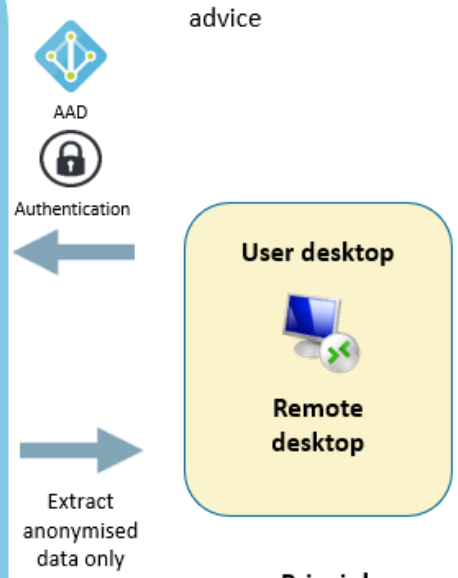

Notes

- Research Data Engineer and Researcher maybe separate roles or the same person
- Supported by metadata and Graphnet advice

Principles

- Record level data does not leave Azure Tenant
- All use of tools auditable
- Selection of data tools as required by customer / project
- Very limited download of anonymised data which includes manual validation/ disclosure control checking on export
- Single named Azure Active Directory account used throughout the solution

- **Local ownership** and **authorisation** of any research
- **Secure** access to data
- Record level **de-identified** data enables building of data science models
- **Research into action** as the TRE is part of a Population Health platform. Analytics code can be moved to fully identifiable use cases delivered to clinicians via **Shared Care Records**

Graphnet Integrating Care

Federated TRE network

Potentially 11 ICS participating

Open Source collaboration with OpenSAFELY

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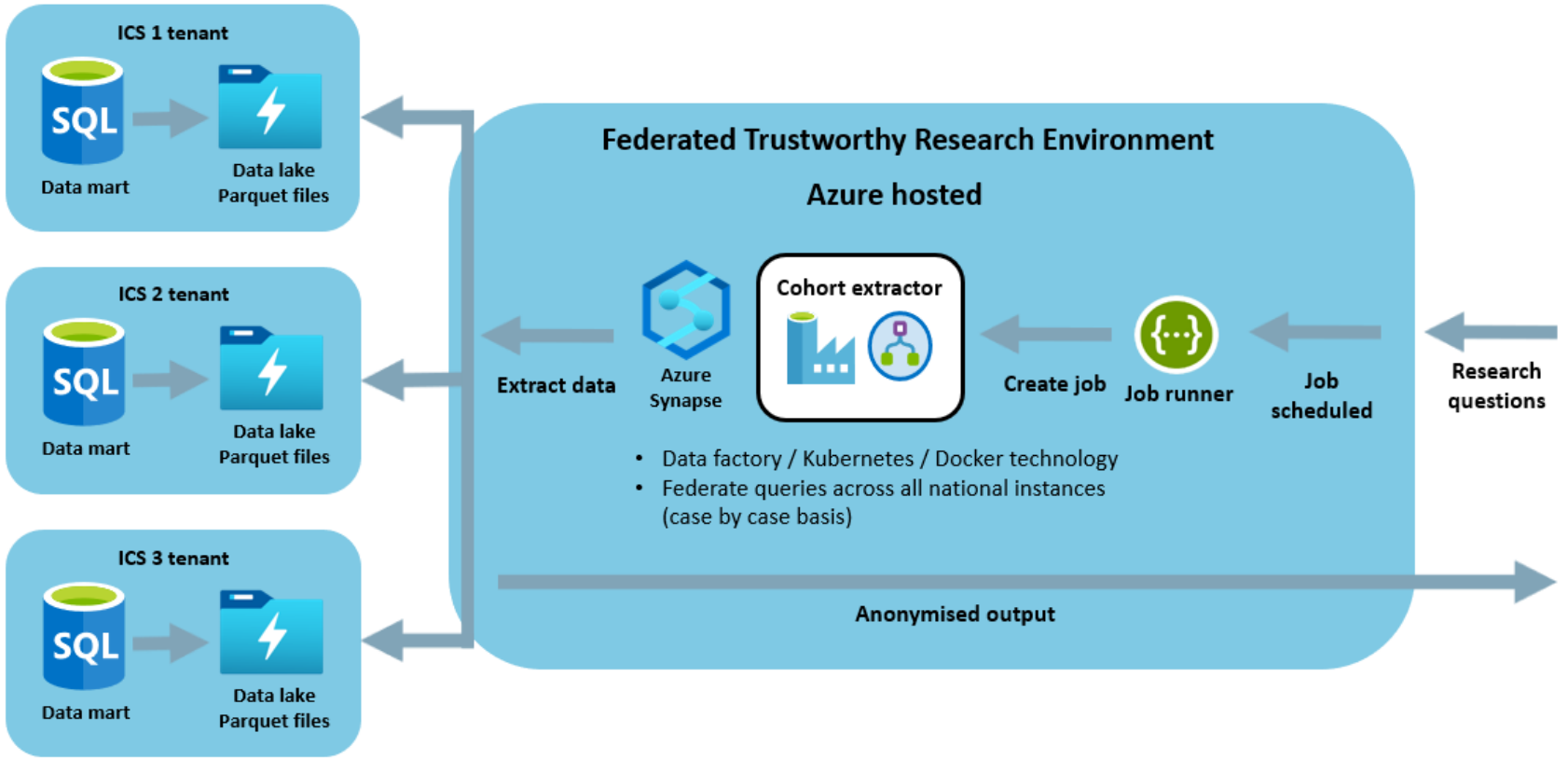
Graphnet Integrating Care

Federated TRE network - OpenSAFELY – CIPHA backend

- Ability to use **OpenSAFELY** across multiple ICS deployments via implementing existing and new study definitions
- Enables research to be run over multiple Integrated Care Systems with very rich **real time** data
- Retains **Local ownership** and **authorisation** of any research
- First **multiple ICS federated** use case - Evaluate the COVID-19 vaccine effectiveness about to start



OpenSAFELY

- Study definitions
- Job scheduler
- Research instance authorisation
- Federate queries across all national instances (case by case basis)
- Research open using GitHub

Some examples of research already using CIPHA

CIPHA includes a TRE with studies from Liverpool, Manchester and Oxford universities: Open-SAFELY integrated for federated analytics

Mass Testing Pilot: 11/20

Evaluation of Lateral flow devices for mass testing https://www.liverpool.ac.uk/coronavirus/research-and-analysis/covid-smart-pilot/

Events Programme (ERP) 5/21

Researching the logistics of event ticketing and testing, venue admittance and post-event follow-up.

Vaccine Bus analysis 5/21

Using CIPHA to target interventions to reduce inequalities in vaccine uptake (Vaccine Bus). Evaluating the impact of the Vaccine Bus.

Regional Vac Uptake: 6/21

Analyse vaccination uptake by geography across a region adjusting for wider determinants such as Age, gender, ethnicity and deprivation

Healthcare utilisation in GM during Covid

Study how the healthcare system in Greater Manchester has been used throughout the pandemic

Risk of COVID admission and death in GM cancer patients

This work will provide an overall picture of COVID-19 risk in all GM patients with cancer

The equitability of UK COVID vaccination strategy

Test whether the government vaccination plan meets the goal of giving equal priority to people with equal vulnerability to COVID

Health disparities in COVID for people with mental illness

Examines differences between people with mental illness and the population in: (i) Covid screening rates, infections, outcomes, and (ii) factors which may account for this

Self-harm in GM: study examining impact of Covid-19

To find out if the number of people seeking help following self-harm during the winter/20 followed a similar pattern as in spring/20, to understand if health services are meeting people's needs

To improve practice in RA patients taking methotrexate

What were the gaps between blood tests for patients with RA taking methotrexate during the COVID-19 pandemic (March to December 2020)

Why having T2 diabetes increases risk with COVID-19

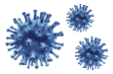
To compare all the people who have diabetes in GM who had Covid-19 and became seriously ill and/or died, with those with who did not become seriously unwell, to determine what is different

COVID in patients with IMMD

What are the clinical outcomes of COVID-19 in patients with immune-mediated inflammatory diseases (IMID), including those on immunomodulatory therapies?

Critical-time related factors affecting C-19 outcome

to assess if the GMCR data can help gain understanding including what key factors would affect the outcome of Covid-19 treatment and what long-term impact they may cause after Covid-19 treatment.



Validation of C-19 risk prediction models.

Study how well risk scores, such as QCOVID and 4C mortality/deterioration score, predict outcomes for patients.

Better clinical improvement for frail multimorbid patients

Identify opportunities to better target clinical improvement activities for frail multimorbid elderly patients in general practice and to provide tailored actionable feedback in the Covid-19 era.

Impact of C19 on the diagnosis of physical and MH conditions

To investigate changes in diagnosis of physical and mental health conditions in primary care during the COVID-19 pandemic

Care Pathway to Manage Ambulatory CIED Population

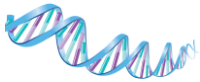
To study the healthcare utilisation of patients with cardiovascular disease (CVD) during the pandemic and whether risk stratification within remote monitoring cardiac implantable electronic devices (CIEDs) can be used to better manage patients

Patients with adverse reactions to adenovirus-based vaccines

To identify individuals who have experienced vaccine-induced immune thrombotic thrombocytopenia (VITT) following exposure to adenovirus-based vaccines and identify their characteristics

Relating the genome to C19 outcomes with/without diabetes

To investigate how genetic coding and the way that the genetic code is converted into molecules in our bodies relates to outcome once people have been exposed to the Coronavirus

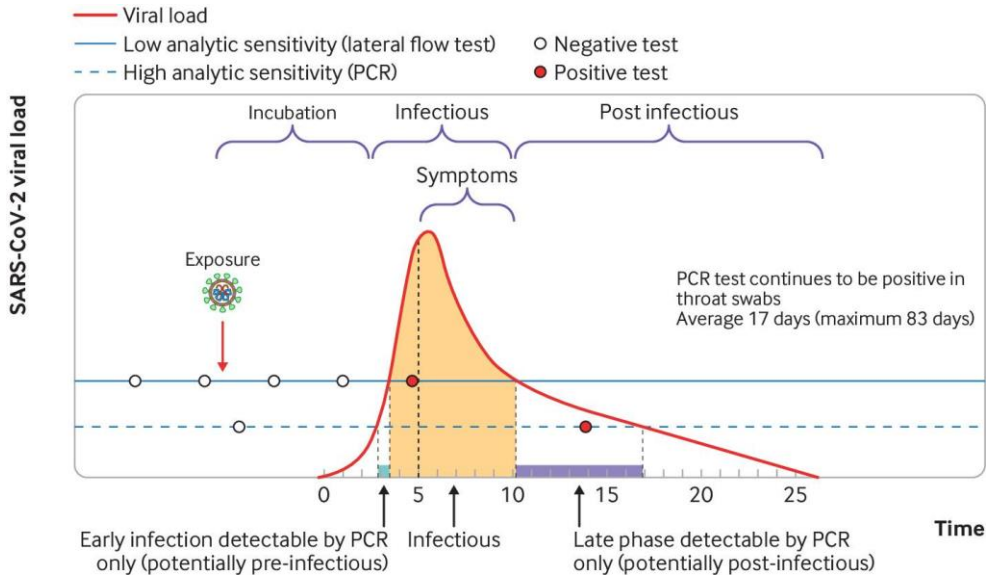


Modifying doses of steroids and COVID-19 outcomes

Testing how modifying doses of steroids may have an association with disease and COVID-19 outcomes

World's first Covid-19 voluntary 'mass testing'

[Put to the test: use of rapid testing technologies for covid-19 | The BMJ]



[Clarifying the evidence on SARS-CoV-2 antigen rapid tests in public health responses to COVID-19 - The Lancet]

- Data-intensive, agile deployment of testing sites
- Extensive public and community leader involvement
- Joint NHS and local government command
- Fierce global scientific and polity debate
- Two gov.uk reports and prompt scientific papers
- Cross-Govt. extension: DCMS-DHSC Events Research

[Liverpool coronavirus (COVID-19) community testing pilot - GOV.UK]
[Events Research Programme: Phase I findings - GOV.UK]

Events Research Programme Liverpool

Partially confirmed, interim results: not for publication

- 13,258 people from Liverpool City Region attended business, nightclub and music events in Liverpool 28 Apr – 2 May, testing partnerships between event organisers, public health teams and audiences
- Public health operations ran smoothly as a ‘pre-outbreak’ investigation – scope to improve test result checks, ventilation and not attending if feeling unwell (wider symptoms)
- Social and news media coverage positive: tweets 53% positive, 25% neutral – expressions of joy in focus groups
- Questionnaire responses: 42,181 before and 2799 after events: high satisfaction and low anxiety; high confidence in returning – 90% consider resuming events very/moderately important; higher concern for others’ safety correlated with higher concern for own safety

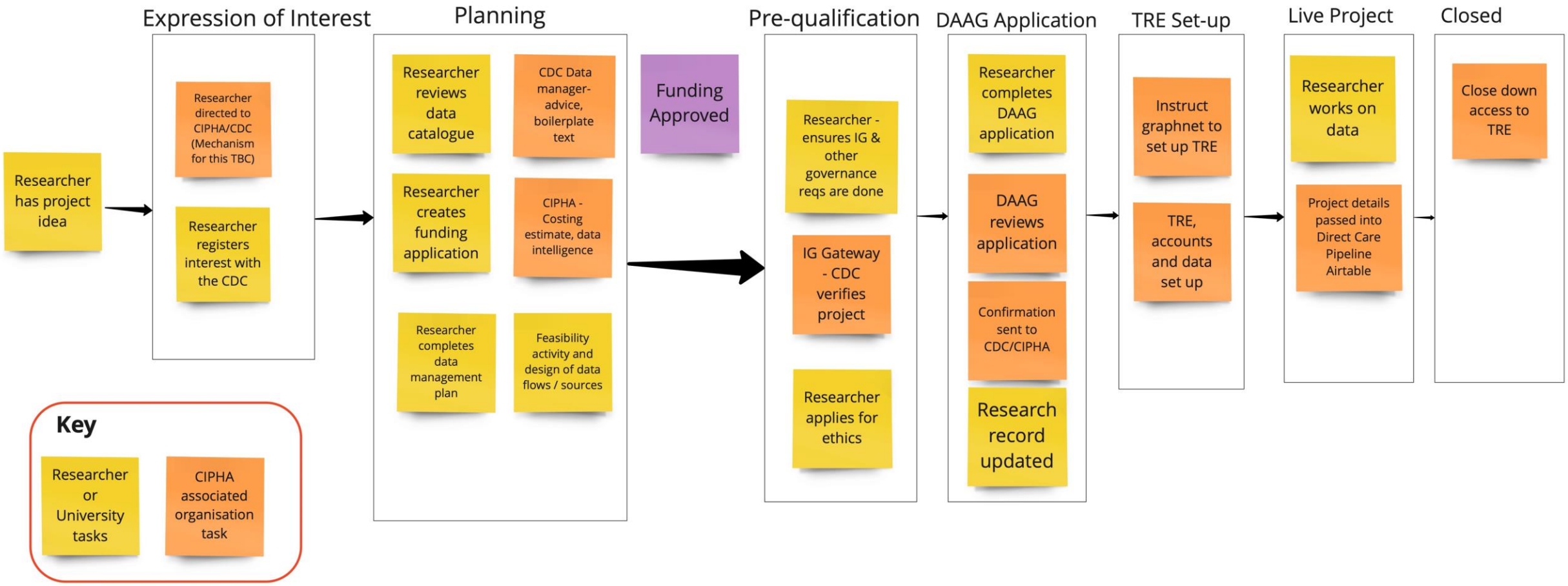
Building on momentum

World-leading response to the pandemic

Community-based SMART testing programme, 2020

"Blossoms At Sefton Park" - part of the 2021 Events Research Programme

Repeatable Processes



CIPHA SERVICE COMPONENTS

CIPHA service and data can support analytics, research, population health, shared record access, patient engagement and workflow. Data is a by-product of operational use

Actionable analytics at person, provider and population levels

IN CIPHA NOW

NEXT STEPS

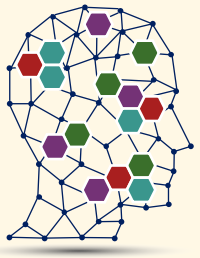
Supporting ICS core purposes

- Improve outcomes
- Enhance productivity and VFM
- Tackle health inequalities
- Support socio-economic development

Population health and care analytics

FAIR principles extended to management of data-action gap

Trusted Research Environment



Data (preparation) pull-through from system-embedded researchers

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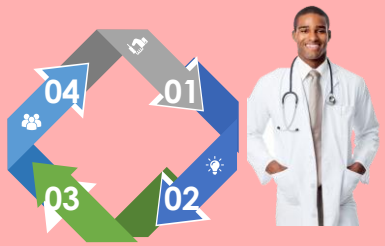
Patient engagement

Single assessment

Shared care record / journey

Care community workflow



CIPHA integrates with local transformation programmes. For C&M this is "System-P"

- Region of 2.6m with extreme: inequalities; and care setting complexity
- Design studio and testing ground for integrative intelligence
- **P**redictive **P**reventative, **P**recise, **P**rompt, **P**artnership approach to **P**opulation, **P**atient and **P**erson in a joined-up intelligence led system
- Payer-provider commitment to change payments according to data:

Data	Analytics	Care	Payment
Flow and integrate all data necessary to understand and improve residents' health journeys, involving them in the data governance.	Network and invest in the data analysts and technologies delivering a world-leading combined health intelligence cooperative.	Optimise care processes to improve outcomes and reduce cost – as an integrated learning health & care system.	Ensure providers are being paid fairly for the value they provide in terms of individual patient and population care.

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