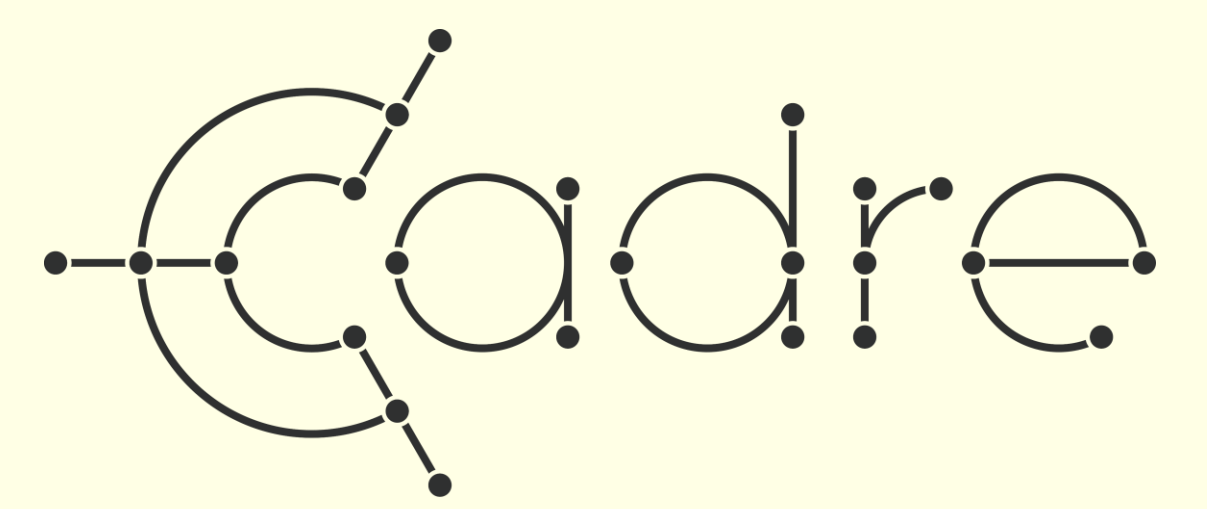


Standardisation of Multi-Agency Data to the OMOP Common Data Model

Rachel Sippy, Anna Moore

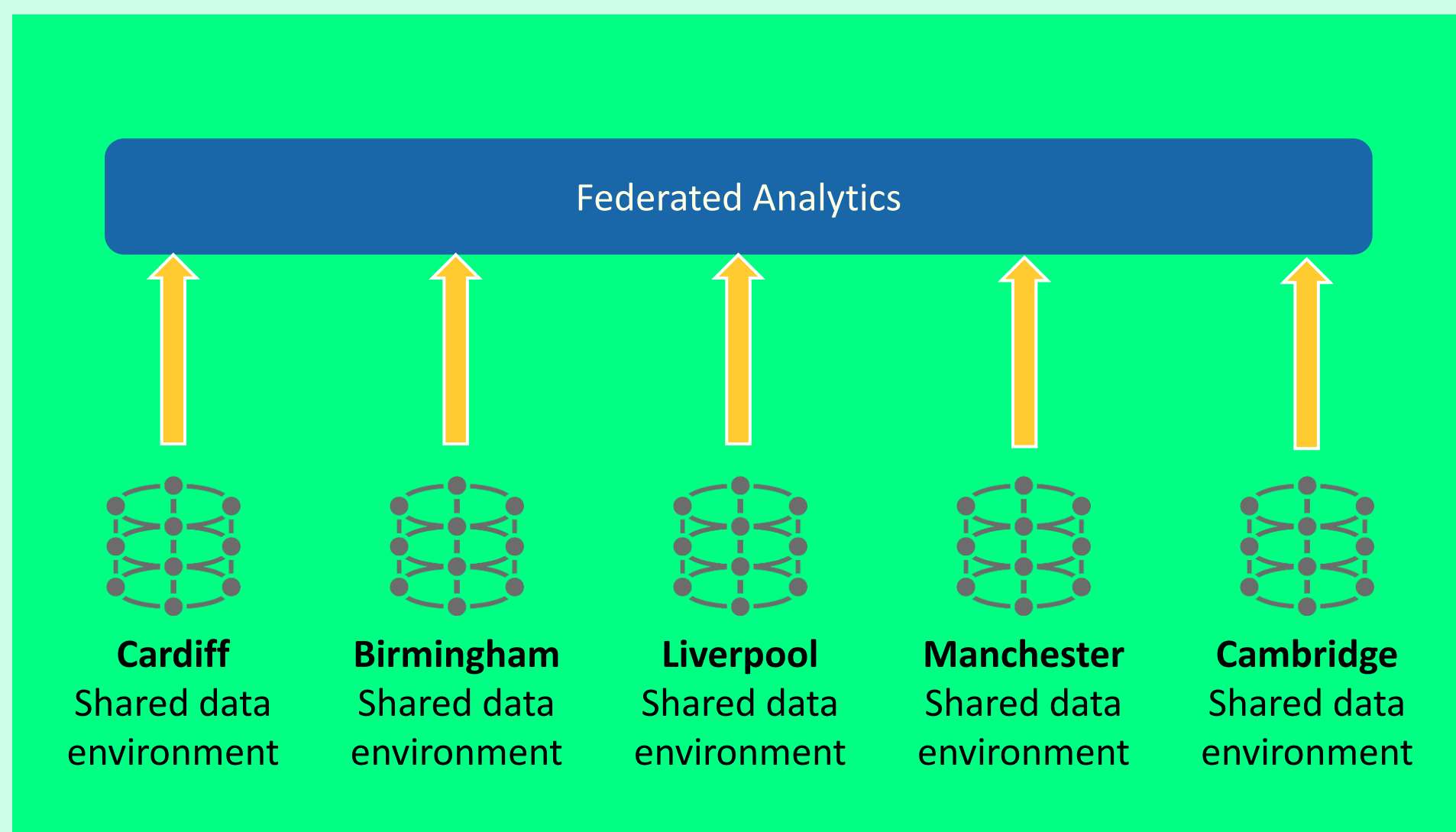


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CADRE: Children & Adolescent Data REsource

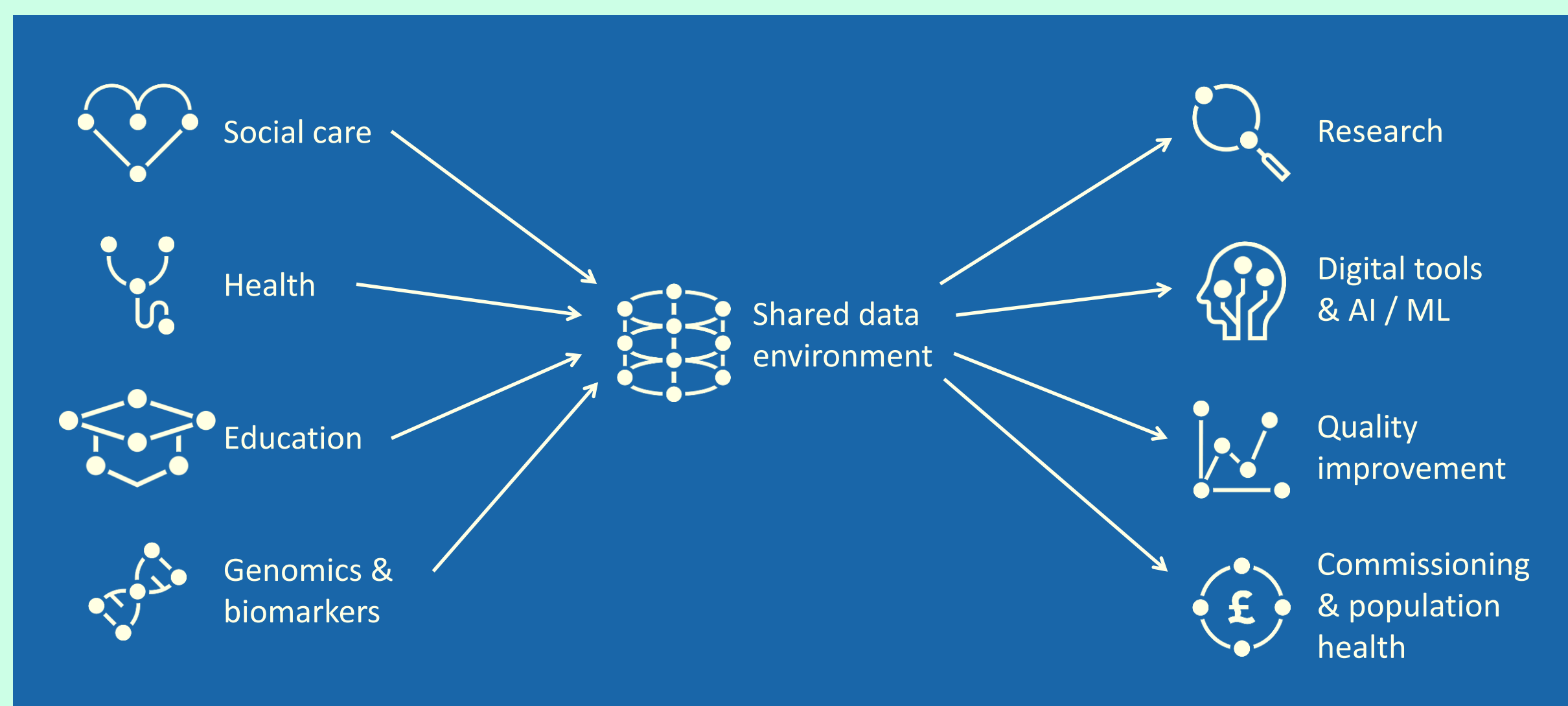
- An informatics platform to host live, data-led system that enables child mental health research in the UK
- Network of shared data environments (SDEs) including five initial sites (Cardiff, Birmingham, Manchester, Liverpool and Cambridge) and extensible to other regions

Structure of the CADRE Network



Data can be analysed locally or as part of a federated analysis.

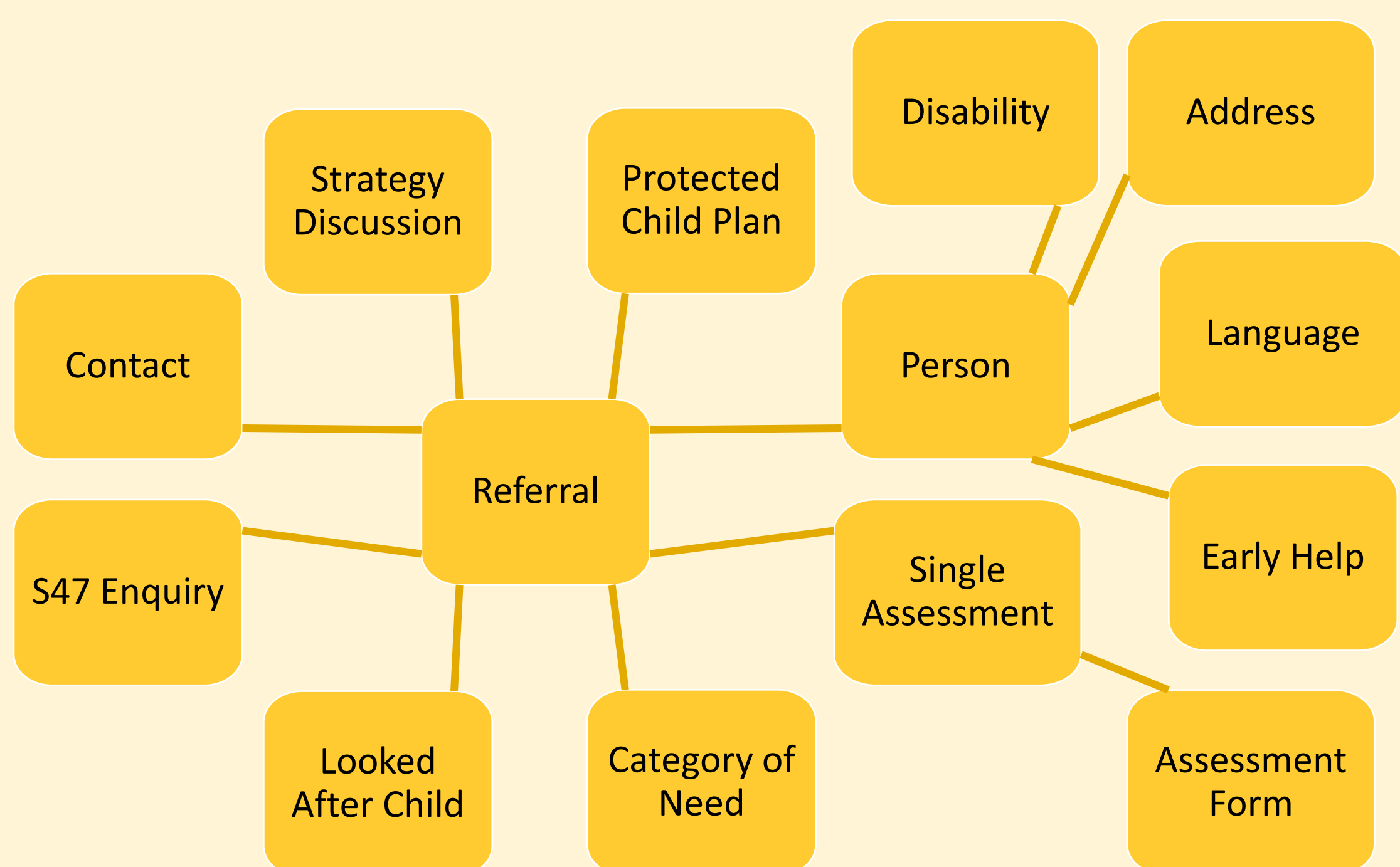
Inputs & Outputs for Each Shared Data Environment



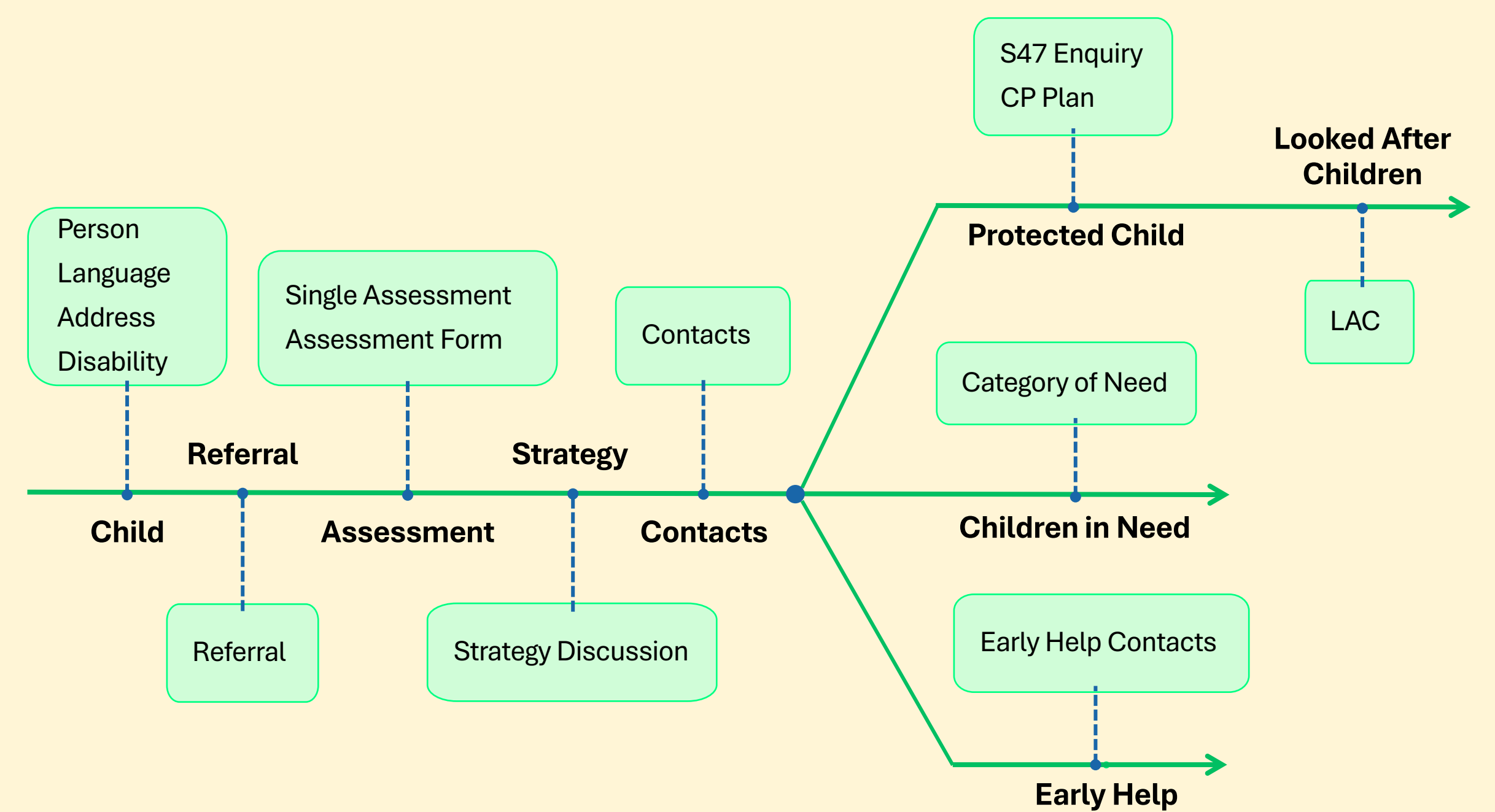
Each SDE includes **health, social care, and education data**, and in the future –omics data.

- ### Challenge
- The OMOP—CDM is intended for **health data**
- Objective: fit non-health data into the OMOP—CDM
- What is the structure of social care data?
 - What variables are in social care data?
 - Can social care variables be mapped to OMOP?

Social Care Data Structure



- Social care data from Cambridgeshire local authority consist of 14 tables with 195 fields
- The OMOP—CDM is a person-centric model intended to recreate the patient pathway over time, with contacts, procedures, and observations
- Children in social care also have a series of contacts over time and a child's follow-up by different areas of social care are akin to referrals to specialists in medical care



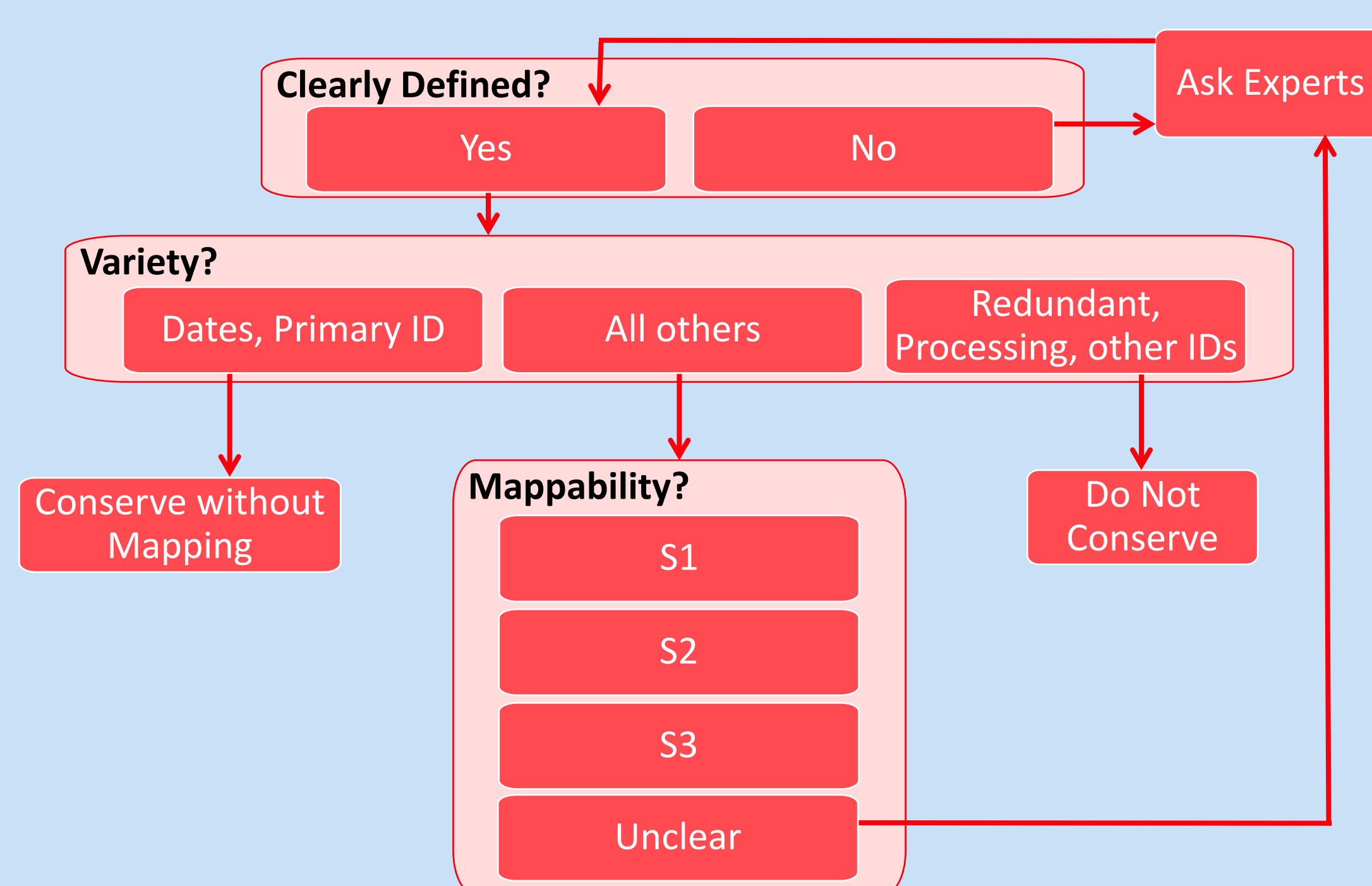
Efficient Processing of Social Care Variables

Choice of common data elements is part of ETL design, and understanding the source data is necessary to choose the common data elements

Variables were processed by these criteria:

- Clear variable definition available
- Variety
 - Redundancy
 - Identifiers
 - Processing
 - Dates
- Mappability¹
 - S1: directly mappable to OMOP concept
 - S2: closely mappable OMOP concept
 - S3: not represented in OMOP

Experts include **data managers** and **social care staff** involved in data collection



Social Care Variables

Social Care Variables			
Conserve			
S1 11%	S2 11%		
Unclear 11%	S3 7%	No Mapping 16%	Do Not Conserve 42%

Of 195 social care variables, 58% are conserved and 42% are not conserved. Of the conserved variables, 22% can be mapped (S1 or S2). Mapping is unclear for 11% of variables – these are either ill-defined or have tentative mappings that need to be confirmed with social care data experts. The OMOP Vocabulary will need to be expanded to accommodate 7% of variables (S3).

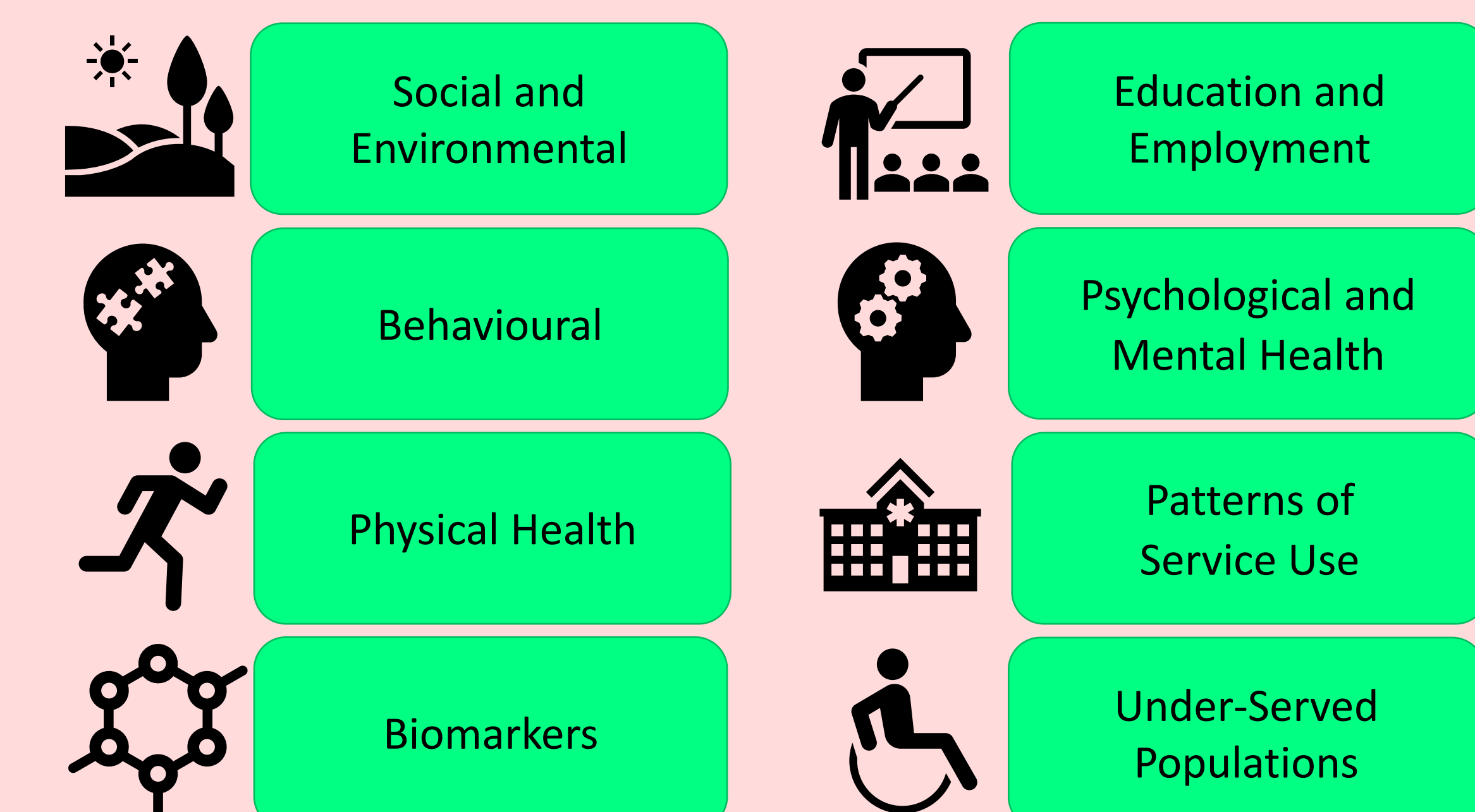
Prioritising Variables

For variables that are unclear or cannot be mapped using the current OMOP Vocabulary, additional effort is needed:

- Unclear variables need their definitions and mapping to be confirmed with social care experts
- The OMOP Vocabulary needs to be expanded for those variables that cannot be mapped

There are 22 unclear variables and 14 unmappable variables.

Given that this additional processing is resource-intensive, we prioritise variables based on their importance for children's mental health research



A Delphi consensus study with 55 subject-matter experts identified and rated 287 variables important for children and young people's mental health, grouped into 8 domains.

Unclear Variables

Unclear variables may lack a definition, or the definition may not be understood by the data mapping team. There may be preliminary mapping that needs additional input. Important variables that are unclear include:

- Those related to separation from family (e.g. fostering)
- Those capturing entry into the social care system

In the social care data, this information is given as outcomes from contacts/meetings. Clarity is needed for the level of specificity for these outcomes (e.g. agency versus non-agency adoption)

Unmappable Variables

Important variables that need to be added to the OMOP Vocabulary include:

- Lower Super Output Area
- Reasons for referral end
- Provision of short break care