

Surveying the landscape of OMOP CDM adoption in the UK

Preliminary report

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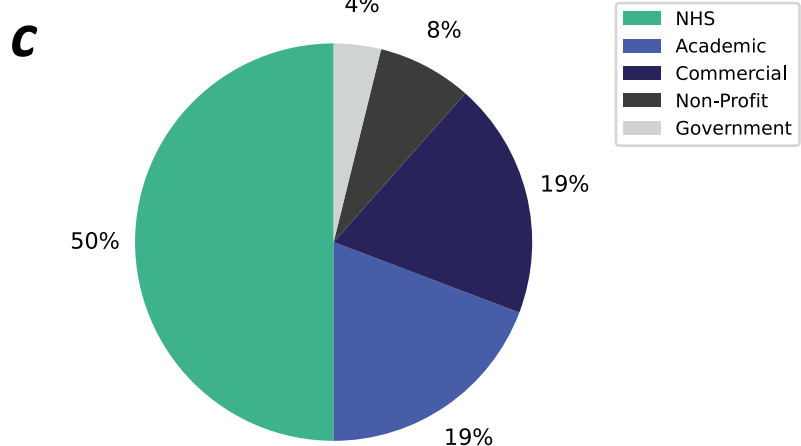
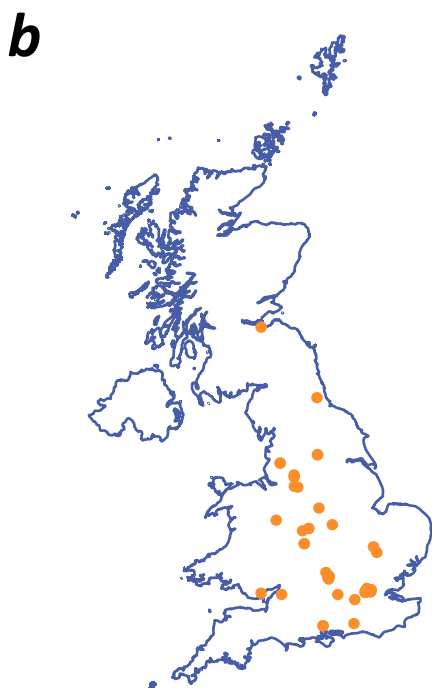
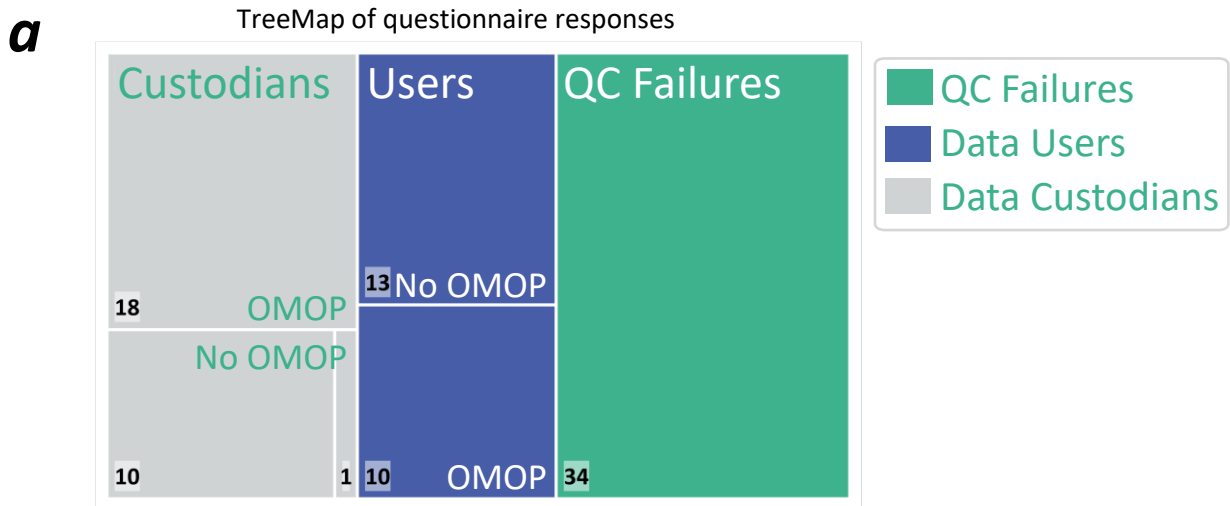
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Introduction

- Adopting a common data model (CDM) increases data interoperability and discoverability, facilitates research collaborations, enables large-scale analytics, and the development and use of shared tools and methods.
- To understand the current level of OMOP CDM adoption across organisations in the UK, and to identify barriers that need to be mitigated, we designed an online survey using the SurveyMonkey platform.
- The questionnaire employed branching logic to make it suitable for data users, and custodians, whether they were current OMOP users or not.
- The survey was circulated through the Alliance's members, social media, and NHS England's Research Secure Data Environment Network, and responses were collected from 16th May to 28th August 2023.
- Responses were exported to CSV format and processed in JupyterLab Desktop in a Python notebook using the Pandas library.
- This report is a summary of part of the survey results and is based on a poster presented at the UK OHDSI node's inaugural meeting on 15th September 2023. A comprehensive report will be published at a later date.

Survey response

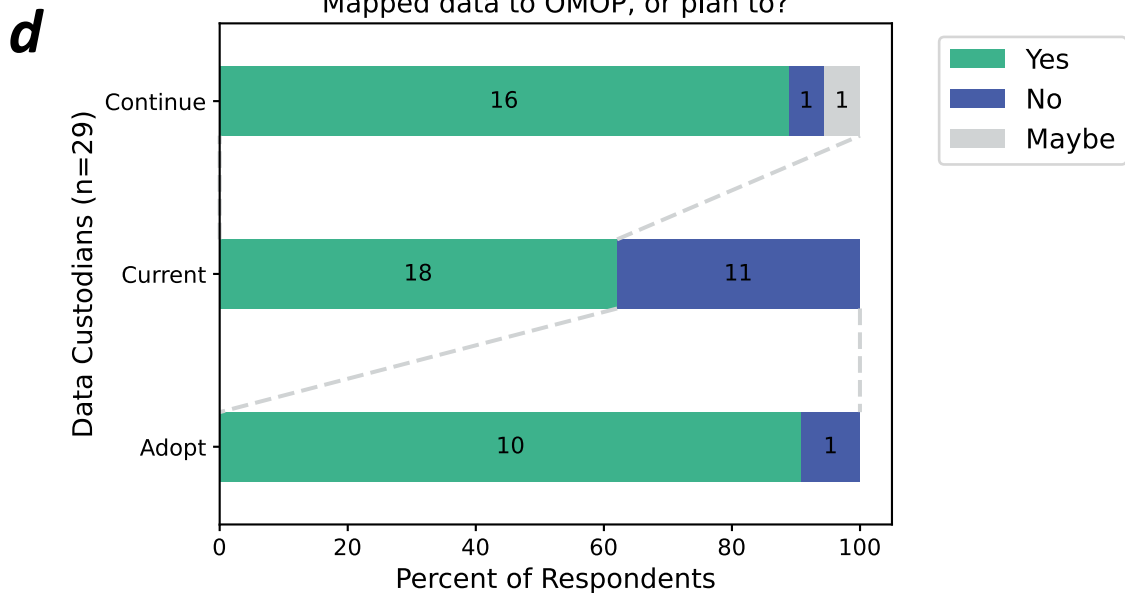


- 86 total responses were received, of which 52 passed completeness and validity QC checks (a), comprising 29 data custodians (56%) and 23 data “users” (44%).
- Respondents were mostly from England (48) with 1 each from Scotland and Wales, and 2 were international (b).
- 16 of the 22 UK EHDEN Data partners responded to the survey (55% of the data custodians). No EHDEN-certified SMEs responded. 8 respondents were from organisations represented on the subnational SDE working groups.
- Respondents were predominantly from the NHS (50%), with 19% academic, 19% commercial, 8% non-profit, and 4% from government organisations (c).

- The survey has captured a broad range of UK data custodians and users, but it is not representative of the UK as a whole:
 - Scotland, Wales, and NI are under-represented.
 - Our outreach channels are likely biased towards OMOP users/proponents, and those with existing knowledge.
 - Respondents are self-selecting and may favour those with strong views.

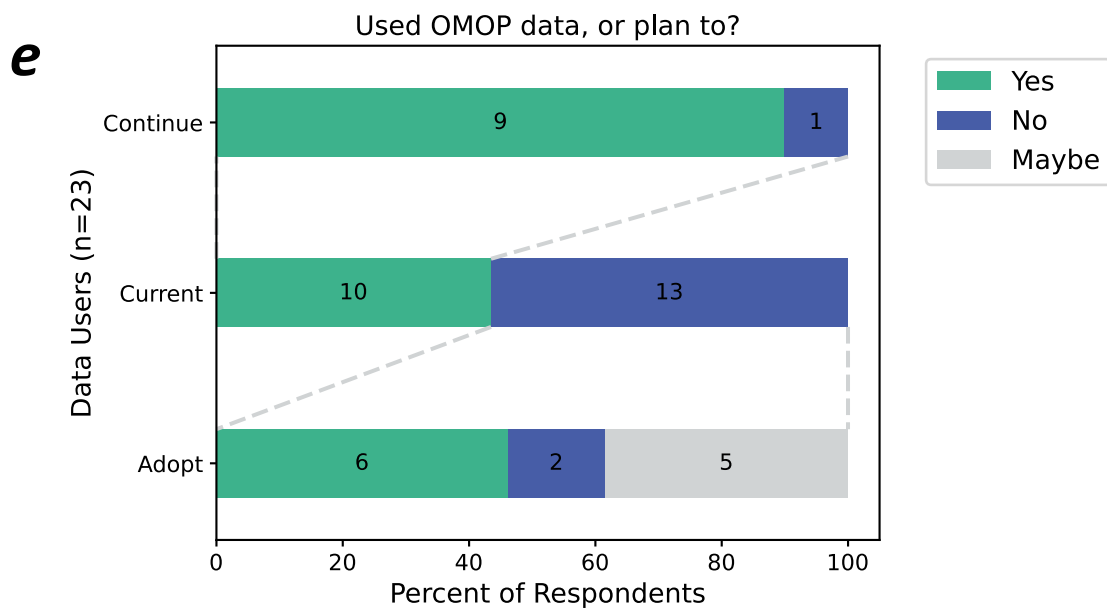
OMOP Adoption

Data Custodians



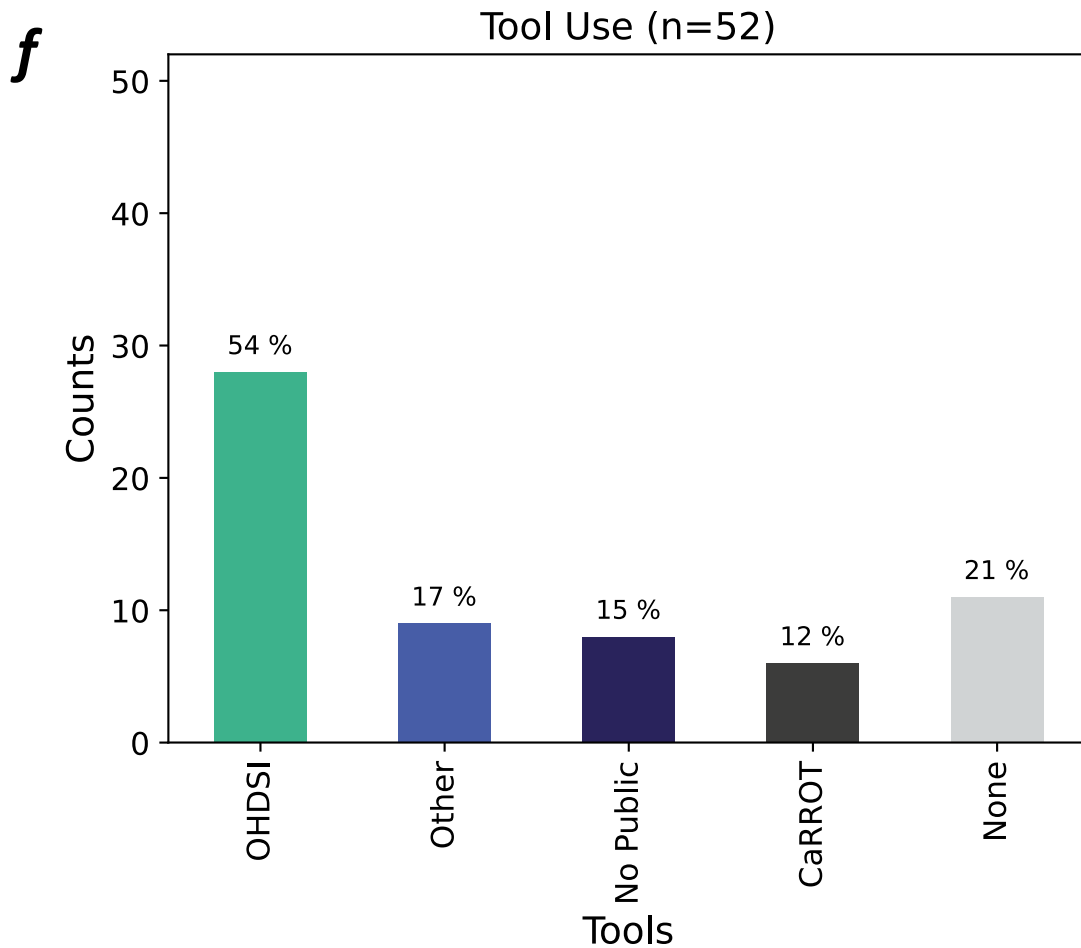
- 62% of the 29 data custodians had currently mapped data assets to OMOP (a, d)
- 91% (10) of the 11 custodians who had not adopted OMOP had assets they were keen to map (d).
- 89% (16) of 18 custodians planned to continue OMOP mapping work (d)

Data Users



- 44% (10) of 23 data users currently worked with OMOP assets (a, e).
- 46% (6) of the 13 users who had not adopted OMOP yet, planned to do so in the future (e).
- 90% (9) of the 10 current users planned to continue using OMOP (e).

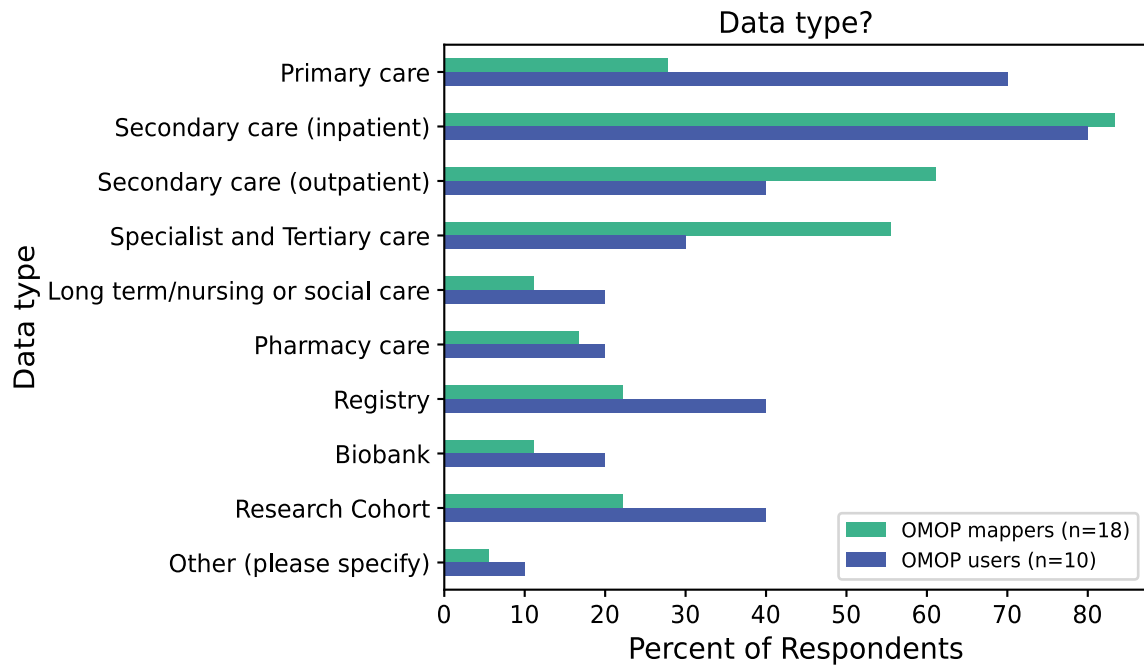
Use of tools



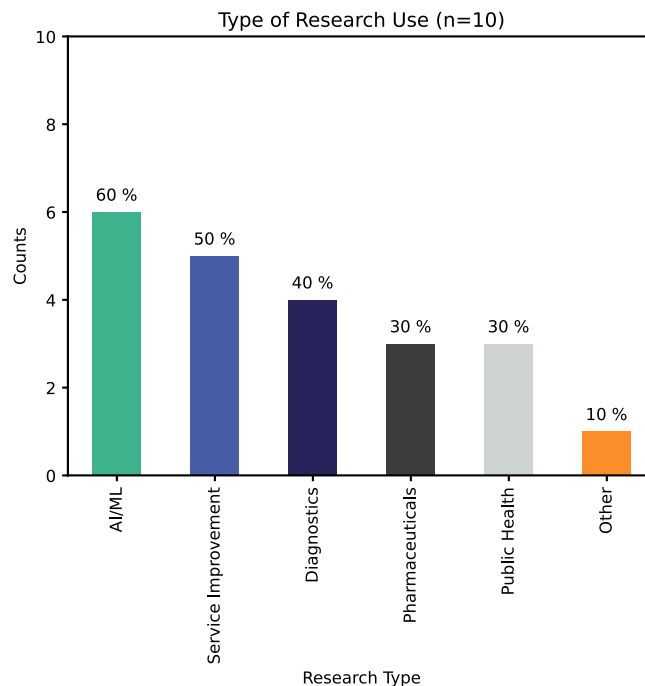
- The most popular public tools were developed by the OMOP SDO, OHDSI (54% of 52 respondents)
- The CaRROT tools developed by the UK Co-Connect project were used by 12%.
- 17% used other public tools.
- 15% used no public tools and 21% had used no OMOP tools at all.

Applications

g

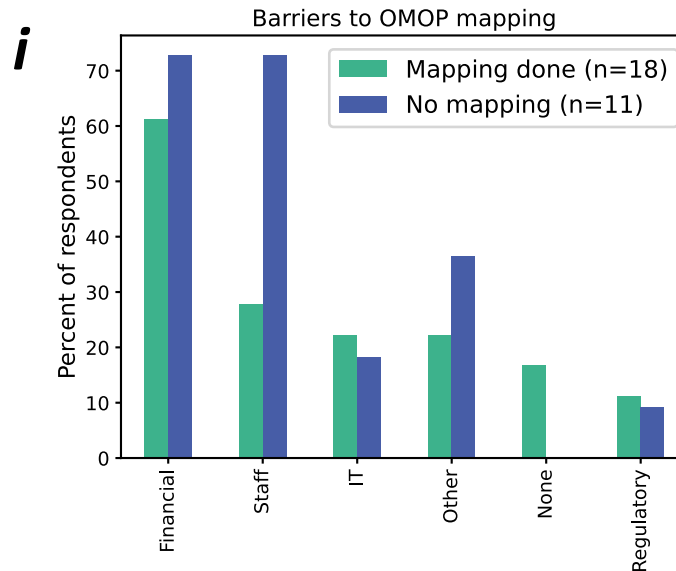


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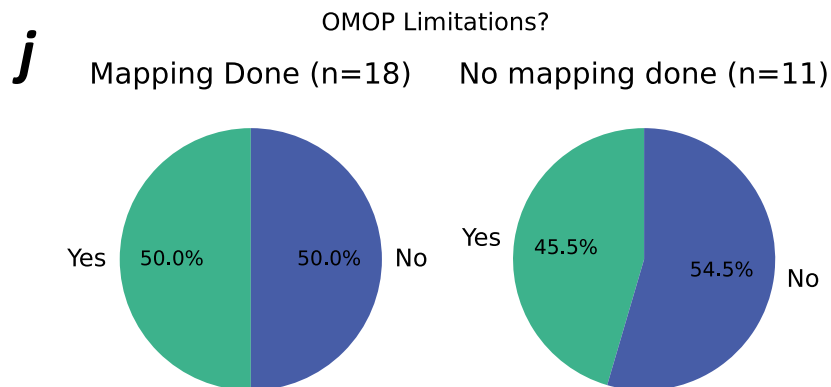


- Data types mapped by custodians, or utilised by data users, span the range of healthcare data types (g).
- Secondary and tertiary care data dominate (many of the data custodians are NHS trusts, only one holds primary care data).
- 70% of data users have used primary care data sets.
- 6 out of 10 users had applied OMOP data sets in AI/machine learning projects (including decision support)
- Service improvement, diagnostics, pharmaceuticals, and public health were all represented as was one “other” – genomic research.

Barriers and limitations



- The biggest challenges data custodians reported were funding, and the availability of skilled staff (i).
- Funding was a challenge for 61% of those who had done mapping, and 73% of those who had not.
- Those who had already done mapping were less likely to report staffing as a barrier (28% vs. 73%).
- Regulatory barriers were less of a challenge (~10%).



- Around half of custodians (whether they had done mapping or not) felt that there were limitations to using the OMOP CDM (j).

Conclusions

Approximately half of those surveyed have already worked with OMOP CDM, showing a significant level of adoption of the OMOP CDM in the UK among both data users/researchers and custodians. The most significant factors limiting further adoption seem to be:

1. **Financial support.** Mapping new data sets to the Common Data Model can be a significant undertaking and is not the highest priority for many data custodians.
2. **Skilled staff.** Many organisations aspiring to undertake mapping projects report a shortage of staff with the necessary skills to deliver their mapping projects.
3. **Concerns** about the suitability of OMOP for different data types. Particular concerns expressed included:
 - The loss of granularity of data
 - Inconsistent mappings of common data sets, giving multiple different versions of common data assets or formats.
 - The limitations of the current OMOP CDM including incompatible data types, missing, unsuitable or inappropriate vocabularies, for example cancer scales, or the US-centric ethnicity codings.

The Alliance will work to address these barriers to adoption in the UK, working with UK and international organisations (e.g., OHDSI, EHDEN, OHDSI UK) to support our missions of uniting the UK's health data to enable discoveries that improve people's lives.

Acknowledgements

Many thanks to everyone who took the time to complete the questionnaire (see list of participating organisations below). This questionnaire was conducted by the UK Health Data Research Alliance team in collaboration with the Data for R&D Programme's NHS Research Secure Data Environment Network.

The survey results will be published on the Alliance website.

Organisations responding:

Akrivia Health, Arcturis Data, Arden and GEM CSU, Astellas Pharmaceuticals, Barts Health Trust, BC Platforms, Clinical Practice Research Datalink, Digital Health and Care Wales, Eastern Academic Health Science Network, Gendius Ltd, Genomics England, Great Ormond Street Hospital, HDR UK, IHE UK, Imperial College Healthcare NHS Trust, Imperial College London, IQVIA, ISL, hosted by NHS NEL CCG, King's College London, Lancashire Teaching Hospitals NHS Trust, Leeds Teaching Hospitals NHS Trust, NECS CSU, NHS England, Open Health, Optimum Patient Care, Oxford Health NHS Foundation Trust, Oxford University Hospitals NHS Foundation Trust, QMUL, Ramsey Systems Ltd, Royal Marsden, Sandwell & West Birmingham Hospitals NHS Trust, Sonnetix Ltd (East Midlands SNSDE), Southampton clinical trials unit, The Christie NHS Foundation Trust, The Health Foundation, UCL, UCLH, University Hospitals Birmingham NHS Foundation Trust, University Hospitals Bristol and Weston NHS Trust, University Hospitals of Derby and Burton NHS FT, University of Edinburgh, University of Leeds, University of Limerick, University of Manchester, Virtually Healthcare, Wessex SNSDE.

Useful links



Data Standards



HDR



Alliance



Gateway



OMOP GitHub

Health Data Research UK

<https://www.hdruk.ac.uk/>

UK Health Data Research Alliance

<https://ukhealthdata.org/>

Alliance Data Standards

<https://ukhealthdata.org/projects/data-standards-and-quality/>

Health Data Research Innovation Gateway

<https://www.healthdatagateway.org/>

OMOP GitHub

<https://hdruk.github.io/OMOP/>