

Simon Wickham

Associate Consultant Analyst
NHS Transformation Unit

simon.wickham1@nhs.net

Please take a look at
our GitHub page



Abstract

South London providers lacked a centralised resource to consolidate national reports with local intelligence, which resulted in no clear overview of their key performance metrics and limited their ability to evaluate their service in the context of similar providers.

We used open source methods to extract national data, supplemented by local sources where national data was unavailable, to develop a suite of metrics that would allow the providers to track their performance and address any changes to the demand on their service, through two collaboratively designed dashboards.

This would allow the provider collaborative to regularly review their community based and inpatient perinatal mental health services, compare to local and wider providers, and evaluate their case mix against the local population to assess equity of care.

The Problem

Historically, South London providers relied on a combination of reports to provide insight into the delivered services. This process didn't provide the insights required by service leads and what insights were available were sometimes confusing. There were:

- Differing sources that disagreed on the required metrics
- Limited opportunities to benchmark the services
- Limited opportunity to evaluate equity of care

As such, the providers required a new approach to facilitate their requirements.

Developing the Data Pipeline

Following a review of national and local data used by the collaborative, we decided to source as much data as was possible from the Mental Health Services Dataset (MHSDS), via the UDAL environment. The advantage this would provide would be that a single source of data would provide the insights needed by the service, and be dependent on their own nationally submitted data.

We built reproducible pipelines using R and SQL for both community and inpatient services. This included extracting raw data, processing, cleaning and aggregating to be used within the dashboards. Where the data wasn't available nationally we built as automated as possible steps for using manual data extracts.

For both transparency and collaboration, we hosted the code for creating these pipelines in a public GitHub repository.

Creating the Dashboards

The provider collaborative wanted a dashboard that would work with their available infrastructure and reporting. Therefore, we built the dashboards in Excel so that they could easily be shared across the provider collaborative. Although simple, it meant the client team could use existing skills to adapt the dashboard in the future should the need arise.

We created separate input tabs for each processed dataset for each dashboard in order to create a clear process to update the dashboards.



Figure 1: Data entry and Processing tabs

Each dataset was also processed to show the latest 36 months of data, but the Processing tab of each dashboard was constructed to accept up to 144 months to minimise the need to update the functional aspect of the dashboard in the future. It also allows the collaborative to compare a greater history of their data as required.

Impact of the Dashboards

The final outputs were two dashboards created in Excel. These are refreshed in line with the MHSDS publication schedule and are used by the providers to inform strategic conversations.

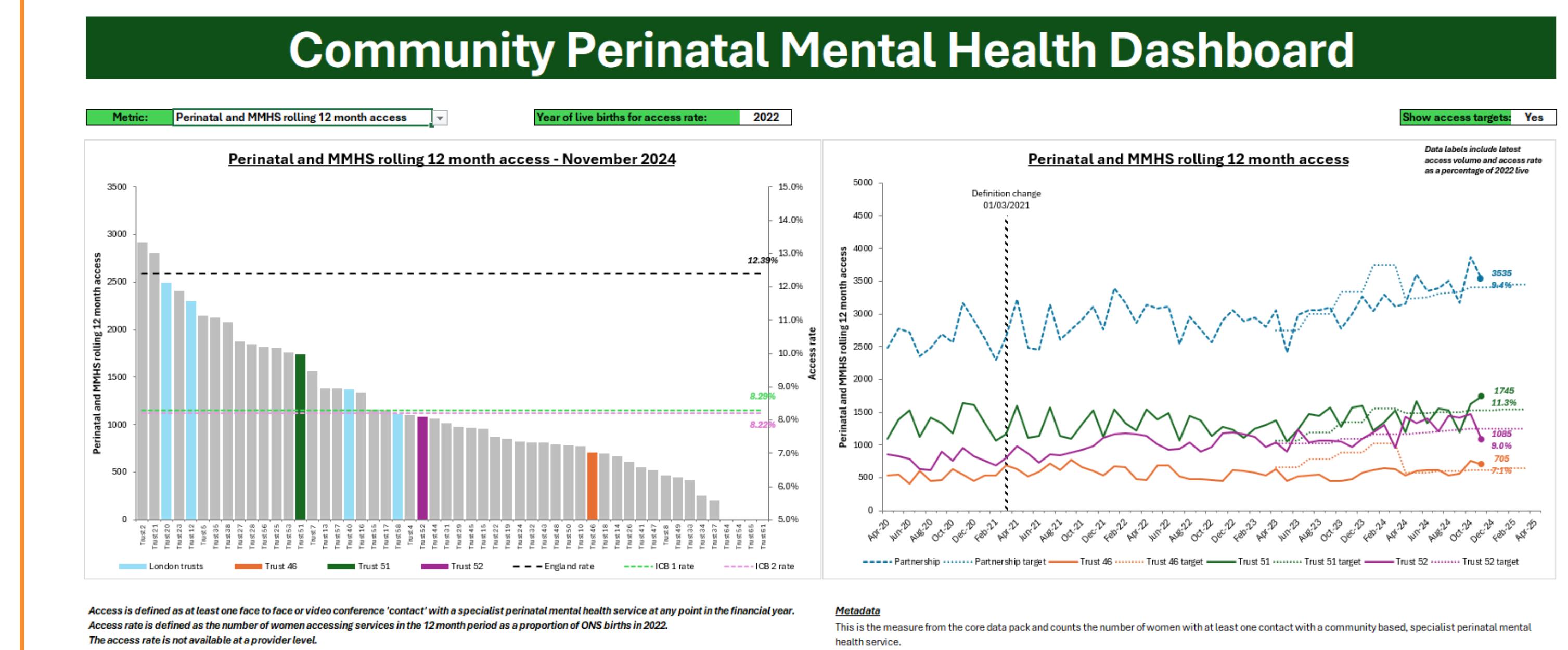


Figure 2: Anonymised Headlines tab of the Community Dashboard

The Community dashboard included key metrics such as:

- Access Rates
- Time to first contact
- Caseload, split by age, ethnicity and deprivation decile, in relation to the population of South London

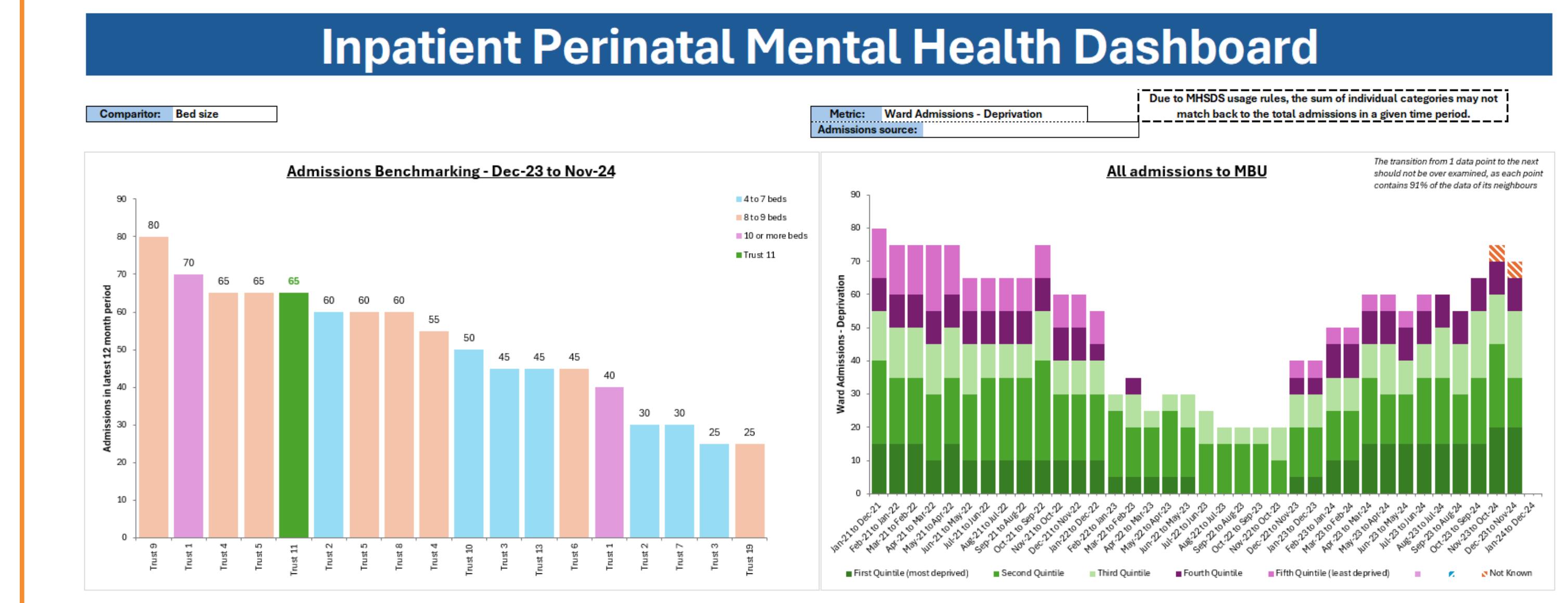


Figure 3: Anonymised Admissions tab of the Inpatient Dashboard

The Inpatient dashboard similarly included key performance metrics and allowed the client to explore demographic in a similar way. It included additional metrics such as:

- Admissions under the Mental Health Act
- Length of Stay
- Diagnoses

The dashboards contain a combination of most recent data for comparative purposes and time series so the client can track their performance in each metric. Each dashboard included drop down menus on each tab to allow the client to manipulate the displays to explore the different facets of their data. This allows them to develop insights on any cohort that might have a high DNA or issues regarding access to appointments through consultation modality.

Impact

Since the introduction of the dashboards to the service, the collaborative has been able to track their data and develop responses to their data. They are also able to compare their metrics to other providers and their wider population to ensure the service meets the needs of their population.

Next Steps

If we were to approach this kind of work again in the future, we would be interested in re-developing the dashboards in R using either Quarto or Shiny. This would enable us to have an end-to-end data pipeline with minimal manual steps. We would also wish to explore MHSDS through UDAL as the sole data source rather than relying on additional data sources. This would again reduce steps to producing the final output.

We have also developed anonymised dashboards which can be shared with future clients.