

## Global data for diabetes and obesity research



**InterConnect** seeks to optimise the use of existing data to enable new research into the causes of diabetes and obesity. Population level heterogeneity in diet, physical activity and disease outcomes is largely unexplained because physically bringing data together from across the world is constrained by governance, ethical and legal challenges. To address this, InterConnect is enabling cross-cohort analyses through a new approach which 'takes the analysis to the data'.

### A new approach to analysis

**InterConnect** is developing a global collaborative network for diabetes and obesity research, providing a new approach to cross-cohort analyses that is secure, scalable and sustainable.

A federated process means that participant data from contributing studies is held securely on geographically-dispersed, cohort-based computers.

Analyses are requested remotely and performed locally, so all data stays at source. Only results and not data are then shared among the network.



Physically bringing data together in conventional approaches to data sharing presents governance, ethical and legal challenges.

The 'data access and results sharing' network being developed through InterConnect avoids all of these concerns.

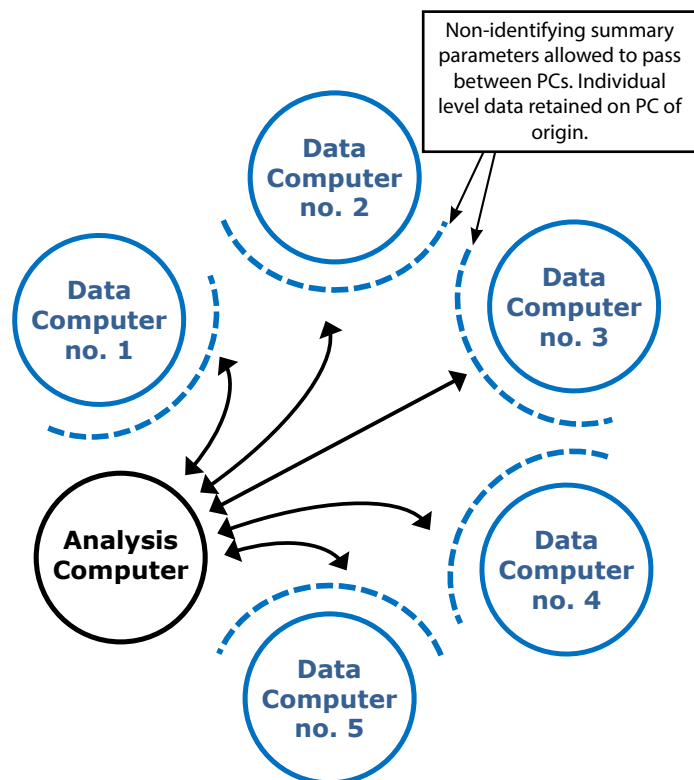
Through this approach it is possible to perform an analysis that is equivalent to a meta-analysis of harmonised individual level data and so the approach is called 'federated meta-analysis'.

### Efficient and reusable

Participation in an analysis works by allowing remote access to the local data through control of the IT permissions, and unlike other approaches to results-sharing it does not require contributing cohorts to perform any statistical analyses themselves.

The effort of each cohort is focused on the preparation of data and setting up an IT infrastructure that enables them to participate in multiple analyses.

Unlike data sharing approaches based on central data storage, cohorts remain in complete control of their data, deciding whether to participate on a case-by-case basis.



*Federated analysis: data stays within the governance structure of the cohort.*

## A democratic network

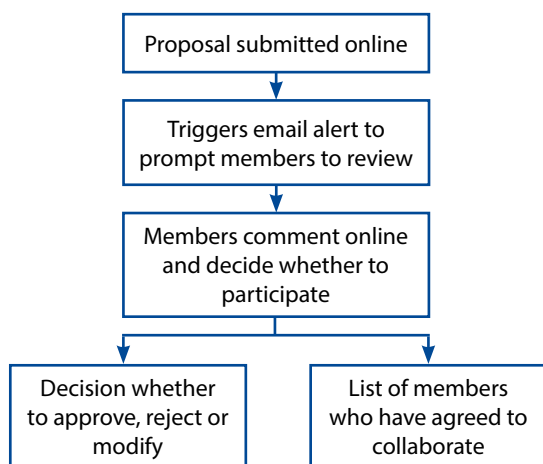
All those with responsibility for studies can play a central role rather than simply providing data for others.

Transparent and democratic processes will be established to review research proposals conducted through the network.

A network-wide review will ensure quality and avoid duplication. Individual cohorts can decide whether or not to participate and will review proposals against their specific terms of consent and local data access policies.

## Online collaboration

The InterConnect extranet will deliver a virtual review, comment and audit system.



## Being part of InterConnect

To be part of InterConnect, network members will be requested to:

- Make cohort meta-data available in English
- Provide and maintain a secure server; install open source software and upgrades
- Load relevant data to the secure server and contribute to data harmonisation
- Review proposals for analyses and decide whether to participate, taking into account cohort consent, local regulatory requirements and approvals
- Where network members wish, they can develop proposals and lead cross-cohort analyses.



## What next?

InterConnect is applying its new approach to a number of exemplar projects, that address research questions of aetiological and public health interest. They help us to understand and address the real-life issues that affect implementation and also ensure tools and infrastructure are aligned to their research use.

The exemplars enable us to engage researchers, develop specific resources for data harmonisation derived from practical needs and begin to establish a collaborative network for federated meta-analysis. Together, we can create the foundation for a sustainable, global network for diabetes and obesity population research.

## Connect with us

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