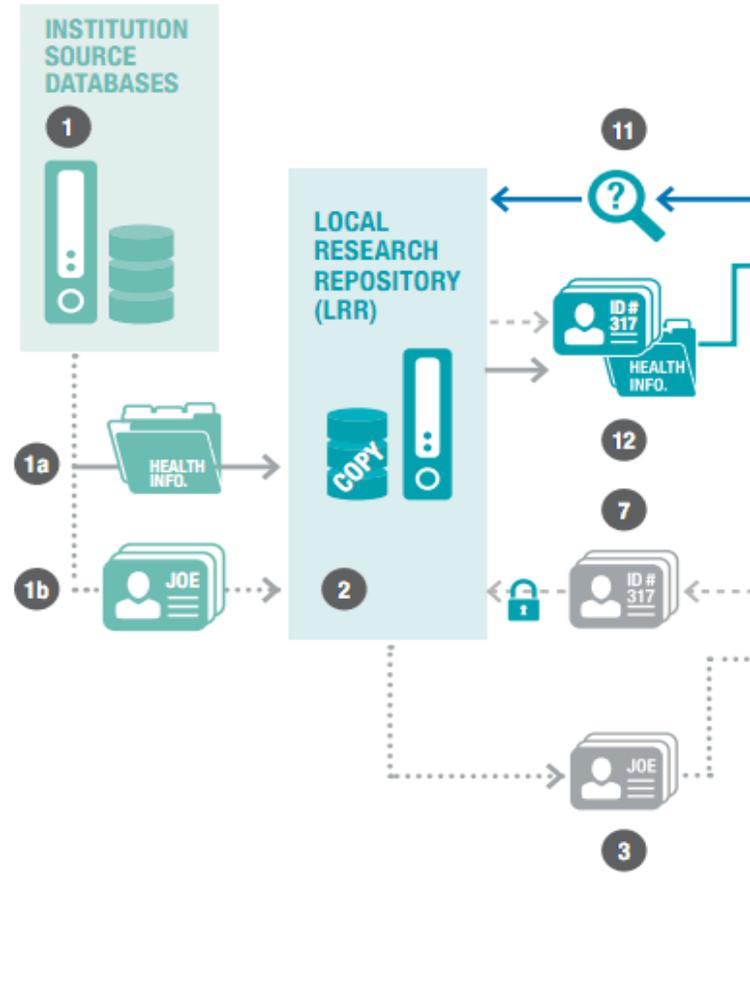
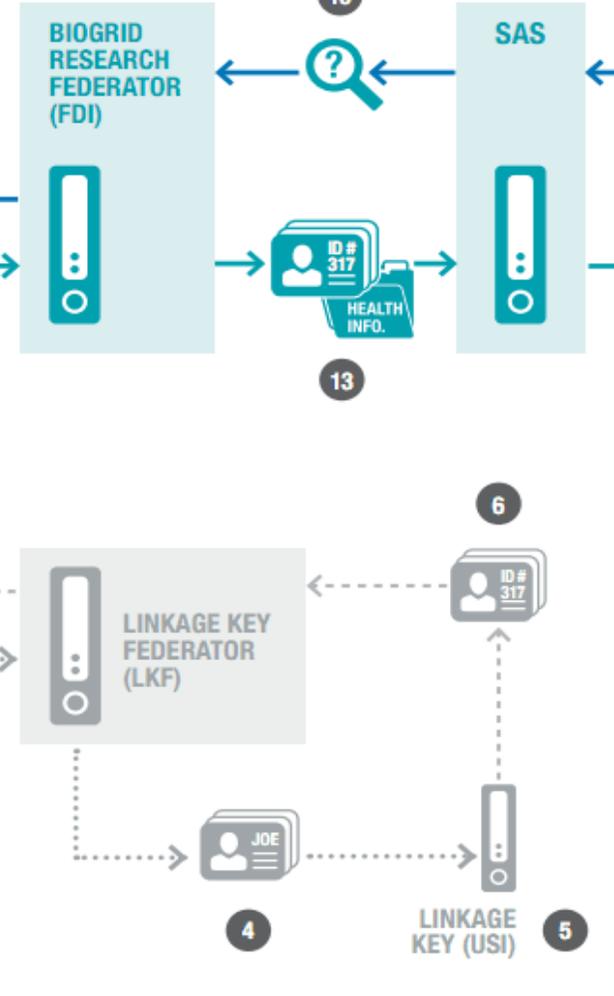


### COLLABORATING INSTITUTION EXAMPLE



### BIOGRID AUSTRALIA



### RESEARCHER



**LEGEND**

- ← AUTHORIZED RESEARCHER QUERIES DATA
- DE-IDENTIFIED QUERY RESULTS RETURNED
- ←··· IDENTIFIED DATA
- > DE-IDENTIFIED DATA
- 🔒 ENCRYPTED DATA



## How BioGrid Works

### *Diagram Reference Key*

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1. Patient information is recorded in one or more data sources (i.e. databases, spreadsheets), which are stored on a collaborating institution's computer network. This information comprises clinical health information data and identifiers.
  - 1a. Clinical health information data are the collection of facts and opinions about an individual's health and wellbeing. Treatment details are an example of clinical health information data.
  - 1b. Identifiers are the data items, which identify the individual who is described within a patient record. A patient's name is an example of an identifier.
2. The patient information is copied into replica data sources, which are stored on the collaborating institution's Local Research Repository (LRR), on a nightly basis or frequency agreed by the collaborating institution.
3. A limited set of identifiers from each new patient record are sent from the replica data sources to BioGrid Australia's Linkage Key Federator (LKF) via a secure encrypted Virtual Private Network (VPN) connection.
4. The Linkage Key Federator (LKF) forwards the identifiers to BioGrid Australia's Linkage Key server. This server hosts the Unique Subject Identifier (USI) database.
5. The identifiers are compared with the USI database's records to establish whether data about the patients already exists within a BioGrid-linked data source. If a match is found for a patient's data, the patient has previously been allocated a USI. If no match is found for a patient's data, the patient's set of identifiers and a new USI are written to the USI database.
6. The USIs for the matching and non-matching patients are sent back to the LKF.
7. The USIs are sent back to the LRR via a secure encrypted VPN connection and stored with their associated clinical health information data.
8. Once authorised access via the BioGrid Australia Data Access Application System has been provided to the researcher, they can commence querying the de-identified data they have approval to access.
9. The researcher submits a data query to BioGrid Australia's statistical analysis (SAS) computer via the Internet.
10. The SAS computer forwards the query to the FDI.
11. The FDI requests the specified data from each of the relevant LRRs via a secure encrypted VPN connection.
12. The clinical health information data and USIs from applicable patient records are sent to the FDI via a secure encrypted VPN connection. These data are combined into a temporary table. The table is removed from the FDI upon completion of the query.
13. The SAS computer reads and processes data from the temporary table.
14. The SAS computer presents the results of the query to the researcher.