

Facility Serosurvey Protocols: Case studies

Context and Identifying facilities

- **Context:** We were interested to assess if serosurveillance using residual blood collected at sentinel health facilities and laboratories can be used to monitor changes in immunity occurring in the population.
- To do this, facilities were selected to be representative of the population in the selected study districts and those willing to approve this study.

Considerations when developing tailored procedures

Characteristics	Questions to consider
Facility Type	<ul style="list-style-type: none">• Is it a public or private facility?• Is there any blood collection and/or testing at this facility?
Population	<ul style="list-style-type: none">• Who are the patients using the facilities (e.g., primary vs. tertiary care, emergency care, surgery, age distribution)?• Is there a defined catchment area (e.g., district)? What percent of the samples are received from outside the catchment area? Is it possible to identify samples from outside the catchment area?
Blood specimen	<ul style="list-style-type: none">• For facilities where blood is collected (e.g., hospitals), are all specimens tested onsite or are some sent to an external laboratory for testing?• How long does the facility retain the residual specimen after testing is complete?• What are the storage conditions while the facility is holding residual specimens?• What are the daily/weekly number of residual specimens anticipated? Is sampling (e.g., systematic sampling) required in case of large number of anticipated specimens?
Linked data	<ul style="list-style-type: none">• What data are routinely available for each specimen?• How are the specimens linked to the data?• Is the linked data available in an accessible electronic database or paper register? Are any data stored in a separate database or register?

Overview by facility type

Characteristics	Public Government Hospital	Private Diagnostic Laboratory
Population	<ul style="list-style-type: none">This was general hospital that served population at the sub-district (regional) population.	<ul style="list-style-type: none">This was a large diagnostic facility that tested samples from blood collection points located within and outside the district of interest.
Blood Specimen	<ul style="list-style-type: none">Majority of specimens collected and tested on site in hospital laboratory.A subset of samples was tested in an external laboratory for specific tests or in situations when testing equipment malfunctioned in hospital. Owing to feasibility issues, we were unable to access these specimens.Specimens were typically discarded after testing and not stored in cold chain.	<ul style="list-style-type: none">Specimens collected offsite and shipped to laboratory for testingSpecimens were typically discarded 96 hours after testing and stored in cold chain
Linked Data	<ul style="list-style-type: none">Specimen tubes were labeled with patient name, data, age and a hospital IDLinked data was recorded in paper-based log books at the time of specimen collection.Information such as age, sex, whether patient was seeking ANC care, etc. was available. Data on residence (village or ward) was available in a separate hospital-based register	<ul style="list-style-type: none">Specimen tubes were labeled with a unique ID label.Any linked data was accessible in an electronic database.Only basic information like age and sex was available.

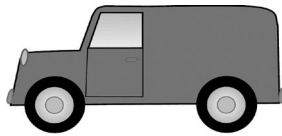
Procedural Steps in Public Government Hospital

1. Identify Serum Specimens: Survey staff will check with Hospital technician for **serum** (red/ yellow top tubes) residual specimens ready to be discarded.

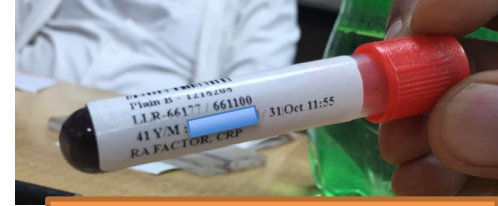


2. Screening for age-eligible specimens:

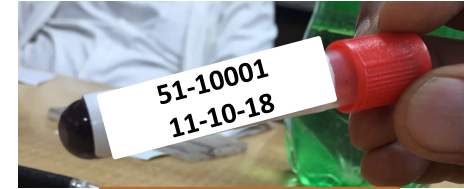
- For each specimen, check specimen tube for age*. If age is study eligible then set specimen aside in a tube rack.
- Repeat until all residual specimens are screened.
- At the end of this step you should have moved all age eligible residual specimens to the tube rack.



Transport to survey lab for further processing and testing.



Hospital ID Label



Survey ID



3. Collection of linked data:

- In specimen collection register, note down the age, sex, date of collection, if patient is ANC (if applicable), hospital ID.
- Affix specimen label with unique study ID on tube (covering personal data) and corresponding label on register.
- Check with hospital technician to provide additional information from hospital register using hospital ID to link specimens
- Repeat for all study eligible residual specimens.



4. Handling of specimen tube

- Keep labeled specimen in cold box with ice packs.
- Prior to transport, centrifuge specimens in hospital laboratory at 3000 RPM for 10 minutes. This will reduce chances of hemolysis.



*This depends on survey's eligibility criteria.

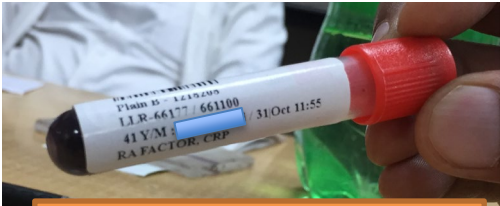
Procedural Steps in Private Diagnostic Laboratory

1. Identify Serum Specimens: Survey staff will check with technician for **serum** (red/ yellow top tubes) residual specimens ready to be discarded and dates they were collected.

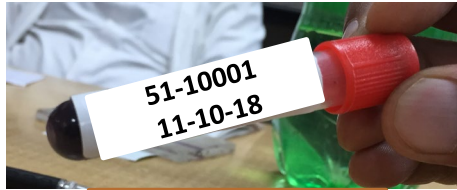


2. Screening for eligible specimens:

- Access electronic database and filter to lab IDs based on age* and dates of collection and note down eligible IDs.
- Check residual specimen labels against list of eligible lab IDs. Set eligible specimens aside in a tube rack.
- Repeat until all residual specimen tubes and IDs are checked.



Lab ID Label



Survey ID

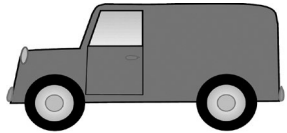
3. Collection of linked data:

- Go back to electronic database to abstract the age, sex and date of collection for all eligible IDs with a physical specimen tube identified into specimen collection register.
- Affix specimen label with unique study ID on tube and corresponding label on register.



4. Handling of specimen tube:

- Keep labeled specimen in cold box with ice packs.
- Prior to transport, centrifuge specimens in hospital laboratory at 3000 RPM for 10 minutes. This will reduce chances of hemolysis.



Transport to survey lab for further processing and testing.

*This depends on survey's eligibility criteria.