

Background

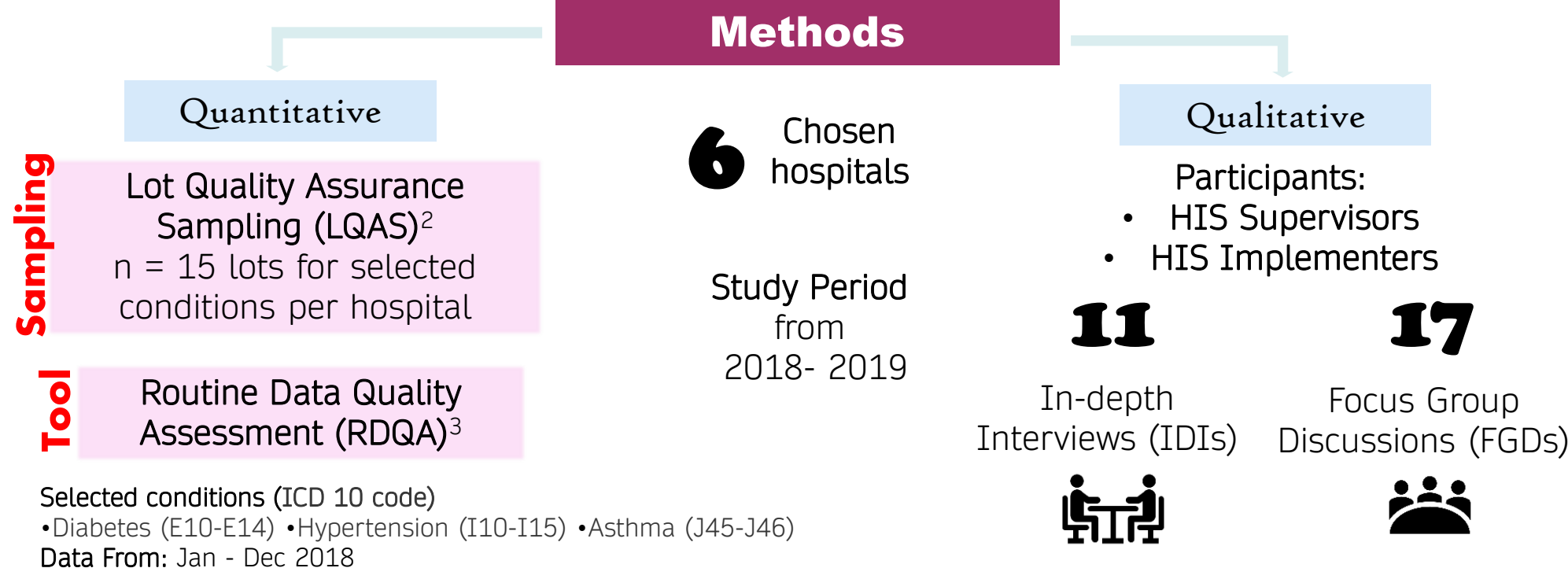
Hospital Information System (HIS) was introduced by the Ministry of Health (MOH) Malaysia to improve hospital information management. A timely and accurate data aids in facilitating decision-making processes. HIS monitoring and evaluation activities revealed issues in data quality, particularly **data completeness**. This study aims to explore the data completeness issue in HIS.

**The assessment focused on the "structured data" (i.e. data in the database field) instead of "unstructured data" (i.e. data in free text form).*

Data Completeness definition: **"... presence of information in the HIS"¹**

In this study: data completeness was assessed by... **availability of structured data in the intended column** ...instead of presence of information in the entire dataset

Methods



Results

Quantitative Findings:

- Data completeness was found to be ranging between **13% to 53%** Figure 1. Further assessment found that **data in the empty fields were mostly entered into the available free text fields as unstructured data** in the dataset.
- Most users prefer **entering data as free text**, giving them operational flexibility in conducting daily task.
 - This practice resulted in many **empty fields** in the database, limiting further analysis.
 - This practice may also undermine efforts in the development of **interoperability**, specifically on the value of data being shared across systems.

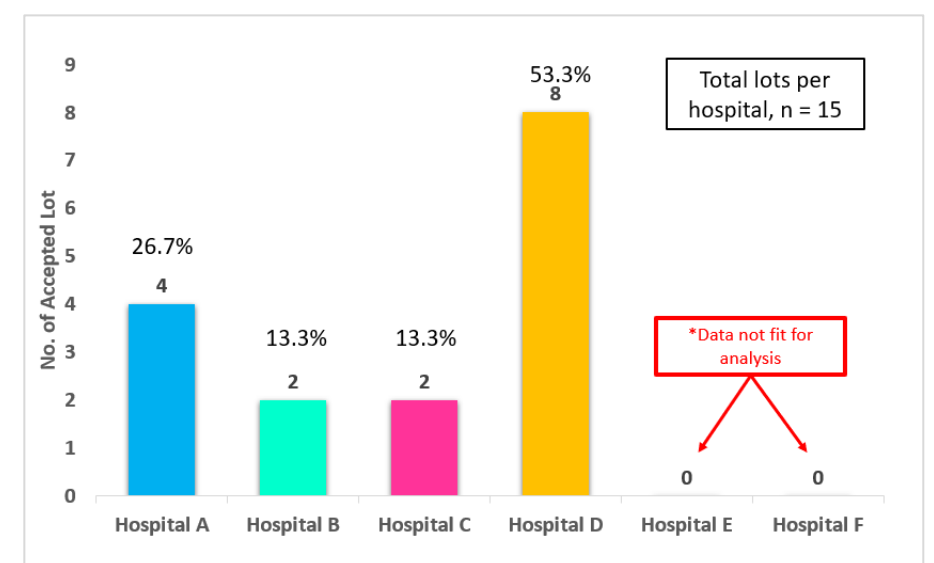


Figure 1: Data completeness by hospital using the Routine Data Quality Assessment (RDQA) tool, ranged between 13.3% to 53.3%.

Qualitative Findings:

Factors Influencing Data Completeness

System Factor

- Old hardware and insufficient equipment availability affecting performance
- Stability issues in network and connectivity
- Unable to retrieve data due to hardware issues
- Limited flexibility of information system to support additional services
- Delay in process verification
- Incompatible software and interoperability issues

Human Factor

- Entering data in free text format
- "Copy paste" as institutionalised practice in hospital
- Poor inter-personnel communication
- User in compliance towards operating protocol for HIS
- User incompetence in using HIS



... Apabila you dah buat time tu, you sign, close yang tu, you buka, and then you nak buka pesakit tu dia (refer to the HIS system) lambat. Itu yang berlaku pada 7, 8, tahun dulu. Itu pengalaman kita. Sistem tak berapa stabil dulu...

- IDI HIS Implementer



...katalah first MO dekat ward ambil..the second MO pulak ambil lagi, tulis lagi..ada berlaku kesalahan di mana copy tapi tak baca dulu.. panjang kan..so dia akan apa.. menggalakkan aa berlakunya kesilapan lah...

- IDI HIS Supervisor



Discussion/Conclusion

- Data completeness is a vital issue to be addressed, with national plans for electronic health record initiative to be implemented in the future.
- Advancements in technology should be considered to be used to improve the data entry process among implementers, e.g. voice-to-text to assist with data entry during ward rounds.
- There should also be **more flexibility in system configuration** to allow for verification and validation processes to be in place to fulfil the quality standard requirements.

References:

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