

Hospital Information System Data Completeness in Ministry of Health Malaysia Hospitals





Zulkarnain Abd Karim¹, Roslina Othman², Nur Hidayati Abdul Halim¹, Nuraidah Mohd Marzuki³, Nurul Iman Jamalul-Lail¹, Nurul Salwana Abu Bakar¹, Mohd Idris Omar⁴, Rafidah Isa², Hazwani Mohd Mohadis², Fathullah Iqbal Ab Rahim¹, Norainun Ismail³, Nazmi Ainaa Azmi³, Mohamad Fauzan Noordin²

¹Institute for Health Systems Research, National Institutes of Health; ²Kulliyyah of ICT, International Islamic University Malaysia; ³eHealth Planning Section, Planning Division; ⁴Research Policy and Planning Division, National Institutes of Health

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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

Study Period

from

2018-2019

Chosen hospitals

Quantitative

Lot Quality Assurance Sampling (LQAS)² n = 15 lots for selected conditions per hospital

Routine Data Quality Assessment (RDQA)³

Selected conditions (ICD 10 code)

•Diabetes (E10-E14) •Hypertension (I10-I15) •Asthma (J45-J46)

Data From: Jan - Dec 2018

Qualitative

- Participants:
- **HIS Supervisors**
- **HIS Implementers**



In-depth

Focus Group Interviews (IDIs) Discussions (FGDs)





Results

Quantitative Findings:

- 1. 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.
- 2. Most users prefer entering data as free text, giving them operational flexibility in conducting daily task.
 - a) This practice resulted in many empty fields in the database, limiting further analysis.
 - b) This practice may also undermine efforts in the development of interoperability, specifically on the value of data being shared across systems.

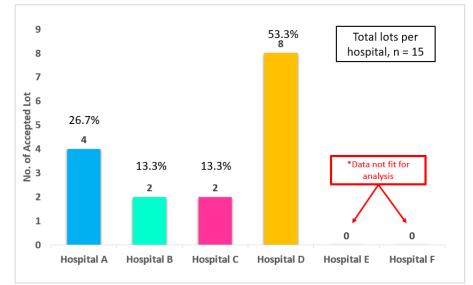


Figure 1: Data completeness by hospital using the Routine Data Quality Assessment (RDQA) tool, ranged between 13.3% to 53.3%.

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 incompliance 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.

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