

Moving on to Digitalising Patient Health Records

Ilyana Mukhriz and Rachel Gong



Introduction

A nationwide rollout of digitalised patient records is expected to occur by 2026, according to an announcement by the Health Minister in May 2023¹. The effort to implement an electronic medical record (EMR) system is not new to Malaysia, as the country has attempted to include an EMR component in some of its public hospitals since the 1990s.

Views are short opinion pieces by the author(s) to encourage the exchange of ideas on current issues. They may not necessarily represent the official views of KRI. All errors remain the authors' own.

This view was prepared by Ilyana Mukhriz and Rachel Gong, researchers from the Khazanah Research Institute (KRI).

An edited version of this view was published in The Star on 27 May 2023 titled "[Push for integrated health records](#)".

Author's email address:

ilyana.mukhriz@krinstitute.org
rachel.gong@krinstitute.org

Attribution – Please cite the work as follows: Ilyana Mukhriz and Rachel Gong. 2023. Healthcare digitalisation to benefit the many, not the few. Kuala Lumpur: Khazanah Research Institute. License: Creative Commons Attribution CC BY 3.0.

Information on Khazanah Research Institute publications and digital products can be found at www.KRIInstitute.org.

Cover photo by Artem Podrez from Pexels

¹ Ragananthini Vethasalam (2023)

The Khazanah Research Institute (KRI) has previously advocated the implementation of a comprehensive national system that allows electronic sharing of health records across facilities². Instead of focusing on investments towards advanced healthcare technology such as surgical robots that would benefit a small population of citizens, a national digital health records system is a basic technological investment that would potentially improve patient care for all³.

Accessing health records anywhere, anytime

People receive care from several different healthcare providers throughout their lives. This includes regular interactions with primary care clinics (*klinik kesihatan* (KK)), annual visits to dental clinics as well as occasional visits to hospitals.

Thus, it is important for patient information generated at each point of care to be digitally recorded and updated in a centralised database. With a digitalised health records system, patient data such as previous diagnoses, allergies, test results and current medications would be accessible no matter which health facility a patient visits.

Despite debates on whether the term EMR should be used to refer to such a system or if the term electronic health record (EHR) is more accurate⁴, the final goal of the Ministry of Health in Malaysia (MOH) is clear. It envisions a shareable digital record of patient health that would follow a patient throughout their lifetime.

Comprehensive records, continuous care

Digitalising health records is a step towards ensuring that continuous and accessible routine care is made available to Malaysia's ageing population, especially those burdened with non-communicable diseases (NCDs) such as diabetes and obesity.

Accessing digital health records could improve care delivery by making healthcare providers aware of a patient's condition when administering emergency care. Patients with chronic NCDs would also be empowered to understand their condition and take care of themselves more effectively at home.

In the United States (US), patients over 65 years old were found to have higher compliance to their treatment plan and medications when provided access to their personal health information⁵. Improving a patient's ability to manage their disease has been shown to reduce the burden on the healthcare industry⁶, both in terms of cost and human resources.

² Ilyana Mukhriz (2021)

³ Ilyana Mukhriz (2023)

⁴ Bonderud (2021)

⁵ DesRoches et al. (2021)

⁶ "Pharmacy-Based Interventions for Medication Adherence | Cdc.Gov" (2023)

Digitalisation as an aid to health protection

Over the years, disease patterns have changed significantly and NCDs have become the major cause of poor health in Malaysia. In 1990, NCDs made up 60% of total health loss but in 2019, they made up almost 74%⁷. Common causes of NCDs are largely preventable, given the right investments in preventive and promotive health services such as cancer screenings. However, Malaysia currently faces a worryingly low uptake of cancer screening programmes⁸ which has been attributed to the lack of up-to-date screening registries.

An EMR system with real-time updates of patient data could act as a comprehensive patient registry that allows effective targeting of populations eligible for healthcare screening⁹. In the future, this digital patient record system could be linked to a National Social Protection Registry¹⁰ to optimise not only healthcare delivery but also the channelling of social security services.

Need to focus on minimising risks

It is important to note that introducing digitalised patient records does not come without risks or challenges¹¹. MOH has acknowledged that an integrated health database system may face ransomware attacks¹². Stringent data governance and data security protocols need to be of the utmost priority when implementing the EMR system.

User-friendly design and low-tech backup alternatives are also crucial when considering a nationwide system that involves different levels of digital literacy, infrastructure and human resources. Previous hospital digitalisation efforts in Malaysia have faced patient safety issues¹³. This has been attributed to a lack of knowledge in using the system and insufficient computer resources as well as high workloads leading to incorrect data entry.

MOH appears to be taking these issues into consideration in the current rollout, given the Minister's announcement of a lighter, web-based records system for public clinics that lack hardware and infrastructure¹⁴.

Putting in place a digital system is also only the first step. The next challenge lies in ensuring system inclusivity, taking care to address inequalities in digital access and literacy within the population. Outreach and education programmes need to be implemented to empower patients to access and utilise their health data.

⁷ Nazihah Muhamad Noor et al. (2020)

⁸ "National Health and Morbidity Survey (NHMS) 2019: Vol. I: NCDs – Non-Communicable Diseases: Risk Factors and Other Health Problems" (2020)

⁹ Nazihah Muhamad Noor et al. (2021)

¹⁰ "Building Resilience: Towards Inclusive Social Protection in Malaysia" (2021)

¹¹ Tan and Ilyana Mukhriz (2023)

¹² Bernama (2017)

¹³ Lizawati Salahuddin et al. (2019)

¹⁴ Ragananthini Vethasalam (2023)

Analysis of data from the Department of Statistics Malaysia (DOSM) shows significant variation in health-seeking behaviours online.¹⁵ For example, in 2021 91.5% of individuals in Terengganu used the internet to seek health information compared to 57.9% of individuals in Sarawak.

Balancing the double-edged sword of digitalised patient records

The implementation of a digitalised health records system will require a fine balance between improving efficiency and continuity of care while mitigating risks to privacy and security. Since Malaysia is still in the early stages of nationwide implementation, it is an opportune time to call for careful evaluation of the rollout process to avoid putting in place a poorly-designed and costly system. KRI's forthcoming work will discuss an idealised digital patient records system framework in more detail.

¹⁵ Tan and Ilyana Mukhriz (2023)

References

- Bernama. 2017. "Cyber Attack: Ministry Does Not Expect Hospitals in Malaysia to Be Affected by Ransomware | Astro Awani." *Astro Awani*, May 14, 2017. <https://www.astroawani.com/berita-teknologi/cyber-attack-ministry-does-not-expect-hospitals-malaysia-be-affected-ransomware-142569>.
- Bonderud, Doug. 2021. "EMRs vs. EHRs: What's the Difference?" HealthTech. June 29, 2021. <https://healthtechmagazine.net/article/2021/07/emrs-vs-ehrs-whats-difference-perfcon>.
- "Building Resilience: Towards Inclusive Social Protection in Malaysia." 2021. Khazanah Research Institute. September 12, 2021. [https://www.krinstitute.org/Press Release-@-Building Resilience-: Towards Inclusive Social Protection in Malaysia.aspx](https://www.krinstitute.org/Press%20Release-@-Building%20Resilience-:%20Towards%20Inclusive%20Social%20Protection%20in%20Malaysia.aspx).
- DesRoches, Catherine M., Liz Salmi, Zhiyong Dong, and Charlotte Blease. 2021. "How Do Older Patients with Chronic Conditions View Reading Open Visit Notes?" *Journal of the American Geriatrics Society* 69 (12):3497–3506. <https://doi.org/10.1111/jgs.17406>.
- Ilyana Mukhriz. 2021. "Electronic Health Records: Planning the Foundation for Digital Healthcare in Malaysia." KRI Discussion Paper 05/21. Kuala Lumpur: Khazanah Research Institute. [http://www.krinstitute.org/assets/contentMS/img/template/editor/EHR%20Discussion %20Paper%20Ilyana%20Final.pdf](http://www.krinstitute.org/assets/contentMS/img/template/editor/EHR%20Discussion%20Paper%20Ilyana%20Final.pdf).
- . 2023. "Digitalised Health Records: Does Malaysia Need It?" KRI Views 08/23. Kuala Lumpur: Khazanah Research Institute. <https://www.krinstitute.org/assets/contentMS/img/template/editor/28.03.2023%20Digitalised%20Health%20Records%20-%20Does%20Malaysia%20Need%20It.pdf>.
- Lizawati Salahuddin, Zuraini Ismail, Umami Rabaah Hashim, Raja Rina Raja Ikram, Nor Haslinda Ismail, and Mohd Hariz Naim @ Mohayat. 2019. "Sociotechnical Factors Influencing Unsafe Use of Hospital Information Systems: A Qualitative Study in Malaysian Government Hospitals." *Health Informatics Journal* 25 (4). SAGE Publications Ltd:1358–72. <https://doi.org/10.1177/1460458218759698>.
- "National Health and Morbidity Survey (NHMS) 2019: Vol. I: NCDs – Non-Communicable Diseases: Risk Factors and Other Health Problems." 2020. Volume I. The National Health and Morbidity Survey 2019: Non-Communicable Diseases, Healthcare Demand and Health Literacy. Institute for Public Health (IPH), National Institutes of Health, Ministry of Health Malaysia. [https://iku.gov.my/images/IKU/Document/REPORT/NHMS2019/Report NHMS2019-NCD v2.pdf](https://iku.gov.my/images/IKU/Document/REPORT/NHMS2019/Report%20NHMS2019-NCD%20v2.pdf).
- Nazihah Muhamad Noor, and Ilyana Mukhriz. 2021. "Health and Social Protection: Continuing Universal Health Coverage." December 15, 2021. [https://krinstitute.org/Discussion Papers-@-Health and Social Protection-; Continuing Universal Health Coverage.aspx](https://krinstitute.org/Discussion%20Papers-@-Health%20and%20Social%20Protection-:Continuing%20Universal%20Health%20Coverage.aspx).

- Nazihah Muhamad Noor, Jarud Romadan Khalidi, and Puteri Marjan Megat Muzafar. 2020. "Social Inequalities and Health in Malaysia." Khazanah Research Institute. December 1, 2020. <https://krinstitute.org/Publications-@-Social Inequalities and Health in Malaysia.aspx>.
- "Pharmacy-Based Interventions for Medication Adherence | Cdc.Gov." 2023. Centers for Disease Control and Prevention. February 24, 2023. <https://www.cdc.gov/dhdsp/pubs/medication-adherence.htm>.
- Tan, Jun-E, and Ilyana Mukhriz. 2023. "Challenges Arising From Digitalising Health Records." Khazanah Research Institute. April 23, 2023. <https://krinstitute.org/Views-@-Challenges Arising From Digitalising Health Records.aspx>.
- Ragananthini Vethasalam. 2023. "Aiming for Nationwide Rollout of Electronic Medical Records." The Star. May 20, 2023. <https://www.thestar.com.my/news/nation/2023/05/20/aiming-for-nationwide-rollout-of-emr>.