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Panel on Health Services

Updated background brief prepared by the Legislative Council Secretariat for the meeting on 20 May 2019

Development of the Electronic Health Record Sharing System

Purpose

This paper provides background information and summarizes the concerns of members of the Panel on Health Services ("the Panel") and the Bills Committee on Electronic Health Record Sharing System Bill ("the Bills Committee") on the development of the Electronic Health Record Sharing System ("eHRSS").

Background

2. Further to the public consultation on the future service delivery model of the healthcare system in 2005[1] and the launch of the Public Private Interface - Electronic Patient Record Sharing ("PPI-ePR") Pilot Project in 2006[2] to test the feasibility and acceptability of electronic health record ("eHR") sharing, the Steering Committee on Electronic Health Record Sharing ("the Steering Committee") was set up in July 2007 to advise the Food and Health Bureau ("FHB") on strategies and work programmes to take forward eHR development.

3. The development of a territory-wide eHRSS to enable two-way health data sharing between healthcare providers[3] in both the public and private

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[1] The Health and Medical Development Advisory Committee released a Discussion Paper entitled "Building a Health Tomorrow" on 19 July 2005 proposing the future service delivery model of the healthcare system, in which the development of a territory-wide patient record system was proposed for the first time for public consultation.

[2] The Hospital Authority ("HA") has been implementing the PPI-ePR Pilot Project since April 2006. It was a one-way sharing pilot that allows participating private healthcare providers to view their patients' records in HA subject to patients' consent.

[3] eHRSS registration is on healthcare providers (i.e. organizational) basis.

sectors subject to patients' consent was one of the healthcare service reform proposals put forward by the Government in the Healthcare Reform Consultation Document in March 2008. Based on the broad support received during the public consultation, the Government's original road-map was to implement a 10-year, two-stage Electronic Health Record Programme ("eHR Programme") from 2009-2010 to 2018-2019, with an estimated non-recurrent expenditure of $1,124 million,[4] to develop eHRSS.

4. The Finance Committee of the Legislative Council ("LegCo") approved a new capital commitment of $702 million in July 2009 for implementing the stage one eHR Programme straddling five years from 2009-2010 to 2013-2014. From 12 December 2011 to 11 February 2012, the Government conducted a public consultation exercise on the legal, privacy and security framework for eHRSS ("the eHRSS public consultation exercise"). Based on the outcome of the consultation, the Government introduced the Electronic Health Record Sharing System Bill ("the Bill") into LegCo on 30 April 2014 to provide for, among others, the establishment of eHRSS and the sharing, using and protection of data and information contained in eHRSS. A Bills Committee was formed by the House Committee to study the Bill. The Bill was passed by LegCo on 13 July 2015. All provisions of the Electronic Health Record Sharing System Ordinance (Cap. 625) ("the Ordinance"), except for those relating to the sharing restriction request and those relating to use of data and information contained in an eHR for carrying out research or preparing statistics for public health or public safety purpose,[5] has come into operation on 2 December 2015. The eHRSS developed under the stage one of the eHR Programme has commenced operation since 13 March 2016.

Deliberations of the Panel and the Bills Committee

5. Issues relating to the development of eHRSSwere discussed by the Panel since the Fourth LegCo and the Bills Committee during the scrutiny of the Bill. The major views and concerns of members are summarized in the following paragraphs.

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[4] The Administration estimated in July 2009 that, as a ballpark reference, stage one and stage two of the eHR Programme would require a non-recurrent expenditure of $702 million and $422 million respectively.

[5] It was agreed at the Bills Committee that the provisions relating to the sharing restriction request should take effect upon completion of the study on developing and implementing some form of new device or arrangement enabling additional choice for patients over the disclosure of their data during the stage two of the eHR Programme. For the provisions relating to use of data and information contained in an eHR for carrying out research or preparing statistics for public health or public safety purpose, the Administration has advised that they would be brought into operation after the formulation of the relevant operational guidelines for processing applications in this regard.

Scope of health data for eHR sharing

6. Members noted that by making reference to, among others, the sharable scope of health data used in the PPI-ePR Pilot Project, the index data and health data for sharing ("sharable data") in the stage one eHRSS included (a) personal identification and demographic data; (b) adverse reactions and allergies; (c) summary of episodes and encounters with healthcare providers (i.e. summary of appointments); (d) diagnosis, procedures and medication; (e) laboratory and radiological results; (f) other investigation results; (g) clinical note summary (i.e. discharge summary); (h) birth and immunization records; and (i) referral between providers. There were views that for the interest of healthcare recipients who had registered for eHRSS, full reports of diagnostic tests (such as that for endoscopy and colonoscopy) for, as well as procedures performed on public hospital patients, which were available in the clinical management system ("CMS") of the Hospital Authority ("HA") and readily sharable electronically, should be included in the scope of sharable data.

7. The Administration advised that the existing sharable scope of health data used in the PPI-ePR Pilot Project was considered satisfactory to both patients and healthcare professionals according to the PPI-ePR qualitative research study and survey conducted in 2008 and 2012-2013 respectively. No adverse comment on the proposed scope of sharable data had been received during the eHRSS public consultation exercise. The Administration further advised that the design of the stage one eHRSS had catered for potential expansion of the scope of sharable data in the future. At the Panel meeting on 16 January 2017, members were briefed on the Administration's proposal for the stage two development of eHRSS which would broaden the scope of data sharing by covering radiological images and Chinese medicine information.

8. Members noted that the Administration would initiate further data standardization exercises on existing and new data categories to facilitate data sharing, such as radiological images, Chinese medicine information, and personal lifestyle habits, in the development of stage two eHRSS. There were concerns about the proportion of registered Chinese medicine practitioners ("CMPs") and practising CMPs who kept patients' health data in electronic form, and how the coverage of Chinese medicine information in the stage two eHRSS could facilitate interface between primary care services and hospital services. Members were advised that all clinical records of the Chinese Medicine Centres for Training and Research of HA had been computerized. A Chinese medicine information system on-ramp for use by private Chinese medicine clinics would be developed under the stage two eHR Programme. It was expected that with the standardization of Chinese medical terms and herbal medicine terminology and the technical readiness for data sharing in the future, computerization of

health records in the Chinese medicine sector could be enhanced. Given the growing trend in the use of Integrated Chinese-Western Medicine treatment, the sharing between CMPs and doctors of the health data of the patients concerned could facilitate the provision of holistic patient care.

9. Questions were raised about the cost-effectiveness of developing the technical capability of eHRSS for sharing of radiological images in improving healthcare delivery, and the types of personal life-style habits that would fall into the scope of data sharing. The Administration advised that the sharing of visualized radiological investigation results under the stage two eHRSS would better support collaborative effort among HCPs and facilitate continuity of care for patients in different settings. Separately, as various personal life-style habits such as smoking, physical inactivity and excessive alcohol intake might increase the risk of many chronic diseases, it was the existing practice of healthcare professionals to enquire about patients' habit in providing healthcare. However, it would be up to the patients to disclose such habits when required.

Control over data sharing by registered healthcare recipients

10. Members noted that a healthcare recipient could give joining consent to join eHRSS. The joining consent allowed the Commissioner for the Electronic Health Record to obtain from, and to provide to, for healthcare and referral purpose, any prescribed healthcare providers[6] (to whom the healthcare recipient had given a sharing consent) the sharable data of that person in eHRSS. When the joining consent was given, the healthcare recipient was taken to have given sharing consent to the Department of Health ("DH") and HA. A majority of members of the Bills Committee were of the strong view that given the sensitive nature of health data, registered healthcare recipients should be provided with additional access control over the health data contained in their eHR, such that HCRs could exclude certain prescribed healthcare providers which/whom they had already given a sharing consent to, from access to certain parts of their health data. A majority of members considered that a "safe deposit box" like feature, which allowed enhanced access control for certain health data, should be provided under eHRSS as suggested by the Privacy Commissioner for Personal Data and a number of patient groups.

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[6] Under the Ordinance, DH, HA, a healthcare provider that was registered as an healthcare provider for eHRSS for a service location, and a Government bureau or department that was registered as an healthcare provider for eHRSS were prescribed healthcare providers. For the purpose of registration for eHRSS, healthcare provider meant a person that provides healthcare at one or more than one service locations. In practice, healthcare providers might include entities operating hospitals, medical clinics, dental business, and residential care homes or specified entities that engaged members of the 13 statutorily registered healthcare professionals to perform healthcare.

11. The Administration explained that the "safe deposit box" like feature had not been included in the project scope of the stage one eHR Programme, but would be further studied in the stage two eHR Programme. It undertook to conduct the study along a positive direction in the first year of the stage two eHR Programme, with a view to developing and implementing some form of new device or arrangement enabling additional choice for healthcare recipients over the disclosure of their health data. Relevant stakeholders including patient groups, professional groups and LegCo would be consulted on the recommended proposal upon completion of the study. Provisions enabling a registered HCR to, in relation to his or her health data, make a request to restrict the scope of data sharing had also been added into the Bill. The Bills Committee agreed that these provisions should take effect upon completion of the future study and after the feature was technically ready. Members were subsequently advised that it was planned that the component-project on "sharing restriction" would start in the fourth quarter of 2017 and end in the second quarter of 2020.

12. There was a question as to whether registered healthcare recipients could request the prescribed healthcare providers, to whom they had given sharing consent, not to provide to eHRSS certain health data which fell within the pre-defined sharable scope. Some members expressed doubt about the need for DH and HA to obtain from the stage one eHRSS the sharable data of those registered healthcare recipients who only used private (but not public) healthcare services.

13. The Administration advised that sharable data that had been entered into an eHR enabled eMR system of a prescribed healthcare provider would automatically be extracted and be uploaded to eHRSS with no exclusion. Only if a piece of data within the sharable scope was not electronically readily available for sharing, it would then not be shared on eHRSS. In the meantime, those HCRs who used only private (but not public) healthcare services and did not wish DH or HA to obtain their health records could choose not to join eHRSS until the availability of the new feature to foster registered healthcare recipients' choice over the scope of data sharing.

Provision of patient portal

14. Members noted that a patient portal with secure access and patient identity authentication was planned to be commissioned in stage two of the eHR Programme. Members requested the Administration to provide the patient portal as early as practicable to facilitate registered healthcare recipients to more conveniently access or upload their data to eHRSS. The Administration undertook to conduct a study on the setting up of a patient portal which would enable patients' access to some key health data kept in eHRSS and management

of their eHRSS registration in the first year of the stage two eHR Programme. According to the Administration, there was a need to strike the balance among convenience of access, risk of misinterpretation of data by healthcare recipients in the absence of professional medical advice and additional security risks due to access through a more open patient portal. It was envisaged that the portal to be developed would, among others, enable patients' access to some key health data (e.g. medications and drug allergy) to help them better understand their health conditions. The plan was that the relevant component-project would start in the fourth quarter of 2017 and end in the fourth quarter of 2021.

15. On the question about the fees to be charged on registered healthcare recipients making a data access request for a copy of their health data kept in eHRSS before the availability of the patient portal, the Administration advised that a non-excessive administrative fee would be charged by the eHR Registration Office for handling the data access request and compiling different formats of reports.

Transitional arrangement from PPI-ePR to eHRSS

16. Members were advised that PPI-ePR would be decommissioned after a transitional period upon the launch of stage one eHRSS. PPI-ePR participants could voluntarily decide whether to migrate to the new eHRSS. There was a view that the PPI-ePR system should be maintained in parallel with eHRSS until the time the new feature enabling additional choice for HCRs over the disclosure of their health data would be implemented in eHRSS. Members were subsequently advised that new applications for joining PPI-ePR had been ceased to be accepted the day before the coming into operation of eHRSS. They considered that such arrangement would undermine the interests of those patients who did not wish to join eHRSS until the availability of a feature to foster registered healthcare recipients' choice over the scope of data sharing. At the meeting on 18 April 2016, the Panel passed a motion urging the Government and HA to expeditiously resume the original operation of the PPI-ePR Sharing Pilot Project, including accepting enrolment from new patients and healthcare providers.

17. According to the Administration, a continuous increase in the number of PPI-ePR users would not be conducive to the transition from PPI-ePR to eHRSS. It was expected that more and more patients and healthcare providers would take part in the new two-way sharing arrangement under eHRSS which would bring more benefits to both patients and healthcare providers than the one-way sharing arrangement under the PPI-ePR Pilot Project. As PPI-ePR would be gradually phasing out, invitation was extended to PPI-ePR participants to register with eHRSS.

Participation in eHRSS

18. Question was raised about the measures put in place by the Administration to enhance the participation of healthcare providers and members of the public in eHRSS, and encourage the prescribed private healthcare providers to provide to, not just to obtain from, eHRSS the sharable health data of their patients. The Administration advised that the uploading of the sharable data of the registered patients by the prescribed private healthcare providers depended on the capability of the local electronic medical record systems of the prescribed healthcare providers. To encourage voluntary participation in eHRSS, a series of publicity and promotional activities for patients and healthcare providers had been launched. These included, among others, setting up eHR registration desks, organizing on-site patient registration campaigns and production of Announcement in Public Interests and other promotional materials. It was expected that the development of stage two eHRSS would attract more participation from patients and healthcare providers.

Engagement of the private information technology sector

19. Members noted that HA was engaged as the technical agency in the development of eHRSS under the stage one eHR Progrmme. Some members urged the Administration to engage the local information technology ("IT") sector, in particular the small and medium-sized enterprises, in the development of CMS for registered healthcare providers to connect to eHRSS. The role of the Administration should be confined to maintaining a level playing field in this regard. Some members further suggested that a separate entity, instead of HA, should be entrusted with the responsibilities to provide technical training on application programming interface specifications, as well as certification services on the conformity of the non-government developed CMSs with the interoperability standards.

20. The Administration explained that the development of eHRSS required heavy input of clinical expertise not readily possessed by IT vendors in the private sector. While HA had performed the most critical development tasks of eHRSS, certain work assignments had been outsourced to the private IT sector. An eHR Engagement Initiative was launched in November 2010 to invite proposals contributing to the development of eHRSS from the IT professional bodies and private IT vendors. A total of 58 proposals were received and engagement plans were formulated. Separately, an eHR Service Provider Training Scheme was organized to provide training for, among others, interested IT vendors with necessary knowledge to provide end-user support services to

HCPs on the installation of CMS On-ramp,[7] which was a low investment option developed by the Administration for private solo or group practice healthcare providers to adopt. Where necessary, IT vendors might also assist individual healthcare providers by customizing CMS On-ramp to meet their specific needs. The Administration assured members that it would ensure that the private IT sector would benefit from new business opportunities in the development of the stage two eHRSS.

21. There was a concern that the outsourcing of work assignments by HA, which served as the technical agency for the eHR Programme, to the private IT sector would give rise to the risk of leakage of health data of the registered patients kept in eHRSS. The Administration advised that the outsourced work would be confined to technical assignments and would not involve the health records kept in eHRSS.

Technical support for eHRSS

22. There was a concern about the technical safeguard for eHRSS against similar incident of malfunctioning of CMS of HA. The Administration advised that the technical risk of eHRSS was lower than that of CMS, as the latter was of a more complicated environment and had a lot more transactions. On the question as to whether the improvement work to enhance CMS of HA in the future would affect the technical manpower support for eHRSS, the Administration advised that there was no immediate concern but the overall supply of IT manpower in Hong Kong would be kept in view.

Recent developments

23. Following the approval of a capital commitment of $422,192,000 for implementing the stage two eHR Programme (from 2017-2018 to 2021-2022) by the Finance Committee of LegCo in March 2017, the Administration has taken forward the development of the stage two eHRSS from July 2017.

24. On the sharing capability of DH, the Information Systems Strategy Study commissioned in 2016 to formulate strategy on the user of information technology to better support DH's operations was completed in January 2018. With the approval of a funding about $1,057 million in June 2018, DH has

[7] According to the Administration, CMS On-ramp was an open source and open standard clinic management software with the ability to share patients' clinical data with eHRSS. It was a turn-key system readily usable by private clinics. CMS On-ramp could be connected to eHRSS with the installation of a free licensed software module known as Encapsulated Linkage Security Application which would encrypt the communication between HCPs' computers and eHRSS.

implemented IT projects, based on the recommendations made in the Study, to enhance its Clinical Information Management System so as to facilitate fully interfacing with eHRSS. As at 28 February 2019, all DH clinics were connected to eHRSS, with 140 clinics being capable of viewing and sharing health records on eHRSS and 31 clinics being capable of viewing health records on eHRSS.

25. According to the Administration, as at early March 2019, over one million healthcare recipients have joined eHRSS. HA, DH, 12 private hospitals and over 1 700 other private HCPs (including 1 612 private clinics or groups and 67 elderly centres or elderly service providers) have registered with eHRSS. Under these registered healthcare providers, about 11 300 healthcare professional accounts have been created for doctors' use.

Relevant papers

26. A list of the relevant paper on the LegCo website is in the **Appendix**.

Council Business Division 2
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Appendix

Relevant papers on the developments of the Electronic Health Record Sharing System

Committee	Date of meeting	Paper
Panel on Health Services	9.3.2009 (Item IV)	Agenda Minutes CB(2)1724/08-09(01)
	19.6.2009 (Item II)	Agenda Minutes CB(2)2101/08-09(01)
	12.12.2011 (Item IV)	Agenda Minutes
	11.6.2012 (Item IV)	Agenda Minutes
	18.3.2013 (Item VI)	Agenda Minutes
	15.12.2014 (Item IV)	Agenda Minutes
	18.4.2016 (Item III)	Agenda Minutes
Bills Committee on Electronic Health Record Sharing System Bill	--	Report of the Bills Committee tabled at the Legislative Council on 8 July 2015
Panel on Health Services	16.1.2017 (Item IV)	Agenda Minutes

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