

**For discussion
on 20 February 2024**

Legislative Council Panel on Health Services

eHealth+ Development

Purpose

This paper briefs Members on the Government's eHealth+ initiative, which is the next stage in the development of the Electronic Health Record Sharing System ("eHealth"), and seeks Members' support for the funding and legislative proposals to take forward the initiative.

Background

Stage 1 and Stage 2 Development

2. Launched by the Government in March 2016, eHealth is a territory-wide and patient-centric electronic platform that enables healthcare providers ("HCPs") in the public and private sectors, to view and share patient's electronic health records ("eHRs") with authorisation. The key objectives of eHealth are to improve efficiency and quality of care, facilitate continuity and integration of care, disease surveillance; and to redress public-private imbalance. The Hospital Authority ("HA") is the technical agency for the development and operation of eHealth.

3. eHealth has undergone two stages of development. Stage One Development (2009 to 2016)¹ focused on building the core information technology infrastructure for connecting private and public HCPs and sharing eHRs; as well as establishing the legal framework for protection of data privacy and system security. Stage Two Development (2017 to

¹ The Government put forward the development of eHealth as one of the healthcare reform proposals for public consultation in 2008 and received general support from the community. In July 2009, the Legislative Council (LegCo) approved HK\$702 million for implementing Stage One Development.

2022)² upgraded the system security and privacy protection, enhanced the functionalities and expanded the scope of eHR sharing, e.g. radiology images and Traditional Chinese Medicine (“CM”) information, and facilitating patient access to the system.

4. The IT infrastructure of eHealth mainly comprises (i) the eHR sharing platform core infrastructure, (ii) the Clinical Management System (“CMS”) Adaptation Modules³ and On-ramp Applications (e.g. CMS On-ramp⁴ and EC Connect⁵) to support different HCPs’ data sharing and integration with eHealth; and (iii) eHealth mobile application (“eHealth App”) launched in 2021 for members of the public to access and manage their eHRs as well as other useful health information.

5. The operation of eHealth is underpinned by the Electronic Health Record Sharing System Ordinance (“eHR Ordinance”) (Cap. 625) which commenced in 2015. The eHR Ordinance serves as the legal basis governing the collection, sharing, use and safekeeping of eHRs shared through eHealth. eHRs as personal data are also subject to the Personal Data (Privacy) Ordinance (Cap. 486) that provides fundamental safeguards for personal data privacy. A set of Code of Practice was issued by the Commissioner for the Electronic Health Record to guide the participants (e.g. HCP’s executive, administrative, technical staff and healthcare professionals (“HCPs”)) on the operation and use of eHealth.

6. The design and operation of the eHealth system has incorporated the following core concepts and principles –

- (a) **Patient-centric care:** eHealth aims to build a longitudinal, comprehensive and individualised eHR profile for each and every participating patient, capturing essential health data that can be readily available and easily accessible by the patient and his/her HCPs to support the delivery of patient-centric care.

² The LegCo approved a capital funding of HK\$422.192 million in March 2017 for the Stage Two Development.

³ These are modules developed to facilitate private hospitals to connect to and interface with eHealth.

⁴ CMS On-ramp is a clinical management software with data sharing capability. It is a turn-key system readily usable by private clinics.

⁵ EC Connect is a turn-key CMS similar to CMS On-ramp, developed for free adoption by CM clinics.

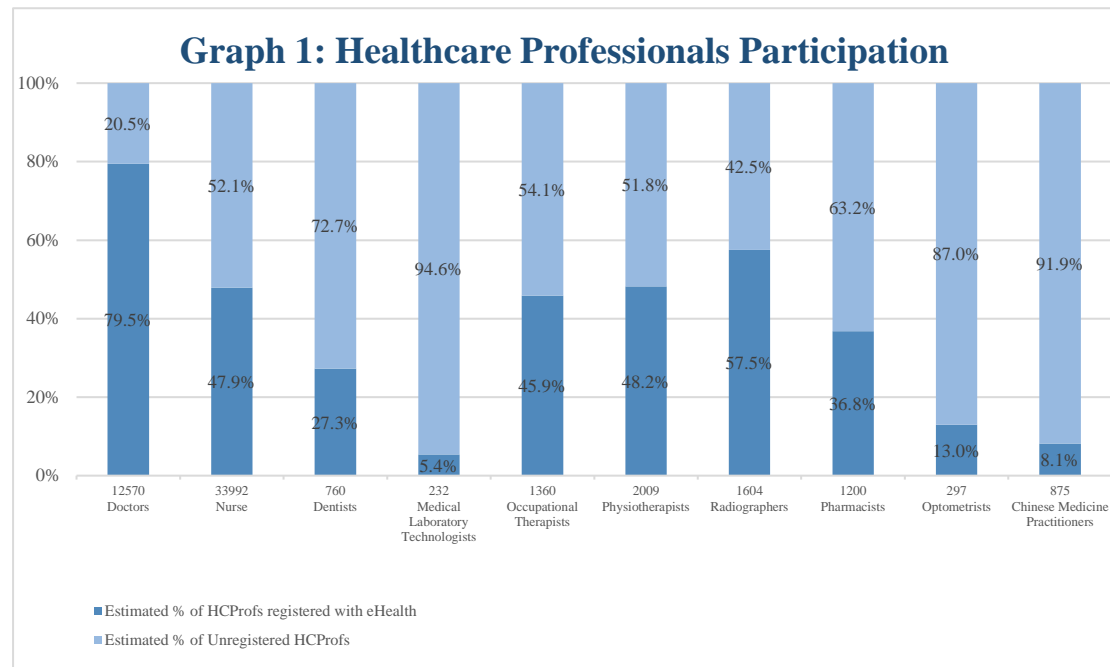
- (b) **Voluntary participation:** a patient can choose to participate on express and informed consent and have her/his eHR shared with private HCPs of her/his choice⁶; and can revoke consent any time. Only HCPs who participate and comply with the requirements for eHR sharing can upload and access eHR data.
- (c) **Pre-defined sharable scope:** only specific components of eHRs falling within the scope of health data pre-defined as sharable for specific healthcare scenarios or professions, will be shared and accessible by authorised HCPs through eHealth on a role-based approach for the purpose of provision of healthcare services.
- (d) **“Patient-under-care” and “need-to-know”:** only HCPs providing healthcare to a patient and with the need to know his/her eHRs for such purpose may access the patient’s eHRs with his/her authorisation and knowledge; and a patient may specify one-year or indefinite access right for individual HCPs.
- (e) **Data privacy and system security:** system protection measures are put in place to ensure data privacy and system security as a paramount priority, e.g. role-based access control (i.e. pre-defined access rights set in accordance with individual HCPs’ roles in providing clinical care), access notification to patients, etc. Privacy Impact Assessments and Security Risk Assessments and Audits are conducted routinely.

Progress Today: Coverage and Use of eHealth

7. Over the years, eHealth has played an increasing role as the nexus supporting the healthcare system and fuelling the vision of patient empowerment. As of end December 2023, all 43 public hospitals, all 330 public clinics, all 13 local private hospitals, and about 2 970 other private healthcare organisations (which include clinics, elderly homes and welfare organisations with healthcare services) have registered as HCPs, covering

⁶ The HA and the Department of Health (“DH”) can provide to and obtain a person’s eHRs once he/she registered on eHealth by giving a “joining consent”. An individual needs to give “sharing consent” to a private HCP (on top of the “joining consent”) before the latter can provide and obtain eHRs to eHealth.

some 5 400 service locations. More than 12 500 doctors (80% of all registered doctors), 760 dentists (27%), 875 Chinese Medicine practitioners (8%), and about 40 700 other professionals under these HCPs are registered as HCProfs with access to eHealth (see **Graph 1** below).



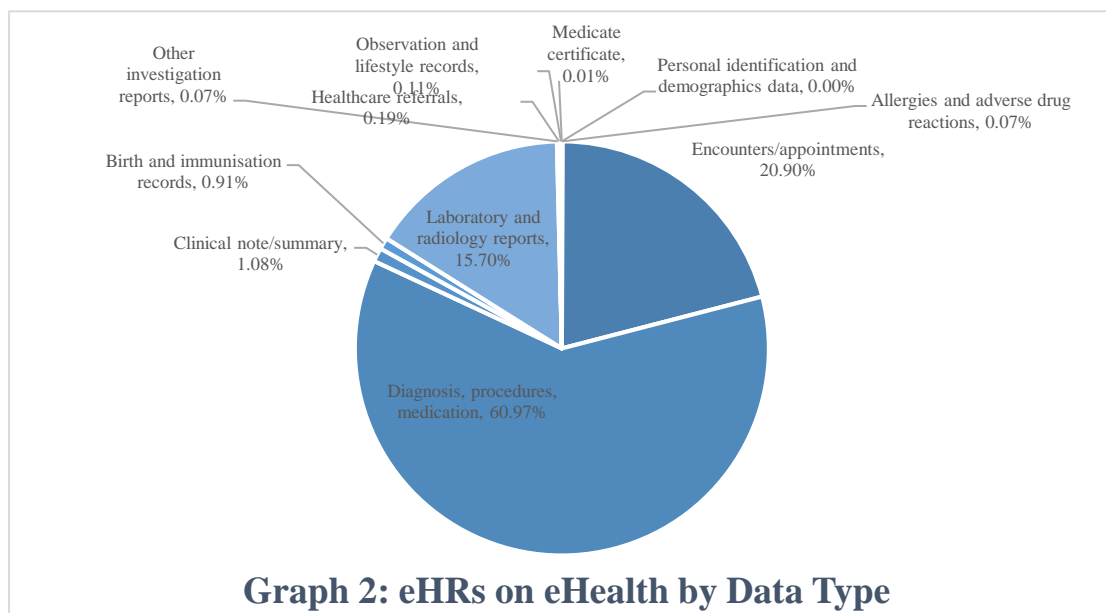
8. On the citizens' side, the number of eHealth registrants soared almost fivefold from 1.2 million in 2019 to about 6 million (viz. 80 percent of the total population) in 2023. This was largely attributed to the use of eHealth for the population-wide COVID-19 Vaccination Programme including vaccine administration and vaccination record, with eHealth registration incorporated into the booking and inoculation workflow. Of all age segments, the registration of the younger groups aged 16 or below is lagging behind, covering only about 30 percent of its total population.

9. In terms of usage, eHealth currently allows the sharing of 11 data types within eHRs -

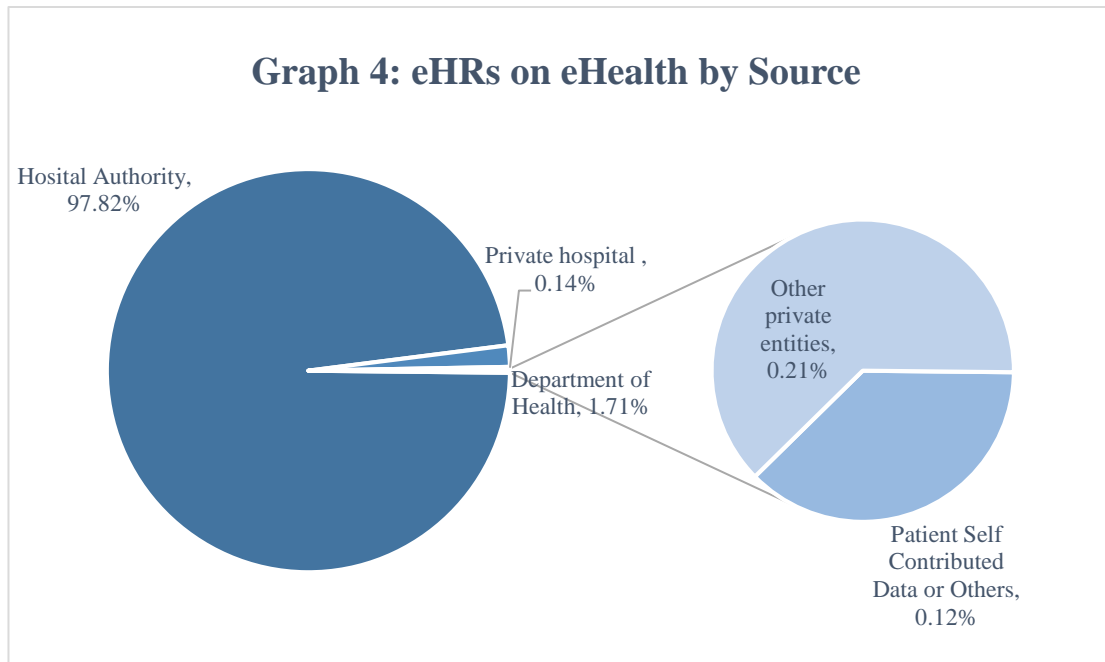
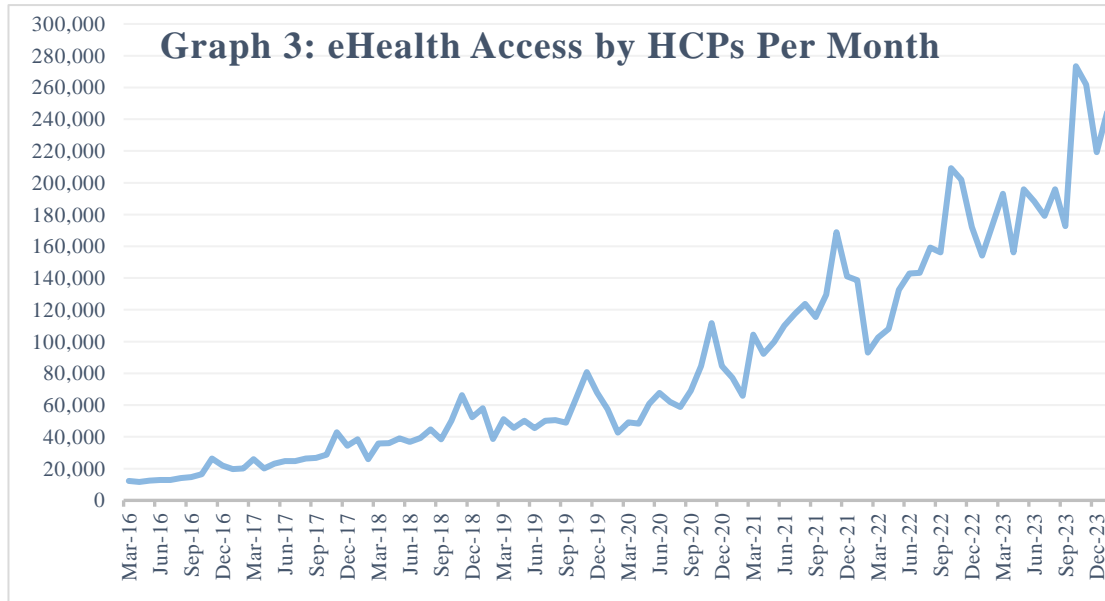
- (1) personal identification and demographics data;
- (2) allergies and adverse drug reactions;
- (3) encounters/appointments;
- (4) diagnosis, procedures and medication;
- (5) clinical note/summary;
- (6) birth and immunisation records;

- (7) laboratory and radiology reports;
- (8) other investigation reports;
- (9) healthcare referrals;
- (10) observation and lifestyle records; and
- (11) medical certificates.

As at end 2023, there are over 3.75 billion eHRs on eHealth. The dominant components of eHRs are “diagnosis, procedures and medication” and “encounters/appointments”, constituting around 60% and 20% respectively (see **Graph 2**).



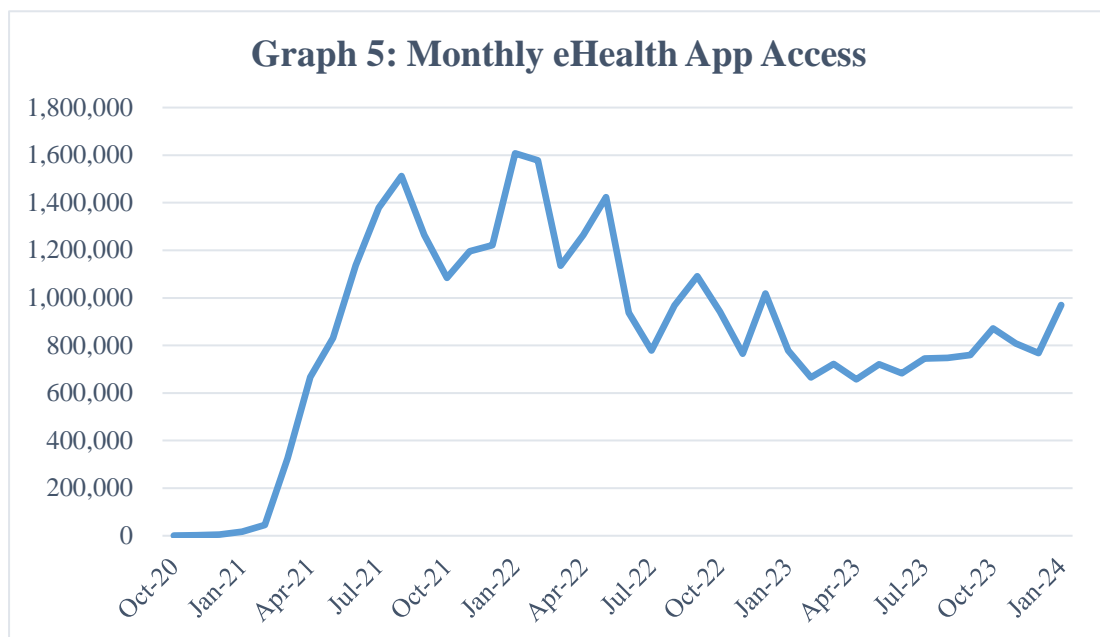
10. The monthly average eHRs viewed by HCPs has continued to rise, reaching over 250 000 views per month in the past three months (see **Graph 3**). In 2023, over 60% of the viewers were private hospitals and private HCPs, indicating that the private sector is active in using eHealth. However, despite the high level of eHealth participation and usage by private HCPs, and system readiness of HCPs especially private hospitals and imaging centres, health data contribution by private HCPs has remained extremely low at less than 1%. Almost all data shared (around 99%) came from public HCPs (i.e. HA and DH) (see **Graph 4**). The limited contribution of private sector to eHRs has become an obstacle to facilitate continuity of care.



11. The mobile application eHealth App available on all major smartphone platforms (Apple, Google and Huawei) is positioned to be a patient-centric one-stop portal for eHealth. It currently enables access to eight data types within eHRs⁷ by patients, and self-input of health data by patients (such as blood pressure, blood sugar and body mass index) that can be stored and monitored by patients themselves and their HCPs. eHealth App also provides features such as vaccination record management,

⁷ They include personal identification and demographic data, allergies and adverse drug reactions, encounters/appointments, immunization records, medication, investigations, observation and lifestyle records and medical certificate.

doctors search, Elderly Health Care Voucher (“EHCV”) balance enquiry etc.. Since its launch in 2021, eHealth App has recorded over 3.2 million downloads, ranked third among the most downloaded government mobile app after My Observatory and iAM Smart. The login frequency reached up to 1.6 million per month during the COVID-19 epidemic in 2022, and stabilised at around 800 000 per month post-pandemic (see **Graph 5**). As of end 2023, over 207 000 patients have self-contributed health data. The eHealth App presents significant opportunities to complement personalised healthcare especially primary healthcare.



New Positioning of eHealth+

12. Building on the current strengths of eHealth, the 2023 Policy Address announced the Government’s initiative to roll out a five-year plan of “eHealth+”, to transform eHealth from a health record sharing system into a comprehensive healthcare information infrastructure that integrates multiple functions of data sharing, service support and care journey management. eHealth+ aims to better serve citizens in obtaining optimal healthcare services and support Government’s overall healthcare agenda and policy priorities, in particular the following four development trends.

- (i) ***Smart healthcare:*** with the rapid progress in technological advancement and process digitalisation, healthcare is evolving from the traditional in-person, episode-based, institution-centered care model to a smart, dynamic, multi-disciplinary and patient-centric care model. eHealth+ can offer timely health information and useful digital tools to support the provision of “whole person” care. Aside from supporting clinical decisions through the sharing of medical records, it can also facilitate clinical processes, shared care across different practitioners, referral or transfer between healthcare processes, and promote social-medical collaborations as well as patient empowerment.
- (ii) ***Primary healthcare:*** the Government released the Primary Healthcare (“PHC”) Blueprint in December 2022 to shift the focus of the healthcare system from its current treatment-oriented, hospital-based public system to a prevention-oriented, community-based, family-centric PHC system that emphasises early detection and intervention, to improve the overall health of the population and enhance the sustainability of the healthcare system. eHealth+ can serve as an integrated digital platform supporting the PHC initiatives, in particular in areas of data sharing, process management, service delivery and monitoring of health outcomes.
- (iii) ***Cross boundary healthcare:*** with ever-tighter integration of Hong Kong with the Mainland economically and socially, Hong Kong citizens making use of medical services on the Mainland especially those in the Greater Bay Area (“GBA”) is becoming more commonplace. There are also occasions where people may need to carry their medical records for seeking medical care outside Hong Kong. eHealth+ will enhance the eHR portability to facilitate cross boundary uses in a controlled and secure manner with due regard to policies, laws and regulations in Hong Kong and related jurisdictions.
- (iv) ***Health innovation:*** data-driven health and medical innovation is emerging as a game-changer that can transform the medical and healthcare sector and have significant impact for the sustainability of the healthcare system as a whole. By leveraging innovation

and technology through health data mining and analytics, eHealth+ has the potential to support clinical researches and trials, contributing to the development of Hong Kong as a leading medical innovation hub. Through surveillance of health data under eHealth+, the Government could also gain deeper insights to support the formulation of health policies in a more informed, precise and evidence-based manner and enhance effectiveness of resource allocation.

eHealth+ Five-Year Plan

13. We will take forward eHealth+ development in accordance with the patient-centric principle and four strategic directions: **One Health Record, One Care Journey, One Digital Front Door to Empowering Tool and One Health Data Repository**. Based on the strategic goals, we plan to carry out a series of measures and enhancements to the eHealth system over the next five years (i.e. 2024/25 to 2028/29), ranging from the aspects of data and standards to process and hardware.

14. To provide better healthcare for our citizens, we aspire to make eHealth+ an enabler of care coordination, cross-sector collaboration, active health management and health surveillance, bringing about a **seamless and personalised care journey for each individual**. We will launch the following core functions to support every stage or touchpoint of the care process, from building awareness and scheduling appointment to receiving treatment, and to follow-ups as well as continued care and monitoring –

- (1) **eBooking/eReferral** (e+預約/e+轉介);
- (2) **eIdentification/eAuthentication** (e+登錄/e+認證);
- (3) **eImaging/eLaboratory Report** (e+影像/e+化驗報告);
- (4) **eMedication** (e+藥物);
- (5) **eMedical Certificate** (e+證書);
- (6) **Portable eHealth Record** (e+便攜紀錄);
- (7) **eHealth Manager** (e+健康小助手);
- (8) **eHealth Tracker** (e+健康監察); and
- (9) **eHealth Life** (e+生活).

An overview of the eHealth+ five-year plan is at **Annex A**. A graphic illustration of the nine core functions throughout the care pathway of an individual is at **Annex B**. Details are set out in the ensuing paragraphs.

One Health Record

15. Our goal is to consolidate the longitudinal eHRs of an individual spread across multitude of healthcare processes into his/her personalised eHealth account. A comprehensive eHR profile enables patients and HCPs to make informed decisions and to respond to the health needs of patients more efficiently, thus improving clinical outcome and saving costs. However, as shown in paragraphs 7 to 11 above, the scope, breadth and depth of eHRs captured by the eHealth system today, in particular in the following areas, still has significant room for improvements –

- (i) **Comprehensiveness of medical data:** currently, public HCPs have been more proactive and progressive in contributing data to eHRs on eHealth and these took up the lion share of existing eHRs being shared and viewed. There is a significant gap in data contribution from eHRs held by private HCPs, as well as those from healthcare professions such as specialists, dentists, CM and allied health practitioners. eHealth+ will extend the reach of data contributions to capture these HCPs into individuals' eHRs.
- (ii) **Health status/behaviour data:** advances in digital technologies and data analytics have created unparalleled opportunities to assess and modify health behaviours, as well as alerting individuals for early preventive measures. In addition to self-monitoring health data (such as body weight, blood pressure, blood sugar, etc.), eHealth+ will also be extended to cover health status and behaviour data (e.g. eating, smoking and drinking habits, mental state questionnaires, sleeping pattern, physical activities), through self-input and devices.
- (iii) **Health service/programme data:** eHealth now serves as an administrative and record-keeping system for various government-subsidized or Public-Private Partnership (“PPP”) programmes. The eHealth+ platform will integrate process and transaction records of all subsidised health programmes (e.g. vaccination, chronic

disease co-care) and all public or subsidised healthcare services (e.g. maternal and child health, EHCV), so as to enable patients and their carers to gain better overview and control of their healthcare pathways.

16. To fully unleash the potential of eHRs, we will take forward the following initiatives to (i) **expand and deepen the existing pool of 11 data domains** by enhancing the level of participation of citizens and private HCPs as well as their respective data contribution to eHealth; and (ii) **expand the data sharing scope** to cover more types of eHRs to provide a broader view of the health and wellness of an individual.

(a) Promoting eHealth Participation by Citizens

17. As a first step, we will work to promote and facilitate eHealth participation to bring every citizen on board. Over the years, we have continuously expanded the channels/outlets for eHealth registration. We have also integrated eHealth registration into some health services provided by DH (e.g. Maternal and Child Health Centres, and Vaccination Subsidy Scheme); and required mandatory eHealth registration for users of PPP programmes, e.g. Chronic Disease Co-Care Pilot Scheme. We will progressively extend this registration requirement to all government subsidised programmes, and to all public healthcare services provided by DH and, at later stage, HA.

18. We observe that of the 6 million citizens registered with eHealth (i.e. those provided “joining consent”), over 70% have not given any “sharing consent” to any private HCP, partly due to the complicated two-step consent model⁸ which some citizens may not fully understand. To facilitate citizens in unlocking the flow of eHRs from private sector to their personalised eHR account, we will revise the eHR Ordinance to streamline the consent mechanism (see paragraphs 44 to 45 below).

(b) Reinforcing Data Contribution by Private Sector

19. To enhance the continuity of multi-disciplinary care especially in

⁸ Patient needs to give a “joining consent” and a “sharing consent” to an individual private HCP before the latter can upload data to his/her eHealth account.

primary healthcare and in bi-directional referrals between primary and secondary care, we need to significantly improve eHR upload by the private sector to eHealth+ in ensuring the comprehensiveness of patients' eHR profile. As most private HCPs are already using either commercial or in-house CMS solution that captures patients' data electronically, eHealth+ shall facilitate the connectivity and uploading or transferring of data from these systems.

20. To reinforce technical readiness, we will adopt a three-pronged strategy which includes (i) lowering the technical thresholds and providing technical assistance such as adaptor module and 24x7 test-site to establish eHealth connectivity; (ii) partnering with CMS solution vendors and/or medical groups⁹ to co-fund enhancements of their local systems to achieve seamless eHR sharing throughout clinical documentation flow; and (iii) streamlining the procedures for patients to provide uploading consent to individual HCPs.

21. In addition to technical capability, there is a need to incentivise if not compel the uploading of health data by private HCPs. Currently, private HCPs are already required to upload prescribed medical information onto eHealth under PPP programmes. We will gradually expand the requirement of data contribution by private HCPs to all Government programmes. To enhance transparency, we will launch an eHealth+ certification scheme to enable patients to easily identify if a HCP has the capability to upload medical records, and to what extent, into their personalised eHealth account. Despite the incentives and assistance given, to cater for the scenario that the uptake of private data upload still falls short of patient's expectation, we plan to empower the Secretary for Health to require HCPs to input essential health data into the personalised eHealth account of patients (see paragraphs 44-45 below).

⁹ In 2023, we rolled out the eHealth Adoption Sponsorship Pilot Scheme by partnering with system solution vendors / medical groups to co-fund system enhancements for seamless upload to eHealth. We expect that around 500 private medical practitioners would have connected and shared eHRs with eHealth by Q1 2024. We will regularise, tailor-make and expand the Scheme to other sectors such as Chinese Medicine, medical laboratories and dental care providers to boost data connectivity.

(c) *eImaging/eLaboratory Reports*

22. A comprehensive and personalised eHR profile helps minimising redundant tests, procedures and interventions, avoiding delay in treatment and bringing significant cost savings for patients. Through eHealth+, we will roll out electronic uploading of and access to reports on diagnostic testing including eImaging and eLaboratory Reports, to allow citizens and their authorised HCPs to have digital and life-long access to diagnostic results. This will enable the comparison of trends, reduce costs of redundant tests and remove the hassles of keeping paper and film records. We will also keep in view the trend of healthcare and expand the scope of diagnostic testing to be covered under such eReports.

(d) *eMedical Certificate*

23. Electronic medical certificate reduces the risk of losing its paper counterpart. It also gives patients a better experience and support online services. We will roll out a function for public and private doctors to issue eMedical Certificate with authentication on eHealth+, allowing individuals to keep and access their electronic medical certificates, in serving an array of day-to-day purposes, including absence at work and school, school enrolment, job application and travel.

One Care Journey

24. The current healthcare processes are being managed across different systems of individual HCPs without adequate **interoperability, process handshake and data exchange** between them, which creates significant challenges for quality care coordination for citizens. To reshape the way healthcare is now delivered, “One Care Journey” calls for an effective IT infrastructure that acts as the vehicle of a coordinated healthcare journey for an individual to traverse across different levels and tiers of the healthcare system, participate in different health programmes, and provide access and control of the journey for the person.

25. “One Care Journey” is particularly important for driving district-based family-centric community health system as recommended in the PHC Blueprint. It involves multi-disciplinary healthcare

professionals in both public and private sectors; and entails **protocol-driven and evidenced-based care coordination both horizontally (i.e. public-private and medical-social collaboration) and vertically (i.e. uploading and downloading to/from secondary and tertiary care services)**. eHealth+ will better support the roles of PHC practitioners in helping patients navigate each level of the healthcare system and serving as a gate-keeper to the public secondary healthcare.

26. Technically, we will build an one-stop operating platform called “Strategic Health Service Operation Platform” under eHealth+ to support and standardise the workflow and documentation, both clinically and administratively¹⁰, of all subsidised health programmes and related provision of private and public health services. In particular, we will make available the following key functions.

(a) eBooking

27. eHealth+ will allow patients to schedule appointments with private and public HCPs in a one-stop and round-the-clock manner. Patients can book or reschedule appointments, be alerted of conflicting schedules, be directed to the right provider, location, and appointment type and receive reminders. For HCPs, eBooking can help frontline staff to make triage scheduling based on factors such as provider availability, specialisation, appointment complexity and geography and age, etc.. in an automated manner, thus optimising the deployment of resources, reducing lead time and ensuring that urgent cases are attended to in a timely manner.

(b) Case Management and eReferral

28. Family doctors, as the case managers of patients, play a central role in the care planning and management process. The recording and sharing of critical clinical information and decision of when to refer a patient to another health professional are of utmost importance. eHealth+

¹⁰ The platform will cover multiple layers of functions, including enrolment, attendance registration, clinical documentation, medication supply, prescription and dispensing management, investigation and laboratory tests ordering, results recording, referrals, reminders and alert functions, subsidy reimbursement and participants’ co-payment management. It will also provide value-added functions to enable new services such as patients self-access to health records, telehealth, medical certificates, and outcome monitoring & analytics, etc..This will be an open platform with capability to interface with operation systems of service providers in the market.

will enable the networking of HCPs under Primary Care Directory / Registry and build a family doctor-based online network with nursing services, allied health services and community pharmacy services. The network will facilitate multidisciplinary care to a patient paired with professionals at three levels: information sharing, clinical documentation and referral to achieve optimal outcomes¹¹.

29. eHealth+ will offer a real-time and secured eReferral system linking family doctors and allied health professionals, social service providers and specialists. All electronic referrals will be channelled for systematic review (based on clinical and non-clinical requirements); and create a mechanism for iterative communication by the care teams (e.g. in-application messaging, status tracking and point-to-point documentation sharing). To enable patients' timely and appropriate access to specialty care, the eReferral forms can also support the incorporation of evidence-based clinical guidelines to ensure the necessary investigation and provision of related information at the primary healthcare level is complete.

30. eHealth+ will also improve patients' access to own case information, compliance with treatment, and communication with HCPs as they navigate through their care journeys. For instance, patients can retrieve and forward their eReferrals anytime. They can choose to receive electronic notifications on referral status to track the referral from start to completion. They can also receive appointment instructions / reminders in an electronic manner (i.e. do not eat two hours prior to appointment).

(c) eMedication

31. Medication management is a critical part of the therapeutic process for patients, particularly for the elderly. eMedication aims to facilitate the integration and provision of drug-related healthcare services, starting with ePrescription by different HCPs through data connectivity with the eHealth+ platform. For patients, ePrescription improves safety and brings convenience as their prescription and dispensary records will be captured, compared and offset against system records automatically. In a broader sense, eMedication holds the potential to facilitate an array of new

¹¹ For example, for chronic disease management, a protocol-driven framework could be incorporated programme by programme. This framework shall allow building data relationship for a standard journey from screening, consultation, laboratory data uploading and related treatment.

services for patients at the community such as drug packaging, pharmacy refills, medication reconciliation / management services, medication reminders, medication adherence monitoring, telehealth and drug delivery services, etc..

(d) *Portable eHealth Record*

32. Enabling patients to securely access and share their health data for healthcare purposes outside Hong Kong is equally important in ensuring patient safety and continuity of care. During the COVID-19 epidemic, we have made special arrangements to enable Hong Kong people participating in the “Pilot Scheme for Supporting Patients of the HA in the GBA” to receive subsidised consultations at the University of Hong Kong-Shenzhen Hospital (“HKUSZH”) and for that purpose they may also authorise HKUSZH to receive and use their eHRs in eHealth. Building on the experience, we will expand the eHealth arrangements to support Hong Kong citizens participating in other cross boundary collaborations launched or recognised by the Government, e.g. EHCV GBA Pilot Scheme. We will also introduce a new function to allow users to retrieve their own eHRs and contribute health records obtained outside the local medical system through eHealth App, and will revise the eHR Ordinance to offer an appropriate legislative framework to promote eHR portability in a secure manner (see paragraphs 44-45 below).

One Digital Front-door to Empowering Tool

33. Under “One Digital Front-door”, our goal is to leverage on the eHealth App and its reach to the wider community service network to bolster the Government’s efforts in building a PHC-centric system. **eHealth App will become the single tool for citizens to (i) access to care at all points, (ii) manage their health service processes and take control of their health information, (iii) monitor their health condition, and (iv) take active steps to prevent diseases and build a healthier lifestyle.**

(a) *eIdentification/eAuthentication*

34. Patient identification is a safeguard designed to minimise medical errors and ensure patient safety. Outdated manual process such as oral

verification and transcription is a common cause of misidentification. With their personal eHealth QR codes underpinned by trusted Person Master Index (PMI)¹² on eHealth App, citizens would enjoy quick and contactless identification and authentication at every touchpoint of the care pathway, both online and offline, ranging from booking and referral, checking-in, admission for service, telehealth, prescription and dispensary, to seeking access of their own medical records, etc..

(b) *eHealth Manager*

35. eHealth App will be the personal health assistant making available a number of cross-cutting functionalities throughout the care journey, including eBooking, eReferral and eMedication (see paragraphs 27-32), for citizens to manage all aspects of their health service process. With further expansion of eHR access on eHealth App, citizens will take better control of their own eHRs, make more informed medical choices, and share the information with non-local HCPs to improve their care process.

(c) *eHealth Tracker*

36. A growing number of the population is using mobile health applications and self-monitoring technologies to record and track health metrics such as body movements, heart rate, sleep quality, or even stress levels. We will make plan for an eHealth+ inclusion scheme to certify and embrace health-related Internet of Things (“IoT”) into the overall eHealth+ ecosystem, so as to support eHealth Tracker function for allowing citizens to keep track of their health status/condition. It will be able to identify anomalies by monitoring specific health parameters. The data collected could also support the decision-making process of HCPs.

37. Meanwhile, we will also continue to expand the scope of eHRs that can be inputted by an individual via eHealth App for storage and monitoring by themselves and HCPs. As complementary measures, we

¹² The PMI on eHealth is a set of identity and demographic data (i.e. identity document number, name, gender and date of birth) centrally maintained by the eHealth for unique identification of patients. Currently, as far as public healthcare services are concerned, patient identification is conducted through retrieval of Card Face Data on the Hong Kong Identity Card of the person concerned in healthcare outlets under eHealth and DH. This arrangement will be expanded to outlets under HA.

will also revise the eHR Ordinance to lay out in clear terms individuals' rights and responsibilities to contribute data to eHealth (see paragraph 44 to 45 below).

(d) eHealth Life

38. We will turn eHealth App into the single portal to encourage citizens to adopt a healthier lifestyle. This year, we will, under Government's public health promotion programme, launch a health challenge platform on eHealth App to encourage citizens to be more active and to participate in fun initiatives with family and friends. Through interface with fitness tracking applications, users will be able to log their exercise level to accumulate health points. Our first target group will be students, who are commonly facing a number of health challenges like obesity, social and mental health issues. General and personalised health advice, generated according to the personal profile and risk factors of an individual (such as family history, age and sex) can also be made available via the platform.

One Health Data Repository

39. Under "One Health Data Repository", eHealth+ will establish a centralised, dynamic and secure databank with population-wide health dataset of Hong Kong people, augmented by data analytic tools and a robust data privacy, security and access control mechanism under the prevailing legal framework. It mainly serves to support (i) **medical researches, trials and innovations** by academia, research institutions, pharmaceutical and biotechnology industries; and (ii) **healthcare policy formulation** by the Government.

40. On medical researches and trials, the comprehensive dataset on eHealth+ platform serves as valuable resources to enable the identification of significant patterns, the generation of new hypotheses, and the experimentation with novel approaches. The platform will become a research-specific interface that permits the anonymous synchronisation of research subject's information, streamlining the research process and facilitating regulated access for researchers. It can also considerably improve the procedures for assessing study feasibility and recruiting

patients, thereby boosting the efficiency and competitive edge of clinical research in Hong Kong.

41. In view of the constant threats of novel infectious diseases and chronic non-communicable diseases, eHealth+ repository will provide multi-dimensioned and timely data to detect emerging diseases or issues of public health significance. It will also facilitate evidence-based service planning and evaluation, thereby supporting more premise and effective healthcare policy formulation and resources allocations by the Government.

42. To create an enabling environment for the aforesaid goals, **at technical level**, we will work to establish an analytics platform with appropriate tools (e.g. artificial intelligence and machine learning). We will also develop an appropriate **governance framework** to ensure safe and appropriate use of data with patients' consent, and sufficient safeguards to data security and personal data privacy¹³.

Core Digital Platform Infrastructure

43. The current core infrastructure of eHealth was designed over a decade ago mainly to facilitate the exchange of eHRs among HCPs and for read-only access. The infrastructure will be transformed into a single digital platform that streamlines, standardises, and integrates diverse functionalities across multiple sectors to improve operational efficacy and reliability. To address the increasing cyber-security and privacy concerns, we will also adopt more sophisticated multi-layered security protection.

Proposed Amendments to eHR Ordinance (Cap. 625)

44. The eHR Ordinance (Cap. 625) was designed to support the operation of eHealth as a record sharing platform back in 2015. A summary of the existing legal framework is at **Annex C**. eHealth+ development entails a paradigm shift in the roles and functions of the eHealth platform. It aims to capture a much wider scope of data type and volume (e.g. healthcare service/programme data), and involves higher complexity of functions (e.g. programme management, PHC support and

¹³ While eHR Ordinance (Cap. 625) has specified the use of eHR for research and statistics purposes, the relevant provisions are yet to be in operation. We will establish a governing mechanism for research and statistics.

cross boundary uses), as well as more proactive participation of patients, HCPs and the Government. Record comprehensiveness, completeness, accessibility and portability in eHealth are of paramount importance. To support the development, we need to refine the data collection, sharing and use mechanism and legal framework for protection of data privacy and system security prescribed under the eHR Ordinance (Cap. 625).

45. Key proposals being considered include (i) streamlining the consent process for private HCPs to facilitate the uploading of eHRs; (ii) requiring HCPs providing services to patients to deposit essential health data to the patients' eHealth accounts; (iii) codifying patient's uses and contribution of eHRs; and (iv) facilitating greater portability and use of eHRs. More details are set out at **Annex D**. We plan to introduce the amendments in end 2024 / early 2025.

Implementation Plan

46. Similar to previous two stages of development, we will continue to adopt a building block and flexible approach¹⁴ to allow agile delivery of quality projects. The major project components and implementation timeframe are at **Annex E**. In view of the complexity of eHealth+ and the large amount of patient data involved, we will continue to engage HA to perform the critical development tasks. Meanwhile, industry collaborations and smart-sourcing will allow us to leverage on the knowledge of industry partners, create synergies, diversify risks and promote efficiency. We plan to pilot collaboration projects in areas that involve access to less sensitive data, such as medication data, as well as eHealth App's connectivity with IoT, etc..

¹⁴ We managed to break down eHealth development into smaller components, develop modules under each component with pilots as necessary, collect user feedback in developing the modules and gradually extend proven modules with add-on scope and functionalities, and then bring together modules to build the components that support the entire system.

Financial Implications

Non-recurrent Expenditure

47. eHealth+ development will entail ground breaking changes to the existing infrastructure in order to strengthen the technical capacity and capability in meeting the many new and revolutionary business needs. For example, eHealth App will turn into a single-entry point for personal health management, government-subsidised programmes, and access to cross-sectoral healthcare services. The eHealth+ platform will support all PHC programmes and other integrated care services. We expect a significant increase in the data volume, at an annual growth rate of 25% in data and utilisation or access by HCP and patients. The system development will be more complicated in terms of functionality, security protection and reliability. These will result in a higher development costs compared to the previous two stages of development. The estimated capital cost for eHealth+ over the coming five years is **\$1,395.8 million**. The estimated cash flow and breakdown by key cost items is at **Annex F**.

Recurrent Expenditure

48. The operation of a more sophisticated eHealth+ system with new features and functionalities will likely incur additional recurrent expenditure such as staff costs, hardware and software maintenance, etc.. We will work out the estimates nearer the time having regard to the number of new features and functionalities developed and the pace of project development, taking into account the prevailing technology advancement and market changes, as well as adhering to the value for money principle.

Stakeholder Engagement

49. In mapping out the eHealth+ proposal, we have taken into account existing local and overseas experiences as well as views of stakeholders. We also consulted the Steering Committee on Electronic Health Record Sharing and its working groups¹⁵ in November and December 2023.

¹⁵ Members comprising doctors, other healthcare professionals, health informatics experts, IT industry representatives, data scientists, patient group representatives and the Office of the Privacy Commissioner for Personal Data.

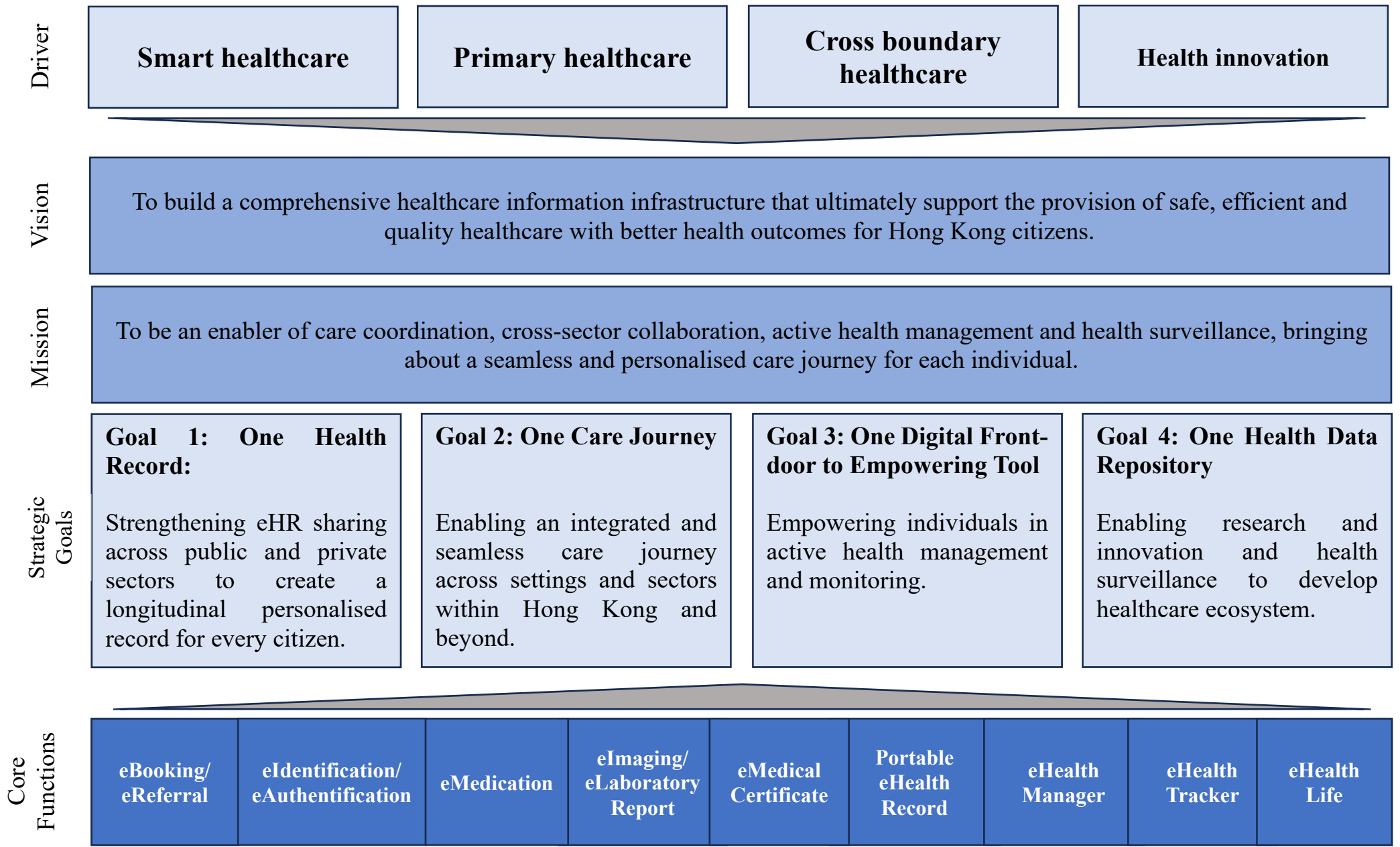
Members generally supported the direction and plan for eHealth+ development. We will continue to engage stakeholders throughout the development and legislative process. We will also commission a series of publicity measures to promote eHealth+ to members of the public.

Advice Sought

50. Members are invited to provide comments on the proposals for eHealth+. We plan to seek approval from the Financial Committee for the creation of a new commitment item for developing eHealth+ in the first half of 2024 and commence the project in mid-2024, and to take forward the proposed amendments to the eHR Ordinance.

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Overview of eHealth + Development



Core eHealth+ Functions of eHealth+ to Support a Care Journey

Identification and Service Matching



Receiving Care



After Care

1

Enrollment
Referral
eBooking
eReferral

2

Attendance
eIdentification
eAuthentication

3

Diagnosis
eImaging
eLaboratory Report

4

Treatment
eMedication

5

Documentation
eMedical Certificate

6

(If applicable)
Follow-up with non-local
healthcare providers
Portable eHealth Record

7

Health process
management
eHealth Manager

8

Analytics &
Monitoring
eHealth Tracker

9

Health activities
eHealth Life

**Summary of the Electronic Health Record
Sharing System Ordinance (Cap. 625)**

General

The Electronic Health Record Sharing System Ordinance (Cap. 625) came into operation on 2 December 2015¹. It aims to provide for the establishment of the Electronic Health Record Sharing System (“the System”), sharing and using of data and information contained in the System, the protection of the System, and other incidental and connected matters. The general provisions are summarised as follows –

Definitions

2. The Ordinance defines all the key terms including “healthcare”, “healthcare provider”, “healthcare recipient”, “prescribed healthcare provider” (“prescribed HCP”), and “electronic health record”. Since both patients and healthy individuals may participate in the System, they will be referred to as “registered healthcare recipients” (“registered HCRs”) rather than “patients”. HCPs participating in the System are referred to as “prescribed HCPs”.

3. An HCR’s electronic health record (“eHR”) would comprise: (i) the Healthcare Recipient Index (“HRI”) (i.e. the personal particulars of the HCR that identify the HCR, such as name, identity document number and address), (ii) the health data or information of the HCR, and (iii) other data related to the functioning of the System.

4. “Data sharing” refers to the provision and obtaining of the HRI and the health data of a registered HCR through the System.

¹ Except for provisions related to sharing restrictions, i.e. Section 3(3)(e), Section 3(5)(g), Section 3(5)(h), Division 4 of Part 2; and those related to use of eHealth data for research and statistics purposes, i.e. Section 29, Divisions 2 and 3 of Part 3, Section 46, Section 49(1)(g), Division 2 of Part 6, and Section 58(c). The provisions were planned to be put into operation, subject to further study.

Establishment of the System

5. The then Secretary for Food and Health (now Secretary for Health (“SH”)) could appoint a public officer as the Commissioner for the Electronic Health Record (“eHRC”), who would be responsible for the management, operation and further development of the System.

6. The eHRC will also be authorised to publish Code of Practice (“CoP”) and specify forms. The eHRC may require HCPs to produce records or documents under specified circumstances (e.g. contravention of the Ordinance or the COP) for investigation purpose.

Registration of HCR

“Joining Consent” and “Sharing Consent”

7. Any individual for whom healthcare has been performed, is performed or is likely to be performed, who holds an identity card as defined in the Registration Persons Ordinance (Cap. 177) or any valid identification document as specified by the eHRC, may apply to be registered under the System.

8. Application for registration is based on express and informed consent. This is called the “joining consent”. After giving the “joining consent” to participate in the System, an HCR may give “sharing consent” to any individual prescribed HCP. The requirement for a prescribed HCP to obtain specific “sharing consent” from an HCR will not be applicable to the Hospital Authority (“HA”) and the Department of Health (“DH”). Consent for HA and DH to view and upload the eHR of any registered HCR is made part and parcel of the HCR’s “joining consent”.

Substitute Decision Maker (“SDM”)

9. Some people may not have the capacity to understand eHR sharing or provide an express consent (e.g. a minor or a person who is mentally incapacitated). The SDM arrangement has therefore been introduced to facilitate their registration.

Withdrawal / Suspension / Cancellation

10. Since participation in eHR sharing is on a voluntary basis, a registered HCR or his/her SDM may withdraw his/her joining or sharing consent at any time. Under the circumstances specified in the Ordinance (e.g. where the registration of an HCR may impair the security or compromise the integrity of the System), the eHRC may suspend or cancel the concerned registration.

Registration of HCP

11. Participation of private HCPs in eHR sharing is also on voluntary basis. An HCP that provides healthcare at one or more than one service locations may apply to the eHRC to be registered as an HCP for the System for all or just a single service location(s).

12. HCPs providing healthcare may include entities operating hospitals, medical clinics, dental companies, residential care homes, or specified entities that engage members of the 13 statutorily registered healthcare professionals to deliver healthcare. The list of the statutorily registered healthcare professionals is set out in the Schedule of the Ordinance. SH may amend the Schedule by notice in the Gazette.

13. A registered HCP may withdraw from the System at any time. On the other hand, the eHRC would also be empowered to suspend or cancel the registration of an HCP under specified circumstances (e.g. contravention of provision of the COP or the HCP no longer provides healthcare at the service location).

14. Some Government departments may be involved in healthcare and the eHRC may register these departments as HCPs for the System. They would also need to comply with the COP for HCPs in using the System.

Data Uses

15. The authorized uses of eHR data or information include (a) the use for improving the efficiency, quality, continuity or integration of healthcare provided, or to be provided, to the registered HCRs; (b) the use

for (i) researches and statistics related to public health or public safety and (ii) prevention or control of diseases and enhancement of disease surveillance; and (c) other uses currently allowed under the law.

16. In respect of applications for use of HCR non-identifiable data or information, eHRC can consider and approve such requests. As for the more sensitive HCR identifiable data or information, SH will be empowered to approve or refuse relevant applications. A Research Board will be set up to assess the applications and make recommendations to SH.²

Interaction with Personal Data (Privacy) Ordinance (PDPO)(Cap. 486)

17. eHR data would include “personal data” within the meaning of the PDPO. The key features of interaction of the Ordinance with the PDPO include that the performance of functions or exercising of power of the Privacy Commissioner for Personal Data in relation to the personal data and information in the System will not be affected, except that specified under Cap. 625.

Offences

18. To ensure security and integrity of the System, a number of criminal offences specific to operation of eHR sharing are introduced, e.g. knowingly damaging an eHR; knowingly impairing the operation of the System; causing access to, modification of or impairment to an eHR, with the intent to commit an offence, deceive, make dishonest gain or cause loss to another, etc..

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² The provisions related to use of eHRs for researches and statistics related to public health or public safety are not yet put into operation.

**Proposed Amendments to
Electronic Health Record Sharing System (Cap. 625)**

Ensuring completeness of health records and supporting whole healthcare journey

Record sharing on eHealth is based on an individuals' express and informed consent¹. Currently, public healthcare providers ("HCPs"), i.e. the Hospital Authority ("HA") and the Department of Health ("DH") can provide to and obtain a person's electronic health records ("eHRs") once he/she registered on eHealth by giving a "joining consent". An individual however needs to give "sharing consent" to a private HCP (on top of the "joining consent") before the latter can provide and obtain health records to his/her eHealth account. Remarkably, of the almost 6 million registered users, over 70% have not given any "sharing consent" to any private HCP. This implies that a majority of the users have yet to unlock the flow of eHRs from private to public sector or among private HCPs, and are unable to make full utilisation of eHealth.

2. Given that the two-step consent mechanism for private HCPs has created an unnecessary layer in the eHR deposit process, we plan to align the consent process with that of public HCPs. This essentially means that an individual, once given his "joining consent" to participate in eHealth, will enable his private HCPs, to upload his health records into his eHealth account. Meanwhile, the viewing of eHRs on eHealth by any private HCP will continue to be subject to the "sharing consent" of the individual. As with the current arrangement, healthcare professionals ("HCProfs") could only access eHRs on a "need-to-know" basis to obtain the additional information necessary to provide healthcare services to the individual.

3. Respecting patients' right to access, manage and transfer their own health records, we will make good use of eHealth by facilitating patients to collect eHRs kept by private HCPs, currently in a decentralised

¹ By way of comparison, some countries like Australia, Estonia and Singapore adopt an opt-out model, which automatically includes all nationals or residents in the eHR systems unless they have opted out.

manner at points-of-care, for deposit into their personalised eHealth accounts such that individuals and their authorised third parties can view and use the eHRs to support their healthcare needs.

4. Indeed, Governments and health institutions worldwide are seeking to adopt a standardised minimum health dataset, in order to enable free, secure and trusted flow of essential data sets for patient's use². To cater for the situation that progress of health record deposit by private sector is unable to meet with patients' expectation, we propose to empower the Secretary for Health ("SH"), to require, by notice in the gazette, HCPs to deposit prescribed type(s) of data to eHealth with individuals' express consent. In drawing up the types of data, we will make reference to the practices in other jurisdictions, operational needs of HCPs and healthcare needs of patients, in consultation with the relevant stakeholders. Exemptions under special and reasonable circumstances (e.g. temporary technological failure) will also be allowed.

5. As a matter of principle, we will accord priority to health records that are essential in supporting diagnosis, preventing medical errors, avoiding contradictory or duplicated medical treatments. Examples are allergies and adverse drug reactions, medication, laboratory records and radiology reports/images, and immunisation records.

6. We will also consider requiring the use of cross-cutting medical documentations in electronic format that are essential to improve quality of care and patient safety. For example, ePrescription improves prescription accuracy, reduce costs and enable secure, real-time, bi-directional connectivity among clinicians, pharmacies and related stakeholders. It also enhances the role of community pharmacies in support of primary healthcare ("PHC") service delivery and embracing new service models (such as medication reconciliation and advisory). Another example is eReferral, which ensures valid, complete and effective referrals and facilitates the effective discharge of case management and gate-keeping role of PHC service providers; as well as coordinates

² For example, the eHealth Digital Service Infrastructure is an infrastructure provided by the European Commission to facilitate the cross-border exchange of health data including patient summaries (that covers important health related aspects such as allergies, current medication, previous illness, surgeries, etc), and e-prescription. The UK Government also introduced Summary Care Record to build a national database of important patient information (e.g. medication, allergies) created from GP medical records.

community health services to promote medical-social collaboration.

7. In addition to health data³ arising from clinical processes such as prescription, dispensary, referral and participation in certain health programmes, etc., we will also review if it is necessary to amend the Electronic Health Record Sharing Ordinance (Cap. 625) (“the eHR Ordinance”) to cover other healthcare-related data captured during the whole healthcare journey of patients, to ensure that the uploading and sharing of such data is conducted in a controlled and secured manner as provided under the ordinance.

Enabling patient / patient-authorized-contributed data

8. In light of the growing importance of patient empowerment, especially their role to manage their own eHRs, we plan to specify clearly the rights of patients or other authorised third parties (e.g. their family members or carers) to access and use their eHRs. In view of the expanding use cases of patient/patient-authorized-contributed data, it is necessary to lay out in clear terms an individuals’ roles and responsibilities, the handling of such data under eHealth and relevant safeguards under the eHR Ordinance. We propose that eHRC be empowered to issue related CoP or guidelines and to take any action to safeguard system security. We will also upgrade the system to clearly indicate the data source for HCPs and HCProfs’ reference. HCProfs are expected to handle these records just like any other health records in paper form shared by patients to doctors.

Enabling the sharing and use of records for cross boundary purposes

9. At present, HCPs are required to provide healthcare at a service location in Hong Kong. HCPs located outside Hong Kong cannot register on eHealth or access to the system as a prescribed HCP. Meanwhile, patients have the rights to access his/her own eHRs in accordance with the Personal Data (Privacy) Ordinance (Cap. 486). An individual may hence obtain his eHRs on eHealth for sharing with non-local HCPs if he so wishes. To further empower individuals with better control over their own eHealth records and to take forward the cross boundary access and

³ Under the Ordinance, health data is defined as “in relation to a healthcare recipient, means the data or information relating to the health condition of, or to the healthcare provided or to be provided to, the recipient.”

sharing of eHRs in a controlled and systematic manner, it is necessary to codify the patient-initiated cross boundary data access and sharing mechanism with sufficient level of safeguards and protocols, and with due regard to the laws and regulations in Hong Kong and related jurisdictions. We propose to empower the Commissioner for the Electronic Health Record (“eHRC”) to prescribe arrangements via Code of Practice (“CoP”) or guidelines, e.g. data scope and type, use, means, form and manner of access and sharing.

Expanding coverage of healthcare professionals

10. Under the Ordinance, 13 types of statutorily registered HCProfs⁴ between multiple care settings (i.e., public, private, institutional, community and home) are granted access to health data in eHealth. SH is empowered to prescribe HCProfs by notice in the gazette. To make better utilisation of eHealth in facilitating clinical diagnosis and enhancing the efficiency and quality of care, we will review the need to broaden the scope of HCProfs. As eHealth contains sensitive personal data, one core principle is that HCProfs with access to eHealth data should be subject to a sufficient level of regulatory control (albeit not by way of statutory registration), so as to ensure appropriate use of eHRs as well as quality and safe healthcare services delivered.

11. With the growing importance of multi-disciplinary medical teams in the community for PHC service provision, we may consider opening up eHealth access for a wider range of allied HCProfs under the Accredited Registers Scheme for Healthcare Professions (e.g. speech therapists, audiologists, dietitians, educational psychologists and clinical psychologists) in order to enable integrated care. Some stakeholders also suggested covering social workers or health workers of residential care homes to allow better medical-social collaboration for community-based healthcare support. We will look into these possibilities in consultation with relevant industry stakeholders.

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⁴ They include pharmacist, dentist, dental hygienist, medical practitioner (doctor), midwife, nurse, medical laboratory technologist, occupational therapist, optometrist, radiographer, physiotherapist, chiropractor and Chinese medicine practitioner.

**eHealth+ Five Year Work Plan
Major Project Components and Implementation Timeframe**

Component of Projects	Start	End
Strategic Goal 1: One Health Record		
1. Encourage private HCPs data upload		
(a) Partner with CMS solution vendors and/or medical groups to enhance systems for seamless data sharing	2024/25	2026/27
(b) Lower technical thresholds and provide technical assistance		
(i) Simplify data upload: enhanced adaptor for electronic medical records	2024/25	2024/25
(ii) Enable self-service data compliance testing	2024/25	2024/25
(iii) Support to private laboratories and private radiology images centres	2024/25	2026/27
(c) Streamline procedures to provide uploading consent (e.g. composite sharing consent)	2024/25	2024/25
2. Establishing comprehensive and complete eHRs		
(a) Expand breath of existing data domains		
(i) Chinese Medicine Hospital	2025/26	2025/26
(ii) Migrate existing government-funded Public Private Partnership (“PPP”) programmes (e.g. District Health Centre (“DHC”), General Outpatient Clinic, Colorectal Cancer, Breast Cancer Screening, Dental PPPs etc.) to eHealth	2024/25	2028/29
(b) Develop new data domains and sources		
(i) Personal health profiles (e.g. smoking and dietary habits)	2024/25	2026/27
(ii) DHC eHealth Station data	2024/25	2026/27
(iii) Patient health data extracted from mobile devices (e.g. Apple Health,	2024/25	2025/26

Component of Projects	Start	End
Google Health and other health kits)		
(iv)Others (e.g. dental and other specialist records)	2025/26	2028/29
3. Others		
(a) eMedical Certificate: Establish a standardised mechanism for generation, recognition and verification of medical documents and certificates for supporting different business needs (e.g. fit for drive, sick leave, donation of organs, advance medical directives, referrals, etc.)	2025/26	2026/27
(b) eImaging and eLaboratory Report	2024/25	2026/27
(c) Enhance data download (e.g. define more streamlined interface for PPP and other programme data download)	2024/25	2024/25
(d) Support other health data enabled community patient care programmes	2024/25	2028/29
(e) Enhance system to support legislative changes (e.g. HCP's contribution of essential records to eHealth)	2025/26	2028/29
Strategic Goal 2: One Care Journey		
1. Primary healthcare core functions		
(a) Develop family doctors functions		
(i) Integration with Primary Care Directory	2024/25	2026/27
(ii) Family doctors profile	2024/25	2027/28
(iii) Carer matching/client care management	2024/25	2028/29
(b) Build communication channels for family doctors and HCProfs (e.g. clinical note/care plan sharing, secured communication channel, notifications and alerts)	2024/25	2027/28
(c) eReferral: develop interfacing with secondary/tertiary care	2024/25	2028/29
2. Supporting Government programmes		
(a) Establish Strategic Health Service Operation Platform	2024/25	2028/29
(b) Establish express registration mechanisms for patients participating in PPPs	2024/25	2026/27
(c) Revamp Elderly Healthcare Voucher and	2024/25	2026/27

Component of Projects	Start	End
Vaccination programmes		
(d) Further develop Chronic Disease Co-Care programme support	2024/25	2026/27
(e) Facilitate government health programme owners to administer health programmes (e.g. vetting and approval of submissions)	2024/25	2026/27
(f) Streamline process for HCPs participating in health programme (e.g. enrolment, consultation and payment/reimbursement)	2024/25	2026/27
3. Supporting cross boundary healthcare services		
(a) Develop “My Cross Boundary Health Record” on eHealth App	2024/25	2024/25
(b) Develop “Personal Folder” for self-upload of records by patients on eHealth App	2024/25	2024/25
(c) Other facilitation measures (e.g. mainland clinical terminology study, two-way data sharing)	2025/26	2027/28
4. Others		
(a) Establish healthcare professionals self-service functions (e.g. user account management, service profile management, participation of PPPs)	2024/25	2028/29
(b) Develop eHealthPro App (e.g. patient care, telecare with patients, personalised planner, e-certificate, account management)	2024/25	2028/29
(c) Establish a shared service (or platform) for enabling tele-health and tele-medicine for HCPs and patients	2025/26	2026/27
(d) Support eMedication and ePrescription	2024/25	2028/29
Strategic Goal 3: One Front-door to Empowering Tools		
1. eHealth+ ecosystem development (eHealth Tracker)		
(a) Enable interface and/or integration of eHealth App with other public health apps (e.g. HA Go, Department of Health, 18 Chinese Medicine clinics)	2024/25	2026/27
(b) Enable interface and/or integration of eHealth App with private health apps	2024/25	2025/26

Component of Projects	Start	End
(c) Enable connectivity with IoT devices	2025/26	2026/27
2. Healthcare process management (eHealth Manager)		
(a) Develop My Care functions (e.g. doctor's search, booking, appointment management, attendance/authentication, public health programmes enrollment and management)	2024/25	2026/27
(b) Enable access to patient's own records (e.g. Chinese medicine, drug profile, health profile, risk assessment result, care-plan, medical certificates, laboratory results, radiology reports, and other domains)	2024/25	2028/29
(c) Develop "My Digital Assistant" (Chatbot, reminder of medication and appointment)	2024/25	2026/27
(d) Enable communication with My Carer and paired family doctors	2025/26	2028/29
3. Health programme and information (eHealth Life)		
(a) Enable health programme / management (e.g. personalised promotion, programme enrolment / registration, quota / voucher balance management, reimbursement)	2024/25	2028/29
(b) Enable general and personalised health tips (e.g. disease management information, lifecourse preventive care) and notifications of events (e.g. health record updates, security alerts, etc.)	2024/25	2027/28
(c) Health surveys and risk assessments	2024/25	2026/27
(d) Support the health challenge programmes for promoting healthy lifestyle and habits	2024/25	2028/29
4. Others		
(a) Carry out health management tasks for the careers (e.g. appointment, cross-boundary data access, attendance registration, health programme enrolment, etc.)	2024/25	2028/29
(b) eIdentification/eAuthentication	2024/25	2025/26
Strategic Goal 4: One Health Data Repository		
1. Build up analytical data for various programmes / eHealth data	2024/25	2028/29

Component of Projects	Start	End
2. Establish analytical platform with data management, reporting and analytics tools, e.g. Dashboard and Business Intelligence Portal	2024/25	2028/29
3. Enable research, big-data analysis and artificial intelligence to support healthcare policies making	2024/25	2028/29
4. Develop governance framework to support secondary uses	2024/25	2028/29
eHealth+ Digital Platform		
1. Develop a framework for migration of legacy applications to Cloud infrastructure	2024/25	2025/26
2. Establish a digital health platform on Cloud infrastructure to support the strategic goals, including frameworks for application, integration, security and operations	2024/25	2028/29
3. Migrate existing PPP programmes, core modules, data integration, technical services, other legacy systems and information architecture to the Digital Health Platform	2024/25	2028/29

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**Estimate Budget of eHealth+ Development
FY 2024-25 to 2028-29**

	2024-25	2025-26	2026-27	2027-28	2028-29	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
(a) Hardware ¹	14,647	14,036	8,453	3,562	3,797	44,495
(b) Software ²	13,519	14,037	17,962	17,293	17,383	80,194
(c) Communication Network ³	6,193	4,726	2,560	3,030	2,782	19,291
(d) Development team ⁴						
(i) Programme Office, project management and external engagement	16,569	17,249	18,634	19,442	20,294	92,188
(ii) Product, clinical services design & architect	20,711	21,562	23,292	24,303	25,368	115,236
(iii) Product development and implementation	20,710	21,562	23,292	24,303	25,368	115,235
(iv) Security and quality assurance	24,853	25,874	27,951	29,163	30,442	138,283
(e) Implementation Services ⁵						

¹ Procurement of computer hardware and equipment, including computer servers for eHealth cloud platform, storage and backup, security equipment, mobile and end-user tools and other information processing equipment.

² Procurement of computer software, including operating system software, database license, integration software, application development software, software testing and security scanning tools and end-user software.

³ Procurement of network equipment and installation of communication lines.

⁴ Staff cost of the dedicated development teams in the Hospital Authority to support the development and implementation of over 300 products of eHealth+ suite, including eHealth App and Doctor's portal, Primary Health services, eHealth backbone for connectivity, security and sharing of records. The team includes health informatics staff, product designer and architect, IT development and operation staff, security and integration experts and programme management office. The size of the team is estimated based on the anticipated scope of individual product requirements and the experience gained in developing the stage 1 and 2.

⁵ Procurement of agency contract staff service, professional and consultancy services to complement the development team for the system development, solution and product design, implementation and quality assurance, cybersecurity and privacy design, engagement and collaboration with 3rd party health care services providers and solution vendors as well as incentive programs. The scope of services required is based on the anticipated scope of individual product requirements, as well as

	2024-25	2025-26	2026-27	2027-28	2028-29	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
(i) Technical Consultancy & services	12,060	13,130	12,109	13,047	12,886	63,232
(ii) Software development services	48,240	52,522	48,436	52,188	51,544	252,930
(iii) Cybersecurity & quality assurance	24,120	26,261	24,218	26,094	25,772	126,465
(iv) Rollout, engagement & implementation	36,180	39,391	36,327	39,141	38,658	189,697
(f) Training ⁶	335	341	363	371	374	1,784
(g) Others ⁷	5,261	5,467	6,273	6,383	6,511	29,895
Sub-Total	243,398	256,158	249,870	258,320	261,179	1,268,925
(h) Contingency						126,893
Total						1,395,818

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experience gained in developing the stage 1 and 2.

⁶ Providing training to doctors, nurses and other healthcare professionals, IT vendors/staff from private healthcare sectors and HA staff. The training covers the standards, data security and privacy and other technical areas.

⁷ Providing accommodation to the development teams and dedicated training and testing sites.