

2013 NOV I S S U E

Experiencing Electronic Medical Record Systems



Dr Choy Khai-meng: Public-Private Partnership in Healthcare



Dr C M Wong and Mr Pascal Tse: CMS Adaptation – Gaining Efficiency with Service Improvement



Dr Anne Kwan: CMS On-ramp in Practice

CMS Adaptation PPP Programmes eHR Updates Game Zone



食物及衞生局 電子健康記錄統籌處 香港特別行政區政府 eHealth Record Office, Food and Health Bureau The Government of the Hong Kong Special Administrative Region

Editor's Note

Thanks to the stakeholders and the public, we have received positive feedbacks on the previous two editions of eHealth News. Despite good progress on the earlier tasks, we are devoting efforts to taking up challenges ahead.

Change of Mindset

As highlighted by Mr Sidney Chan, Head (eHealth Record), in the Closing Address in the Healthcare Information and Management Systems Society (HIMSS) AsiaPac13 Greater China eHealth Forum, one of the challenges in eHR implementation is

> the "Change of Mindset". We are mindful that we are not only developing a new infrastructure for eHealth Record (eHR) sharing, but also introducing new practices and workflows that may affect, and yet ultimately benefit, both healthcare providers and patients.

Experiencing eMedical Record Systems

We have adopted "Experiencing Electronic Medical Record Systems" as the theme of this issue to feature how the public and private healthcare sectors can collaborate seamlessly and practically by using electronic



medical record systems. Leading experts in both sectors will share their experience in implementing Public-Private Partnership (PPP) projects and deploying Clinic Management Systems (CMS) On-ramp and CMS Adaptation.

To pave way for the upcoming eHRSS, an array of PPP projects have been launched to foster collaboration between public and private medical practitioners. This issue will cover the achievements of these PPP Programmes as well as the latest development of CMS Adaptation and terminology standards adopted in eHRSS.

In view of good response to the Game Zone, we have prepared "2-choice" questions to refresh your eHR knowledge. Again, winners will receive a special prize. So why not take up the challenge after reading this issue?

Hope you will find this issue both informative and interesting. Your continued support is essential to the success of eHRSS.

Your Views

We would be interested to receive your feedback on this subject or any matters related to the eHRSS. Articles related to health record issues are most welcome for sharing in the upcoming eHealth News. Please send us your views by email to **eHR@fhb.gov.hk**.



Public-Private Partnership in Healthcare

PPP can improve the efficiency and quality of medical services, reinforce disease surveillance and redress public-private imbalance. A triple win situation for patients, public and private healthcare sectors will be achieved.

Dr Choy Khai-meng Consultant (Public-Private-Partnership) of the Food and Health Bureau

Understanding the needs of patients, the Hospital Authority (HA) has initiated Public-Private Partnership (PPP) Programmes to enhance healthcare service delivery and patient choices. To learn more about the objectives of PPP and its development, we have interviewed Dr Choy Khai-meng, Consultant (Public-Private Partnership) of the Food and Health Bureau, to share his expert views on the development of PPP programme in the local healthcare settings.

Why PPP?

To help us understand the rationale for implementing PPP, Dr Choy depicted the challenges faced by the public healthcare system in Hong Kong. "While Hong Kong is facing an ageing population, there is a strong demand for quality medical

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What are PPP Programmes?

In support of the Government's promotion of PPP in healthcare, the HA has piloted several clinical PPP programmes to facilitate better collaboration and interface on sharing of medical records between the public and private healthcare sectors. HA invited healthcare providers in the private sector and target patients to join the PPP programmes on a voluntary basis.

As at August 2013, six pilot programmes have been launched. The pilot projects have demonstrated the feasibility and acceptability of eHR sharing amongst healthcare providers and patients in general.

services. Besides, advanced medical technologies have extended life expectancy of patients with chronic diseases, which increases the demand for medical treatment. Shorthandedness in the public healthcare sector has also burdened the frontline staff of public hospitals with much pressure and workload, which indirectly lengthens the waiting time of patients for receiving medical services," explained Dr Choy.

Ripple Effect of PPP

Drawing an interesting analogy between the Central Escalator and PPP, Dr Choy vividly illustrated the ripple effect of PPP. "Before the construction of the Escalator, there were fewer people in the vicinity. Following the completion of the Escalator and footbridge, a myriad of people started to shuttle between the commercial buildings and shopping malls every day. The bridges do not only provide convenience to the pedestrians, but also increase business opportunities for merchants," he described. "Likewise, PPP does not only benefit patients, but also generates positive impact on the healthcare system by reducing workload of public hospital staff and increasing development opportunities for private healthcare service providers," Dr Choy further explained.



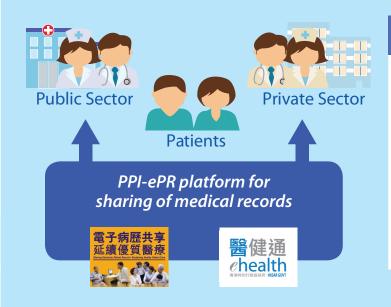
Progress of PPP Projects

When being asked about the achievement of PPP programmes, Dr Choy highlighted the project progress, "Cataract Surgeries Programme (CSP), which was the first PPP Pilot Programme launched in 2008. It provides an alternative for eligible cataract patients to undertake cataract surgeries in the private healthcare sector, and helps other cataract patients indirectly by shortening the waiting list and waiting time in public hospitals." Considering the positive responses to the programme, Dr Choy proudly affirmed, "CSP has been strongly supported by both patients and private ophthalmologists. Since its launch, over 100 private ophthalmologists have joined CSP. As of June 2013, over 18,000 patients have participated in CSP with more than 14,000 of them completing cataract surgeries."

Dr Choy moved on to introduce other PPP projects. "With the implementation of Tin Shui Wai Primary Care Partnership Project, residents in Tin Shui Wai are provided with more choices for outpatient medical services. To meet the growing demand of haemodialysis service for endstage renal failure patients, Haemodialysis PPP Programme was implemented. Besides, Radiological Image Sharing Pilot Project also enables participating private healthcare providers, with patient's consent, to send the radiological images of enrolled patients to HA via electronic means."

eHealth Record Sharing in PPP

As the Electronic Health Record Sharing System (eHRSS) will be launched by the end of 2014, Dr Choy envisaged



eHRSS would play an essential role in future PPP development. "When the electronic health records are made sharable between the public and private healthcare sectors, I believe that more people will participate in the eHRSS, thus facilitating the implementation of PPP programmes in the future. Besides, with timely and accurate electronic health records available to both public and private healthcare providers for delivering medical services, eHRSS will be of immense help to facilitate PPP."

When the electronic health records are made sharable between the public and private healthcare sectors, I believe that more people will participate in the eHRSS, thus facilitating the implementation of PPP programmes in the future.

Being optimistic about the future development of PPP, Dr Choy concluded, "PPP can improve the efficiency for patients and quality of medical services, enable the continuity and integration of care, reinforce disease surveillance and redress public-private imbalance, a triple win situation for patients, public and private healthcare sectors."

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Benefits of PPP Programmes

PPP mode of operation enables effective utilisation of resources by encouraging collaboration between the public and private service providers. It also facilitates continuity of care and knowledge exchange through enhanced communication and experience sharing.

The combined efforts of the public and private sectors will provide more choices to patients as well as leading to an overall improvement in service quality.

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CMS Adaptation – Gaining Efficiency with Service Improvement

Alertness to patient's drug allergy issue is imperative in medical treatment process. The Structured Allergy / Alert Module allows medical staff to effectively alert of the allergic conditions of each patient.

Mr Pascal Tse, Chief Information Technology Officer of St. Teresa's Hospital Dr C M Wong, Medical Superintendent of St. Teresa's Hospital



Some people may have the misconception that "eHealth Record Sharing System (eHRSS) has nothing to do with private hospital patients because it is only related to public hospitals." In fact, a number of private hospitals in Hong Kong have been actively preparing themselves for participation in the eHRSS by taking part in pilot projects and adopting clinical applications developed by the Hospital Authority (HA). One of these pioneers is St. Teresa's Hospital. To understand the integration of CMS Adaptation modules into the daily operation of a private hospital, we have interviewed Dr C M Wong, Medical Superintendent, and Mr Pascal Tse, Chief Information Technology Officer of the St. Teresa's Hospital.

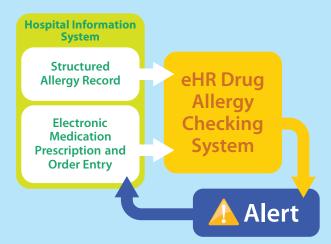
CMS Adaptation Module -Tightly Integrated with Existing eMR System

Being one of the key players in various eHR pilot programmes, including the Public-Private Interface – Electronic Patient Record (PPI-ePR) Sharing Pilot Project and Radiological Image Sharing Pilot Project, St. Teresa's Hospital has adopted CMS Adaptation modules into their hospital system this year.

"The first CMS Adaptation module we have applied is Structured Allergy / Alert Module (SAAM), which allows us to document the allergen and drugs a patient is allergic to and alert us when prescribing a drug which may cause allergic reactions in the patient. The Adaptation module is tightly integrated with our frontline electronic medical record (eMR) systems, including clinical management system, pharmacy information system and nursing information system," Mr Tse introduced.

"Alertness to patient's drug allergy issue is imperative in medical treatment process. With the deployment of SAAM as our first step, we hope to adopt more CMS Adaptation modules in the future, such as the module for exchanging laboratory results," Dr Wong talked about their plan.

Importance of Drug Alert Function



"Before the adoption of SAAM, the medical history for drug allergy of individual patients was registered on paperbased records by handwriting and labelling, which was a manual process susceptible to transcription errors," Dr Wong recalled. "With SAAM in place, doctors, nurses and pharmacists in out-patient and in-patient divisions can efficiently access the updated information of patients in the same database. In this way, the medical staff can be effectively alerted of the allergic conditions of each patient," he explained the importance of the module.

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How Allergy and Alert Functions Benefit Patients

Allergy information is essential to vital clinical decision support as healthcare professionals should be alerted if the medication they prescribe may trigger an adverse reaction.

The CMS Adaptation modules include allergy and alert functions which allow healthcare providers to document the allergen and drugs the patient allergic to, as well as alerting the healthcare providers when prescribing a drug which may induce allergic reaction in the patient.

To help us visualise the benefits brought by SAAM, Dr Wong demonstrated with a practical example. "It may be inappropriate for a patient with low heart rate to take Drug X that will cause a slowdown of heartbeat. With the allergy alert set in SAAM, the prescription of Drug X to the patient could be avoided. However, the patient will be able to take Drug X after the implantation of a cardiac pacemaker in the patient, as the pacemaker can help him maintain a proper heart rate. The flexibility of the Adaptation module allows us to withdraw previous allergy record of the patient for Drug X and make prescription of the drug to the patient feasible." Dr Wong further complimented the system, "It is indeed very helpful, especially in assuring the safety of patients".

Preparation Makes Success

Undoubtedly, integration of new applications to an existing operation could be highly sophisticated. How did St. Teresa's Hospital manage to successfully put the CMS Adaptation modules into practice? "Major preparatory work must be completed before integration," Mr Tse shed some light on the process. "First, we consulted the frontline staff about the implementation of a new system and collected user requirements. Then, we upgraded our infrastructure, equipment and software system as well as improving the system security measures to meet the standards for integration. Afterwards, colleagues of pharmacy division converted the unstructured data into structured data for data migration."

"After all, usability of the system is a critical factor for the success of implementation. Doctors will not adopt a system which is not user-friendly." Dr Wong added.

> Usability of the system is a critical factor for the success of implementation. Doctors will not adopt a system which is not user-friendly.

Vision of Future Development

From a forward-looking perspective, Dr Wong suggested, "With the development of CMS Adaptation, private hospitals in Hong Kong can better utilise the resources and avoid acquiring incompatible and unsuitable systems, thus speeding up their connection to eHRSS."

CMS On-ramp in Practice

The overall workflow in the outpatient department has been very smooth and efficient with the implementation of CMS On-ramp.

Dr Anne Kwan Hospital Superintendent of Evangel Hospital

How much do you know about CMS On-ramp system? Do you realise the benefits you gain indirectly from the clinic management system when visiting a private clinic with its installation? We have interviewed Dr Anne Kwan, Hospital Superintendent of Evangel Hospital, to learn their practical experience with the implementation of CMS On-ramp and the benefits it brings to their outpatient clinic and patients.

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CMS On-ramp is a clinic management software to suit clinics' daily operations and workflows. It is a turnkey system readily usable by private clinics with low investment cost. The installation of CMS On-ramp would enable clinics to smoothly connect to the eHealth Record Sharing System (eHRSS) for sharing of patients' clinical data.

The final version of CMS On-ramp will be made available in early 2014 for deployment to private solo or group practice healthcare providers.

Why CMS On-ramp?

Passionate about using advanced technology to enhance daily clinical operations, Dr Kwan introduced CMS On-ramp into Evangel Hospital this year. "Besides zero licensing fee and strong technical support from the Hospital Authority (HA), the biggest advantage of the CMS On-ramp is its capability for electronic health record sharing, which will be beneficial to our hospital and patients," she explained the crucial factors driving their decision for adopting the system.

CMS On-ramp in Evangel Hospital

Since the beginning of this year, the Hospital has deployed CMS On-ramp to support the workflow of its outpatient department. "Using the system for appointment booking has become our daily procedure," Dr Kwan said. "The userfriendly interface of the system enables our frontline staff to access patient information for scheduling appointments more efficiently."

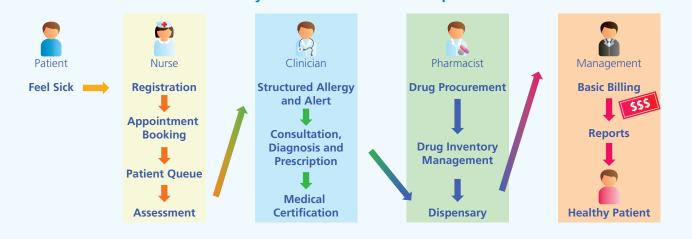
"During consultation process, doctors will input diagnoses and drug alerts into the system. Some doctors will also record clinical notes through the system interface," Dr Kwan continued to outline their adoption of CMS Onramp. "Right now we are trying out the drug prescription function, with which prescriptions entered by a doctor will be delivered to the pharmacy division automatically through electronic means. With less paperwork, the process helps speed up the drug dispensing procedure and reduce errors associated with paper records."

Praising the benefits achieved in pharmacy division, Dr Kwan supplemented, "With assistance of the allergy alert function, even if a doctor has accidentally overlooked the









Key Functions in CMS On-ramp

allergic effects of a drug to a patient, pharmacists could still remind the doctor of the possible allergy that those related compounds might cause. This does not only improve the interaction and communication between doctors and pharmacists, but also reduces the prescription errors of giving contraindicated medication to patients. This alert function is an effective measure to minimise the risk of medication errors in the sense of risk management."

Dr Kwan further indicated that CMS On-ramp has simplified their billing process. "Despite the complexity of billing in a private hospital, the system could generate clear breakdown of medical fees, thus giving the patients a comprehensive overview of all charges and speeding up the payment process."

Achieving Smooth Implementation

With the streamlined operation, Dr Kwan satisfactorily commented, "The overall workflow in the outpatient department has been very smooth and efficient with the implementation of CMS On-ramp." With heartfelt gratitude, she attributed the success of system implementation to the concerted support of the hospital staff and HA. "Comprising of administrative staff, doctors, nurses and pharmacists, the user group has offered valuable feedback to improve the system features and interface. Furthermore, colleagues have frequently spent great efforts on checking data integrity of the patient database to ensure accurate data mapping. In addition, HA has been very helpful and skillful in enhancing the system to meet operational needs and providing support in updating the drug list."

Participation in eHRSS

Apart from CMS On-ramp, Evangel Hospital has adopted

CMS Adaptation Modules and participated in various sharing pilot projects to prepare themselves for the implementation of eHRSS. "In addition to our preparatory work, patients' consent for us to access their electronic health records is equally essential and important to the participation in eHRSS," Dr Kwan said. "Our colleagues have been proactively inviting patients to register and participate in the sharing pilot projects so that patients could readily enrol into the eHRSS programme when it is launched."

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Healthcare Providers joining eHRSS

Healthcare providers participating in eHRSS will be required to make available health data in their electronic medical records system falling within the eHR sharable scope for uploading to the eHRSS with no exclusion.

Participating healthcare providers have to be properly authorised and need to follow certain requirements set out in the legislation, code of practice and guidelines, in line with the "patient-under-care" and "need-toknow" principles.

To conclude the interview, Dr Kwan expressed her vision on the future development of eHRSS. "As some of our patients may move overseas, it would be ideal for them to access their own health records abroad through electronic record sharing so that the continuity of healthcare could be maintained," she said.

CMS Adaptation: Data Sharing by Modular Integration into Private Hospitals' eMR System

What is CMS Adaptation?

To promote private sector participation in the future eHealth Record Sharing System (eHRSS), CMS Adaptation modules are developed for use by healthcare providers of significant size, such as private hospitals to enable data sharing and integration capabilities with eHRSS.

The CMS Adaptation modules are developed using buildingblock approach. The private hospitals can flexibly deploy specific modules and integrate them into their own electronic medical record (eMR) system to suit their operational needs.

Basic CMS Adaptation Modules

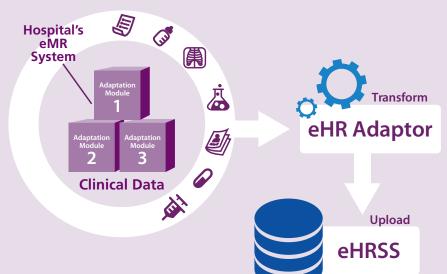
Basic CMS Adaptation modules include: 1. Structured Alert, 2. Discharge Summary, 3. Diagnosis and Procedure Reporting,4. Outpatient Consultation Summary, 5. Medication Order Entry, 6. Letter Engine, 7. Drug Allergy Checking Service,8. Hospital Electronic Patient Record (ePR), and 9. Patient Master Index Service.

Connection with eHR Sharing System

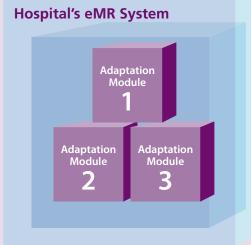
The CMS Adaptation modules will interface with the hospital eMR systems directly. Local adaptor of the Hospital ePR module facilitates hospital clinical data consolidation and formatting according to eHR data transfer standard, and enables data transfer between private hospitals' eMR systems and eHRSS.

Implementation for CMS Adaptation

CMS Adaptation will be provided to the private hospitals for free or at minimal cost for their adoption. The cost of implementation and hosting of the CMS Adaptation have to be borne by the private hospitals. CMS Adaptation Task Force was established to engage private hospitals in the development process and share implementation experiences. CMS Adaptation modules have been in use or on trial in a number of private hospitals.







PPP Prelude to eHR and Betterment for Health Service Quality



The success of eHR Sharing System (eHRSS) is determined largely by the public and private sectors working closely together and promulgating benefits of mutual record sharing to the general public. Following the government's strategic plan in preparing the local healthcare system for the implementation of eHRSS, the Hospital Authority (HA) has since 2006 established an infrastructure to enable one-way record sharing and at the same time launched various public-private partnership (PPP) Programmes to publicise the concept. Apart from making the public aware of benefits brought along by the collaboration, the programmes also serve as a prelude to eHRSS implementation by establishing a platform for patient record viewing, making "record sharing" an acceptable practice for the healthcare delivery model.

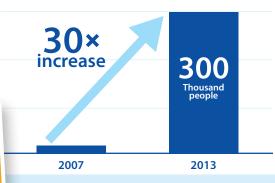
eHR Sharing Facilitates PPP

The Public Private Interface – Electronic Patient Record (PPI-ePR) Sharing Pilot Project and the Cataract Surgeries Programmes (CSP) are among all PPP Programmes that have gained vast acceptance and support from the public. By inviting the eligible patients to participate, the PPI-ePR serves as the backbone that allows information to be shared in a one-way manner, i.e. from HA to the private sector. Likewise, projects like the CSP rely on the PPI-

ePR as a vital tool for private medical practitioners to obtain information of their patients.







Surging Enrolment for PPI-ePR

After one year when the PPI-ePR was first launched, around 10,000 patients were enrolled into the system in 2007. With the launch of various promotional tools to publicise the system, more and more patients and healthcare providers have joined. By October 2013, 7 years after the initial implementation, over 328,000 patients were enrolled, with over 795,000 access recorded through the system. The 30-fold increase in participation has proven that the public are very supportive to the project. Recent survey conducted by the Chinese University of Hong Kong in early 2013 revealed that 76% of the enrolled patients and 68% of doctors were satisfied with PPI-ePR.

Satisfaction Rate with PPI-ePR





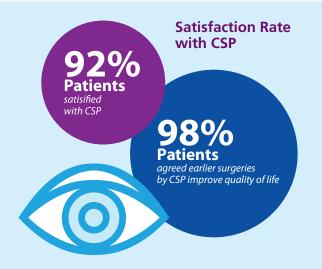
CSP: Showcase for PPP Delivery Model

In HA, there has been a steady increase in the number of cataract patients. It leads to lengthening of the waiting time for cataract surgery in public hospitals over the past few years. CSP is put forward to provide additional cataract surgeries to meet the growing service demand through a PPP delivery model. Ever since its commencement in February 2008, CSP has met the growing service demand and shortened the waiting time of approximately 14,000 patients in receiving cataract surgeries at public hospitals. By offering a fixed amount of HK\$5,000 subsidy and making the patients copay no more than HK\$8,000, CSP allows eligible patients to receive cataract surgeries from approximately 100 participating private ophthalmologists. The entire package consists of one pre-operative assessment, the cataract surgery including intraocular lens, and two post-operative checks.

Trial on Two-way Record Sharing

In the CSP programme, the participating private healthcare providers are allowed to upload clinical information of their patients and view the patients' medical records kept at HA through the PPI-ePR platform, which enable two-way eHR sharing.

In June 2013, a random survey was conducted to over 4,200 participating patients on their overall impressions on the project. Over 3,900 patients (92%) expressed that they were satisfied with the programme, whereas over 4,100 patients (98%) agreed that CSP has helped offering them an earlier surgery while improving their quality of life.



PPP in Future

Riding on the success of existing programmes, HA will take steps to explore the feasibility of other healthcare PPP projects which would further complement the eHR development in Hong Kong.

For more information on the PPP Programmes, please visit *HA PPP Website*.



eHR Updates Application of International Clinical Healthcare Terminology in Hong Kong eHR Programme

Hong Kong becomes a member of International Health Terminology Standards Development Organisation (IHTSDO) in 2013, joining the global effort to develop, maintain, and enable the use of Systematised Nomenclature

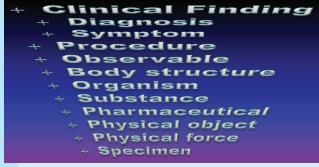


of Medicine Clinical Terms (SNOMED CT) in health systems around the world. eHealth Record (eHR) Office, Hospital Authority (HA) and IHTSDO senior representatives met on 2 August 2013 and shared experience on adoption of SNOMED CT in eHR development.



Hong Kong SNOMED CT Strategy

"As standards terminology is the foundation for supporting the development of an interoperable eHR, the Hong Kong Clinical Terminology Table (HKCTT) is built to ensure shared health data can be accurately interpreted, and thus improves healthcare delivery and optimise workflow." Ms Vicky Fung, Senior Heath Informatician at Hospital Authority (HA) Information Technology Services shared the development of standard terminology in Hong Kong eHR.



SNOMED CT - Comprehensive Scope

She highlighted that the HKCTT was built by integrating international terminologies commonly used in Hong Kong, including SNOMED CT.

Delivering Benefits with SNOMED CT

Mr John van Beek, Chairman of the IHTSDO Management Board assured that with SNOMED CT being enabled, it will facilitate Hong Kong eHR to identify key facts, presenting opportunities to reduce the risks of errors. Patients should then benefit from the use of SNOMED CT, as it improves the recording of eHR information and facilitates better communication. As a result, the quality of care would be improved.

IHTSDO Supports Hong Kong eHR Development

Mr Van Beek affirmed that IHTSDO supports Hong Kong in its eHR development by providing SNOMED CT and advices on its adoption. "IHTSDO will continue to engage Hong Kong in cooperation with other Standards Developing Organisations and Association Members as well". This would allow the pooling of resources to achieve shared benefits.



Win-Win Situation

All parties believed that with the SNOMED CT-enabled eHR, health information could be exchanged safely, accurately, and effectively.

Building on the Hong Kong's sound experience in health record sharing, the future eHR could provide a world-class platform to demonstrate the benefits of SNOMED CT.

Please click *here* to learn more about IHTSDO and SNOMED CT.



eHR Updates

Game Zone, Chance to Win a Prize!

Test your knowledge about the eHR development in Hong Kong with the following guiz. All answers can be found in this e-Newsletter. Readers who have answered the quiz correctly will have a chance to win a prize, while stock lasts. Enjoy the fun of exploring eHR!

Circle the correct answers in the following five questions. Fax the completed form to 2300 7921 or email to eHR@fhb.gov.hk on or before 9 December 2013. The deadline for submission is over. The correct answers are indicated in the circles below.

The CMS On-ramp CMS Adaptation is developed for use by healthcare providers of significant size, such as private hospitals to enable data sharing and integration capabilities with eHealth Record Sharing System.

SNOMED CT is the most comprehensive, multilingual clinical healthcare device cterminology in the world. Its primary purpose is to encode the meanings that are used in health information and to support the effective clinical recording of data with the aim of improving patient care.

Cataract Cardiac Surgeries Programme is the first Public-Private Partnership Pilot Programme launched in 2008. It provides an alternative for eligible patients to undertake cataract surgeries in private healthcare sector.

Radiological Image Sharing Pilot Project enables the participating private healthcare providers, with patient's consent, to send the discharge summaries cradiological images of enrolled patients to HA via electronic means.

The Public Private Interface – Electronic Patient Record (PPI-ePR) is a one-way three-dimensional record sharing system launched in 2006, which serves as a prelude to eHR implementation by establishing a channel for patient record viewing, making "record sharing" an acceptable practice for healthcare delivery model.

Please provide your name, contact information, and postal address. Winners will be notified through email and the prize will be mailed to the postal address provided below.

Name: _____

Tel No.: ____

Email:_____

Postal Address: _

After the closing date on 9 December 2013, you can check the correct answers in the newsletter posted at the eHR Office website. The personal particulars and contact information collected in this game zone will only be used to notify and send prizes to the winners. All personal data collected from this game zone will not be disclosed to any third parties and will be deleted by the eHR Office two weeks after all prizes have been sent.



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