

LEGISLATIVE COUNCIL PANEL ON HEALTH SERVICES

Inpatient Medication Order Entry System of Hospital Authority

PURPOSE

This paper reports the progress of the implementation of the Inpatient Medication Order Entry (IPMOE) system by the Hospital Authority (HA).

BACKGROUND

2. Before the introduction of IPMOE which was first implemented on a pilot basis in an HA acute hospital in 2013-14, the Medication Order Entry (MOE) function of HA's Clinical Management System could only cater for the medication processes of drug prescribing and dispensing for outpatients and discharged patients. For hospital inpatients, however, clinicians and nurses had to prescribe drugs and document drug administration through handwriting while pharmacists could only vet medication orders and dispense drugs against paper records sent to the hospital pharmacy. The entire medication process had posed safety concerns.

3. In 2009-10, HA kicked off the development of IPMOE with a view to enhancing clinical safety and improving clinical workflow efficiency in the medication therapy management of inpatients. IPMOE consists of three major modules to facilitate closed-loop medication prescription, dispensing and administration of drugs on an electronic platform. System development was completed and IPMOE was implemented on pilot basis in an acute hospital in 2013-14. Since then, IPMOE has been rolled out to other acute hospitals in tandem, along with continual system enhancements.

4. To support safe and appropriate use of medicines and to reinforce pharmaceutical risk management for inpatients, HA has also initiated clinical pharmacy services in selected specialties (e.g. oncology and paediatrics) in recent years. Clinical pharmacy services were initially provided for selected high-risk

patient groups, covering clinical screening of prescriptions, drug counseling for selected new cases and review of treatment protocols. Clinical pharmacists gradually integrate as part of the patient care team in the inpatient setting.

PROGRESS UPDATES

5. By the end of March 2017, IPMOE had been implemented in 12 acute hospitals in 5 clusters¹ and was well received by the hospital management and different healthcare disciplines. The implementation of IPMOE has brought in multiple benefits, in particular on enhancing overall patient safety and improving efficiency of clinical care in public hospitals. The need for handwritten prescriptions is minimised. Hence, errors associated with transcribing prescriptions and the time lag in drug dispensing and administration can be avoided. In addition, the system provides timely alerts and warning messages on patients' drug allergy, duplication of drugs and drug-drug interactions, which provide immense support for computerised clinical decision making. Pharmacists can now vet medication orders and review patients' full medication profile online through an electronic platform. With the aid of barcode technology, identification of patients for drug administration and medication therapy management is also improved. Alongside re-engineered workflow and protocol-based prescription and administration practices, the implementation of IPMOE has enabled a closed-loop medication process encompassing prescribing, dispensing and administration of medications, thereby enhancing the overall patient safety in public hospitals.

6. Furthermore, IPMOE has improved the efficiency of clinical care process. System checking is now in place to supplement human checking with enhanced timeliness and accuracy. Handling of prescriptions is also prioritised according to the time of administration, thus reducing the turn-around time of drug dispensing in hospital pharmacies. Transcriptions of drug orders is now minimised with less paper consumption while electronic communication among different healthcare professionals is enabled with real-time information available in the system. Moreover, structured data entry in pre-set format has facilitated documentation of drug administration and medication therapy management. Clinical information can now be organised in a

¹ By the end of March 2017, IPMOE has been implemented in the Hong Kong East Cluster (including Pamela Youde Nethersole Eastern Hospital and Ruttonjee Hospital), Kowloon East Cluster (including Tseung Kwan O Hospital and United Christian Hospital), Kowloon West Cluster (including Caritas Medical Centre, North Lantau Hospital, Princess Margaret Hospital and Yan Chai Hospital), New Territories East Cluster (including Alice Ho Miu Ling Nethersole Hospital, North District Hospital and Prince of Wales Hospital) and New Territories West Cluster (including Pok Oi Hospital).

simple and customised manner which facilitates clinical review by different clinical teams for delivering appropriate care.

7. With the rising service demand and increasing complexity of drug regimens in recent years, the scope and functions of clinical pharmacy services have been extended to further enhance medication safety in public hospitals, in particular for the high-risk patient groups. Riding on the system functionalities of IPMOE, clinical pharmacists can now review medication orders and patients' full profile, assess their medication regimens and provide drug counselling for patients and their carers. Moreover, clinical pharmacists support and collaborate with other healthcare professionals in delivering quality care by attending clinical rounds, performing medication reconciliation, formulating treatment protocols, providing drug education, standardising documentation of medication management and providing advice for system enhancement.

8. By the end of March 2017, clinical pharmacy services have been launched in all oncology centres and all hospitals with paediatric specialty, providing dedicated pharmaceutical care for inpatients and selected group of high-risk outpatients for enhanced patient safety.

WAY FORWARD

9. HA will continue to roll out IPMOE to the remaining 3 acute hospitals (i.e. Queen Elizabeth Hospital, Queen Mary Hospital and Tuen Mun Hospital) in accordance with the project rollout plan. It is expected that all acute hospitals will implement IPMOE by the end of 2017-18 with the exception of Kwong Wah Hospital which will launch the system upon completion of its redevelopment project. Tin Shui Wai Hospital and Hong Kong Children's Hospital will also implement IPMOE in 2018-19. Preparatory work is now underway for system implementation. Upon complete implementation of IPMOE in all acute hospitals, HA will roll out the system to 22 non-acute public hospitals in phases by the end of 2021-22.

10. To cater for enhanced medication therapy management, HA will set in various system enhancements of IPMOE to support high-risk clinical settings, such as oncology, paediatrics and intensive care unit where patients require specialised care. The enhanced functionality will accommodate complex clinical workflow and high intensity therapies, which in turn will facilitate timely drug therapy and dosing interventions and continuous clinical parameters monitoring by clinical pharmacists, as

well as communication among different healthcare teams and disciplines in these specialty areas.

11. Besides, HA will develop a chemotherapy module under IPMOE to facilitate provision of integrated care and support closed-loop medication process for cancer patients. The module will enable handling of complex chemotherapy regimens and protocols, and cover critical clinical parameters like patients' pre-treatment fitness level, drug allergy, side effects and drug-drug interactions. As chemotherapy treatment becomes more complex, clinical pharmacists can be more focused on direct patient care through this platform.

12. Furthermore, HA will develop a corporate drug data repository under IPMOE to facilitate medication reconciliation through electronic means and provision of advanced support for clinical decision making. Corporate-based checking of drug-drug interactions and drug duplications as well as consolidation of patients' medication profiles will also be enabled in the longer run.

13. In view of the significant service growth and chemotherapy treatment attendances in HA institutions in the past few years, as announced in the 2017 Policy Address, the Government has allocated additional recurrent funding for HA to recruit additional clinical pharmacists, among other healthcare disciplines, to provide enhanced pharmaceutical care for patients in 2017-18. The scope of clinical pharmacy services will continue to grow in support of different specialty areas. It is anticipated that clinical pharmacists will be gradually integrated into the clinical care teams to provide advanced pharmaceutical care along the clinical pathway for better patient safety.

ADVICE SOUGHT

14. Members are invited to note the content of this paper.

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