



## The New Era in Smart Use of Big Drug Data

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A territory-wide electronic Health Record (eHR) provides an integrated clinical view of the patients' conditions; but most importantly, it serves as a clinical data warehouse holding huge amount of important information for healthcare research and risk prediction. The established eHR Sharing System (eHRSS) in Hong Kong provides a platform for health information exchange between the public and the private sectors. Given the rising demand and expectation of the general public on healthcare services, together with the high acceptance rate on health IT application, the eHRSS aims to achieve an improved efficiency and quality of care by providing an accessible and comprehensive health data to healthcare recipients, thereby enhancing the efficiency and effectiveness of healthcare costing, and reducing the consumption of duplicated healthcare requisition.

Standardisation of drug terminologies play a major part on improving the interoperability of essential healthcare information between public and private healthcare providers, and delivering a sustainable infrastructure of clinical decision support systems such as drug allergy checking on data jointly contributed across sectors. A direct interface was built between the Drug Office of Hong Kong Department of Health and the eHR Office, enabling the transmission of registered information on over 20,000 pharmaceutical products to form the basis of standardisation into over 100,000 unique drug, substances and supporting terms. These standardised terminologies had been made available to healthcare providers and facilitated their sharing of 170,000 allergy

# APeHRC 2016



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and ADR records that are interoperable between healthcare providers onto the eHRSS. Since the implementation of eHR Application in year 2014, 780,000 prescription items prescribing via the eHR medication order entry system, for over 110,000 patients across the public and private sectors had been attained.

It is envisioned that information on medication across the territory would potentially enable exchange of prescription data via advanced medication process such as medication reconciliation and electronic prescribing, which would have significant impact on improving the overall safety and quality of healthcare delivery. The secondary use of health data on eHRSS opens up a new opportunity to quantify clinically significant information. For instance risk scoring via big data analytics on high risk medications and polypharmacy could provide important indicators to substantiate targeted medication therapy management, support population-wide pharmaco-epidemiology research on clinical outcome and drug safety, and provide basis of decision support to public health policy-makers and government decision-makers.