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Technological know-how for a successful migration to contemporary PACS, DICOM and HL7 standards
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Introduction
Many major acute public hospitals in Hong Kong have Picture Archiving and Communication System (PACS) installed for more than a decade. In view of technological advancements and international standards, most hospitals commenced to consider replacement and migration processes in recent few years. These processes involve multidisciplinary knowledge and experience, some being technically demanding, others being time-consuming, and not all problems have been published so far.

Objectives
To present the contemporary concepts of PACS, Digital Imaging and Communications in Medicine (DICOM) and Health Level-7 (HL7) standards; To share knowledge and experience from one major (1600-bed) hospital on the processes of migration from obsolete systems to new systems and standards, with focuses on technical problems and troubleshooting techniques.

Methodology
The hospital formed a special multidisciplinary team to coordinate a joint venture to migrate towards a new PACS of contemporary standards. Various technical problems, their root causes and final solutions were recorded, and then analyzed for sharing and teaching purposes.

Result
There were at least 20 recurrent problems requiring detailed technical investigations. (A) PACS server problems: frequent failure of loading DICOM images due to software bugs; frequent incorrect display of patient names due to different database design architecture across modalities and systems; frequent errors in logging of data migration from old to new server due to unreliable vendor's software tool. (B) PACS

broker problems: frequent data retrieval malfunctioning due to software driver incompatibility; unusual lengthening of data transmission time between broker and server due to faulty hardware (which was eventually verified by a novel in-house programme). (C) PACS broker-modality connectivity problems: several episodes of patient database corruptions due to incompatibility of DICOM tags between different vendors. The migration from obsolete to new systems inevitably led to an emergence of many technical problems, for which they have been successfully troubleshot and learned among professionals.