Voiding Urosonography: 1-year experience of pioneer paediatric radiology service in Hong Kong
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Introduction
Vesicoureteric reflux, the abnormal backflow of urine from urinary bladder to kidney, is associated with paediatric urinary tract infection and various renal conditions. Micturating Cystourethrography (MCU), using fluoroscopy (X-ray) and thus ionizing radiation, is the most commonly performed imaging examination among children. Contrast-enhanced Voiding Urosonography (ce-VUS), a novel ultrasound-based examination, has been introduced to the Kowloon Central Cluster (KCC) in September 2013, after the completion of our pilot study (2010-2012) and approval by Cluster Technology & Equipment Steering Committee. It is now practiced as an alternative reflux imaging examination in children.

Objectives
This retrospective study aims to review the change in radiological practice in reflux imaging for paediatric patients in Kowloon Central Cluster from October 2013 to December 2014. The referral guidelines, setup, logistics, and resource implication will be elaborated. It also aims to evaluate the safety profile and staff training of the new Voiding Urosonography (ce-VUS) practice.

Methodology
All patients undergoing ce-VUS performed in the study period (October 2013 - December 2014) were identified by Radiology Information System (RIS). The images and dose reports were reviewed in the Picture Archiving and Computing System (PACS), and relevant data were retrieved from electronic patient records (ePR). All patients undergoing MCU in the period between January 2013 to December 2014 were also identified by RIS. Their relevant radiological and clinical data were retrieved
Result
Total 56 paediatric patients (media age: 8 months, range: 1 months – 11 years) underwent ce-VUS examination within 17 sessions, since the implementation of the new practice in September 2013. 42 patients were boys, and 14 were girls. The most common indications of ce-VUS were investigation of urinary tract infection (n=18), followed by antenatal hydronephrosis (n=16) and follow-up for known reflux (n=10). Total 19 reflux pelvi-ureteric units (PUU) were detected, ranging from grade II to grade V. No complication was encountered in all our patients, immediately and 3 days after the examination. Total 2 radiologists and 7 radiographers completed supervised training on ce-VUS examination techniques. The number of MCU performed drastically reduced from 85 to 28 cases, one year before and after the commencement of ce-VUS. The most common indication was follow-up for known reflux with operation performed (n=7, 25%). The mean fluoroscopic time was 2.5 minutes, and dose was 0.572 mGy. In conclusion, this new paediatric radiology service, contrast-enhanced Voiding Urosonography (ce-VUS), is a safe and radiation-free alternative to conventional reflux imaging modality. This marks the beginning of radiation-free radiology environment for our paediatric population in Hong Kong.