



**Service Priorities and Programmes**  
**Electronic Presentations**

**Convention ID:** 66

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**Simulation Training in Interventional Radiology: a pilot model of training young doctors for endovascular procedures in Hong Kong**

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**Keywords:**

simulation training  
interventional radiology  
endovascular simulator  
endovascular procedures

**Introduction**

Interventional radiology (IR) is a subspecialty of radiology in which interventional radiologists perform invasive diagnostic and therapeutic procedures under image guidance. In particular, endovascular procedures like embolization, angioplasty and stenting require high level of expertise. In the modern era of patient safety, the old teaching method of "see one, do one, teach one" should be abandoned.

**Objectives**

To evaluate the usefulness of simulation training for young doctors to learn IR procedures

**Methodology**

Queen Elizabeth Hospital is a tertiary IR referral center and is also the only center in Hospital Authority equipped with an endovascular simulator. Our team organizes the pilot course of simulation training of IR for young doctors in our department. The training course covers 4 hours of hands-on endovascular simulation training on diagnostic angiography (renal, celiac, superior mesenteric angiograms & cerebral angiogram) with exposure to embolization, stenting & angioplasty; and 4 hours of hands on simulation training on ultrasound (US) guided vascular access, fine needle aspiration, biopsy and drainage. At the end of training, trainees have to successfully perform the US-guided procedures and diagnostic angiography in the endovascular simulator under supervision. To our knowledge, this is the first formally structured simulation training program in IR for young doctors using endovascular simulator in Hospital Authority. The trainees' level of confidence in performing such procedures are studied by one pre-course and two post-course questionnaires (immediate, and 2 months afterwards).

**Result**

9 young doctors are enrolled into the course. The level of experience are as follows: 1 Fellow of Hong Kong Academy of Medicine (FHKAM), 6 Fellow of Royal College of

Radiologists (FRCR), 2 not yet obtained FRCR. In the immediate post-course questionnaire, there is increase in level of confidence in performing the IR procedures under supervision: ultrasound guided intervention (from pre-course 44.5% lack of confidence to post course 81.5% with confidence), diagnostic angiography (from pre-course 72.2% lack of confidence to post course 72.2% with confidence), embolization, stenting, angioplasty and neuro-intervention (from pre-course 77.8% lack of confidence to post course 55.6% with confidence). In the 2 months post course questionnaire, there is further increase in level of confidence for US-guided procedures (92.6% with confidence), while there is a drop in confidence in performing diagnostic angiography (33.3% with confidence), and embolization, stenting, angioplasty and neuro-intervention (33.3% with confidence). During these 2 months period, 66.7% trainees have performed <10 US-guided procedures, 94.4% trainees have performed <10 diagnostic angiography, 100% trainees have performed <10 embolization, angioplasty & stenting, and neuro-intervention. Therefore, to maintain the confidence and skills in performing complex procedures, further practice after simulation course is essential. To conclude, simulation training is a safe and effective way to train young doctors learning IR. Our pilot model is a cornerstone for developing such curriculum in Hong Kong.