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# Developing an Introductory Radiology Clerkship at Perdana University Graduate School of Medicine in Kuala Lumpur, Malaysia

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## Abstract

**Purpose:** In recent years, several well-known medical schools in the United States have partnered with foreign institutions to promote the post-graduate model of medical education and the concept of the academic medical center. One such example is Perdana University Graduate School of Medicine (PUGSOM) in Malaysia, founded in collaboration with the Johns Hopkins University School of Medicine in 2010 with the hope of setting a new standard for biomedical research and patient-centered care in Southeast Asia. One issue for educators at PUGSOM was how best to integrate radiology into the clinical curriculum. Given radiology's global importance, a core clerkship was proposed; however, a major challenge lay in creating content that was rigorous and relevant to the Malaysian setting.

**Methods:** After interviewing practicing Malaysian radiologists, attending medicine ward rounds, and performing a literature review of successful radiology curricula, two senior American medical students from Johns Hopkins developed a two-week introductory clerkship combining experiential learning with online, case-based lectures featuring diseases and technology pertinent to the Malaysian environment.

**Results/discussion:** To our knowledge, this is the first example of a course developed by medical students in the United States for medical students in the developing world. The project serves as an example of the type of mutually beneficial international exchange intended by global partnerships in medical education.

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## 1. Introduction

### 1.1. Perdana University Graduate School of Medicine (PUGSOM)

Established in 2010 under a public-private partnership, Perdana University Graduate School of Medicine (PUGSOM) is the first graduate-entry medical school in Malaysia, created to provide an alternative option for Malaysian students with undergraduate degrees who were not able to gain entry into medical school after high school or developed the desire to become a physician later in life. Johns Hopkins University School of Medicine was chosen as a Western partner in this endeavor for its leadership in medical education and its novel “Genes to Society” curriculum, which integrates biology, culture, and environment and promotes research alongside patient-centered care.<sup>1</sup>

Johns Hopkins is not the first American medical school to collaborate with a foreign government to promote the post-graduate model of medical education. In 2007, Duke University partnered with the National University of Singapore (NUS) to launch Singapore's first such medical school.<sup>2</sup> Likewise, Weill Cornell Medical College partnered with the government of Qatar in 2001 to create the Gulf nation's first medical school,<sup>3</sup> providing pre-medical education for recently graduated high school students as well as a four-year post-graduate curriculum based on the US model.<sup>4</sup>

### 1.2. The curriculum

PUGSOM enrolled its inaugural class of 24 students in 2011. Johns Hopkins provided administrative leadership including vice deans, a founding dean, and a CEO, who in turn recruited several full-time faculty members from Baltimore to deliver pre-clinical courses and serve as clerkship directors.<sup>5,6</sup> Early research on this inaugural class showed that PUGSOM students rated their learning environment highly, with many variables – including teaching, faculty, and engagement – scoring higher than they did at a comparison medical school in Malaysia, or even the Baltimore campus of Johns Hopkins.<sup>7,8</sup>

Clinical rotations take place at Hospital Kuala Lumpur (HKL), a public, tertiary-referral hospital operated by the Malaysian Ministry of Health, and one of the largest hospitals in Asia with over 2300 beds. HKL is a major teaching hospital, staffed with Malaysian residents under the traditional “Commonwealth” system, including house officers (the rough equivalent of interns), medical officers (junior or senior residents), registrars (chief residents), and consultants or specialists (attending physicians). PUGSOM

students rotate through pediatrics, obstetrics and gynecology, internal medicine, surgery, neurology, and psychiatry.

## 2. Problem

### 2.1. Radiology education at PUGSOM

One challenge for PUGSOM was how best to integrate radiology education into the curriculum. Most modern imaging modalities are available at HKL, including computed tomography (CT), magnetic resonance imaging (MRI), and nuclear medicine. Additionally, all PUGSOM students must pass the US Medical Licensing Examinations (USMLE) – which covers basic radiology topics – whether they plan to practice in the US or not. A good foundation in radiology was felt to be essential, and a required clerkship was proposed.

In the spring of 2014, two authors (SWC and LK), both senior medical students at Johns Hopkins, travelled to Kuala Lumpur to assist in the development of a radiology clerkship for PUGSOM students. Project development involved six months of preparation in the US, followed by four weeks of in-country experience at PUGSOM and HKL. The following describes the experience of creating the course and explores the challenges of curriculum development in this unique setting.

## 3. Approach

### 3.1. Clerkship goals

Our primary goal was to create a two-week introductory radiology course for second-year PUGSOM students transitioning into their clinical years. A major challenge lay in creating content relevant to the Malaysian setting, while providing adequate preparation for the USMLE. To gather necessary data, we interviewed and observed multiple practicing radiologists at HKL, attended medicine rounds to better understand how imaging was integrated into clinical work, and performed a literature review of successful radiology curricula.

A second goal was to explore ways in which technology could make didactic components of the course self-sustaining. Computer-assisted online learning is particularly effective at teaching radiology principles to medical students,<sup>9–11</sup> especially when presented in a case-based format.<sup>12</sup> It offers a means to cater to American content and pedagogy while eliminating the cost of flying faculty from the US.

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