

## Letter to Editor

### The Need to Integrate Fundamental Radiology in Undergraduate Medicine Curriculum

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#### Dear Editor,

Since its advent in the early Twentieth Century, Radiology beholds capital significance in diagnostic and therapeutic medicine. Imaging techniques of the likes of X – Ray, CAT scan, MRI and the positron emission tomography (PET) have taken the world by storm over the past 20 years so much so that they have become indispensable in Medical Investigation. There is a growing school of thought with the view that basic radiological knowledge of X – Rays and Ultrasound should be imparted to medical students from the get-go.<sup>1</sup>

As a matter of fact, until recently an overwhelming majority of Medical Institutions in Pakistan have been adherent to the orthodox Non - Modular system which was essentially based on the then transformative Flexner Report of July 1910 where Abraham Flexner vehemently advocated learning basic biomedical sciences prior to clinical sciences; thereby preferring less practical theoretical knowledge to that of empirical importance to the clinician.<sup>2</sup> Unfortunately, that is not how patients are to be treated.<sup>3</sup> Recently, all Medical Colleges under University of Health Sciences have adopted the Integrated Modular system<sup>4</sup> which endorses the studying of basic and clinical subjects side by side. In addition to this much needed step, the concerned authorities are exhorted to look into the need to include fundamental radiological techniques in the

under graduate Medical curriculum in order to properly integrate the modular system.

Over the years as Radiology has progressed not just technologically but also in terms of its distribution insofar that X –Ray and Ultrasound imaging are now available and thus regularly employed diagnostically even at the Tehsil Headquarter Hospitals; the lowest tier of Public Hospitals in Pakistan.<sup>5</sup> This in turn translates to greater significance for medical students being taught radiological techniques during their undergraduate courses so that by the time they cross the threshold into the world of “Practicable Clinical Medicine” at the onset of their house job or medical internship, they already be in a position where they are well acquainted with ordering, performing and interpreting X- Rays and Ultrasounds; skills that are in no way far too advance for the level of medical practitioners under discussion for we are not entering the diverse and complicated world of MRI, CT and PET scans. This would allow for a greater proportion of young doctors serving in far flung areas who would have the much needed Radiological experience for diagnostic analysis.

Over the last two decades as Ultrasound machines have become increasingly sophisticated, they have also been compacted into ever more convenient forms insofar that some are hand held. At this point it is easy to foresee that over the course of the next ten or fifteen years, ultrasound imaging could well be just another application in our mobile phones in quite the same way as cameras are.<sup>6</sup> By then, having the ability to properly perform Ultrasound would become an indispensable and highly practical skill in the medical field especially as equipment becomes more readily available and the logistic barrier falls down.



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It has also been observed that medical students with an earlier exposure to radiological techniques and diagnostics such as X – Rays and Ultrasound have a greater ability to differentiate the abnormal from the normal which is an irrefutably invaluable skill in clinical medicine. This is also reflected in the skills that Senior Consultants are looking for in their juniors as 91% of Project Directors want their future trainees to have this skill along with the concomitant discretion of when to order images.<sup>7</sup> However, this is not usually the case as students see Chest X – Rays and Ultrasounds only superficially for the very first time in their wards and do not receive any hands on exposure to the techniques entailed therein unless they opt for a Radiology rotation in their house job; already having completed the prescribed five years of medical education.

The need of the hour is that short, yet interactive and productive courses to learn X- Ray and Ultrasound imaging be provided for by the Radiology Departments at teaching hospitals following their integration into the curriculum of Medical Students in their earlier years. This would be accompanied with an addition of X - Ray and Ultrasound images into the usual curriculum so that students be able to perceive the Anatomy, Physiology and Pathology that they are studying in terms of observable radiological findings which would further the current goal of Medical Education to bridge the gap between Basic and Clinical Medicine. This would also mean that by the time medical students proceed to their first ward observations, they would possess the basic knowledge required to comprehend the radiological tests associated with a particular medical case that they are examining thus integrating the different forms of ward learning. Even the UK Royal College of Radiologists highly recommends medical colleges taking up teaching radiology as a separate and

integrated subject throughout pre-clinical and clinical medical curriculum.<sup>8</sup>

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