



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
1983 Volume VII: Medical Imaging

Introduction

In the last 20 years there has been a technological explosion within the medical specialty of Radiology. Such new modalities as ultrasound, radio-nuclide scanning, computed tomography, nuclear magnetic resonance have been developed. The purpose of all this is to “image” structures within the body more effectively and with fewer complications and biological effects. Since a few of these newer modalities do not use radiation, there has been a trend for departments to change their name from Radiology to Diagnostic Imaging.

Diagnostic imaging is a highly visible medical specialty, since almost everyone has had an X-ray, but students have very little understanding of what is actually taking place. This medical specialty produces static and dynamic images of the human body, but rarely are these images employed in the teaching of anatomy, physiology and biology. The technology of diagnostic imaging uses basic principles taught in physics, chemistry, mathematics and computer science, but such practical applications are hardly ever considered in these basic courses.

Why is this? Probably because most, if not all, teachers think this material is too complicated— too technical for middle and high school students.

I believe the Fellows in the Diagnostic Imaging Seminar have proven this assumption to be wrong. As a result of their enthusiasm and hard work, it will become clear to anyone reading these units that diagnostic imaging can be presented in a meaningful way. It should be possible to adjust the material either up or down with respect to difficulty by custom-editing the unit and selectively using the references and the teaching aids available from the Teachers Institute.

It is important for any teacher using one of the units to check the others carefully for relevant material. There is some overlap. Units 1 (Historical Overview), 2 (Conventional Radiology) and 3 (Atomic Basis of Radiation) are good examples of this. Each discussion considers the production of X-rays from a different perspective, and therefore they compliment each other. With units 5 and 6, both of which involve ultrasound, it is probably going to be harder to use one without the other than it would be to use, at a minimum, parts of each. Even though units may be treated separately, it should be understood that the seminar has an overall structure and therefore can be used as a complete course.

It is very important to the Fellows and me that the career opportunities available in diagnostic imaging are brought to the attention of the students exposed to these units. A few of the units include material on this.

I was confident at the onset of this seminar that diagnostic imaging could be simplified without losing its value. Thanks to the teaching expertise of the Fellows, this material has not lost its excitement either.

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