Post-graduate Medical Education (GME) in Internal Medicine: the U.S. model

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The U.S. system of graduate medical education (GME) in internal medicine has recently entered a new phase that represents a refinement- and advancement- of the long-standing Oslerian model. The U.S. adopted the Oslerian model of clinical education at the start of the twentieth century following the Flexner report that exposed serious deficiencies in the scientific basis and pedagogic structure of the U.S. system of medical education. This new phase in internal medicine GME places a particular emphasis on competency-based medical education (CBME), which is an outcomes-based approach to the design, implementation, assessment and evaluation of a medical education program using an organizing framework of competencies.

The U.S. system of GME has as its basis a set of organizing principles:

1. Peer-to-peer teaching and learning
2. Experiential learning
3. Didactic, interactive and self-directed learning
4. Progressive responsibility
5. Competency-based Medical Education (CBME)
6. Standards and self-regulation

Social learning theory underlies the principle of *peer-to-peer teaching and learning*. It describes the process by which novice learners become members of the community of physicians. Novices learn by observing the behaviors, attitudes, and thinking of peers and superiors, comparing their own ways of thinking and acting with those of others. Novices attempt to emulate the actions of more senior physicians, practicing and adopting the language, norms, and values of the professional community and their successes receive reinforcement by the reactions of others to their behaviors. Their learning is enhanced when experts model appropriate knowledge, skills and behaviors. In the U.S. this peer-to-peer teaching and learning increasingly occurs in the setting of interdisciplinary teams that emphasize the emerging importance of team-based care in the U.S.

The emphasis on *experiential learning* also has its origins in Abraham Flexner��s 1910 report. As Flexner stated, ��On the pedagogic side, modern medicine, like all scientific teaching, is characterized by activity. The student no longer merely watches, listens, memorizes; he does��. Contemporary research on the development of expertise has confirmed Flexner��s observations on the importance of ��hands-on�� experience and practice in medical education.

Adult-learning theory serves as the basis for the U.S. model for *didactic and interactive learning*, with the goal of graduating physicians who have developed a commitment to life-long, self-directed learning. In this model, residents are actively involved in constructing individual educational goals, build on their prior knowledge, and take responsibility for their learning (intrinsic motivation) as opposed to only responding to their teachers and/or evaluators (extrinsic motivation).

A core tenet of the U.S. GME system is *progressive responsibility*, which provides clinical opportunities that help residents develop professionally into self-regulating, autonomous, independently practicing physicians. Traditionally in the U.S., this progression has been more time-based but increasingly there is movement to make this progression competency-based, using the principles of Competency-Based Medical Education (CBME).

In the U.S., there is an accelerating move toward *CBME*, an outcomes-based approach to the design, implementation, assessment and evaluation of medical education programs using an organizing framework of explicitly defined competencies and educational milestones. The Accreditation Council for Graduate Medical Education (ACGME) has adopted six core competencies that define the expected skills, knowledge and behaviors for all medical specialties: (1) Patient Care; (2) Medical Knowledge; (3) Professionalism; (4) Systems-based Practice; (5) Practice-based Learning and Improvement; and (6) Interpersonal and Communication Skills. CBME requires a clear definition of expected competencies (i.e. things residents need to do) and requires a robust system of assessment that can determine whether these things are done consistently and within the contextual needs of the clinical environment. Such a system requires the use of multiple assessment methods, the use of clearly described standards and criteria for judging performance; and assessment of resident performance by evaluators in a variety of roles (examples: physician supervisors, patients, nurses, peers).

Finally, the U.S. system of GME is based on a rigorous system of *professional self-regulation* that develops and maintains the highest *professional standards*. In the U.S. GME system, there are two complimentary systems for self-regulation: the ACGME and the American Board of Medical Specialties (ABMS) and its constituent specialty members, which for internal medicine, is the American Board of Internal Medicine (ABIM).