

Trends in Histology Laboratory Teaching in United States Medical Schools

ROBERT A. BLOODGOOD* AND ROBERT W. OGILVIE

Owing to competition for faculty time among the three major missions of today's academic medical centers, as well as the rapid development of computer-based instructional technologies, laboratory instruction in medical schools in the United States has been undergoing dramatic change. In order to determine recent trends in histology laboratory instruction at U.S. medical schools, a detailed Web survey was administered to histology course directors, with about two-thirds of schools responding. The survey was designed to identify trends in the number of hours of histology laboratory instruction that each medical student receives, the amount of faculty effort devoted to histology laboratory instruction, and the use of various computer-based technologies (including virtual microscopy and virtual slides) in histology laboratory instruction. Consistent with the long-term trend of declining total laboratory teaching hours in U.S. medical schools, there is an ongoing reduction in the number of hours of faculty-directed histology laboratory instruction that each medical student receives, with a concomitant reduction in hours of faculty time devoted to histology laboratory instruction. In terms of the tools used in the histology laboratory, there has been a dramatic increase in the use of various forms of computer-aided instruction (including virtual slides). The large increase in the number of schools using computer-aided instruction has not been accompanied by an equivalent decrease in the number of schools that utilize microscopes and glass slides. Rather, the clear trend has been toward a blending of the new computer-based instructional technologies with the long-standing use of microscopes and glass slides. *Anat Rec (Part B: New Anat)* 289B:169–175, 2006. © 2006 Wiley-Liss, Inc.

KEY WORDS: histology; laboratory; education; virtual microscopy; virtual slide

INTRODUCTION

Laboratory teaching in U.S. medical schools has experienced dramatic changes, from its rise in the 1870s (Millcock, 1966) through its peak years in the first half of the 20th century following the release of the Flexner report (Flexner, 1910), to its gradual decline during the past half century (Barzansky, 1992; Genuth et al., 1992; Hoterz, 2003). Gartner (2003) documented a steady decline in laboratory

hours in all of the anatomical sciences in U.S. medical schools between 1967 and 2001. For example, between the 1960–1961 academic year and the 1985–1986 academic year, total laboratory teaching hours at the Case Western Reserve University School of Medicine declined from just over 1,000 hr to approximately 350 hr (Genuth et al., 1992). Many factors have probably contributed to the decline of laboratory teaching in U.S. medical

schools, including the rise of National Institutes of Health-funded research, managed care, changes in medical practice, reductions in total hours allotted to basic science teaching, and developments in computer-aided instruction. Increased emphasis on patient care and grant-funded basic and clinical research has provided competition for limited faculty resources within medical schools. As Ludmerer (1999) put it, "time spent teaching was incompatible with institutional values that gave priority to research." Especially in the basic sciences, this has led medical schools to develop strategies for teaching medical students that are less faculty-intensive.

Traditionally, one of the major areas of laboratory teaching in the medical curriculum has been histology (also called microanatomy), where the light microscope has been the primary laboratory instructional tool. The rapidly improved sophistication and power of microcomputers has led to the availability of many forms of computer-aided instruction (CAI) in

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Dr. Ogilvie is professor of cell biology and anatomy at the Medical University of South Carolina, where he directs the medical histology and embryology course. He has directed medical histology courses in three medical schools since 1965. He is coeditor, with Jiang Gu, dean of Beijing-

College of Medicine, of *Virtual Microscopy and Virtual Slides in Teaching, Diagnosis and Research* (2005). His research activities over 40 years in academia have included microcirculation of teeth, lung/pulmonary tumors, hyperbaric oxygen treatment, therapeutic effects of exercise, and growth factors on improving circulation to the lower limbs in older persons.

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Teachers And Teaching In United States Medical Schools

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Teachers And Teaching In United States Medical Schools:

Teachers and Teaching in U.S. Medical Schools Hilliard Jason, Jane Westberg, 1982 **Collaborative Clinical Education** Jane Westberg, PhD, Hilliard Jason, MD, EdD, 1992-11-15 This book is intended for those who are now and those who intend to become clinical teachers in the health professions Its primary focus is the teaching of medical students and residents but the principles discussed apply equally to teaching students in other health professions The main focus is on the process of teaching the strategies and tactics involved in helping others learn and the authors discuss the generic steps strategies and principles of effective teaching that apply in any clinical setting They do however draw numerous examples from clinical education in a variety of settings The authors specifically stress the notion of collaboration an issue closely related to the public s considerable dissatisfaction with the modern health care system to create a more effective responsive system they argue there is a need to change the ways that health care is provided and the way it is taught A collaborative approach is needed in both health care and medical education one that involves partnerships between clinicians and patients and between teachers and learners Also prominent throughout the book is the idea that clinical education can be planned and conducted in far more systematic ways than is now common An overarching goal of the book is to provide readers with an enlarged set of options to consider using when faced with the inevitable multiplicity of decisions confronting clinical educators **Monthly Catalog of United States Government Publications** United States. Superintendent of Documents, 1992 *Miller's Anesthesia* Lars I. Eriksson, 2009-01-01 From fundamental principles to advanced subspecialty procedures this text is the go to reference on the technical scientific and clinical challenges professionals face Features new chapters new authors meticulous updates an increased international presence and a new full color design *Monthly Catalog of United States Government Publications, Cumulative Index* United States. Superintendent of Documents, 1976 *Education for Victory*, 1942 *Developments in Healthcare Information Systems and Technologies: Models and Methods* Tan, Joseph, 2010-07-31 *Developments in Healthcare Information Systems and Technologies Models and Methods* presents the latest research in healthcare information systems design development and deployment benefiting researchers practitioners and students Contributions investigate topics such as clinical education electronic medical records clinical decision support systems and IT adoption in healthcare **The Lancet**, 1892 **Active Education for Future Doctors** Nomy Dickman, Barbara Schuster, 2020-05-11 This book is designed to aid the faculty of medical and other health related schools in developing the pedagogical skills to transform their teaching in multiple settings including the classroom the conference room the ambulatory office and the hospital from a passive learning experience to an active learning experience In this transformation the teacher morphs from the all knowing expert to the learning facilitator and coach After a brief review of adult learning theory the remainder of the book will focus on a broad variety of teaching techniques and classroom activities that flip the classroom from a passive to an active learning environment In addition to condensed explanations of

each of the techniques examples of each process will be presented with suggestions for flexing the techniques to better accommodate a variety of learning settings and a diversity of learners

Building America's Health United States. President's Commission on the Health Needs of the Nation,1952

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Journal of the American Medical Association American Medical Association,1924

Publication Catalog of the U.S. Department of Health, Education, and Welfare United States. Department of Health, Education, and Welfare,1978

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Literature Search National Library of Medicine (U.S.),1974

Education for Victory Olga Anna Jones,1944

Family Medicine J. L. Buckingham,E. P. Donatelle,W. E. Jacott,M. G. Rosen,Robert B. Taylor,2013-06-29 This Second Edition of Family Medicine Principles and Practice presents a scientific approach to health and illness in the context of mankind's most enduring societal unit the family This is a new book building on the strengths of the First Edition The emphasis of this book like that of the specialty itself is on the clinical delivery of health care that is how the practitioner manages common problems and recognizes uncommon entities encountered in office hospital home and nursing home In the First Edition we were faced with the problem of how to organize a family medicine textbook that dealt with clinical topics yet represented more than a series of essays on the specialties for the generalist reader We began by identifying specific objectives outlined in the preface to the First Edition From this evolved an approach which has been called the biopsychosocial perspective inclusion of behavioral family social and cultural aspects of health care integrated with the traditional manifestations and management textbook model The First Edition also introduced a comprehensive classification of clinical problems in family medicine now used in curriculum planning in many family practice residency programs

Agricultural Instruction in Secondary Schools Arthur Coleman Monahan,Charles Hart Handschin,Clarence Hall Robison,Eugene Cuninghame Branson,George Edwin MacLean,Roland B. Daniel,United States. Office of Education,Floyd B. Jenks,Robert Herring Wright,1913

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