CURRICULUM VITAE

Diane R. Karius, Ph.D.

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Director of Human Patient Simulation
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EDUCATION

Bachelor of Science — 1977 - 1981
LOYOLA UNIVERSITY — CHICAGO, ILLINOIS
Major: Biology

Ph.D. — 1982 - 1989
THE OHIO STATE UNIVERSITY — COLUMBUS, OHIO
Major: Physiology
Dissertation Title:
The Influence of Upper Airway Receptors on Respiratory Pattern Generation in the Rooster.
Advisors:
Albert L. Kunz, M.D.
Thomas Clanton, Ph.D.

PROFESSIONAL EXPERIENCE

Professor of Physiology — 2016 - present
KANSAS CITY UNIVERSITY OF MEDICINE AND BIOSCIENCES
KANSAS CITY, MO

Director of Human Patient Simulation — 2008 - present
Kesselheim Center for Clinical Competence
KANSAS CITY UNIVERSITY OF MEDICINE AND BIOSCIENCES
KANSAS CITY, MO

Director, Kesselheim Center for Clinical Competence — 2006 - 2008
KANSAS CITY UNIVERSITY OF MEDICINE AND BIOSCIENCES
KANSAS CITY, MO

Associate Professor of Physiology — 2003 - 2016
KANSAS CITY UNIVERSITY OF MEDICINE AND BIOSCIENCES
KANSAS CITY, MO
(Formerly University of Health Sciences)

Assistant Professor of Physiology — 1994 - 2003
UNIVERSITY OF HEALTH SCIENCES
KANSAS CITY, MO

Post-doctoral Fellow — 1989-1994
UNIVERSITY OF KENTUCKY
LEXINGTON, KY
Department of Physiology
Dexter F. Speck, Ph.D.
Research interests: Respiratory Neurophysiology

Instructor: Biology 350 - Vertebrate Physiology 1989
UNIVERSITY OF KENTUCKY
LEXINGTON, KY
Department of Biology

Graduate Research Associate 1986-1989
THE OHIO STATE UNIVERSITY
COLUMBUS , OH
Department of Physiology
Albert L. Kunz, M.D.

Graduate Teaching Associate 1982-1986
THE OHIO STATE UNIVERSITY
COLUMBUS, OH
Department of Physiology
Allied Health, Nursing, Optometry, and Medical Students

Physiology Laboratory Technician 1981-1982
University of Illinois - Medical Center
Chicago, IL
Department of Physiology
Robert F. Loizzi, Ph.D.

GRANTS AND AWARDS

Grants

- Graduate Student Alumni Research Award, 1986
  $2100.00 for support of graduate research.
- Department of Physiology Graduate Fellowship, 1986
- American Lung Association Grant - 1995-1997
  "The role of the Dorsal Respiratory Group in Inspiratory Termination"
  $49,197
- University of Health Sciences Foundation, Inc. - 1997-1998
  "Establishing a Regular Seminar Series at UHS"$2810.00

Awards/Honors

- Recognition for Excellence in Graduate Research, 1988 Presented by the Bennett Graduate Research Society
- Teacher of the Year 1995/96: Presented by the UHS (now KCUMB) class of 1999.
- Faculty Research Presentation Award, April 2000; "Studying for Success: How UHS Students Study Physiology".
- Nomination: Sigma Sigma Phi Outstanding Faculty Award (98/99 and 99/2000).
- Missouri Governor's Excellence in Education Award: 2000
- Faculty Research Presentation Award, April 2001; "Background and Study Techniques Influence Performance in Medical School Physiology".
- Sigma Sigma Phi Faculty Person of the Year, 2001.
- Summit Award, 2003 *Presented by the University of Health Sciences in recognition of innovation in teaching, specifically the introduction of Just in Time-Teaching quizzes into the GI section.*
- Advocate for Academic Excellence, 2004: Presented by Psi Sigma Alpha Class of 2006
- Fellow, National Academy of Osteopathic Medical Educators, 2010-2015; Renewed: 2015 – 2020.
- 2016 Icon in Education. Selected by Ingram's Magazine

PUBLICATIONS

Refereed Papers

1. KARIUS, D.R., L. Ling, and D.F. Speck. Lesions of the rostral dorsolateral pons have no effect on afferent-evoked inhibition of inspiration. Brain Res. 559:22-28. 1991

2. KARIUS, D.R., L. Ling, and D.F. Speck. Blockade of N-Methyl-D-Aspartate (NMDA) receptors has no effect on certain inspiratory reflexes. Am. J. Physiol: Lung Cellular and Molecular Physiology 261:L443-L448. 1991.

3. KARIUS, D.R., L. Ling, and D.F. Speck. Effects of intravenous bicuculline and strychnine on inspiratory inhibitory responses in the cat. Brain Res. 579:270-278. 1992

4. KARIUS, D.R. and A.L. Kunz. Reponses of roosters to resistive loads at constant chemical drive to breathe. Respir. Physiol. 90:185-200. 1992.

5. L. Ling, D.R. KARIUS, R.R. Fiscus and D.F. Speck. Endogenous nitric oxide required for an integrative respiratory function in the cat brain. J. Neurophysiology 68:1910-1912. 1992.

6. Speck D.F.; D.R. KARIUS, and L. Ling. Respiratory afferents and the inhibition of inspiration. In: Respiratory control: Central and Peripheral Mechanisms, Edited by D.F. Speck; M.S. Dekin, W.R. Revelette, and D.T. Frazier; University Press of Kentucky, Lexington. 1993. pp. 100-103.

7. Ling, L.; D.R. KARIUS, and D.F. Speck. Pontine-evoked inspiratory inhibitions after antagonism of NMDA, $GABA_A$ or glycine receptors. J. Appl. Physiol. 74:1265-1273. 1993.

8. KARIUS, D.R., L. Ling, and D.F. Speck. Excitatory amino acid neurotransmission in superior laryngeal nerve-evoked inspiratory termination. J. Appl. Physiol. 74: 1840 - 1847. 1993.

9. Ling, L.; D.R. KARIUS, and D.F. Speck. Role of NMDA (N-methyl-D-Aspartate) receptors in the pontine pneumotaxic mechanism in the cat. J. Appl. Physiol. 76:1138-1143. 1994.

10. KARIUS, D.R., L. Ling, and D.F. Speck. Nucleus tractus solitarius and excitatory amino acids in afferent-evoked inspiratory termination. J. Appl. Physiol. 76:1293-1301. 1994.

11. KARIUS, D.R. and D.F. Speck. Short-latency excitation of phrenic motor output mediated by non-NMDA receptors. Brain Res. 682:235-238. 1995.

PRESENTATIONS

1. KARIUS, D.R. “Flipping the Classroom” – Workshop presented to the 25th Annual Osteopathic Medical Education Leadership Conference, Jan. 2014

2. KARIUS, D.R. Taking the Distance out of Distance Education; as part of the joint presentation: “Learning Communities to Enhance Medical Education Across the Continuum” with Jonathan R. Kirsch, DO, Associate Professor and Director of OPP, ATSU-SOMA and Patricia S. Sexton, DHEd, Associate Dean of Curriculum, ATSU/KCOM. Presented at the 2013 meeting of the American Association of Colleges of Osteopathic Medicine in Bethesda Maryland.

3. S. Parrott and KARIUS, D.R. Standardization and Assessment of Feedback to Pre-Clinical Medical Students Using the One-Minute Preceptor Model. Poster presented at the 2013 meeting of the American Association of Colleges of Osteopathic Medicine in Bethesda Maryland.

4. KARIUS, D.R. and J. Dougherty. Efficacy of Communications Among Third-Year Osteopathic Medical Students During High-Fidelity Patent Simulations. Poster presented at the 2011 meeting of the American Association of Colleges of Osteopathic Medicine in Bethesda Maryland.

5. KARIUS, D.R.. and J. Dougherty. Efficacy of Student Communications During High-Fidelity Patient Simulations: Time to Verbalization and Action. “Work in Progress” poster presented at IMSH 2011, Jan. 2011. New Orleans, Lousiana.

6. KARIUS, D.R.. Integrating Human Patient Simulation Experiences into a Preclinical Undergraduate Medical Curriculum. Poster presented at the 2010 meeting of the American Association of Colleges of Osteopathic Medicine in Bethesda Maryland.

7. KARIUS, D.R. Student Adopted Roles in Small-Group Patient Simulation Sessions. Oral presentation at 2010 meeting of the American Association of Colleges of Osteopathic Medicine in Bethesda Maryland.

8. KARIUS, D.R., Cheryl Benge; Tyler Feikema, M.S., and Carol E. Kirila, D.O. Modeling Physician Behavior and Increasing SOAP Note Experience Using Videotaped Standardized Patient-Physician Encounters in a Second-Year Medical Student Class. Presented to the Central Group on Educational Affairs (a division of AAMC) Spring Meeting, 2006, Kansas City, MO

9. KARIUS, D.R. Incorporation of a Modified Form of Just-In-Time Teaching (JiTT) Quizzes into a First-Year Medical School Course. Presented to the Central Group on Educational Affairs (a division of AAMC) Spring Meeting, 2006, Kansas City, MO

10. KARIUS, D.R. and James Southwell, MS II: Background and Study Techniques Influence Performance in Medical School Physiology. Presented at UHS Research Day, April 13, 2001.

11. KARIUS, D.R. and James Southwell, M.S. I: Background and Study Techniques Influence Performance in Medical School Physiology. Presented at the Central Group on Educational Affairs (a division of AAMC) Spring meeting, March, 2001, Minneapolis, Minnesota.

12. KARIUS, D.R. and James Southwell, M.S. I: Background and Study Techniques Influence Performance in Medical School Physiology. Presented at the Central Group on Educational Affairs (a division of AAMC) Spring meeting, March, 2001, Minneapolis, Minnesota

13. KARIUS, D.R., and James Southwell, M.S. I. Studying for Success: How UHS Students Study Physiology. Presented at UHS Research Day, April 28, 2000.

14. Nehad El-Sawi, PhD, Bonnie Buxton, PhD, DIANE KARIUS, PHD, Kenneth Steier, DO, Duane Brandau, DO, Douglas Rushing, PhD, Elaine Wallace, DO, James Guillory, DO. IME Workshop: Planning Curriculum Revision: A Rational Approach. Presented to the Central Group on Educational Affairs (a division of AAMC) Spring Meeting, March 25, 2000 in Rockford, Illinois.

SERVICE

International Society Service:

- Society for Simulation in Healthcare (SSIH)
  - Certification Subcommittee (2011 - 2016): The Society developed a certification process for simulation educators. I have been most involved in the creation of a certification examination, writing and reviewing questions for the examination. I am also a part of the ad hoc committee that reviewed the entire test.
  - Chair, Examination Subcommittee of the Certification Subcommittee (2013 – 2016). This subcommittee is charged with maintaining and responding to issues related to the currently implemented test.
  - Director's Special Interest Group: Within SSIH, a group of individuals who direct patient simulation (high fidelity simulators) programs.
- Reviewer, International Journal of Osteopathy, Special reviewer for papers in medical education research.

National Service:

- American Association of Colleges of Osteopathic Medicine (AACOM)
  - SOME steering committee member (undergraduate representative) 2012 - present. With other members of the steering committee, determine activities of the Society of Osteopathic Medical Educators and plan the yearly meeting (occurs at the annual AACOM meeting).
  - SOME executive committee member – elected Secretary (2014 – 2016)
  - 2010- present: Provide peer review of abstracts and grants submitted to various AACOM programs.
- Fellow, National Academy of Osteopathic Medical Educators (NAOME)
  - Review applications for membership in NAOME.
  - Review research grants submitted to AACOM
  - Review abstracts submitted for inclusion at the AACOM yearly meeting.
  - Poster Judge for AACOM yearly meeting.
  - Working group: Grant Review Subcommittee.
    - Charge: Evaluate and revise review rubric and process
    - The subcommittee has met and reviewed the rubric and suggested changes/clarifications. After the group reviews the suggested changes (we're in the early editing stages), the changes will be presented to NAOME.
- Reviewer: Journal of the American Osteopathic Association (JAOA). *(Medical Education Research)*

Regional Service:

- 2015 – present: Steering Committee of the newly formed Kansas City Regional Simulation Alliance (KCRSA)
- 2016 – present: Chair; KCRSA Steering Committee

University Service:

Committee Service (current committees)

- Curriculum Committee
  - KCU-Joplin Coordination Committee
  - KCU-Joplin Curriculum sub-committee
  - KCU-Joplin Faculty Development sub-committee
  - KCU-Joplin Communication/IT sub-committee
- Continuing Medical Education Committee – *ex officio*

Faculty Senate

- Vice President (1997 - 2000)
- President (2000 to 2003)
- President-elect (2012-2013)
- President (2013-2014)
- Representative (2016 - present)

Academic Service:

- Web-Master - 1998/99 to present: Physiology Course/Department web page
- Section Director - Genesis 2000 Curriculum.
  - Gastrointestinal: 2000 to 2006.
  - Renal: 2003 to 2005
  - Respiratory: 2003 to 2006
  - Cardiopulmonary (combination of respiratory and cardiovascular sections): 2006 - 2007.
- Co-coordinator (With Norbert Seidler, Ph.D.): Fundamental Principles of Cell and Molecular Biology. New course, 1997/98 and 98/99 academic years.
- Course Director – Cardiopulmonary (2014-present new curriculum)
- Electives
  - Pathophysiology (co-taught with Physiology department members) – targets second year students in their preparation for their Board exams.
  - Core Concepts in Physiology 1 and 2 – Developed and delivered two courses targeted to first year medical students that are having difficulty in the physiology of the system in question. This course relies heavily on teaching modalities other than lecture.
  - Human Patient Simulation – This course targets second year students and trains them to develop and program high fidelity simulations. This course requires the students apply information from multiple disciplines.
  - Instructor in Basic Disaster Life Support elective (George Kolo, D.O. – Course Director) – deliver lectures on Chemical Disasters.
  - Instructor in Advanced Disaster Life Support elective (George Kolo, D.O., Course Director) – delivered advanced disaster simulations using high fidelity mankins.
- Certified Instructor – National Disaster Life Support Program. 2012 – present.

- Faculty Advisor to multiple students
  - College of Osteopathic Medical Students
  - 5 - 12 students each year.

- Presentations
  - Continuing Medical Education
    - "Information Retrieval on the World-Wide Web": Presented at UHS Homecoming CME, September, 2002, 2003, 2004, 2005, and 2006.
    - "Physiology of Chronic Pain": Presented at Winter Holiday CME, Dec. 16, 2004.
    - "Human Patient Simulation": Presented at KCUMB Homecoming CME; September 2006 and 2007.
    - "The Unresponsive Patient" - with Gautam J. Desai, D.O.; Simulation experience presented at KCUMB Homecoming CME, September 2008.
    - "The Unstable Patient" - with John Dougherty, D.O.; Simulation experience presented at KCUMB Homecoming CME, September 2009.
    - "Current Concepts: The Use of Patient Simulators in Medical Education" presented at the Winter Scientific Seminar hosted by the Missouri Society of the American College of Osteopathic Family Physicians; Independence, MO; January 2010.
    - "The Unstable Patient" - with Rance McClain, D.O.; Simulation experience presented at KCUMB Homecoming CME, September 2010-2012.
    - Human Patient Simulation sessions with Rance McClain, D.O.; developed simulation scenarios to allow CME participants to apply didactic material presented during the CME sessions in high fidelity simulation. KCUMB Homecoming CME; September 2013 and KCUMB Winter CME session; December 2013.
    - "Taking the Distance out of Distance Education" – Presentation presented as part of a workshop on Clinical Education. Presented at the American Association of Colleges of Osteopathic Medicine Annual Meeting, April 2013
    - "Flipping the Classroom" – Workshop presented to the 25th Annual Osteopathic Medical Education Leadership Conference, Jan. 2014
    - Disaster Simulations – Human patient simulations delivered to KCU Homecoming CME – Disaster Medicine Focus. Sept. 2014
    - Atrial Tachyarrhythmia Simulations – Human patient simulations delivered to KCU Homecoming CME. Sept. 2015
  - Faculty Development
    - "Concept Mapping in Traditional Lectures" - part of the "Concept Mapping" Presentation in the Teaching Methodologies series at UHS, July 16, 1998.

- ”Interactive Teaching in Large Groups”. Presented in the Teaching Methodologies series at UHS, August 7, 1998.
- “Web-Based Directed Studies: Lessons Learned”. Presented in the Teaching Strategies series at UHS, October 4, 2002.
- “Creating Animations in Teaching” Presented at UHS, December 8, 2003 with Tyler Feikema.
- “Just in Time Teaching: It’s not just about the clock”: Presented at KCUMB, October 14, 2005.
- “How to Present an Effective Interdepartmental Conference” - presentation with Sandra Willsie, D.O.; Dean of Academic Affairs; Presented at KCUMB faculty retreat, 2005.
- “Team Teaching” - presentation with Maria Cole, Ph.D. Presented at KCUMB faculty retreat, 2006
- “Elements of Teaching” - Presented to new faculty as part of the mentoring group for new faculty; Oct. 2007.
- “Advanced Power Point - KCUMB Faculty Development Series, 2009
- “The Evidence for and Use of Human Patient Simulators in Undergraduate Medical Education” - KCUMB Faculty Development Series, 2009.
- “Using Power Point 2007 - an Introduction” - KCUMB Faculty Development Series, 2009
- “Becoming a Fellow in the National Academy of National Osteopathic Medical Educators (NAOME)” - KCUMB Faculty Development Series, 2010.
- ‘Meet the Sims” - KCUMB Faculty Development Series, 2012.
- “Learning Catalytics” – KCUMB Faculty Development Series, 2014.
- “KCU Teaching Resources Center” (2014 to present): Originally developed to support the teaching efforts of the physiology department, this web page now provides access to online resources, books, and journals related to teaching and medical education to all KCU faculty. I’ve also started adding quick tutorials related to topics the faculty express interest in. The page may be accessed at http://courses.kcumb.edu/physio/Physiology%20Teaching%20Resources/

TEACHING PHILOSOPHY and METHODOLOGIES

Teaching Philosophy: As I reflect on my career to this point, one of the things I am struck by is the number of seemingly unrelated events that came together to make me the educator I am today. One of the most important coincidences occurred during my post-doctoral fellowship: my mentor's lab happened to neighbor the office of another physiologist, Joe Engleberg, Ph.D.. Joe was very close to retirement and had closed down his research lab, choosing to devote his time to developing a more thorough integration of physiological systems. In Joe's mind, it was not sufficient to merely be able to map a process for (e.g.) responding to a change in blood pressure. In his view, you hadn't truly engaged physiology if you didn't include everything from the molecular interactions in the vessel wall that were changed as blood pressure increased to how a higher power interacted with your consciousness to recognize what a miracle blood pressure regulation was. I have no idea if Joe had ever read the writings of A.T. Still, but I realize now that Joe had arrived at a view of physiology that was very similar to A.T. Still's view of the human body. At a time when there was tremendous pressure to move to increasingly reductionist systems, Joe taught me the importance of both the reductionist and the integrative (systems) viewpoints. The flow charts based on cases in the New England Journal of Medicine that he taught me to create still are an important part of my teaching.

I am also lucky enough to have started my career at a time when at a time when technology was becoming smaller, more powerful, and, therefore, more accessible to all. The development of this technology has impacted my career in (at least) three different ways. The first and most important aspect is that technology has allowed us to understand the function of the human brain (including learning and memory) at a level of detail I'm not sure anyone believed possible. Secondly, the technology has allowed individuals to create educational materials incorporating multi-media at a level that was formerly considered so expensive and time-consuming that only dedicated professionals could create at that level. Finally, technology has allowed us to interact with students in new ways, both in and outside the classroom. It is easy how these developments could affect the methods I use to teach, but using them has also taught me things about my philosophy and objectives for teaching.

There are several components to my teaching philosophy:

- "**Begin with the end in mind":** Stolen straight from the second habit of Stephen Covey's The 7 Habits of Highly Effective People, this element of my teaching philosophy is so basic I hesitate to mention it here because it should be inherent in all our teaching, but time has taught me that losing sight of the basic is entirely too easy to do.
- If having the end in mind is important because it defines the destination, **recognizing and meeting the students where they are** is just as important because that defines *their* starting point. On our GPS devices, we have (or want) the option to turn off the instructions for getting out of our neighborhood because we know how to do that. When I first started teaching, I assumed that the students "knew how to get out of their neighborhood" to meet me at the learning destination I intended, but time has taught me that I need to make an explicit effort to help many students in this respect.
- **Each student is doing the best he/she can at that point in time**. It may not be good enough. It may, in fact, be pretty bad. It has recently been suggested that a substantial impediment to learning is the belief that intelligence is fixed (e.g. Implicit Theories of Intelligence Predict Achievement Across an Adolescent Transition: A Longitudinal Study and an Intervention; CHILD DEVELOPMENT Volume 78, Issue 1, January/February 2007, Pages: 246–263, Lisa S. Blackwell, Kali H. Trzesniewski and Carol Sorich Dweck). In some literature this is referred to as a performance mindset rather than a

learning mindset and I have to come to recognize that this is one very likely explanation for student behaviors that, frankly, drive me nuts. When students with a performance mindset/fixed intelligence mindset come to talk to me, the conversation often focuses on what they need to do to get by, the curve, what they are NOT good at, and reluctance to try new approaches. This behavior makes sense if the students are working under the assumption that they are 'not smart enough' to achieve at a level they are used to and so they don't see the point in working any harder than they need to in order to pass.

- **The materials I develop for guiding/teaching the students must be based (as much as possible) on sound neurophysiology**. Just as the gold standard in clinical medicine is evidence-based medicine, evidence-based teaching must be the gold standard in medical education. Because of the data regarding learning and memory, I strive to present the material in ways that activate as many different pathways into the brain as possible, including emotional paths. In an ideal world (where I'm MUCH better at computers than I am now), visual, auditory, spatial, kinesthetic, and phonological loops are all engaged by the materials I create/refer to. Students are given multiple opportunities earlier in their learning to recall the material, as recent information indicates that practicing recall is a separate step from learning the material in the first place and practicing recall early reinforces both the learning and the recall.

Methodologies: In order to be consistent with my teaching philosophy, I try to utilize multiple educational methods in my teaching. In addition to traditional lectures, these include:

- **Review objectives for each lecture**: These objectives (designed to be viewed prior to the class) represent my assessment of what knowledge the students need to understand prior to my lecture.
- **Case-driven lectures and lecture guides:** Our students, as adult learners, are prone to deciding that material we wish them to learn is really just unnecessary detail (picky details so we can ask tricky test questions later seems to be the general consensus as to why we do that). By embedding cases in my lectures and learning materials, I provide the context that they may be missing and give explicit value to the facts that I am asking the students to know.
- **Web-based tutorials or lectures (directed studies)/The Physiology Web Page**: Available at http://www.courses.kcumb.edu/physio/index.htm, the physiology web site started as some links to an online quiz site and some discussions of advanced physiology. I began to move lectures to the online resource, to increase the amount of independent learning the students are required to do.
- **Flipped Classroom**: The philosophy behind the flipped classroom is to have the students master the easy part (the facts of the material) on their own and devote the class time to the integration and application of the material. By flipping the classroom and working with the students as we went through acid-base physiology, I discovered that I was wrong in where I thought the students were having trouble with the material. I had always assumed that I'd been losing the students when we added in the discussion of the compensations. During my first attempt at flipping this material, I realized that the students didn't understand how mass action affected the blood gases before any true compensation had occurred.
- **Chat rooms/Collaborations**: I hold synchronous, online chat sessions the night before midterms and finals with my questions on them. These chat sessions routinely attract about 8 - 10% of the class, although the number of active participants (those asking/answering questions) varies tremendously. I was pleasantly surprised this last

year to find that the transcripts for these sessions are downloaded by virtually every student in the class in the hours before the tests.

- **Online Practice Quizzes:** There is now substantial neurophysiological evidence that recalling learned information is a step that must be "practiced" for full learning to occur. By using an online quiz service, I have created practice tests for all my lectures. These quizzes can utilize a wide variety of question types and allow me to provide explanations for each question.
- **Class plays (e.g. teen-age sarcomere, CFTR):** To provide more kinesthetic learning experiences, I have incorporated "class plays" (for lack of a better term) into some of my lectures. In these plays, students act out the molecular events behind the physiology, for example, excitation-contraction coupling in skeletal muscle.
- **iBooks with interactive quizzes, videos, and slide presentations embedded:** When the University distributed iPads to all faculty and students, I started to use iBooks Author to create handouts that (I hope) reinforce the neurophysiology of learning. The vast majority of my handouts are now iBooks that have embedded quizzes (for recall), slides, and videos (for auditory and visual input).
- **Flow charts created during class:** Students encountering physiology for the first time frequently struggle with the material because they approach it as a serious of memorized facts rather than as a process with a sequence. In order to help students move beyond this, I start the class with a starting point (e.g. You have just been served a White Castle hamburger) and we go through the step-by-step process of what happens next (in the example given, the digestive and absorptive processes from mouth to anus for the bite you ate, with side trip into appetite control).
- **Human patient simulation (HPS)**: The high-fidelity simulators are used to present both skill-based simulations (now competence check-offs) and simulations focused on clinical reasoning (differential diagnosis and initial treatment).

PROFESSIONAL GOALS

Educational Goals: In regards to my teaching, my goals over the next five years include:

- *Expand my repertoire and use of active learning skills.* I believe that I make decent use of active learning in my classes, but I know it could be improved. Measurable outcomes for this include:
- *Develop virtual simulations for students:* As many medical schools have experienced, including KCU, the integration of basic sciences into the clinical years is problematic at best. Although delivery can be problematic, the major hurdle that I perceive is the fact that the presentation often lacks relevance to students. I believe that incorporation of virtual simulations that contain basic science elements can help resolve the problem. In my experience with the simulations delivered to the third year students, I am often struck by the student's drive (for lack of a better word) to e.g. slow the heart rate down regardless of the cause. Integration of the physiology into that scenario would be both relevant and supportive of the clinical treatment required.

3. *Expand ways to mentor physiology faculty in teaching*. As with every discipline a medical student needs to learn, physiology challenges the students in unique ways (particularly with its emphasis on process versus memorization and the limits of our understanding in various areas). At the urging of my department chair, I began to focus on mentoring our faculty in teaching as well as the physiology curriculum. At this point, this consists primarily of a few pages of different kinds of resources for teaching posted to a web page.

Scholarly Activity Goals: Research/Scholarly Activity currently represents a small proportion of my allotment and this is an area where I wish to improve my performance. Therefore, my goals are to:

- *Publish articles describing some of the innovations that I have implemented at KCU*. It has been increasingly hard to publish descriptive works, but such descriptions could help faculty who wish to implement similar innovations (and prevent them from "reinventing the wheel").
- *Continue work on the simulation research protocols*: I am particularly interested in continuing and expanding the work I presented on how the third year students were failing to complete the treatment. In a recent article on medical errors, a modified paradigm of situational awareness expanded greatly on our understanding of errors and provided a framework that I believe will be very powerful in understanding how the students err and what might be done to improve their performance.
- I have modified a rubric for students to use as a "test post-mortem" that is designed to help them analyze the mistakes made on the test. In working with the students on an individual basis, I have been surprised at how often the student is incorrect about their assessment of why they missed the question and the variety of mistakes that they make. Surprisingly, my observational evidence suggests that lack of knowledge is not always the biggest problem – students frequently ignore details in the question (to the extent that even when reading the question out loud, they skip the salient detail) as well as

misinterpret or change the question as they think the question through. I am currently planning a pilot project within the upcoming Cardiopulmonary course which incorporates the revised rubric into our test review process.

Service Goals: One area I would like very much to increase my service contribution to is in the area of Physiology. The American Physiological Society (APS) has a very strong educational division and I believe I could make a valuable contribution in that area.

PERSONAL INTERESTS

- Amateur musician (clarinet/saxophone)
  - Principle clarinet: Olathe Community Orchestra
  - Principle clarinet: Northstar Community Band
  - Eb/Utility Clarinet: Kansas City Wind Symphony
  - Utility Clarinet as needed; Liberty Symphony Orchestra
    - Treasurer, Board of Directors (2013-2014)
    - President, Board of Directors (2014-2015)
    - Secretary, Board of Directors (2015-present)
- Martial Arts – Second Dan black belt Tae Kwon Do
- Swimming and bike riding
- Dog obedience/agility