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Teaching Portfolio

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I. Teaching Philosophy

My personal impression, over the past 27 years at University of Massachusetts Memorial Healthcare (UMMHC) is that our patient population is getting sicker and older. They have complicated medical histories and are requiring an increasing number of medications. Despite this, we remain extremely conscientious in maintaining efficiency in the operating rooms, balancing patient safety with the economic realities faced by our institution. Nonetheless, spending sufficient time teaching residents hands-on skills under these circumstances remains a difficult task. During our Teaching & Learning workshops, we go over Bloom's Taxonomy and develop a worksheet with keywords. This method can be used for busy intraoperative teaching, not just to diagnose at what level the resident is at, but also to take them at a higher level of Bloom's. These allow me to prepare residents for written as well as oral board examinations. Given the chance, I spend a fair amount of time teaching residents intraoperatively, talking to them with a systemic approach, going from the head to toes. I also supplement it with a lengthy case discussion ahead of time when they call me the night before the surgery. The residents appreciate this, and many have commented on the significant amount of time I spend with them on these activities.

In 2007 and 2008 I attended four teaching workshops. The first two were sponsored by the Society for Education in Anesthesia [SEA], while the other two were held at the University of Massachusetts Memorial Health Center [UMMHC]. The SEA teaching workshop was a very intense four day program that taught me about the different ways in which people learn. I also learned to keep Bloom's taxonomy of teaching goals in mind when working with residents, and while evaluating cognitive and affective aspects of teaching. I learned about role models, how to deal with difficult residents, characteristics of good teachers, pros and cons of intraoperative teaching, how to give effective feedback, and techniques of delivering good presentations. The workshops at UMMHC

dealt with a clinical model of teaching, and techniques for giving and receiving feedback. Since then I have been attending and presenting at SEA meetings for the past seven years.

These courses have helped me modify my teaching style to suit the individual needs of residents, to try to change the culture of our department, and to apply the difference between evaluation and feedback. Since then, I have gotten more involved with educational efforts in our department, and also with the curriculum for subspecialty rotations.

A. My resident evaluation and feedback about performance has changed as a result of these courses that I have attended.

1. Evaluate each resident at their cognitive/affective domain while teaching and try to take them to a higher level to achieve growth.
2. Talk to each resident about their academic and social life, and any difficulties they face in achieving near and far goals. Also inquire how I can help them achieve these goals.
3. Involved in the education and curriculum committees and have been a mentor both to residents and faculty, meeting them in small groups, guiding them to be better clinicians, teachers, and academicians.
4. Instrumental in starting two resident teaching sessions per month on 'Missed Key Words.'

B. Through collaborative efforts with the Department of Anesthesiology at Stanford University I have started the following programs for UMass anesthesiology residents.

1. Successful Transition to Anesthesia Residency Training (START) program for PGY-1 residents to stay connected with their primary department through monthly online educational modules. Residents feel better prepared, comfortable, and more confident when they arrive as CA-1 residents.
2. START Prep Program for CA-1 residents with daily Key Words online modules to prepare them better for the new Part-1 written board examination with a focus on basic sciences.

C. Curriculum Development

1. **Teaching and Learning:** Established an Educational Curriculum for Teaching and Learning in our department and in charge of workshops once a year with faculty and residents.
2. **Management of a Difficult Airway:** Conducted skills development workshops to teach management of a difficult airway – not just to members of our department, but for the department of Emergency Medicine, the division of Pulmonary Medicine, and for the Massachusetts Society of Anesthesiologists (MSA).
3. **Clinical Skills Development:** Established a skills development curriculum for faculty and residents through an annual workshop on Management of Difficult Airway, Ultrasound Guided Regional Analgesia, and Transesophageal Echocardiography.
4. **Teaching History of Anesthesia:** Globally, history of anesthesia [HOA] enthusiasts are wondering what can be done to teach HOA to new

generations of students, residents, and faculty. We are the only department in the world with a formal established curriculum to address this issue. I have started a three year curriculum on teaching HOA to the residents in our department. The discovery of anesthesia took place in Hartford, CT and Boston, MA in the mid 1840s, and we are located right in the middle of these cities. I have developed HOA related tours for our residents during their three year residency program. During these tours, we visit several different sites in New England, all related to the discovery of anesthesia [2009 – present]. I presented this curriculum as an alternative method to teach HOA at a National Anesthesiology History Association meeting in May 2012, and it was very well received.

D. Accomplishments Overview

1. I see my strength in changing the culture of our department towards education and faculty development.
 - i. Improved emphasis on teaching and learning
 - ii. Faculty development
2. These have been accomplished through the following strategic actions:
 - i. Completing a Resident Needs Assessment survey [RNAs]
 - ii. Completing a Faculty Needs Assessment survey [FNAs]
 - iii. Formation of an educational curriculum
 - iv. Organizing several workshops for the skills development of residents and faculty.
 - v. Organizing missed keyword sessions, START and START-Prep programs, and tutoring for the residents.
 - vi. Guiding faculty towards their career development goals.
 - a. Providing faculty with a platform/exposure at the departmental, institutional, regional, and national levels for their academic growth. This has resulted in the promotion of eleven faculty members within the past seven years, and another four faculty members are preparing their promotion package.

II. List of Intramural Teaching Activities

Lectures, clinical didactics, supervision and advising of students and trainees, and small group learning experiences: from 1988 – present

A. Residents

1. Annual lectures to CA-1 residents:

- i. Blood transfusion
- ii. Physiology, pharmacology and toxicology of local anesthetics
- iii. Setting expectations for Teaching & Learning – started since July 2009-2014
- iv. Introduction to Anesthesia History – Lecture and movie ‘The Great Moment’ – started since 2010
- v. History of Anesthesia Tours- once a year since 2009

2. Lectures to all Anesthesia Residents:

- i. Anesthetic management of the renal transplant patient

- ii. Oxygen transport
- iii. Local anesthetics
- iv. Evaluation of a patient with respiratory disease
- v. Anesthetic management in a patient with scoliosis
- 3. Perioperative teaching of anesthesia residents:**
 - i. Clinical and basic science pertinent to the patient
- 4. Moderator for resident lectures:**
 - i. Renal physiology and pharmacology
 - ii. Spinal anesthesia – technique, indications, contraindications, and complications
- 5. Moderator for Journal Club & Statistics: 1988-1992**
- 6. Morning report with the residents:**
 - i. Discussed anesthetic management in the following clinical scenarios
 - a. Carotid disease
 - b. Chronic renal failure
 - c. Thoracic surgical procedures involving one lung ventilation
- 7. Case management of the patient [oral board examination review]:**
 - i. Thoracotomy and bronchopleural fistula
 - ii. Scoliosis
 - iii. Liver disease
 - iv. Hip fracture
8. Didactic lectures for Residents in the ‘Debate Format’ were introduced in June-2007 for better audience participation.
9. Resident advisor for anesthesia residents.
10. Mock Oral examinations conducted for anesthesia residents, fellows, and junior attendings.

B. Medical Students

1. Teaching 1st year medical students during their ‘Anesthesia Interest Group’ session while they are shadowing a faculty member.
2. Teaching 2nd year medical students during their ‘Pharmo-selective’ rotation.
3. Teaching 3rd and 4th year medical students during electives.
4. American Medical Women’s Association [AMWA] interest group with UMass female medical students

C. Others

1. Teaching interns (plastic surgery, orthopedic surgery, general surgery, internal medicine)
2. Teaching EMT [Emergency Medical Technician] students
3. Teaching SRNAs [Student Registered Nurse Anesthetists]

III. Since October 2008, as the Director of Education and Faculty Development, I started four major educational and faculty development initiatives.

- **Teaching and Learning Workshops**
- **Faculty Development Workshops**
- **Clinical Skills Development Workshops**

- **History of Anesthesia Curriculum**

- A. Teaching and Learning workshops**

- 1. Problem identification/General Needs Assessment-** After attending the Teaching and Learning workshops at the SEA, at the national level, I realized that there was a general need to improve teaching and learning in our department for residents and faculty.
- 2. Targeted Needs Assessment– Residents and Faculty.** Conducted two surveys, one for Resident Needs Assessment, and the other for Faculty Needs Assessment.
- 3. Goals and Objectives–** based on the results of the above surveys, established the following teaching and learning objectives.
 - i.** Understand how medical students and residents learn
 - ii.** Understand how to use the taxonomy of educational objectives
 - iii.** Learn to teach in small group settings
 - iv.** Learn an approach to teaching in the operating room
 - v.** Categorize adult learning styles
 - vi.** Understand how to help residents with learning problems
 - vii.** Provide more constructive feedback
 - viii.** Enjoy teaching more
 - ix.** Have a greater sense of accomplishment and satisfaction in teaching
 - x.** Develop a plan for continued growth as an educator
- 4. Educational Strategies – Conduct ‘Teaching & Learning Workshops’**

Initially held twice a year to capture all faculty in our department. Now held once a year to educate both new faculty how to teach better, and residents how to learn better. Select three faculty and three residents for each session, and they receive reading materials two weeks in advance.

 - i. These include articles and handouts on topics such as:**
 - a. Structure of teaching
 - b. Characteristics of a good teacher
 - c. Pros and cons of intraoperative teaching
 - d. Development of a medical teacher
 - e. Bloom’s Taxonomy & its application
 - f. Learning styles
 - g. Learning behaviors
 - h. Teaching styles
 - i. Characteristics of an adult learner
 - ii.** We meet for three hours on a Thursday afternoon and discuss these topics in detail. Having residents and faculty members together allows each group to understand the entire structure of teaching and learning better. They also prepare a worksheet on Bloom’s Taxonomy based on keywords from the handbook prepared by the American Board of Anesthesiology [ABA]. Faculty members understand that the learning process for residents starts the evening before the scheduled operation, when they discuss the case. It is up

to them to take the residents to the synthetic level in Bloom's Taxonomy. The residents also realize that they need to become deep learners, or conceptualizers, in order to succeed. They also understand some of the internal and external constraints that the faculty member might encounter during intraoperative teaching. These workshops have been very successful. We have been sending two faculty each year to attend SEA workshops since 2009. As a result, since 2011 more faculty members have developed an interest, along with the skills to run these workshops with me. This has become part of the faculty development process in our department.

5. Prepared and conducted two Needs Assessment surveys – one for residents [RNAs] and another for faculty [FNAs].

- i. Based on the responses, the immediate product was to match individual resident needs to faculty skills.
- ii. Residents also expressed a need for additional technical support. A group has been set up to solve this issue.
- iii. Set up a tutoring program for three residents at each level with low scores on In-Training Examinations [ITE]. The program sets them up 1:1 with a faculty member.
- iv. Reviewed all didactic sessions for residents, and asked moderators to modify techniques to optimize teaching and learning. As an example, for our anatomy and EKG workshop, distributed a reading package 1-2 weeks before the session to give residents plenty of time to be prepared. I also got first year residents involved in preparing the reading handouts, to share ownership and responsibility for their learning. Lastly, we introduced a pre-test and post-test to document the effectiveness of our program.
- v. Compiled a list of keywords for incorrect answers by residents in their In-Training Examinations, and categorized them by separate topics. Topic examples include Regional Anesthesia, Respiratory Physiology, Electrolytes and Renal Physiology etc. Assigned a suitable faculty member for each topic, and instructed chief residents to distribute a list of missed keywords and reading material one week prior to each session. These biweekly sessions have been extremely well received. I have put the residents in charge of their learning with a faculty moderator. This program has been very successful with 100% pass rate for residents in 2010 (the previous pass rates had been 60-70%).
- vi. Both residents and the faculty are encouraged to participate in the poster presentation at the New England Anesthesiology Residents' Conference [NEARC] and at the American Society of Anesthesiology [ASA] which occur each year in March and October, respectively.

6. Implementation

i. Chair support

- ii. **Resources** – three faculty, three residents, secretarial support, flip charts
 - iii. **Barriers** – to relieve participants and instructors from clinical duties in the OR for three hours. This was achieved with support from the chairman and the clinical director.
 - iv. **Introducing curriculum** – established an educational curriculum based on Society of Education in Anesthesia teachings – see attachment #1
 - v. **Administering curriculum** – Initially twice a year, now annually.
7. **Evaluation and Feedback**

Date of Workshop – Teaching and Learning	Average Score (max=5.0)	Total evaluations (N)
May 29, 2008	4.60	5
Nov 13, 2008	4.87	5
Apr 2, 2009	4.60	5
Sep 17, 2009	4.19	7
Mar 4, 2010	4.83	5
Feb 10, 2011	4.11	6
Dec 8, 2011	5.0	7
Dec 6, 2012	5.0	6
Dec 12, 2013	4.71	6
Dec 11, 2014	4.375	8

Selected Comments:

- ‘Everyone would benefit from this and could use this for better teaching and learning in our department.’
- ‘Good discussion – important for teachers to actually learn how to teach.’
- ‘Session was very useful in re-invigorating my teaching methods. I think this should be MANDATORY for all FACULTY.’
- ‘I really think that this conference was a cornerstone for someone who really wants to teach. It certainly helped me to LEARN how to assess fellow residents and medical students, and help them with progression of their knowledge and application of it. Older faculty may not be amenable to change.’
- ‘This was a wonderful and constructive experience that will result in significant lasting change in my teaching and learning experiences.’
- ‘Helpful for both current and future teachers. Allowed learners to take a more introspective view on their own techniques/deficiencies.’
- ‘Handouts were beneficial. Very organized presentation. Very enjoyable and useful.’
- ‘The exercise of placing keywords to taxonomy helped me to understand how learning grows complex by levels.’

8. **Dissemination** – Workshop on “Bringing it Home” at a Spring SEA meeting in Wisconsin in June 2012.

B. Faculty Development workshops

1. **Problem identification/General Needs Assessment** – Based on the Faculty Needs Assessment Survey, following areas were identified for their professional growth. These included ‘Effective Mentoring and Selecting a Mentor,’ ‘Peer Coaching and Peer Evaluation,’ ‘Communication Skills,’ ‘Lecturing to a Large Audience,’ ‘Using Library Resources,’ ‘Curriculum Development,’ ‘Writing Letters of Recommendation,’ and ‘Teamwork.’
2. **Targeted Needs Assessment** – Faculty
3. **Goals and Objectives** – Promote a cultural change in the department towards education and academic growth/promotion by developing the faculty. Eleven faculty have been promoted within the past seven years (previously two faculty were promoted in 15 years). In addition, another four faculty are preparing their promotion package.
4. **Educational Strategies**
 - i. **Faculty Development Program** – Based on Faculty Needs Assessment information, I have organized several workshops to fulfill their needs.
 - ii. **Individual Mentoring Program** – Prepared and distributed a career development form to faculty members. These forms are completed in advance. Later, I have a one-on-one personal meeting with them. So far I have mentored 15-20 junior and mid-career faculty: guided them how they could reach their goals, get involved with committees for professional development, and advance towards academic growth. We discuss their immediate and long term goals, and I guide them on how to achieve those goals. Topics included what they could do for residents, for the department, for our institution, and also how they could get involved in professional activities at the regional and national level. The program is customized to each faculty member’s personal needs and strengths.
 - iii. **Department Facilitation** –
 - a. To support scientific investigative efforts, I encouraged one of our faculty members who is on the editorial board of a prestigious Anesthesia related journal to become a member of the Institutional Research Board [IRB], and to guide young faculty members.
 - b. As part of the faculty development process, I have asked our chairman to send two faculty members each year to attend workshops organized by the SEA. These intense, three/four day, workshops are held once a year, and cover all aspects of anesthesia education.
 - c. Invited faculty members from the SEA to conduct workshops in our department, and also to lecture at

- departmental grand rounds. They are very well attended, and members of the department appreciate the value of these sessions. Topics have included Curriculum Development, Practice Giving Feedback, writing recommendation letters, learning styles, simulation teaching, and putting curriculum on Black-Board.
- d. Become a source of information for faculty members seeking certification-training courses such as Advanced Cardiac Life Support [ACLS], Advanced Trauma Life Support [ATLS], and Pediatric Advanced Life Support [PALS]. For the first time, a member of our anesthesia faculty participated as an instructor for the Society of Airway Management at the national level. I have encouraged faculty members to become instructors at a new ACLS and Sedation course at UMass. Once our faculty members become instructors at these courses, they can offer these programs to members of our department.

5. Implementation

- i. **Chair support**
- ii. **Resources** – Funding for invited guest speakers
- iii. **Barriers** – Extra late evening hours for the faculty, additional academic time
- iv. **Introducing curriculum** – Faculty Development Action Plan for UMass Department of Anesthesiology – see attachment #2
- v. **Administering curriculum** – Invited Guest Speakers – see attachment #3

6. Evaluation and Feedback

Date	Guest Speaker	Topic	Average Score (max=5.0)	Total (N)
Sep 10, 2008	Melissa Davidson, M.D.	Curriculum Development	5.0	1
Jan 28, 2009	Gary Loyd, M.D.	Effective Feedback	4.33	1
Nov 17, 2009	Kathy Schlecht, D.O.	Evaluation and Feedback	4.49	9
Dec 8, 2009	Joseph Garfield, M.D.	Writing Recommendation Letters	4.20	4
May 25, 2010	Ira Cohen, M.D.	Situational Teaching	4.75	8
Oct 26, 2010	Robert Milner, Ph.D. and Susan Pasquale Ph.D.	Effective Mentoring	4.60	10
Nov 10, 2010	Stephen Barker, M.D.	Anesthesia for the elderly	4.92	24
Jan 25, 2011	Stephen Kimatian, M.D.	Applying business model to Education	5.0	4

Jan 26, 2011	Stephen Kimatian, M.D.	Learning Styles	4.69	16
Mar 1, 2011	Cathleen Peterson-Layne, M.D.	Peer coaching and Peer evaluation	5	6
April 14, 2011	Mai-Lan Rogoff, MD	Negotiation Skills	4	7
June 14, 2011	Michael Vollers, M.D.	How to get the most out of a lecture	5.0	7
June 15, 2011	Michael Vollers, M.D.	Teaching styles	5	45
September 27, 2011	Saundra Curry, M.D.	Adult Learner	4	18
		Professionalism, why bother	4.5	42
March 20, 2012	William McIver, M.D.	MOCA Requirements & MOCA IV Debriefing	5.0	5
March 21, 2012	William McIver, M.D.	Simulation Teaching	4.5	33
March 12, 2013	J.P. Lawrence, M.D	Distance Learning (Blackboard)	4.77	9
March 13, 2013	J.P. Lawrence, M.D	Resident as Teacher	N/A	N/A
Dec 3, 2013	Gary Loyd, MD	Feedback as a Formative Tool	4.5	9
Dec 4, 2013	Gary Loyd, MD	Measuring Milestones	3.85	28
Dec. 2, 2014	Scott Schartel, M.D.	Competency-based Education	4.37	9
Dec. 3, 2014	Scott Schartel, M.D.	Minimally Invasive Robotic Thoracic Surgery	4.5	47
Dec. 3, 2014	Scott Schartel, M.D.	Self-Evaluation and Self-Directed Education	N/A	N/A

Selected Comments:

- ‘I wish that all of our teaching attendings were required to listen to this talk, or it could be recorded.’
- ‘Excellent report on current concepts on learners, and how faculty can teach for optimum outcomes.’
- ‘Very enjoyable presentations (including previous evening’s ‘Oxygen Transport Lecture). Great presentation skills and content. Would suggest his return in the future.’
- ‘Will help improve teaching ability.’

- ‘Very timely subject, excellent discussion, and ideas for the department to put together a mentoring program for faculty and residents.’

7. Dissemination

- Conducted workshop at the Spring SEA Meeting, San Antonio, Texas, June 2011
- Invited panelist at American Society of Anesthesiologist Annual Meeting, Chicago, Illinois, October 2011.
- Conducted two workshop at the Spring SEA Meeting, Boston, Massachusetts, June 2014

C. Clinical Skills Development Workshops

- 1. Problem Identification/General Needs Assessment** - Faculty and Residents: Development of these clinical skills is important ingredients of the Residency Program, and for Maintenance of Certification in Anesthesiology (MOCA certification) for Faculty.
- 2. Targeted Needs Assessment** – Based on our clinical experience for the entire anesthesia department’s selected critical skills
- 3. Goals and Objectives**
 - i. Management of a difficult airway** - upon completion of the course the participant should understand the perioperative management of the difficult and failed airway, and use of the ASA Difficult Airway Algorithm. Participants will understand the unique airway challenges associated with the pediatric, obstetric and trauma patient. They will be able to determine appropriate application and technical use of the major advanced airway tools available in the market.
 - ii. Ultrasound guided regional anesthesia** - upon completion of the course the participant would be able to demonstrate the use of ultrasound for both upper and lower extremity nerve blocks, blocks of the spine and abdomen, understand basic principles of knobology, and utilize correct needle techniques to successfully and safely perform the blocks.
 - iii. Sedation and analgesia** - The purpose of this symposium is to provide the participants with a comprehensive review of issues related to sedation and analgesia. The first part of the program and encompasses patient evaluation and monitoring, pharmacological principles, pediatric considerations, a discussion of the JCAHO standards and their implications in patient safety, medicolegal considerations and the future of sedation and analgesia. The second half of the program splits out into workshops on adult simulation, pediatric simulation and basic airway management. Important safety issues are discussed by the faculty during the symposium. The course is specifically designed for physicians and nurses who provide sedation and analgesia for patients during diagnostic and therapeutic procedures.

- iv. Have UMass Anesthesia faculty learn to conduct presentations at the department, interdisciplinary, state, and national levels.
- 4. **Educational Strategies** - I have designed a series of workshops to develop clinical skills of our faculty and residents. I would invite experts in the field to conduct these workshops. Our faculty would attend these workshops, and learn how to conduct them independently in the future.
- 5. **Implementation**
 - i. **Chair support**
 - ii. **Resources**
 - a. Cooperation from multiple airway and ultrasound related vendors for educational activities
 - b. Providing a platform for UMass faculty to present at department, institution, state, and national levels by strategically becoming a CME committee member for MSA. I have chaired several skills development workshops where our faculty teach and learn clinical skills.
 - (1) Been a program co-chair for MSA's seminar on Sedation and Analgesia for Non-anesthesiologists. Ten of our UMass faculty members were chosen as instructors for this course. Now 1-2 of our own faculty members have been mentored to be the course directors
 - (2) Course Director for the first Difficult Airway Management Workshop held by MSA where another ten UMass Anesthesia faculty were instructors at the state level. Now two-four of our own faculty have been mentored to be the course directors.
 - (3) Disseminated information about nationwide courses on Ultrasound Guided Regional Anesthesia courses. These techniques are becoming routine, and it is necessary for practitioners to develop expertise in them since they are very popular with surgeons as well as patients for postoperative pain control. I co-chaired a workshop on Ultrasound Guided Regional Anesthesia at UMass in November, 2010. A few Faculty members made presentations at MSAs' Ultrasound Guided Regional Anesthesia course every year since 2010 onward. Two of our faculty are now the course directors.
 - (4) Our Institution has a state of the art simulation center. I organized a Difficult Airway Management Workshop in February, 2010. I have organized an interdisciplinary workshop in Airway Management with six anesthesia faculty as instructors for members of the Departments of Emergency

Medicine, and Pulmonary Medicine and I was a course director for the first difficult airway management workshop held in March, 2011 for MSA.

- (5) Similarly, organized a workshop on Trans Esophageal Echocardiography [TEE] at the Brigham and Women’s Hospital, Boston for our residents and faculty members in May, 2010.
- (6) In 2014-15, all three MSA workshops/seminars were conducted by six UMass faculty as chair/co-chair and instructors along with faculty members from other institutions, providing a platform for about 15-20 UMass faculty to present at the regional level.

- iii. **Barriers** – more academic time, to meet an average of ten anesthesia faculty on a regular basis to organize these programs. I have been asked by a colorectal surgeon to conduct a similar course at UMass, but I need more academic time.
- iv. **Introducing Curriculum** – see attached Airway Workshop flyer, Ultrasound Workshop flyer, and Sedation and Analgesia Workshop flyer – see attachments #4, 5, and 6
- v. **Administering Curriculum** – 15–20 Faculty members making presentations at the state level, since 2010. Five UMass faculty members became chairs/co-chairs at these MSA Workshops/Seminars in 2013-14

6. Evaluations and Feedback

Date	Workshop	Average Score (max=5.0)	Total Evaluations (N)
Feb 2010	Management of a Difficult Airway	4.95	19
May 2010	MSA – Sedation and Analgesia Update Workshop	4.78	31
Sep 2010	First Interdisciplinary Difficult Airway Workshop	4.62	22
Nov 2010	Ultrasound Guided Regional Anesthesia	4.65	23
Mar 2011	MSA – The First Difficult Airway Management Workshop	4.86	42
April 2012	MSA – Sedation & Analgesia Update Workshop	4.71	52

Selected Comments:

- ‘Really excellent, great hands-on!’
- ‘Very useful workshop.’
- ‘Great intro to different devices.’
- ‘Great opportunity.’

- ‘Excellent overview of balance of hands-on regarding advanced airway techniques.’
 - ‘Great practice and discussion.’
 - ‘Outstanding course.’
 - ‘Simulation great.’
 - ‘Very appropriate for physicians and RNs.’
 - ‘I feel more comfortable providing sedation.’
7. **Dissemination**– We are working together with Faculty from the Department of Emergency Medicine (Deborah Heitmann, M.D.) to write up our program as a curriculum for Emergency Medicine residents.

D. History of Anesthesia Curriculum

1. **Problem identification/General Needs Assessment** – We had been graduating residents without much knowledge of the origin of our specialty, although it was born between Boston, MA and Hartford, CT.
2. **Targeted Needs Assessment** – Learners; Residents and Faculty
3. **Goals and Objectives**
 - i. Increase awareness and teach history of anesthesia using multiple modalities
 - ii. Provide opportunities and mentoring to residents and faculty to get involved in research projects related to history of anesthesia
4. **Educational Strategies**
 - i. Book – Ether Day
 - ii. DVD movie – The Great Moment, Wood Library-Museum (Chicago) videos
 - iii. Departmental notice about history related research opportunities
 - iv. Tours
 - a. Ether Dome (Massachusetts General Hospital) and Ether Monument (Boston Public Gardens)
 - b. Morton Homes (Charlton, MA) and Horace Wells related sites in Hartford, CT
 - c. Francis A. Countway Library of Medicine (Harvard Medical School, Boston, MA), Mount Auburn Cemetery (Cambridge, MA), Morton Home Plaque in Wellesley
 - v. Lecture to the medical students and new CA-1 residents on the discovery of modern anesthesia
 - vi. Established a Speakers Series at Umass since August 2012 to discuss History of Medicine, and History of Anesthesia, once a year, during Grand Rounds. The operating room nursing staff also enjoy joining us.
5. **Implementation**
 - i. **Chair support**
 - ii. **Resources** – books, DVD, auditorium, financial support related to the tours and speaker’ honoraria from the department
 - iii. **Barriers** – availability of time during weekends
 - iv. **Introducing curriculum** – started this formal three year curriculum on teaching history of anesthesia in 2009. It has been

received with great enthusiasm and was published in a prestigious journal, *Anesthesia & Analgesia*, in 2014.

- v. **Administering curriculum** – Having residents prepare a small topic related to each of the sites visited during these tours. Discuss the role of each person involved in the discovery of anesthesia.
6. **Evaluation and Feedback** – None obtained formally, but participants have expressed verbally that they love the program and want it to be continued.

Date	Guest Speaker	Topic	Average Score (max=5.0)	Total Evaluations (N)
August 22, 2012	Julie Fenster	Out of the Air, into the Ether	4.0	38
August 21, 2013	Mark Rockoff, M.D.	First successful ligation of a patent ductus arteriosus	5.0	33
November 12, 2014	Susan Vassallo, M.D.	Pretty Poisons, Powerful Anesthetics	4.65	32

Selected Comments:

- ‘Great presentation, interesting topic!’
- ‘Very interesting’
- ‘Great story’
- ‘Great talk’
- ‘Captivating speaker’
- ‘Excellent presentation by expert in the field. Best presentation at Grand Rounds in the past year. Thank you!’
- ‘Excellent presentation. Fascinating and historically accurate. Great use of primary documents.’
- ‘Excellent presentation, great historical information.’

7. Dissemination

- i. Abstract presentation at Anesthesia History Association (AHA) – April 2010, April 2011, May 2012, May 2013, and May 2014. Total of nine abstracts presented.
- ii. Poster presentations at American Society of Anesthesiologists (ASA) October 2011, October 2012, and October 2014.
- iii. Manuscript submission – Published-13, In-press-2, Submitted-2, In process-3.
- iv. C. Ron Stephens Essay Competition – Mentored a fourth year medical student for this essay competition in 2013. Currently

- mentoring three medical students for HOA projects and one anesthesia resident.
- v. Mentoring three faculty, two nurse educators, one resident, and three medical students for presentations and publications related to history of anesthesia (HOA) and history of medicine (HOM).
- vi. Invited as a moderator for history and education abstracts/posters at the Oct. 2015 ASA annual meeting

IV. Listing of Extramural Teaching Activities

- A. **Society for Education in Anesthesia** - I have learned many teaching points during the SEA-sponsored course I attended twice. I am including these in my clinical teaching, handouts, approach to residents, resident evaluations, and have developed a program of faculty development along these lines. This allows faculty to learn techniques at UMMHC, instead of attending conferences at remote facilities and locations. I have been a member of their faculty development and research committees for several years. I have made presentations, organized workshops, have been an invited panelist, and have been a reviewer for abstract presentations at their annual meeting.
- B. **Self Education and Evaluation program of the American Society of Anesthesiologists** I have been involved as a question writer for a program sponsored by the American Society of Anesthesiologists' program of Self-Education and Evaluation [SEE]. This nationally recognized continuing medical education [CME] program reviews recent literature, and provides anesthesiologists with a multiple choice question format where they may learn about recent changes in the field of anesthesiology. Question writers prepare a brief discussion for each question, and suggest suitable references. This activity provides me with an easy mechanism for development and updating of my collection of existing and new handouts for distribution to our residents. Approximately 5,000 physicians across the United States, and in overseas countries, participate in this CME program. The two booklets generated annually in this effort are excellent sources of new information of interest to anesthesiologists.
- C. **History of Anesthesia / Anesthesia History Association** My interest in the history of medicine has resulted in several publications. I have encouraged three faculty members working on research projects related to History of Anesthesia. I have enrolled residents to participate in these investigative efforts. By mentoring residents early in their careers, they will receive the opportunity to learn research techniques, participate in conferences, and publish their work in peer reviewed medical journals. I have also initiated a History of Anesthesia tour for the residents once a year and made a three year curriculum for History of Anesthesia. These are fun-filled field trips to learn how the discovery of anesthesia took place right here in New England. A research project about the teaching of Anesthesia History in residency programs throughout the US was presented at the Spring Meeting of the Anesthesia History Association in Winston-Salem, NC in April, 2010. I had another abstract presented in April, 2011 in Dallas, Texas; two in Kansas City, Kansas in 2012; two in Hartford, Connecticut where I was program chair; and three internationally (two in Sydney, Australia, and one in Kendal, UK)

in 2013. I have been selected as a Board/Council Member at the Anesthesia History Association since October, 2012. The following web link provides information about the 19th Annual Spring Meeting of the Anesthesia History Association, May 2-4, 2013, in Hartford, Connecticut where I was Co-Chair (http://ahahq.org/AHA_Program_Manual_Spring_2013.pdf) Two other abstracts were presented in May 2014 at the Spring Meeting of AHA in Dearborn, Michigan. In 2013, I won the bidding to be the Co-chair for the quadrennial International Symposium on the History of Anesthesia (ISHA) in Boston, in 2017. I have been invited to be a moderator at the next ASA meeting in Oct. 2015 for History and Education abstracts/posters.

- D. **Massachusetts Society of Anesthesiologists and workshops** - Last but not the least, my efforts towards technology and faculty development have led me to hold several workshops at the departmental, institutional, and state levels for difficult airway management, sedation and analgesia update, and ultrasound guided regional anesthesia. This in turn has helped 15-20 of our faculty to develop professionally and have presentations at the regional and national levels. Faculty development is a huge part of my contribution to our department. This is a very proud year for me because in the year 2014-15, all three MSA workshops/seminars were chaired/co-chaired by six UMass faculty members that I have mentored. They, in turn, provided a platform for another 15-20 faculty members to present at the regional level. As a result of my faculty's devoted efforts/mentoring, seven of our faculty have been co-chairs at these workshops at the regional level.
- E. **AAMC – Mid Career Women in Academic Medicine Seminar** – December 2010. I was very fortunate to be sponsored by the Office of Faculty Affairs and our department chair to attend this seminar and learn leadership skills. Recently, I was asked to be a reviewer to select a candidate for this program by our Office of Faculty Affairs. I am also very much involved with the American Medical Women's Association (AMWA) at our institution.

V. **List of Attachments**

- A. Attachment #1 – Educational Curriculum
- B. Attachment #2 – Action Plans for Faculty Development
- C. Attachment #3 – List of Guest Speakers Attachment #4 – Airway Workshop Flyer
- D. Attachment #5 – Ultrasound Guided Regional Anesthesia Workshop Flyer
- E. Attachment #6 – Sedation and Analgesia Workshop Flyer
- F. Web link to the 19th Annual Spring Meeting of the Anesthesia History Association, May 2-4, 2013 that I organized as Co-Chair.
http://ahahq.org/AHA_Program_Manual_Spring_2013.pdf