



Fourth-Year Medical Student Elective in Multidisciplinary Thoracic Oncology

Leslie E. Quint, MD; Rishindra M. Reddy, MD

Departments of Radiology and Surgery, University of Michigan, Ann Arbor, Michigan



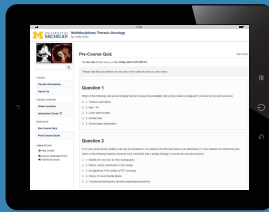
Introduction

- Senior medical students are goal and career oriented, preparing for residency training in their chosen fields
- Education in the final undergraduate year is trending toward increased subspecialization in the students' chosen fields of interest
- Multidisciplinary electives can help students to focus in their chosen fields as well as to broaden their horizons in directly related fields
- The University of Michigan offers a 4th year medical student elective entitled "Multidisciplinary Thoracic Oncology" that is taught by members of the Multidisciplinary Thoracic Oncology Group, including specialists from Medical Oncology, Pathology, Pulmonary Medicine, Radiation Oncology, Radiology, and Thoracic Surgery
- Disease exposure includes neoplasms of the lung, esophagus, mediastinum, and pleura.

Learning Objective

To demonstrate the methodology and curriculum content used for the 4th year medical student elective "Multidisciplinary Thoracic Oncology"

Pre-course Quiz and Post-course Exam



- Online, multiple choice, instant and automatic scoring
- Pre-course quiz and post-course exam have the same 30 questions
- Pre-course quiz gauges baseline competency and allows students to determine knowledge and conceptual skills expected by the end of the elective
- Post-course exam: open book; students encouraged to go back through videolectures to find answers to questions; exam for assessment and an opportunity to consolidate knowledge

Active Participation in the Weekly Thoracic Tumor Board

Student presents one or more patients seen in clinic or in radiology

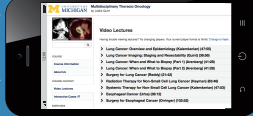


End of Rotation Capstone Project

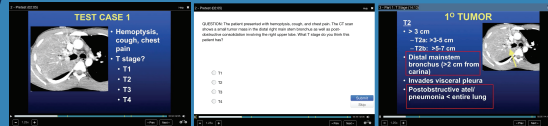
- Write-up of a case study similar to the ones on the website or
- 10 minute powerpoint presentation to the Tumor Board on a focused topic of the student's choice

Video Lectures

Video-lectures are watched during evenings and weekends, at students' own time and pace



Students complete all video lectures within the first 10 days of the elective



Pre and post lecture interactive questions asked and answered by lecturer



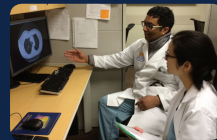
- Additional questions embedded within lecture
- Students choose answers and get immediate, automatic feedback if correct vs. incorrect
- Answers are then explained by lecturer

All pre-course quiz and final exam questions are variations of questions asked and answered during the video-lectures

EXAMPLE DAILY CLINICAL SCHEDULE

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
AM	Orientation and Quiz	Thoracic Surgery Clinic / DR	Medical Oncology Lung Cancer	Radiology Chest CT	Radiation Oncology	WK 1
PM	Pathology	Flexible	Medical Oncology Lung Cancer	Pulmonary Clinic	Radiation Oncology	
AM	Radiology - Nuclear Medicine	Medical Oncology Esophageal Cancer	Thoracic Surgery Clinic / DR	Radiology Chest CT	Radiation Oncology	WK 2
PM	Flexible	Medical Oncology Esophageal Cancer	Thoracic Surgery Clinic / DR	Pulmonary Clinic	Radiation Oncology	
ALL ONLINE VIDEO LECTURES COMPLETED BY THIS TIME						
AM	Radiology Chest CT	Thoracic Surgery Clinic / DR	Medical Oncology Lung Cancer	Radiology Chest CT	Pulmonary Clinic	WK 3
PM	Pathology	Flexible	Flexible	Pulmonary Clinic	Flexible	
AM	Radiology Chest CT	Medical Oncology Esophageal Cancer	Thoracic Surgery Clinic / DR	Radiology Chest CT	Flexible	WK 4
PM	Flexible	Flexible	Thoracic Surgery Clinic / DR	Flexible	Exam	

- Independent daily outpatient clinic duties under the direct supervision of subspecialty faculty
- Students see patients, interpret imaging studies, and reach conclusions on their own; then go over their findings with faculty
- Scheduling tailored to the students' individual interests
- Unassigned flexible half days for extra time in desired areas and for preparing capstone project
- Circling back to work with the same faculty each week to build on acquired skills and knowledge
- Whenever possible, student follows patient from clinic to diagnostic imaging/procedures to surgery



Online Supplemental Reference Materials

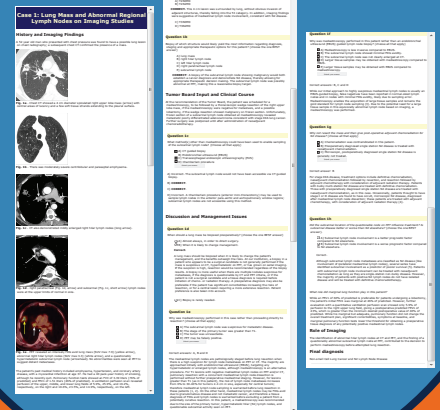
Staging charts, PDFs of relevant scientific articles

Elements of the Elective

- Independent daily outpatient clinic duties under the direct supervision of subspecialty faculty
- Observation/assistance for diagnostic/interventional procedures (EBUS, bronchoscopy) and operations
- Flexible half day scheduling
- Active participation in the weekly thoracic tumor board
- Patient encounter log
- Coursera online teaching platform
 - Online pre course quiz with automatic scoring
 - Flipped classroom, online interactive video-lectures
 - Online interactive case studies
 - Online supplemental reference materials
- Capstone project: end of rotation oral presentation or written case study
- Online final exam with automatic feedback
- Course evaluation

Online Interactive Case Studies

Sequential question and answer learning approach



Course evaluation

- Students fill out course evaluation form with close ended and open ended questions
- Quotes from student evaluations: [I enjoyed] "full engagement in the learning process and the patient care team" and "obtaining a well-rounded, multidisciplinary understanding of the presentation and treatment of these patients."

