Evaluating Clinical Skills of medical students: The USMLE Step 2 CS Examination

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General Learning Goals

- **Describe the history of US medical licensure and the development of the USMLE Step Examinations**
- **Recognize and describe the components of the USMLE Step 2 CS Examination**
- **Describe the scale of medical student education in the US**
- **Identify how one US medical school uses standardized patients to prepare students for clinical training**

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Outline of Presentation

- **Overview – History of Medical Licensure and how the USMLE Developed**
- **The USMLE Step 2 CS Examination presentation and demonstration**
  - **History Taking**
  - **Physical Examination**
  - **Counseling, Closure and Clinical Reasoning**
- **General statistics about medical students in US**
- **Medical University of South Carolina (MUSC) Standardized Patient program**

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Medical Schools in late 1800s

- Civil War Era ~ 1860 Census
  - 55,000 Physicians
  - 175 per 100,000 population
  - Highest concentration per capita of any nation
- “Regular Medicine” competed against two other sects
  - Eclecticism
  - Homeopathy
- Many Medical schools were proprietary

Alphabet “Soup”

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USMLE – United States Medical License Examination
MUSC – Medical University of South Carolina
CS – Clinical Skills
NBME – National Board of Medical Examiners
FSMB – Federation of State Medical Boards
AMA – American Medical Association
FLEX – Federation Licensing Examination
ECFMG – Educational Council on Foreign Medical Graduates
CSA – Clinical Skills Assessment
TOEFL – Test of English as a Foreign Language
CCET – Center for Clinical Evaluation and Teaching
SP(s) – Standardized Patient(s)
OSCE – Objective Structured Clinical Evaluation
CEX – Clinical Examination

Regular Medicine

- **Relied heavily on treatment of symptoms**
  - **Bloodletting**
  - **Blistering**
  - **Administration of massive amounts of mercury, antimony, and other mineral poisons as purgatives and emetics**
  - **Arsenical compounds thought to be tonics**

Eclecticism

- **Founded by Samuel Thomson**
- **Developed and patented medical system based entirely on botanical remedies, steam baths and rest**
- **Attacked blistering and bleeding and the administration of mineral poisons as “instruments of death”**
- **Injected common sense into the sick and ailing**

Homeopathy

- **Samuel Hahnemann**
- **Optimal treatment consisted of administering a drug, when given to a healthy person, that would induce the symptoms of the disease in question – *similia similibus curantur***
- **The dose of the drug was extremely attenuated – the smaller the better**
- **Proponent of fresh air, sunshine, bed rest, proper diet and hygiene for recuperation**

Movement toward standards

- In 1870s, no restrictions on entry into the field of medicine
- Regular medicine felt the need to organize against “quackery”
- The American Medical Association (AMA) served as profession’s political organization to do this
- Worked with State Medical Societies

Aims of AMA

1. **The establishment of Medical Licensing laws to restrict entry into the profession primarily for the *purpose of securing a more stable economic climate for established physicians***
2. **The destruction of proprietary medical schools and creation of fewer non-profit institutions of learning for a smaller select student body**
3. **Elimination of the heterodox medical sects as unwelcome and competitive forces within the profession**

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Political Maneuvering

- **Worked through State Board of Medical Examiners and through law making bodies**
- **Along the way, the need for creating high academic and scientific standards in schools became a focus**
- **Over time, the requirement for both a diploma from a qualified school as well as successful completion of a compulsory examination by the State were needed for clinical practice**

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Early 1900s

- Nearly all states had state licensing boards
- Texas was the first to establish modern medical licensing (in 1873)
- The failure of medical schools to provide reasonable assurance of minimal quality at that time led to the “checks and balances” of present era
- Flexner’s report of 1910

Federation of State Medical Boards (FSMB)

- **Established in 1912**
- **Merger between the National Confederation of State Medical Examining and Licensing Boards (established in 1891) and the American Confederation of Reciprocating Examining and Licensing Boards (established in 1902)**
- **Each state board was operating independently but within the federation (for reciprocity purposes)**

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National Board of Medical Examiners (NBME)

- **Established in 1915**
- **Administered its first examination in 1916**
- **Had voluntary examination program in parallel with state programs until the 1960s**
- **First NBME examinations were a week-long**
- **Systematically studied examinations**

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Examination Psychometrics

- **Several iterations of examinations were studied and ultimately discarded as not being psychometrically sound**
- **NBME started exploring the use of standardized patients in the 1970s**
- **In the late 1960s, the FSMB asked the NMBE to create a state licensing examination (FLEX)**

United States Medical Licensing Examination (USMLE)

- In early 1990s, a single examination pathway for licensure was created
- Jointly developed by the FSMB and the NBME
- All candidates for licensure in allopathic medicine must pass this examination
- All jurisdictions in the United States accept this examination for the purpose of licensure

Three Steps

- **Step 1**

  assesses whether the examinee understands and can apply important concepts of the sciences basic to the practice of medicine, with special emphasis on principles and mechanisms underlying health, disease, and modes of therapy

- **Step 2**

  assesses whether the examinee can apply medical knowledge and understanding of clinical science essential for the provision of patient care under supervision

- **Step 3**

  provides a final assessment of readiness for independent responsibility in delivery of general medical care

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Education Council on Foreign Medical Graduates (ECFMG)

- **Established in 1956**
- **Evaluates the readiness of International Medical Graduates (IMGs) to enter graduate medical education (GME) programs in the United States**
- **Written examinations, TOEFL established**
- **First Clinical Skills Assessment (CSA) examination in 1998**

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Step 2 Clinical Skills

- **In 1999, FSMB and NBME approved the concept of a Clinical Skills examination – modeled after the ECFMG Clinical Skills Assessment**
- **USMLE Step 2 Clinical Skills debuted in June of 2004**
- **ECFMG CSA was eliminated and all clinical skills assessment was through the USMLE Step 2 CS (including TOEFL)**

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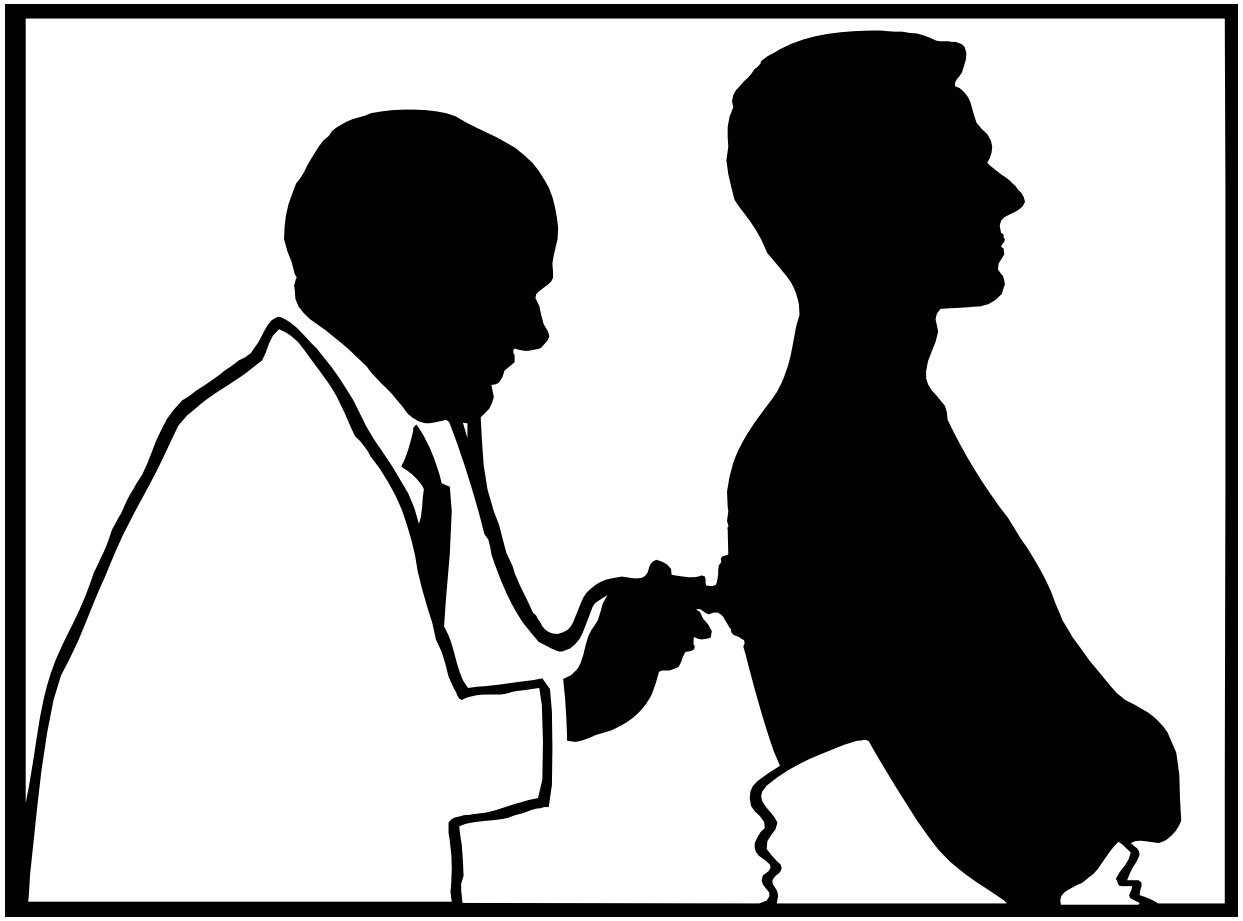
Step 2 CS demonstration



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Active Learning Exercise

- **Clinical note from the Step 2 CS demonstration**
- **If you want written feedback on your note, please include an email address on the bottom of the form**
- **Make sure that you include your unique code number on the clinical note form**
- **Make sure that you retrieve your note at the end of the session (match up with code number**

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US MEDICAL STUDENT STATISTICS

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Medical Schools in the US

- In 1986 -- 126 medical schools
- In 2005 – 124 medical schools
- Oct 2012 – 141 medical schools

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Medical Student Characteristics

- **Total number of applications = 609,312 (2011)**
- **Total number of applicants= 43,919 (2011)**
- **Total number of matriculants = 19,230 (2011 – 43.7%)**
- **Women 47% of all matriculating students**

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Medical Student Enrollment

- **Total number of medical students enrolled = 80,279 (2011)**
- **Total number of foreign students = 1,589 [~ 2%] (2011)**

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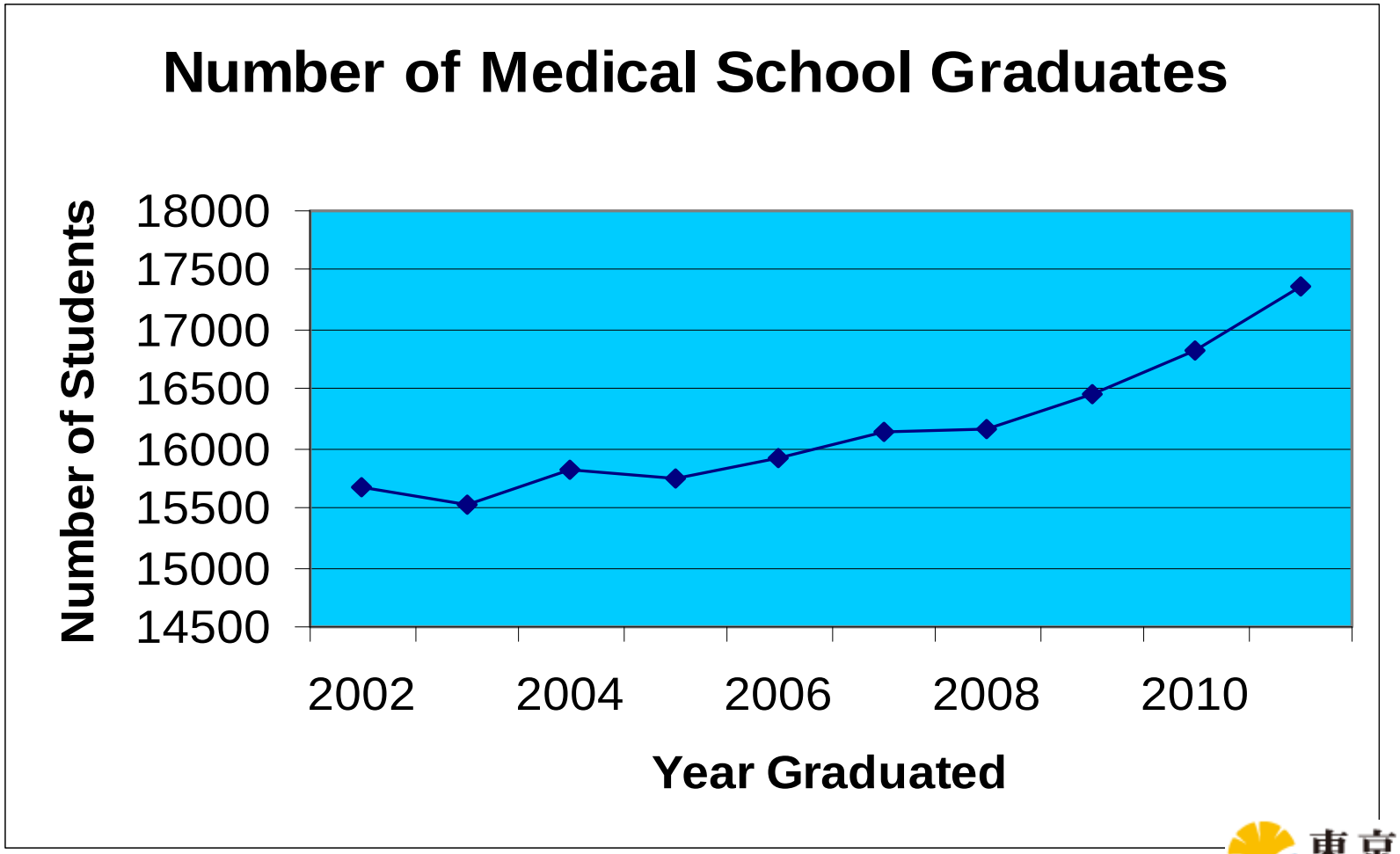
Medical Student Graduates



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Medical Student Education

- **Primarily post-baccalaureate training**
- **Mean age of matriculants = 24 yrs**
- **Approximately 10-20% of students have had other careers before medical school**
- **Oldest students start at 38-40 yrs**

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Traditional structure

- **“Pre-clinical” (basic science) years**
  - **First 12-24 months**
  - **Almost all schools have some clinical work**
- **Clinical Science years**
  - **Last 14-30 months**
  - **Third year – Clinical Clerkships**
  - **Fourth year – Electives, Subinternships, advanced clerkships**

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Traditional Clinical Clerkships

- **Family Medicine**
- **Internal Medicine**
- **Neurology**
- **Obstetrics-Gynecology**
- **Pediatrics**
- **Psychiatry**
- **Surgery**

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Clinical Clerkship Goals

- **Provide opportunity for “hands-on” experience in clinical medicine**
- **Experiential learning within the general discipline**
- **Become a part of the patient-care team**

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Clinical Team Structure

- **Attending**
  - **Resident/Fellow**
  - **Intern (1st year resident)**
  - **Subintern (4th year medical student)**
  - **Clinical Clerks (3rd year medical students)**

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Clinical Team Structure

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Clinical Team Schedule

- Early AM (“pre-rounds”)
- Morning work rounds
- Morning attending rounds
- Noon conference
- Afternoon work/new admissions/ other teaching conferences
- “Gallop rounds” in late afternoon

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Center for Clinical Evaluation and Teaching (CCET)

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CCET Origins

- **Designed for Standardized Patient teaching**
  - **Created in response to more active learning and evaluation of clinical skills**
  - **United States Medical Licensing Examination Step 2 Clinical Skills was being developed**
  - **MUSC served as a pilot-testing site for the development of this examination**

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http://academicdepartments.musc.edu/com/UME/CCET/

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Functions

- Standardized patient program
- Medical Interviewing
- Physical Examination Teaching
- Objective Structured Clinical Examination (OSCE)
- Objective Structured Teaching Exercise (OSTE)
- USMLE Step 2 CS preparation

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Standardized Patient Program

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Standardized Patient Training

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Standardized Patient Feedback

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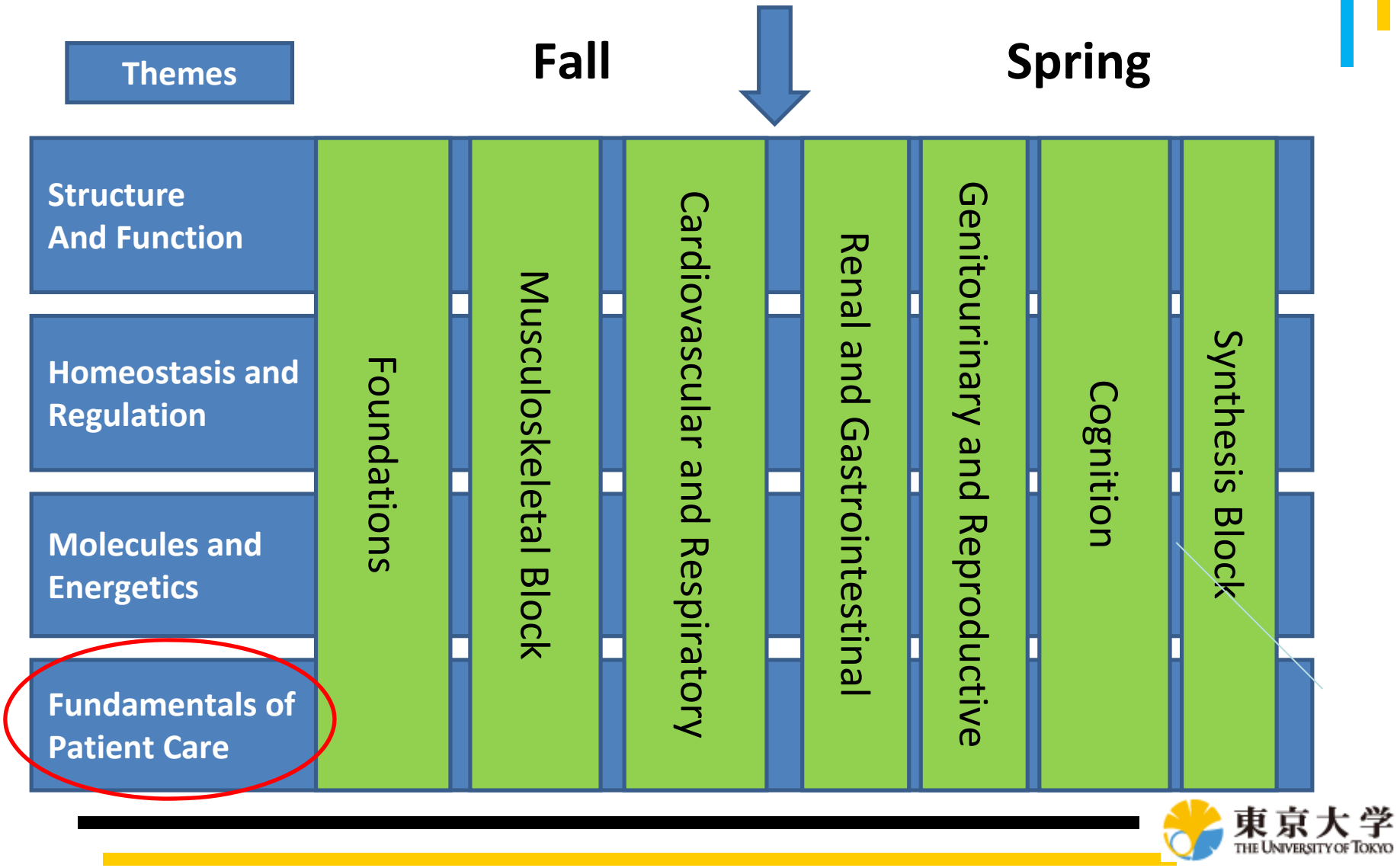
Summary of First Year



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Structure Sample Week

Time	Mon	Tue	Wed	Thur	Fri
Morning	Content Lectures- 3hrs	Content Lectures- 3hrs	Content Lectures-3hrs	Content Lectures- 3hrs	Content Lectures-3 hrs
Lunch					
1:00 – 2:00 2:00 – 3:00 3:00 – 4:00 4:00 – 5:00	A- Small Group Interviewing skills B- Self-directed Study C- Self-directed Study D- Simulation Skills- Cardiac Exam	A – Anatomy Lab B – Small Group Interviewing skills C- Simulation Skills – Cardiac Exam D – Anatomy Lab	A – Self-directed study B – Simulation Skills Cardiac Exam C- Small Group Interviewing skills D- Self-directed study	A – Simulation Skills- Cardiac Exam B- Anatomy Lab C- Anatomy lab D – Small Group Interviewing skills	All Groups– Anatomy Laboratory Review and Peer Teaching

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Structure/function | Homeostasis/regulation | Molecules/Energ | Fundamentals

Medical Interviewing

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Physical Examination

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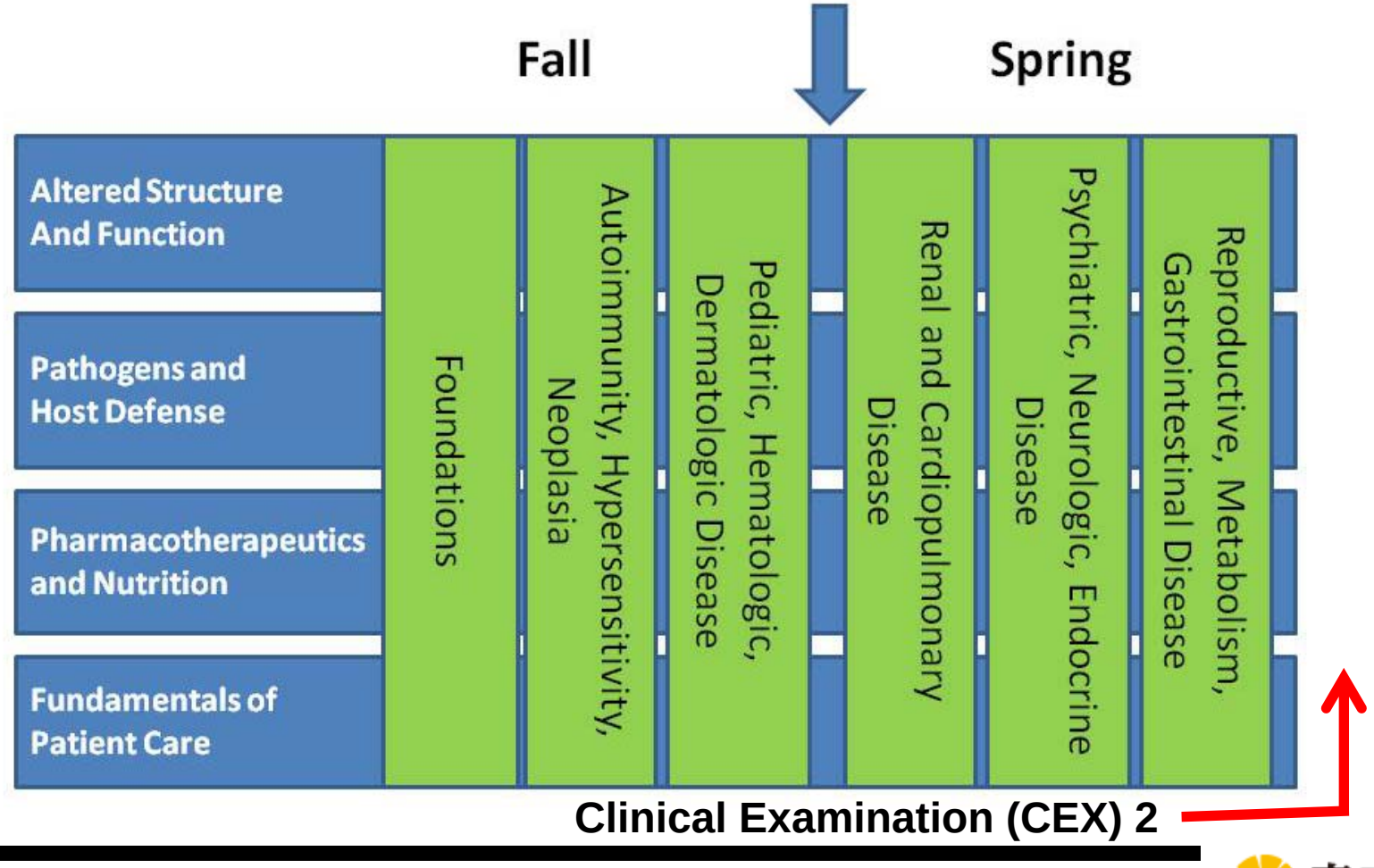
Summary of 2nd Year



CCET - OSCE

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CCET - OSCE

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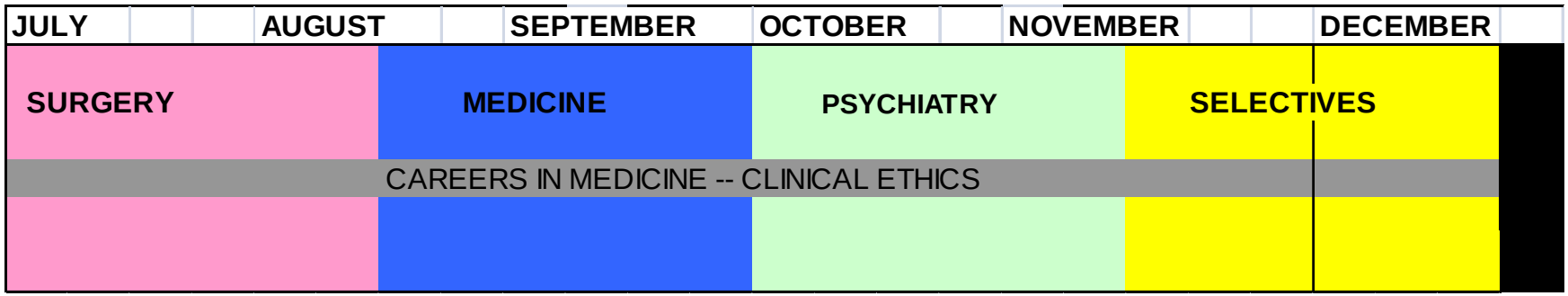
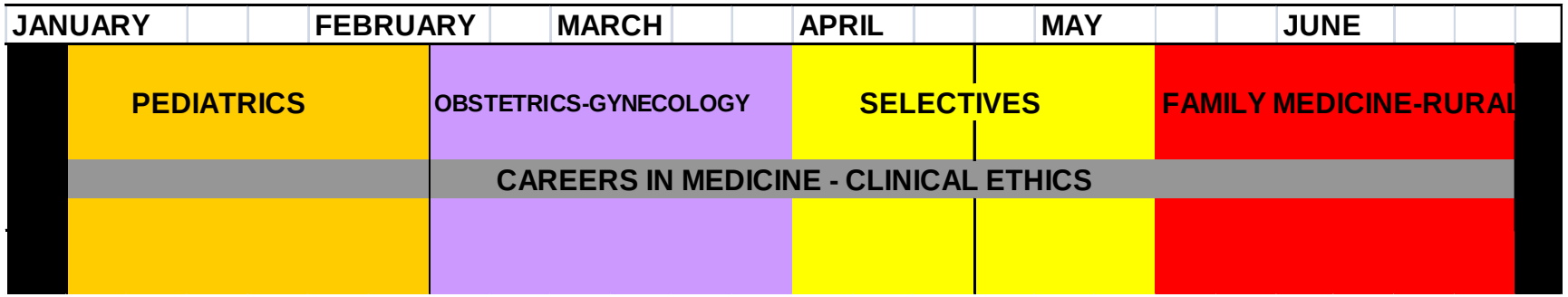
Year 3





Clinical Examination (CEX) 3

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CEX-3

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OSCE Evaluation

- **Checklist based**
- **Based on criteria used in the USMLE Step 2 Clinical Skills exam**

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USMLE Step 2 Clinical Skills

- **Required for Graduation**
- **Standardized Clinical Skills assessment through National Board of Medical Examiners (NBME)**
- **Five Testing Centers in the United States**

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USMLE Step 2 CS Testing Centers

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Enhancing Clinical Education

- **In Japan M-3 and M-4 year (similar to MS-1 and MS-2 years in US)**
  - **Introduction to clinical skills in M3 and M4 years**
    - **History Taking**
    - **Physical Examination**
    - **Clinical Reasoning**
    - **Communication and Patient education**
  - **OSCE/Standardize patient assessment**

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M-5 and M-6 Years

- **Clinical Clerkship assignments**
  - **Involve students with more “hands-on” work**
  - **Incorporate Junior and Senior residents in the active education of Medical Students**
  - **Faculty Development (and Resident development) in clinical teaching skills for effective supervision**

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M-6 Year Considerations

- **Role for Advanced Clerkships?**
- **Role for a “sub-internship”?**
- **Abilities for students to visit other training sites (in Japan or abroad)?**
- **Role for dedicated time for academic pursuits?**
- **Role for a Japanese Clinical Skills examination for quality control?**

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