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Background

Evidence-Based Medicine (EBM) skills allow EM providers to obtain and apply new information while on shift in the ED. The clinical content of on shift EBM questions by EM residents has not been previously described.

Objective

Using the American Board of EM (ABEM) 2019 Model of Clinical Practice of EM, describe EM resident on shift EBM questions.

Methods

This IRB approved study was conducted by a PGY 1-4 EM residency. Residents are required to complete logs of on-shift EBM activity in the program's procedure software system New Innovations™ (NI). The logs are a convenience sample, with an N of 3-5 per 28 day EM rotation. The logs include a patient description, clinical question, search strategy, information found, and subsequent application. Logs were coded to clinical content areas of the 2019 ABEM Model. The Model provided acuity definitions. ABEM special populations (pediatrics and geriatrics) were identified.

Results

From June 2013 until May 2020, 10,455 discrete completed logs were identified in NI. Table 1 demonstrates log proportion for each of the 20 ABEM content areas. Table 2 contains the most common specific sub-categories. "Emergent conditions" (N=7,770) were most commonly searched ABEM acuity, followed by "lower acuity" (N=5,341) and "critical" (N=5,192). Note, not all conditions have ABEM acuity codes, and some have multiple. Special populations were the source of on shift questions in logs 10.16% (N=1,061) for pediatrics and 8.05% (N=841) for geriatrics.

Conclusions

In this single site cohort "Procedures and Skills" were the most common source of on shift questions for EM residents, perhaps representing just in time training. Trauma was the most common sub-category and, along with toxicology, has a large content outline. Time on shift may have impacted acuity dispersal. Programmatic understanding of resident on shift EBM questions could serve to identify educational gaps and opportunities.

Table 1: EBM Log Assignments to the 2019 ABEM Model of Clinical Practice

ABEM Content Area	Number of Logs	Proportion of Total
1. Signs, Symptoms and Presentations	892	8.54%
2. Abdominal and GI Disorders	878	8.41%
3. Cardiovascular Disorders	991	9.49%
4. Cutaneous Disorders	263	2.52%
5. Endocrine, Metabolic, and Nutritional Disorders	292	2.8%
6. Environmental Disorders	142	1.36%
7. Head, Ear, Eye, Nose, Throat Disorders	559	5.35%
8. Hematologic and Oncologic Disorders	244	2.34%
9. Immune System Disorders	252	2.41%
10. Systemic Infection Disorders	472	4.52%
11. Musculoskeletal Disorders (Non-Traumatic)	303	2.90%
12. Nervous System Disorders	801	7.67%
13. Obstetrics and Gynecology	356	3.41%
14. Psychobehavioral Disorders	143	1.37%
15. Renal and Urogenital Disorders	375	3.59%
16. Thoracic-Respiratory Disorders	737	7.06%
17. Toxicologic Disorders	748	7.17%
18. Traumatic Disorders	861	8.24%
19. Procedures and Skills Integral to Practice of EM	1110	10.63%
20. Other Core Competencies to Practice of EM	25	0.24%
Totals	**10,445**	**100%**

Table 2: Most Common ABEM 2019 Model Sub-Categories Identified in EBM Logs

Rank	ABEM Sub-Category	Number of Logs	Proportion of Total
1	18.1 Trauma	812	7.77%
2	17.1 Drugs and Chemical Classes	749	7.17%
3	1.3 General	527	5.05%
4	19.4 Diagnostic and Therapeutic Procedures	500	4.79%
5	3.5 Diseases of the Myocardium, Acquired	316	3.03%
6	16.4 Obstructive/Restrictive Lung Disease	268	2.57%
7	1.2 Pain	266	2.55%
8	3.3 Disorders of Circulation	263	2.52%
9	2.9 Large Bowel	251	2.40%
10	3.4 Disturbances of Cardiac Rhythm	239	2.29%
11	7.4 Oropharynx/Throat	223	2.13%
12	10.6 Viral	220	2.11%
13	13.3 Complications of Pregnancy	218	2.09%
14	19.5 Ultrasound	182	1.74%
15	16.6 Pulmonary Embolism/Infarct	176	1.69%
16	4.4 Infections	168	1.61%
17	16.7 Pulmonary Infections	164	1.57%
18	2.7 Stomach	163	1.56%
19	19.2 Resuscitation	162	1.55%
20	9.2 Hypersensitivity	159	1.52%
20	19.3 Anesthesia and Acute Pain Management	159	1.52%

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