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Can an ECG Elective be Developed that Meets the FAIR Principles?

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#### **Authors**

Shah, K.  
Rodriguez, N.  
Strayer, R.

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completed two 4 hour teaching shifts per month with two to four medical students. During these shifts, the expert educator did not have direct patient care responsibilities, focusing solely on student education. For the first three hours, the group focused on clinical care of emergency department patients during which the fourth year students were encouraged to pick up new patients and present them to the teaching attending physician, similar to a conventional shift. Each student was directly observed and assessed by the teaching physician during the patient encounter on a predetermined set of objectives corresponding with ten of the medical student milestones in EM (Table 1). The remaining hour was allotted for direct individual feedback and an informal didactic session, which is in addition to the core medical student lecture series.

**Impact/Effectiveness:** We have seen an improvement in student perception of our direct observation of competence exercise and have shown the expert educator shift can be effectively used to directly assess ten of the 24 medical student milestones for EM.

## 89 Can an ECG Elective be Developed that Meets the FAIR Principles?

Shah K, Rodriguez N, Strayer R / Mt. Sinai Medical Center, New York, NY; Elmhurst Hospital Center, New York, NY

**Introduction/Background:** Learning to interpret electrocardiogram (ECGs) is an important skill for medical students. Emergency physicians are expert in clinical interpretation of ECGs and the emergency setting is an

excellent environment to be exposed to a variety of complaints and medical conditions that require ECG interpretation. The challenge is to develop an elective rotation that encompasses all the “FAIR” Principles of effective learning described by Harden and Laidlaw: Feedback, Active Learning, Individualized, and Relevant.

**Educational Objectives:** To create a successful clinical ECG elective that meets the “FAIR” principles.

**Curricular Design:** Medical students are taught to interpret ECGs over a 2 week course through the following methods: (1) 10 mini-lectures (30min-1 hour in duration) on ST elevation, bradycardia, ST elevation mimics, syncope, extracardiac manifestation of ECGs, toxicology and electrolytes, wide complex tachycardias, tachydysrhythmias, aortic valve replacement, and pediatric ECGs; (2) “ECG Shifts” where students spend 4 hours reviewing all ECGs performed at triage and present the clinical history and ECG interpretation to an emergency physician; (3) observation in the Cardiac Catheterization Lab; (4) participate in two cardiology ECG noon conferences designed for cardiology fellows; (5) self-study. Mini-lectures are given by emergency physicians, pediatric emergency fellows and emergency medicine residents. The course is offered six times per year with a maximum of 6-8 students in each session.

**Impact/Effectiveness:** Over the course of one year, 40 medical students completed the Clinical ECG Interpretation Course and gave the following average ratings on a scale of 1-5: Feedback 4.30, Active Learning 4.90, Individualized 4.65 and Relevant 4.98. The elective is highly coveted. The course has been 100% filled with at least one person on the waitlist for each session at all times. We have developed a popular and effective ECG elective run completely by emergency physicians.

**Table 1.** A list of medical student milestones assessed during an expert educator shift.

Milestone description
1. Recognizes abnormal vital signs.
2. Recognizes when a patient is unstable requiring immediate intervention.
4. Performs and communicates a reliable, comprehensive history and physical exam.
5. Performs and communicates a focused H&P which effectively addresses the chief complaint and urgent patient issues.
10. Constructs a list of potential diagnoses based on chief complaint and initial assessment.
11. Formulates basic diagnostic and therapeutic plans based on a differential diagnosis.
15. Establishes rapport with and demonstrates empathy toward patients and their families.
18. Demonstrates behavior that conveys caring, honesty, patient confidentiality, genuine interest and tolerance when interacting with a diverse population of patients and families.
19. Demonstrates basic professional responsibilities such as timely reporting for duty, appropriate dress, conference attendance, and timely completion of clerkship documents.
21. Effectively listens and communicates with patients and their families.

H&P, history and physical