**Introduction**: Studies showed that medical students had a good level of competency in interpreting basic ECG parameters but failed to recognize common ECG emergencies. Our study aims to determine ECG interpretation skill competencies among medical students in Thailand.

**Methods**: We retrospectively studied ECG exam results of 4th-year medical students who enrolled in a 6-year MD program at Chulalongkorn University between 2014-2018. All students were taught to interpret ECG by a mandatory lecture and bedside teachings, and were tested at the end of their medicine rotation. Each rotation was randomly assigned to interpret ECG with a different diagnosis of common ECG emergencies. Answers for basic parameters and primary diagnosis were scored as either correct or incorrect. Data were presented as percentages of the correct answers, which were considered low if the values were less than 50%.

**Result**: A total of 10 ECG tracings with 4 common ECG emergencies, atrial fibrillation (AF), atrial flutter, supraventricular tachycardia (SVT) and acute myocardial infarction (MI), were interpreted by 480 students. Competency in interpreting basic ECG parameters was 83%, 85% and 60% for electrical axis, heart rate, and heart rhythm, respectively. Among the common ECG emergencies, atrial flutter was the most correctly interpreted (78%), whereas AF was the least correctly interpreted (16%). Only 34% were able to correctly interpret SVT. The overall accuracy of acute MI interpretation was 69%. Of these, inferior MI was the most correctly identified (71%). Anterior, lateral and septal MIs were correctly identified in 57%, 22% and 14% of students.

**Conclusion**: The majority of students were proficient in interpreting basic ECG parameters and some common ECG emergencies such as atrial flutter, inferior MI, and anterior MI, but lack the capability of recognizing AF, septal MI, and lateral MI. This highlights the necessity to improve our medical students’ ECG interpretation competency.