

## **UC Irvine**

### **Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health**

#### **Title**

ECGstampede.com: An Exercise in Electrocardiogram Interpretation and Triage

#### **Permalink**

<https://escholarship.org/uc/item/4mv60665>

#### **Journal**

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 20(4.1)

#### **ISSN**

1936-900X

#### **Authors**

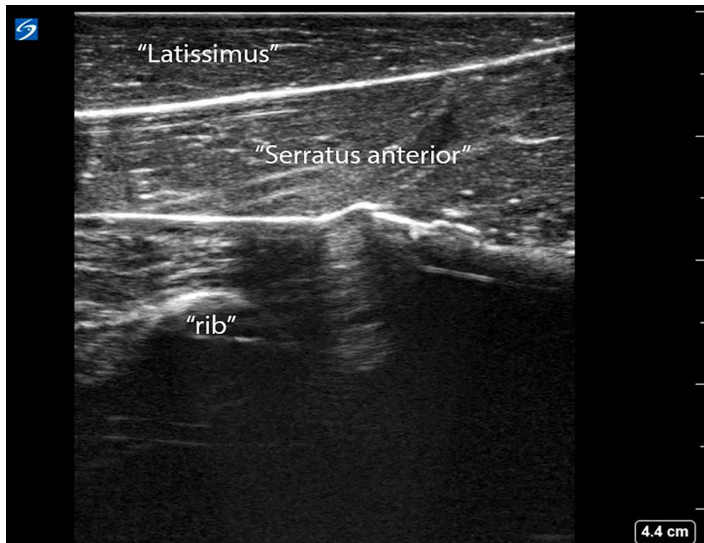
Reynolds, C  
Fadial, T

#### **Publication Date**

2019

#### **Copyright Information**

Copyright 2019 by the author(s). This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>



## 28 ECGstampede.com: An Exercise in Electrocardiogram Interpretation and Triage

Reynolds C, Fadial T / McGovern Medical School at the University of Texas Health Science Center at Houston (UTHealth), Houston, Texas

**Background:** Interpretation of electrocardiograms (ECG) is critical to emergency medicine (EM). Most emergency departments (ED) have protocols for ECG acquisition in triage for common complaints, making ECG “sign offs” a frequent interruption for emergency physicians. ECGstampede.com is the only educational resource designed to teach ECG interpretation in the context of patient triage.

**Educational Objectives:** Our goals were to 1) simulate a busy ED using triage ECGs; 2) give performance feedback on users’ answers, providing correct triage labels and interpretations upon completion; and 3) improve users’ skill and confidence in triaging multiple ECGs and identifying critical ECGs.

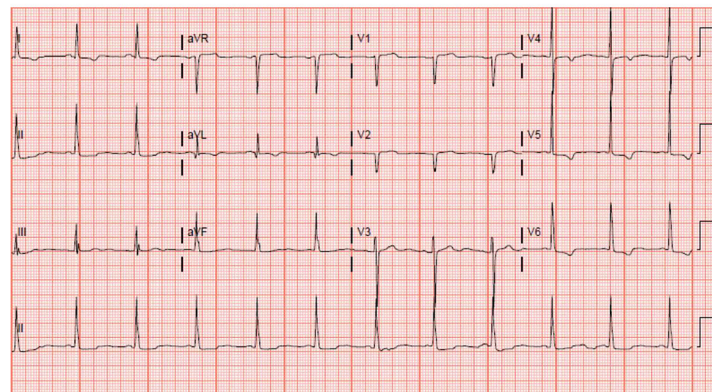
**Curricular Design:** The introduction page explains the setting (busy hospital with limited open beds), and the exercise (triage each patient into a location based on his or her ECG and given data). To start, users are given 10 ECGs, one at a time, with age, chief complaint, and vital signs when relevant. The user assigns a triage priority to each ECG: one Code STEMI, two to be roomed immediately, two for next available bed, and five to stay in the waiting room. As “beds” are used, triage priorities are eliminated to simulate an ED that is filling up. Users cannot return to prior ECGs after assignment, consistent with an actual ED. Upon completion, interpretations and correct labels of all 10 ECGs are revealed. A missed STEMI is considered an error, and over- or under-triage elicits a warning (Image 2). The feedback button sends the ECG

identification and feedback directly to the website creators, supporting continued improvement of the ECG database (Image 2). More than 320 ECGs from LBJ Hospital were used—interpreted by the site creators in consultation with other emergency physicians and cardiologists.

**Impact/Effectiveness:** This innovation improves trainees’ ECG interpretation and triage through repetition and simulated real-world scenarios. In its first week after release, ECGstampede.com had over 5,000 visitors and an endorsement from *Life in the Fast Lane*. Our immediate next step will be to create a mobile application to increase accessibility. Planned additional modes include a “study mode,” which provides question-by-question feedback, and an “unlimited mode” without restriction on allotted resources. Ultimately, we aim to release an institutional version with robust analytics to support incorporation into EM residency curricula, and allow for research of trainees’ performance.

ECG  STAMPEDE







65 year-old female with chest pain



ECG  STAMPEDE

### Results

[Restart the Stampede](#)

-  1. Waiting Room  
This patient has a normal sinus rhythm with poor R wave progression but no signs of ischemia [Review ECG](#) [Feedback](#)
-  2. STEMI (You answered: Room Immediately)  
This patient has an inferior STEMI with reciprocal depressions in the high lateral leads [Review ECG](#) [Feedback](#)
-  3. Waiting Room (You answered: Next Available Bed)  
This patient has a normal sinus rhythm with early repolarization, but no signs of ischemia [Review ECG](#) [Feedback](#)
-  4. Waiting Room  
This patient has a normal sinus rhythm with no signs of ischemia [Review ECG](#) [Feedback](#)
-  5. Room Immediately  
This patient has signs of anterior ischemia with T wave inversions in V3 and V4. Without a prior ECG, we should bring this patient back now for assessment [Review ECG](#) [Feedback](#)
-  6. Waiting Room (You answered: STEMI)  
This patient has a normal sinus rhythm with no signs of ischemia [Review ECG](#) [Feedback](#)