



Improving Arrival to Electrocardiogram Times During Emergency Triage: An EBP Project

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Background

Timely electrocardiogram (EKG) completion facilitates diagnosis, treatment, and transfer of patients with cardiovascular-related emergencies. Emergency departments (ED) encounter difficulties meeting the 10-minute arrival to EKG goal for walk-in patients presenting with chest pain. Barriers to timely EKG completion include overcrowding, ineffective triage processes, a lack of nurse-driven protocols, and communication breakdowns. These negatively impact patient outcomes, waiting time, and the cost of healthcare. As the first healthcare professionals to see and evaluate ED patients, triage nurses play a critical role in ensuring EKG completion within ten minutes of patient arrival.

Purpose

This project systematically reviewed and critically appraised the body of evidence related to minimizing arrival to EKG times for adult ED walk-in patients.

PICO Question

Among adult patients presenting to the ED with chest pain (P) how does a triage process that prioritizes EKG completion (I) compared to a standard triage process (C) affect ED arrival to EKG completion times (O)?

Search Plan

A literature search was performed of CINAHL Complete, Medline Complete, and Academic Search Elite for research articles published between 2014 and 2024 related to minimizing arrival to EKG times for adult ED walk-in patients. Keywords were *adult AND emergency AND chest pain AND triage AND electrocardiogram AND (10 minute goal OR throughput OR outcome) AND nurs**. There were 333 unique articles, 5 meeting inclusion/exclusion criteria.

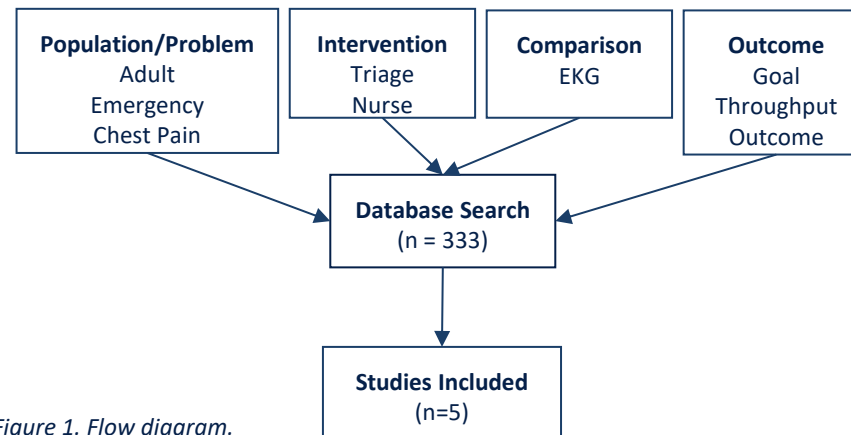


Figure 1. Flow diagram.

Results

Five articles met inclusion criteria ¹⁻⁵. Levels of evidence were 1 systematic review (level I), 2 controlled cohort studies (level IV), and 2 uncontrolled cohort studies (level V). Most (4 out of 5) reported faster arrival to EKG times and the majority (3 out of 5) reported faster arrival to PCI times. All studies reported bundled interventions. The most common interventions were nurse-driven triage protocols (4 studies), a dedicated EKG machine in the triage area (2 studies), adequate resources/staffing (2 studies), and improved communication (2 studies).

Synthesis of Evidence

Bundled triage interventions were effective at reducing arrival to EKG and PCI times. The most commonly reported intervention was nurse-driven triage protocols. Articles were from an international sample of various sized hospitals, which improved generalizability. Two studies ^{3,5} performed retrospective quality reviews consistent with the Donabedian model ⁶ before their interventions. All studies related to the PICO question. All emphasized adults ED walk-in patients. Three ^{1,3,5} included a direct comparison of different triage processes. Four ^{1,3-5} measured arrival to EKG completion time.

Implications

Nurse-driven protocols empower triage nurses to identify emergencies and initiate diagnostic testing. A dedicated EKG machine in triage and improved hospital staffing would increase equipment and personnel costs. These are offset by improved outcomes and ED throughput. Quality reviews help hospitals develop effective institution-specific protocols to reduce arrival to EKG times.

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