

Washington University Emergency Medicine Journal Club
Process Improvements Using Lean Principles in the Emergency Department

Vignette

As you are about to start a Friday evening shift in EM 1, you are greeted by the all too familiar sights and sounds of an overcrowded emergency department. There are 8 boarding psychiatric patients awaiting transfers, a line of EMS arrivals attempting to navigate their way into the department, a waiting room with 50 patients, three patients sitting in the hallway, four patients in the “MRI Room” and a wandering patient that keeps offering lottery numbers to anyone who will listen. After taking a deep breath, you sit down to prepare for sign out. Before you are even able to write down the first patient name, your charge nurse approaches and asks if any patients can go to observation, the dispo lounge, the hallway, a closet or anywhere else that is not an examination room.

After discussing the lack of inpatient beds with the departing team, you begin to wonder aloud if there are any strategies that could be adopted that would improve the patient flow through the emergency department. You remember seeing an oral presentation at SAEM last year that discussed the use of LEAN principles in the emergency department and rhetorically ask, “Could a process improvement plan using LEAN principles improve care in our emergency department?” As soon as you mention LEAN, the off-going attending immediately jumps up and yells, “they used LEAN principles here already, and all we have to show for it are patients in the hallway and an empty dispo lounge!” Suddenly Brian “The ninja” Cohn drops from the ceiling and says, “This sounds like a case for EBM!”

PICO Question

Population: US Emergency Departments

Intervention: Process improvements using LEAN principles

Comparison: None

Outcome: Improved patient flow, throughput, patient satisfaction, or quality improvement.

Search Strategy

Search Strategy: Pubmed search for “Emergency department” AND “LEAN” and (“patient flow” or “throughput” or “patient satisfaction” or “quality improvement.”) he search results in 16 articles, of which 4 are chosen for being the most relevant.

Article 1: [Murrell KL, Offerman SR, Kauffman MB. Applying lean: implementation of a rapid triage and treatment system. West J Emerg Med. 2011 May;12\(2\):184-91.](#)

Article 2: [Dickson EW, Singh S, Cheung DS, Wyatt CC, Nugent AS. Application of lean manufacturing techniques in the Emergency Department. J Emerg Med. 2009 Aug; 37\(2\):177-82.](#)

Article 3: [Ng D, Vail G, Thomas S, Schmidt N. Applying the Lean principles of the Toyota Production System to reduce wait times in the emergency department. CJEM. 2010 Jan;12\(1\):50-7.](#)

Article 4: [Dickson EW, Anguelov Z, Vetterick D, Eller A, Singh S. Use of lean in the emergency department: a case series of 4 hospitals. Ann Emerg Med. 2009 Oct; 54\(4\):504-10.](#)

