

## **Open vs. Closed Units**

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Currently, about 36% of hospitals have dedicated observation units (OU) to provide observation services for ED patients who are not eligible for an inpatient hospital admission<sup>1</sup>. An OU can be located in or adjacent to the ED or in another location in the hospital away from the ED and can be described as either closed or open depending on whose care patients are under. In closed OU, patients are managed under a single physician group or specialty such as emergency physicians. Condition-specific protocols are typically used that include inclusion and exclusion criteria, interventions performed while the patient is in the OU, and criteria for discharge or admission. Open OU allow more than one group of physicians to place a patient in the OU and patient care is typically at the discretion of the individual provider.

There is a significant amount of evidence demonstrating superiority of closed protocol-driven OU, most of which are in EDOU settings<sup>2</sup>. Through the use of condition-specific protocols and pathways that utilize aggressive and intensive diagnostic and therapeutic interventions, advantages are seen that include a reduced length of stay, better patient satisfaction and health-related quality of life, reduced cost, improved patient outcome and reduced readmissions<sup>3-22</sup>. There is also evidence to show that closed OU improve ED efficiency through the reduction of left-without-being-seen rate, ED boarding length of stay for admitted patients, and ambulance diversion time<sup>23</sup>. When closed OU are directly compared to open OU, similar results are seen<sup>24,25</sup>. By having a single physician group or specialty managing an OU, there is greater consistency in ensuring appropriate patients are placed in the OU and greater consistency in adherence to the specific time-conscious protocols and clinical pathways in place. In this way, variability in testing and treatment is reduced and patient care is streamlined. Furthermore, because it is a smaller and more consistent group, individual providers more rapidly acquire expertise and efficiency in managing OU patients. A larger more diverse group of providers that work only occasionally will not have the same opportunity to acquire enough experience to be efficient and gain expertise in using all the protocols appropriately. It also makes it more difficult to provide targeted education and feedback, enforce accountability and therefore ensure quality control.

### **References:**

1. Wiler JL, Ross MA, Ginde AA. National Study of Emergency Department Observation Services. *Acad Emerg Med* 2011;18(9):959–65.
2. Ross, MA, Aurora T, Graff L, et al. State of the art: emergency department observation units. *Crit Pathw Cardiol* 2012;11: 128–138.
3. Gomez MA, Anderson JL, Karagounis LA, et al. An emergency department–based protocol for rapidly ruling out myocardial ischemia reduces hospital time and expense : results of a randomized study (ROMIO). *J Am Coll Cardiol* 1996;28(1): 25–33.
4. Roberts RR, Zalenski RJ, Mensah EK, et al. Costs of an emergency department-based accelerated diagnostic protocol vs hospitalization in patients with chest pain: a randomized controlled trial. *JAMA* 1997 Nov 26;278(20):1670-1676.
5. Farkouh ME, Smars PA, Reeder GS, et al. A clinical trial of a chest-pain observation unit for patients with unstable angina. Chest Pain Evaluation in the Emergency Room (CHEER) Investigators. *N Engl J Med* 1998;339(26):1882–8.
6. McDermott MF, Murphy DG, Zalenski RJ, et al. A comparison between emergency diagnostic and treatment unit and inpatient care in the management of acute asthma. *Arch Intern Med* 1997;157:2055–62.
7. Salazar A, Juan A, Ballbe R, Corbella X. Emergency short-stay unit as an effective alternative to in-hospital admission for acute chronic obstructive pulmonary disease exacerbation. *Am J Emerg Med* 2007 May;25(4):486-487.

8. Decker WW, Smars PA, Vaidyanathan L, et al. A prospective, randomized trial of an emergency department observation unit for acute onset atrial fibrillation. *Ann Emerg Med* 2008;52(4):322–8.
9. Ross MA, Compton S, Medado, et al. An emergency department diagnostic protocol for patients with transient ischemic attack: a randomized controlled trial. *Ann Emerg Med* 2007;50(2):109–19.
10. Storrow AB, Collins SP, Lyons MS, Wagoner LE, Gibler WB, Lindsell CJ. Emergency department observation of heart failure: preliminary analysis of safety and cost. *Congest Heart Fail*. 2005;11:68–72.
11. Sun BC, McCreath H, Liang LJ, et al. Randomized Clinical Trial of an Emergency Department Observation Syncope Protocol Versus Routine Inpatient Admission. *Ann Emerg Med*. 2014;64:167–175.
12. Israel RS, Lowenstein SR, Marx JA, et al. Management of acute pyelonephritis in an emergency department observation unit. *Ann Emerg Med* 1991 Mar;20(3):253–257.
13. Conrad L, Markovchick V, Mitchiner J, Cantrill SV. The role of an emergency department observation unit in the management of trauma patients. *J Emerg Med* 1985;2(5):325–333.
14. Ross MA, Compton S, Richardson D, Jones R, Nittis T, Wilson A. The use and effectiveness of an emergency department observation unit for elderly patients. *Ann Emerg Med*. 2003;41:668–677.
15. Greenberg RA, Dudley NC, Rittichier KK. A reduction in hospitalization, length of stay, and hospital charges for croup with the institution of a pediatric observation unit. *Am J Emerg Med*. 2006;24:818–821.
16. Sayre MR, Bender AL, Dey CC, et al. Evaluating chest pain patients in an emergency department rapid diagnostic and treatment center is cost-effective. *Acad Emerg Med* 1994;1:A45.
17. Rydman RJ, Isola MI, Roberts RR, et al. Emergency department observation unit versus hospital inpatient care for a chronic asthmatic population : a randomized trial of health status outcome and cost. *Med Care* 1998;36:599–609.
18. Goodacre S, Nicholl J, Dixon S, et al. Randomised controlled trial and economic evaluation of a chest pain observation unit compared with routine care. *BMJ* 2004 Jan 31;328(7434):254.
19. Collins SP, Schauer DP, Gupta A, et al. Cost-effectiveness analysis of ED decision making in patients with non-high risk heart failure. *Am J Emerg Med* 2009;27:293–302.
20. Rydman RJ, Roberts RR, Albrecht GL, Zalenski RJ, McDermott M. Patient satisfaction with an emergency department asthma observation unit. *Acad Emerg Med*. 1999;6:178–183.
21. Mace SE. Asthma therapy in the observation unit. *Emerg Med Clin North Am* 2001 Feb;19(1):169–185.
22. Chandra A, Sieck S, Hocker M, Gerardo CJ, Villani J, Harrison D, et al. An observation unit may help improve an institution's Press Ganey satisfaction score. *Crit pathw cardiol* 2011 Jun;10(2):104–106.
22. Goodacre S, Nicholl J. A randomised controlled trial to measure the effect of chest pain unit care upon anxiety, depression, and health-related quality of life [ISRCTN85078221. *Health Qual Life Outcomes* 2004 Jul 29;2:39.
23. Kelen GD, Scheulen JJ, Hill PM. Effect of an emergency department (ED) managed acute care unit on ED overcrowding and emergency medical services diversion. *Acad Emerg Med*. 2001;8:1095–1100.
24. Pena ME, Fox JM, Southall AC, et al. Effect on efficiency and cost-effectiveness when an observation unit is managed as a closed unit vs an open unit. *Am J Emerg Med* 2013;31:1042–1046.
25. Jagminas L, Partridge R. A comparison of emergency department versus in-hospital chest pain observation units. *Am J Emerg Med* 2005 Mar;23(2):111–113.
26. Robinson D, Woods P, Snedecker C, et al. A comparison trial for stratifying intermediate-risk chest pain: benefits of emergency department observation centers. *Prevent Cardiol* 2002;5:23–30.