

Setting a benchmark for healthcare-associated infections in gulf cooperation council (GCC) states: achievements and ongoing efforts.

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Editorial

Up to 10% of patients admitted to acute care hospitals develop at least one healthcare-associated infection (HAI) during their hospital stay [1]. HAIs are considered an added morbidity that may also lead to mortality and inflation of the cost patient care where limited healthcare resources are or may become an issue [1-3]. Recently, HAI surveillance has received more attention from healthcare facilities, patient-safety organizations, and patients themselves, as part of a broad-based prevention and control strategy [4]. Healthcare systems today identified the need for standardized data on HAIs, in order to mitigate patient harm, create a safer environment for patients and at the same time to save on resources. Such data is also crucial for the accreditation process mandated by international accreditation agencies, which stressed not only to track internal performance but also to compare local data to national and international benchmarks [4].

Benchmarking of HAI is the process of comparing the surveillance outcomes on well-defined infections and procedures in one healthcare facility to other healthcare facilities performing similar procedures [5,6]. To be successful, the benchmark needs to compare data that has been collected and analyzed in the same fashion; meaning that the case definitions and data collection methodology are similarly used in populations of adequate sizes over a sufficient duration of time [7]. Moreover, the collected data should be analyzed and reported using similar risk-stratified or risk-adjusted metrics to allow fair comparisons [7]. Without considering the above conditions, the benchmarking of HAI data can be misleading with limited benefits. Recognized benchmarks for HAI surveillance include the reports published by the US National Healthcare Safety Network (NHSN) that includes data from 4000 US hospitals [8], the International Nosocomial Infection Control Consortium (INICC) that includes data from a number of developing countries [9], European Centre for Disease Prevention and Control (ECDC) that includes data from 11 EU states [10], and World Health Organization (WHO) review estimates [11].

While the recent availability of benchmark reports from different parts of the world have widened the benchmarking options for new hospitals in the Gulf Cooperation Council (GCC) countries, the selection of the right benchmark report to a given GCC facility is not an easy task as each of the above benchmark has its inherent significant advantages and limitations [12]. It has been long suggested to establish a local GCC benchmark to meet

the unique characteristics of GCC countries and to consider the challenges of regional surveillance programs [12]. These include but not limited to variability in maturation of surveillance programs, limited training and auditing services, the scarce of experienced surveillance personnel, lack of easy affordable and accessible electronic surveillance system, obstacles to share data between GCC countries, lack of enforcing regulations to report surveillance outcome, increasing surveillance demands of international accreditation agencies, and the continuous changes and evolution of international surveillance definitions and methodology. The availability of a regional GCC benchmark that addresses many of the above challenges would assist health care workers and researchers in the region to obtain more reliable comparisons for identifying and tracking the effectiveness of interventions, specifically infection control related interventions which aim to improve patient safety. Such benchmarking process can continuously improve patient safety by stimulating competitiveness, demonstrating strengths and weaknesses of each healthcare facility, and assessing the value of interventions intended to reduce HAIs [6]. Because of such clear benefits, surveillance activities became a mandate in most hospitals to reduce HAIs and improve patient safety [13,14].

The GCC Center for Infection Control has set a standard surveillance methodology for the GCC countries [12]. This included publishing a surveillance manual (now in its 3rd edition) and unique data collection forms [15]. Additionally, the center has organized multiple educational and training activities in the participating countries to advance the surveillance expertise of infection control staff and to assist with data entry and analysis. However, as available resources are limited, these activities still way from expected coverage. Additionally, several local challenges for standardized surveillance are still need to be fixed. These include more investing in training and certifications, moving from a stage of routine data collection to patient-safety-oriented surveillance, emphasize data validation, and encourage then demand public reporting. Public reporting of HAIs are expected to increase the transparency, encourage facilities to standardize practices and to push training, encourages healthy competitiveness between facilities, and increases healthcare and public awareness of HAIs; while at the same time improve patient outcomes [16,17].

The activities of GCC Center for Infection Control has recently been crowned with the first official regional HAI benchmarking reports on ventilator associated pneumonia (VAP) [18],

catheter-associated urinary tract infections (CAUTIs) [19], and central line-associated bloodstream infections (CLABSI) [20]. In these reports, it was very clear that the rates of HAI in GCC hospitals are not low as US hospitals nor high as other developing countries, even after adjusting for differences in the types of included intensive care units. Additionally, the reports points to the huge potential for improving HAI surveillance and prevention in the region. Such improvement is dependent on the collaborative efforts and data sharing. Despite this major achievement [18-20], a lot of efforts are still required to recruit more hospitals so as to repeat these three reports every 2 years. Additionally several topics are still need to covered such as antimicrobial consumption, multiple-drug resistant organisms, and surgical site infections. Therefore, we are working on encouraging more hospitals (shooting for at least 20 hospitals) to submit standardized HAI surveillance data for future larger-scale benchmarking reports. The recruitment process typically starts by on-site evaluation of surveillance activity and signing a memorandum of understanding. This should be followed by submitting aggregate data in pre-designed data collection programs to facilitate merging, validation, and aggregate analysis of the data. It is worth mentioned; publishing aggregate data will not jeopardize the right of participating hospitals to individually publish their own data.

References

1. World Health Organization: Report on the Burden of Endemic Health Care-Associated Infection Worldwide. A systematic review of the literature. 2011.
2. Rosenthal VD, Bijie H, Maki DG, et al. International Nosocomial Infection Control Consortium (INICC) report, data summary of 36 countries, for 2004-2009. *Am J Infect Control.* 2012;40(5):396-407.
3. Stone PW. Economic burden of healthcare-associated infections: an American perspective. *Expert Rev Pharmacoecon Outcomes Res.* 2009;9(5):417-22.
4. O'Neill E, Humphreys H. Use of surveillance data for prevention of healthcare-associated infection: risk adjustment and reporting dilemmas. *Curr Opin Infect Dis.* 2009;22(4):359-63.
5. Lenz S, Myers S, Nordlund S, et al. Benchmarking: finding ways to improve. *Jt Comm J Qual Improv.* 1994;20(5):250-9.
6. Kay JF. Health Care Benchmarking. *Medical Bulletin.* 2007;12(2).
7. Arias K. Surveillance. In: *The Association for Professionals in Infection Control and Epidemiology (APIC) Text of Infection Control and Epidemiology*, 3rd Edition. 2009.
8. Dudeck MA, Edwards JR, Allen-Bridson K, et al. National Healthcare Safety Network report, data summary for 2013, Device-associated Module. *Am J Infect Control.* 2015;43(3):206-21.
9. Rosenthal VD, Maki DG, Mehta Y, et al. International Nosocomial Infection Control Consortium (INICC) report, data summary of 43 countries for 2007-2012. Device-associated module. *Am J Infection Control.* 2014;42(9):942-56.
10. European Centre for Disease Prevention and Control (ECDC). Surveillance of healthcare-associated infections in Europe, 2007. Stockholm: ECDC; 2012.
11. World Health Organization. Report on the Burden of Endemic Health Care-Associated Infection Worldwide. A systematic review of the literature. 2011.
12. El-Saed A, Balkhy HH, Weber DJ. Benchmarking local healthcare-associated infections: Available benchmarks and interpretation challenges. *J Infect Public Health.* 2013.
13. Bener A, Al Mazroei A. Health services management in Qatar. *Croat Med J.* 2010;51(1):85-8.
14. Joint Commission International: JCI-Accredited Organizations; Saudi Arabia. 2015.
15. Ministry of National Guard Health Affairs and GCC Center for Infection Control: Healthcare-Associated Infections: Surveillance Manual. Third edition. 2018.
16. Edmond MB, Bearman GM. Mandatory public reporting in the USA: an example to follow? *J Hosp Infect.* 2007;65 Suppl 2:182-8.
17. Hausteiner T, Gastmeier P, Holmes A, et al. Use of benchmarking and public reporting for infection control in four high-income countries. *Lancet Infect Dis.* 2011;11(6):471-81.
18. El-Saed A, Al-Jardani A, Althaqafi A, et al. Ventilator-associated pneumonia rates in critical care units in 3 Arabian Gulf countries: A 6-year surveillance study. *Am J Infect Control.* 2016;44(7):794-8.
19. Al Nasser W, El-Saed A, Al-Jardani A, et al. Rates of Catheter-Associated Urinary Tract Infection in Tertiary Care Hospitals in Three Arabian Gulf Countries; Six-Year Surveillance Study. *Am J Infect Control.* 2016:(In press).
20. Balkhy HH, El-Saed A, Al-Abri SS, et al. Rates of central line-associated bloodstream infection in tertiary care hospitals in 3 Arabian gulf countries: 6-year surveillance study. *Am J Infect Control.* 2017;45(5):e49-51.

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