



The objective of this study was to use a novel time series anomaly detection algorithm to analyze routine hand hygiene compliance data” Wiemken et al (2019).

Abstract:

Background: Hand hygiene is the most important intervention to reduce the risk of transmission of pathogens in health care. Assurance of effective hand hygiene improvement campaigns includes adequate data analytics for reporting compliance. Traditional analytical approaches for monitoring hand hygiene compliance suffer from several limitations, including autocorrelation. The objective of this study was to use a novel time series anomaly detection algorithm to analyze routine hand hygiene compliance data.

Methods: Hand hygiene compliance data were collected daily by trained observers in a large academic medical center. Statistical process control p-charts were used as a comparison method of analysis per facility protocol. Time series anomaly detection was carried out using the seasonal and trend decomposition using LOESS (STL) algorithm.

Results: A total of 34 months of hand hygiene compliance data were analyzed. Traditional statistical process control p-charts identified over 76% of rates as special-cause variation, whereas STL identified 18% of rates as anomalous.

Conclusions: This study supports the use of time series anomaly detection for the routine

surveillance of hand hygiene compliance data. This method will facilitate specific and accurate feedback, helping to improve this critical approach for improving patient safety.

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Reference:

Wiemken, T.L., Hainaut, L., Bodenschatz, H. and Varghese, R. (2019) Hand hygiene compliance surveillance with time series anomaly detection. American Journal of Infection Control. July 17th. DOI: <https://doi.org/10.1016/j.ajic.2019.06.003>. .

