

there was a change in the proportion of ED visits for alcohol abuse following the arrival of COVID-19.

Methods: Design: Retrospective cohort. Setting: EDs of 27 hospitals within 150 miles of New York City. Hospitals were teaching and non-teaching in rural, suburban, and urban areas. Total annual ED volumes ranged from 12,000 to 122,000. Population: Consecutive patients seen by ED physicians. The database contained visits between March 1 and November 30 in 2019 and 2020. Data analysis: We identified patients with alcohol abuse using International Classification of Disease codes, version 10 (ICD-10). We tallied the number of ED visits for ICD-10 codes with at least 100 visits in the database. We calculated the proportion of these visits to total ED visits in 2019 and 2020. We report the relative change in this proportion from 2019 to 2020, along with the 95% CI.

Results: The database contained 1,161,080 visits in 2019 and 814,252 in 2020. Of these, 15,057 and 12,467 patients had a diagnosis of alcohol abuse in 2019 and 2020, respectively. For patients with alcohol abuse diagnoses in 2019 and 2020 the average ages were 46 and 47 years and females comprised 25% and 23%, respectively. The relative change in the proportion of visits for alcohol abuse from 2019 to 2020 had a statistically significant increase of 18% (95% CI: 15%-21%).

Conclusion: The proportion of ED visits for alcohol abuse increased following the arrival of COVID-19 in the New York metropolitan area. Our results are consistent with the CDC study showing the proportion of ED mental health related visits increased.

16 Cluster analysis of regional use patterns among critically ill emergency patients in Korea

Sung Min Lee; Tag Heo

Presenter: *Hyoung Youn Lee*

Objectives: The aim of this study was to analyze the inflow and outflow of critically ill emergency patients in Korea using National Emergency Department Information System (NEDIS) data for the last five years (2014-2018).

Background: In Korea, an imbalance across regions in emergency medical services has been creating a continuous barrier to ensuring access to such services for all residents.

Korea's medical delivery system is not efficiently linked and a concentration of patients and medical resources in certain areas has continued due to the inefficiency of the competition between medical institutions from primary private clinics and tertiary hospitals.

Methods: Using the relevance index (RI) and the commitment index (CI) for analysis, the optimal number of clusters was determined and K-means cluster analysis was performed using the determined number of clusters in the cities, counties, and districts across the country. We classified regional types and expressed them as a geographic information system to examine changes over the five years. The difference between the RI and the CI clusters by year was analyzed by the non-parametric Mann-Whitney test.

Results: The total NEDIS data analyzed included 5,551,616 critically ill emergency patients. In the determination of the optimal number of clusters, the most appropriate number was two (Cluster 1, Cluster 2) for the years 2014-2018. Cluster 1 captured the patient outflow, low RI and high CI, and more than 100 regions by year. Cluster 2 captured patient inflow, high RI and low CI, and more than 80 regions by year. There were no significant differences in the RI and the CI each year based on the patient inflow of critically ill emergency patients. In an annual comparison of the CI, significant differences were noted between 2014 and 2017.

Conclusion: During the five-year period of 2014-2018, there were two regional types of critically ill emergency patients in Korea, and there was a significant difference between 2014 and 2017 in the CI in the patient outflow areas.

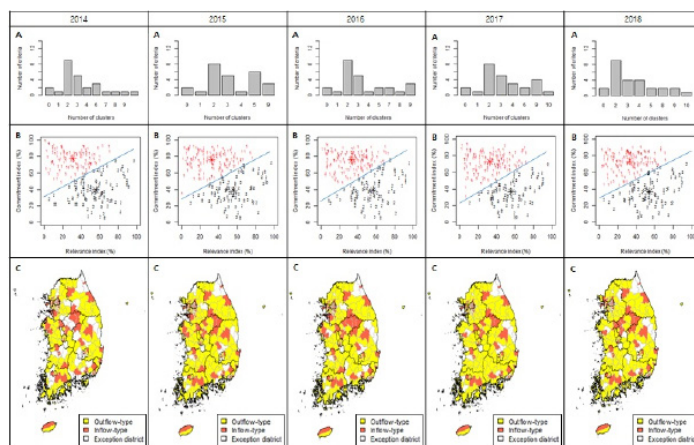


Figure 1.

17 Modeling Advanced Practice Provider Productivity in the Emergency Department

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Objectives: In this study, we examine APP productivity to determine if a similar pattern applies to that of residents and attendings, with the hypothesis that hourly productivity decreases after the first few hours of the shift.

Background: APP productivity follows a similar pattern to previously described behaviors in both residents and attendings. This further confirms the results of prior studies that productivity is a dynamic process that needs to be considered when adjusting staffing models. Additionally, this pattern by APPs at a community hospital provides additional validation of this model outside of academic institutions or training environments.

Methods: This is a retrospective cohort study from 7/1/21 through 6/30/21 at a single suburban community hospital in the northeast. APPs work ten hour shifts from 10AM to 8PM, nearly every day. APPs also provide coverage for approximately 5 shifts per month from 3PM to 11PM. Timestamps of initial patient contact are automatically logged by the electronic health record, and then analyzed to determine in which hour of the shift this occurred. A mixed linear model was performed with the hour as a categorical variable, and day of the week, month and year as covariates. Data was grouped by individual shifts.

Results: A total of 345 10-hour shifts were worked by five APPs over the one year studied. There were 64 additional afternoon shifts which were excluded due to the shorter length and lower frequency. Two APPs worked the vast majority of the shifts, and the other three provided per-diem coverage. A mean of 13.3 patients (SD 2.7) were seen per shift. In the first hour, APPs saw an average of 2.67 patients (95% CI 2.59-2.76). Each hour demonstrated a statistically significant decrease relative to the first hour ($p < 0.001$), with the highest magnitude over the second (-0.58 (95% CI -0.69 — -0.47)) and third (-0.98 (95% CI -1.09 — -0.86)) hours. This downward trend continued throughout the rest of the shift; however, the magnitude of this difference after the sixth hour was not significant. There was no effect by day of week, month or year.

Conclusion: APP productivity follows a similar pattern to previously described behaviors in both residents and attendings. This further confirms the results of prior studies that productivity is a dynamic process that needs to be considered when adjusting staffing models. Additionally, this pattern by APPs at a community hospital provides additional validation of this model outside of academic institutions or training environments.

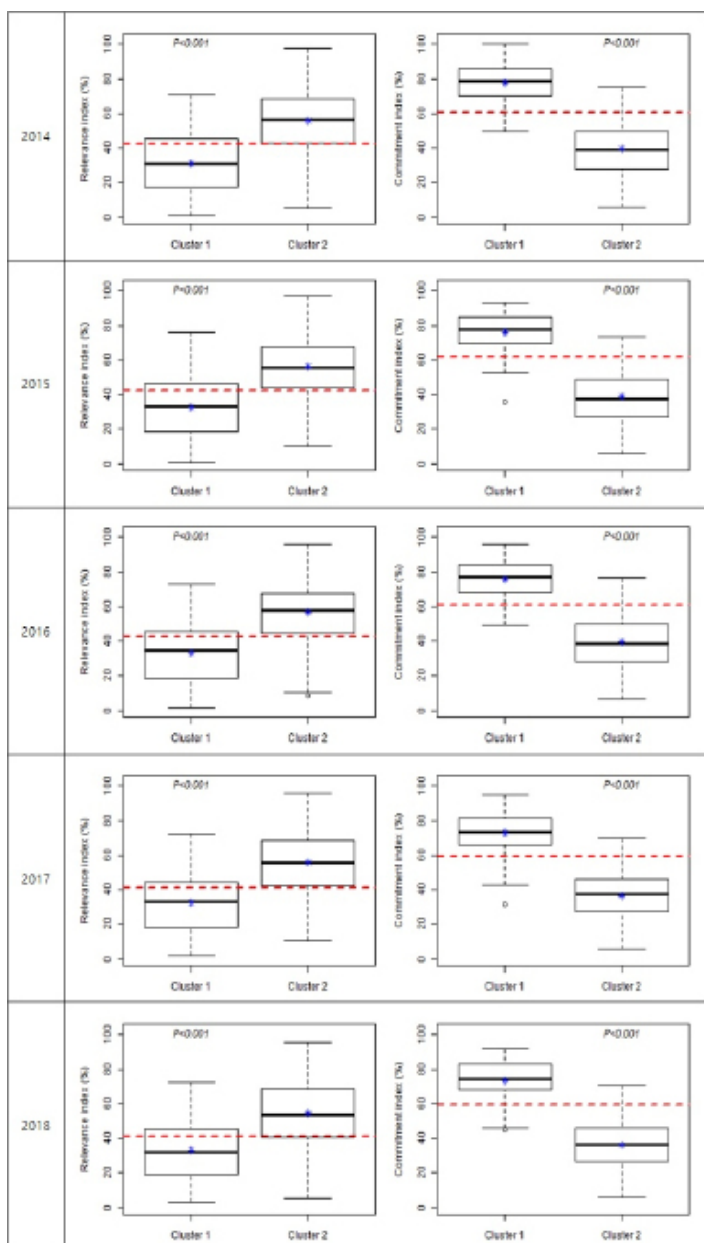


Figure 2.

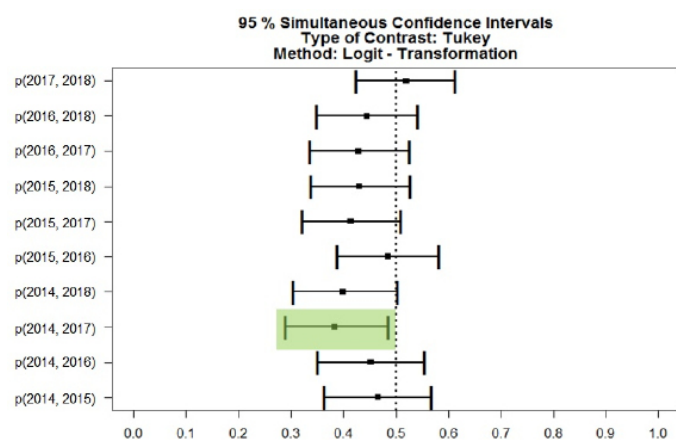


Figure 3.