

HOSPITAL INFECTIONS RATE AND HEALTH STAFF DENSITY IN A NEONATOLOGY DEPARTMENT

Zorana Djordjevic¹, Dragana Ristic², Dragana Savic^{2,3}, Aleksandra Simovic^{2,3}, Slobodan M. Jankovic^{3,4}

¹Department of Hospital Infections Control, Clinical Centre Kragujevac, Kragujevac, Serbia

²Neonatology Department, Pediatric Clinic, Clinical Centre Kragujevac, Kragujevac, Serbia

³Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia

⁴Clinical Pharmacology Department, Clinical Centre Kragujevac, Kragujevac, Serbia

ABSTRACT

Objective. The aim of our study was to compare staffing trends for physicians and nurses with hospital infections (HIs) rate at a neonatology department of tertiary care health facility.

Methods. The prospective cohort study was conducted at Neonatology Department, Clinical Centre Kragujevac, Serbia. The incidences of neonates with HIs were calculated for each of the quarters during the 5-year period. The data about the number and structure of staff for each quarter of the study period were collected from the official work schedule lists of the department.

Results. This study registered a total of 272 HIs occurring in 264 neonates. The incidence rate of patients with HIs was 13.36% and the incidence density of HIs was 5.85 per 1,000 patient-days. In the observed period the trend of incidence rate of patients with HIs was stable, but the trend of incidence density of HIs was increasing, however without statistical significance. The highest incidence rates of patients with HIs were recorded in the third quarter of all observed years respectively: 17.44% in 2012, 16.74% in 2013, 23.47% in 2014, 18.18% in 2015 and 22.74 in 2016. The average number of nurses in the first shift ranged from 5.0 to 7.0, but in second shift was 3.0 to 4.0 only, and the least number of nurses worked in the third quarter of each year. The average number of physicians in the first shift ranged from 2.33 to 4.47 and they were also the fewest in numbers in the third quarter. We observed strong negative correlation between the average incidence rate of patients with HIs and the average number of nurses in the first shift ($r=-0.977$, $p=0.023$).

Conclusion. Optimal nurse and physician staffing of neonatal departments in developing countries and the avoidance of inter-quarter variations in number of staff at duty would decrease the incidence of HIs and probably create overall savings of the hospital budget.

Key words: hospitals; infection; iatrogenic disease; intensive care units, neonatal; health personnel.