The Probability Distribution Of Attendance To Hospital Emergency Units For School Students In Alexandria

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ABSTRACT

The present work is a retrospective study designed to examine the assumption that emergency arrivals at the Sporting Students' Hospital in Alexandria follow a Poisson distribution. Data about all arrivals at the emergency room (ER) for the year, 2000 (43076 arrivals) was extracted from the records of the emergency department and classified by age, sex, school, reason for visit, date and time of visit. Data analysis revealed that 12.9% of the total arrivals indicated hospital admission either to the inpatient units (12.5%) or the ICU (0.4%). Goodness of fit test showed that admissions to the ICU fit the Poisson distribution but those admitted to the inpatient units did not follow the assumed distribution. However the latter group did not fit exactly the normal distribution which indicated that deviance from the Poisson is due to the large mean non-elective admissions (14.74% per day). Hence the Poisson assumption is not excluded as the inpatient emergency admissions are still randomly distributed and independent. Univariate and multivariate Poisson regression of the daily emergency admissions gave another clue to the goodness of fit of emergency admissions to the Poisson process. Regression analysis showed significantly higher log. number of emergency admissions among the age group 12 or more, male students, medical conditions in contrast to injuries,

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