

RELIABILITY OF A RISK PREDICTION MODEL FOR 30-DAYS READMISSION AND MORTALITY APPLIED TO A NEUROLOGICAL WARD CASE-MIX: A 36mos MONO INSTITUTIONAL STUDY.

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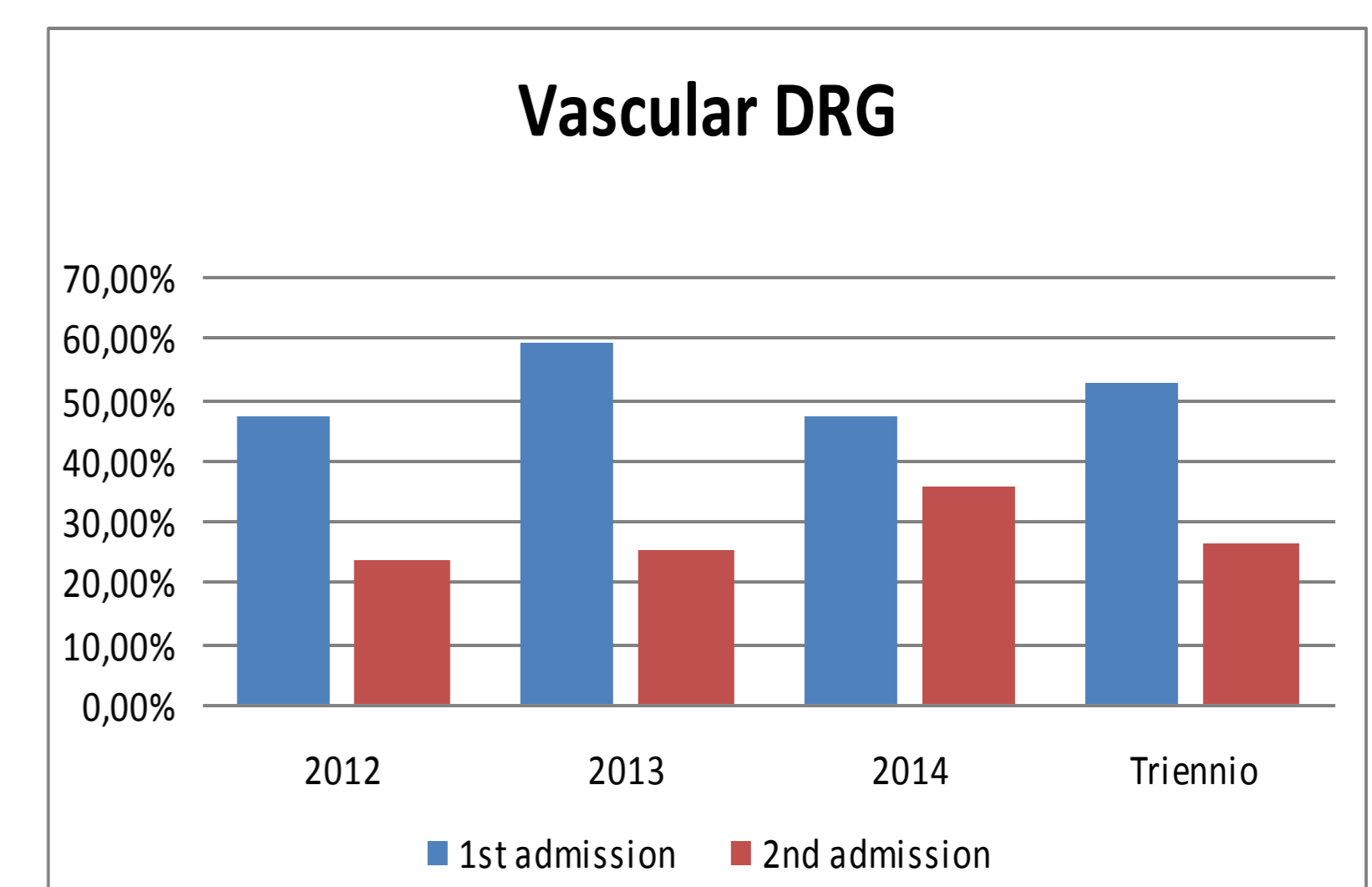
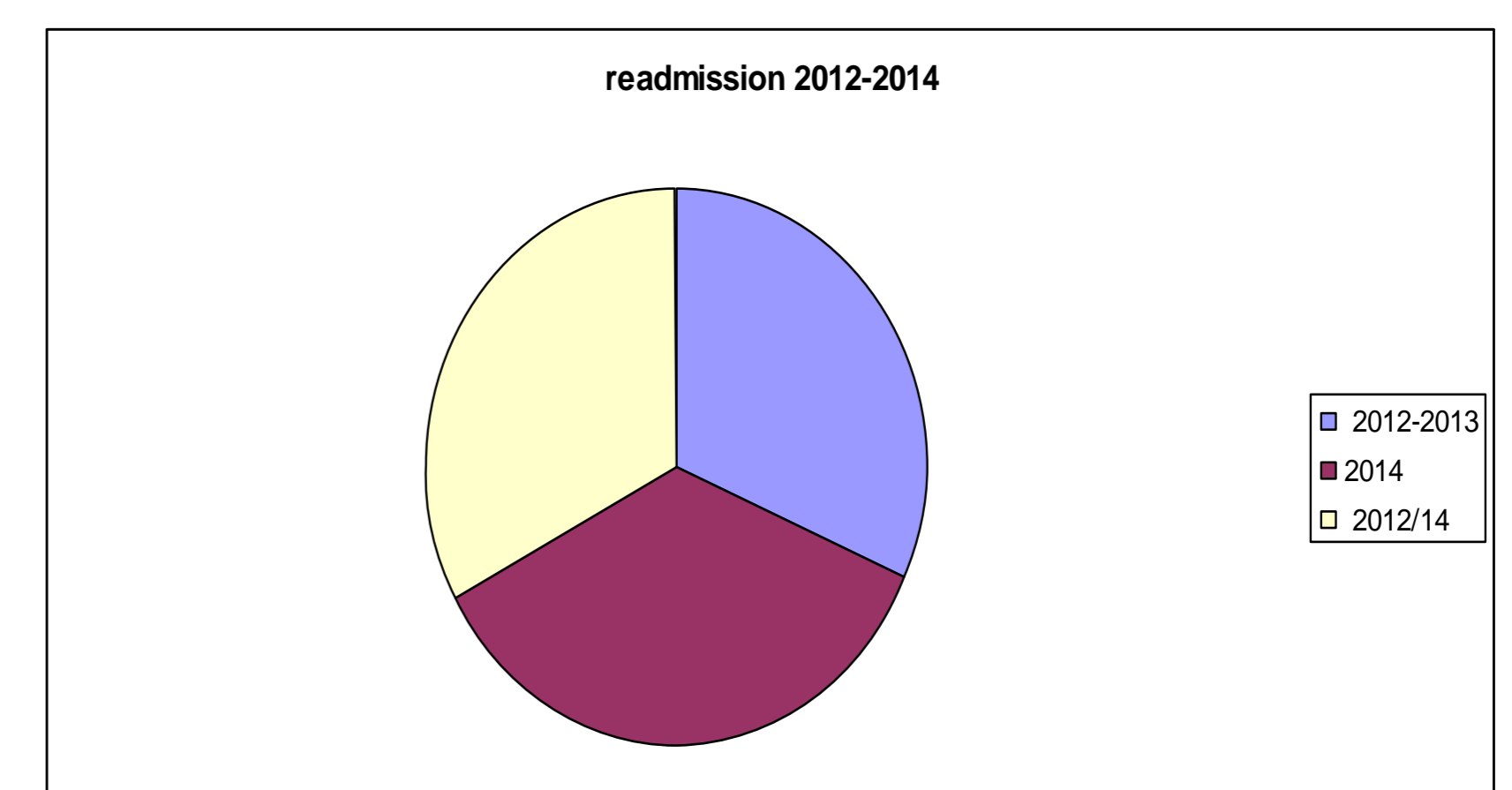
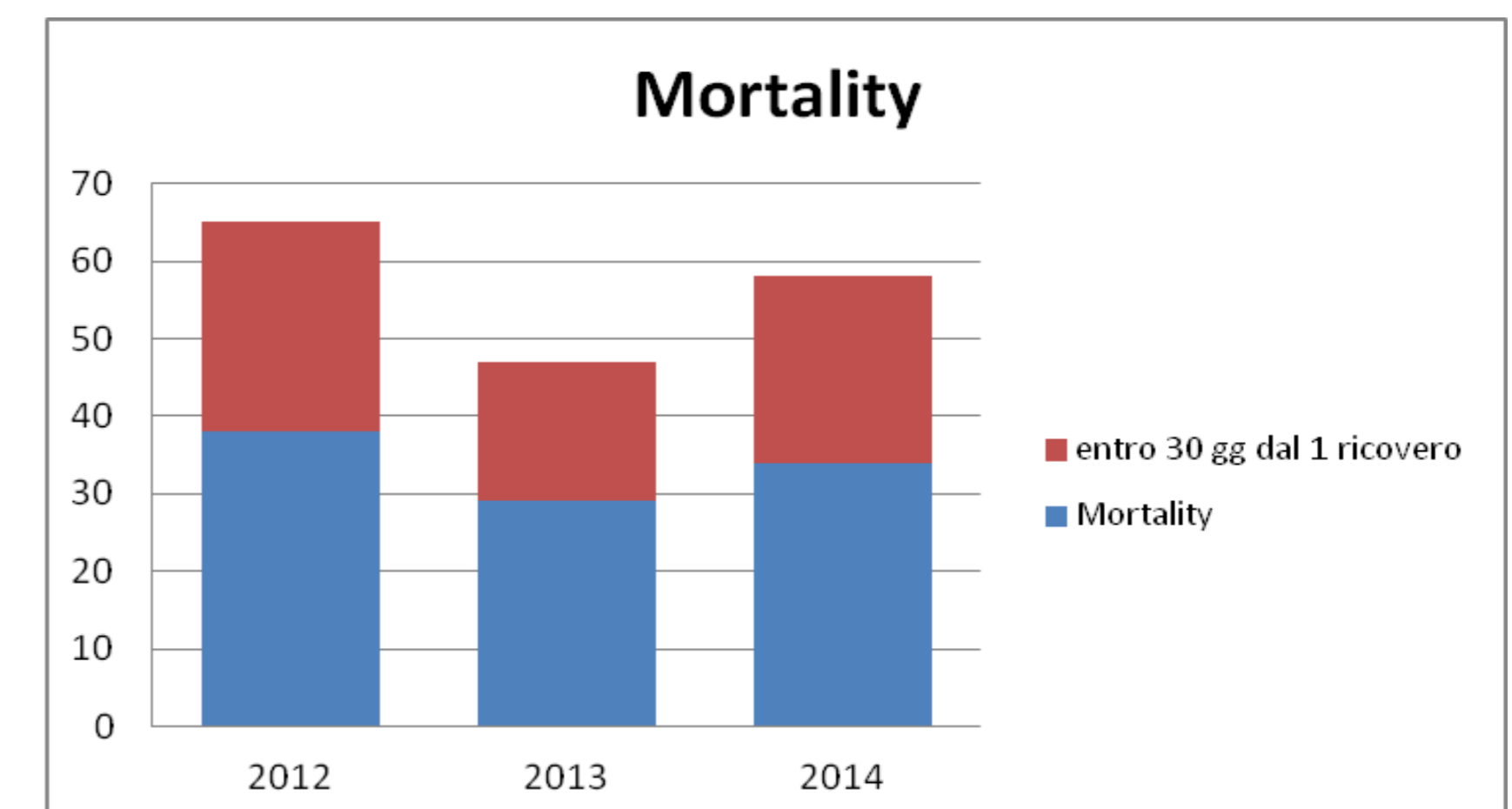
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Introduction. Mortality and readmission to the hospital within 30 days are main indicators of effectiveness and efficiency in health care. Identifying risk factors of readmission seems of paramount importance to improve care pathways, quality of life and good allowance of resources.

Material and Methods. A 36mos mono-institutional study on episodes of hospitalization was conducted to determine the factors associated with 30-day readmission and death in neurological diseases. We hypothesized a predictive risk model to analyze hospital readmission. Bivariate statistics were computed and a multivariate analysis using linear regression was performed to determine the independent effects of each factor.

Results. In the triennium 2012-2014, in our department (Neuro-LO) 2000 resident cases were hospitalized; 108/2000 were submitted to at least 1 readmission within 30 days (5.4%). We considered 265 episodes (excluding admissions to rehabilitation and neurosurgery): 108 first episodes and 157 readmissions (42.7% in Neuro-LO). In the triennium the intra-hospital mortality was, respectively, 5.6% (2012), 3.9% (2013) and 5.2% (2014). Mortality at 30 days was 4%, 2.5% and 3.95%, respectively. Vascular DRGs, at 1st admission, were 46.8% (2012), 59.1% (2013) and 47% (2014), whereas accounted for 23.4%, 25% and 35.3%, respectively, in the 2nd episode of hospitalization. Previous hospitalizations, length of stay, number of discharge medications, medical comorbidities and complications were hypothesized to be associated with a greater risk of hospital readmission within 30 days. Length of stay was longer in elderly patients. Infectious complications were highly correlated with age > 60 (p-value = 1.9%). We hypothesized a predictive risk model for the total duration of hospital stay including some independent variables: age, complications and number of hospitalizations. The resulting R^2 was 51.3%, with a high significance of the regression (p-value of Fisher's exact test = 0; test statistic $F = 29.19$). All covariates were significant (p-value of the Student's t-test on the individual coefficients: 0.19% for age, 1.3% for complications and 0 for the number of hospitalizations). Residue analysis was satisfactory: Normal (p-value of the Shapiro-Wilks test equal to 98.33%) and independent residuals, with a good dispersion.



Conclusions. Age, complications and the number of hospitalizations are good predictors for the total duration of hospital stay and 30-days readmission. This risk prediction model might be useful to identify the patients at risk before readmission. This perspective might improve quality of care and burden of health expenditure.

References:

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