DOES MPDS IMPROVE THE UNIFORMITY OF ASSESSMENT OF EMERGENCY MEDICAL CALLS?

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INTRODUCTION

The evaluation of emergency calls, received by the Emergency Medical Communication Centers (EMCCs), is the first and basic step to activate the rescue chain. It represents also an essential prerequisite for an optimal management of critical patients, by optimizing the methods of public medical response and management time.

METHODS

This survey retrospectively examines the priority codes assigned to emergency calls, managed from 2002 to 2014. Analysis periods were divided as follows: 2002/2010, period when emergency calls were managed without using MPDS (WO-MPSD) and 2011/2014, period when emergency calls were processed with MPDS (W-MPDS). Based on priority codes, the emergency calls were divided into two groups: red and yellow codes were included in the critical group (CR), while green and white codes were included in the not-critical one (N-CR).The study primary outcome measure was to evaluate priority codes Coefficient of Variation (CV) among EMCCs. The secondary outcome was the assessment of priority codes CVs among call takers in Genoa EMCC.

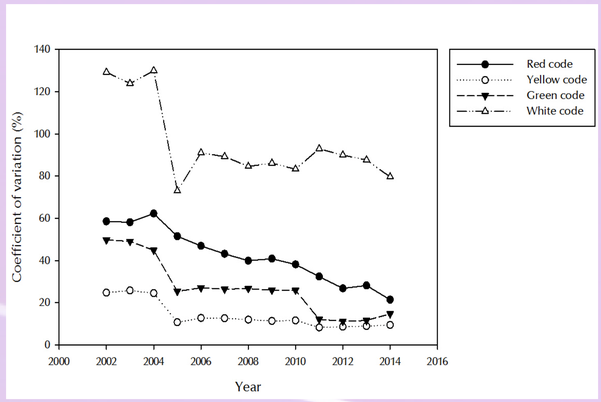


Figure 1

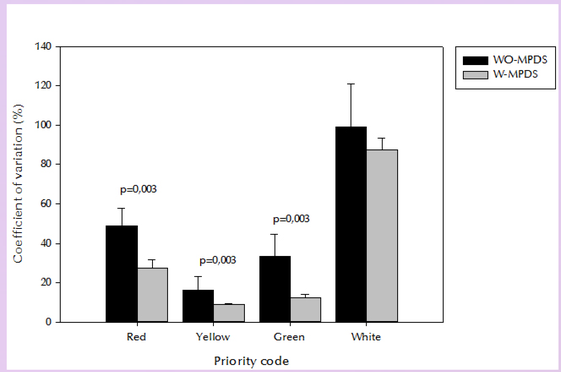


Figure 2

Figure legend
Red: very critical, life-threatening, maximum priority, immediate treatment situations.
Yellow: fairly critical, evolving, possible life threatening situations.
Green: low critical, not evolving, deferable situations.
White: non-critical situations, non-urgent patients.

Figure 3

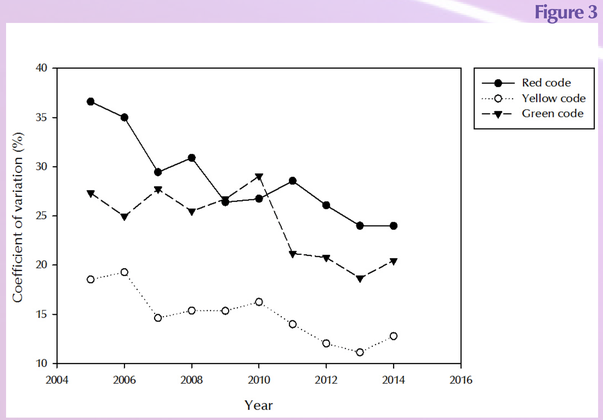
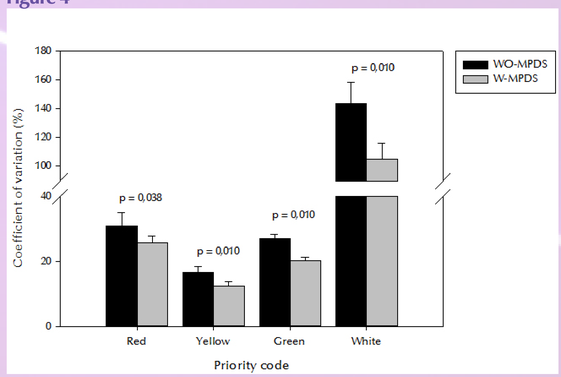


Figure 4



RESULTS

As first analysis it was evaluated whether the MPDS introduction varied the rate of CR, and so consequently the N-CR one, attributed by EMCCs in Liguria: during WO-MPDS the CR percentage was equal to 65.88% (SD: ± 1.35%; CI: 64.84 - 66.92), while in the W-MPDS, the proportion was 64.46% (SD: ± 0.95%; CI: 62,95- 65,97); this difference was not statistically significant (p = 0.076). The temporal trend evaluation, of priority code CV among EMCCs in Liguria, shows a definite decrease, from 58.50% in 2002 to 21.44% in 2014 for the red code (Figure 1), the same trend is detectable for yellow codes (from 24.75% to 9.48%), for green codes (from 49.72% to 14.77%) and for white codes (from 129.23% to 79.69%). From comparing the periods WO-MPDS and W-MPDS significant differences rise in uniformity evaluation (CV) of red codes (48.82% ± 9.08 vs. 27.19 ± 4.51%, P = 0.003), yellow codes (16.24% ± 6.62% vs. 8.82 ± 0.51; p = 0.003) and green codes (33.45% ± 10.91 vs. 12.43 ± 1.61; p = 0.003), while no statistically significant changes were in uniformity evaluation of white codes (Figure 2). The same CV evaluation was also carried out among call takers in Genoa EMCC and showed a widespread improvement (Figure 3 and 4).

DISCUSSION

The introduction of MPDS did not significantly change the identification of critical patients (CR) from the previous period. In CR group you can however highlight, during W-MPDS period, an important redistribution between red and yellow codes, in favor of the first. The significant CV improvement, among EMCCs in Liguria, defines a strong impact of MPDS on uniformity evaluation, and definition, as priority codes, of medical emergency calls. The result is further confirmed by CV sharp decrease among call takers in Genoa EMCC.

CONCLUSION

The use of MPDS has significantly improved the uniformity evaluation of emergency calls among EMCCs in Liguria and among Genoa EMCC call takers.

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