

## **ABSTRACT**

### **Operations and use of Paramedic-lead Medical Rescue Teams at the Provincial Emergency Medical Services Station in Rzeszów in 2011-2015**

#### **Introduction**

The Emergency Medical System functioning in Poland is similar to the Anglo-American model. There are two types of medical rescue teams: physician-lead (S-ZRM) consist of doctor and paramedics, and paramedic-lead (P-ZRM) consisting only of paramedics. In the years 2009 - 2011 in the country, the total number of emergency calls carried out by medical emergency teams increased. The daily load of one physician-lead medical emergency rescue teams ranged from 4.8 to 11 emergency calls, and the paramedic-lead medical emergency rescue teams from 2 to 14.2 emergency calls.

#### **Aim**

The primary aim of the dissertation was a retrospective assessment of the use and functioning of paramedic-lead medical rescue teams in 2011-2015 in the operational area of the Provincial Emergency Medical Services Station in Rzeszów (WSPR Rzeszów).

#### **Material and method**

The study was a retrospective analysis of the collective medical records of the emergency calls for medical emergency rescue teams at the Provincial Emergency Medical Service Station in Rzeszów in 2011-2015. The data has been obtained from the Medical Dispatch Form and from the Emergency Medical Procedures Form. The research material consisted of electronic medical documentation of emergency medical rescue teams and dispatchers forms at WSPR Rzeszów from 1 January 2011 to 31 December 2015. In the years 2011-2015, the medical emergency rescue teams fulfilled a total of 114.664 emergency calls. Paramedic-lead medical emergency rescue teams fulfilled 86.196 calls. In the study 75.191 calls fulfilled by paramedic-lead medical emergency rescue teams were selected. 37.964 paramedic-lead emergency medical team interventions for women and 37.216 for men were included in the study.

## **Results**

In the analyzed period there was a steady increase in the number of ZRM trips (21,093 in 2011 to 25,213 in 2015). The average annual rate of increase in the frequency of ZRM trips was estimated at 4.6%. EMTs more often intervened in women. Most of the interventions concerned people over the age of 60 (35,000, 45%). The most frequent reasons for calling ambulance were cardiological causes (17.86%) followed by body injuries (17.7%) and "unspecified reasons" (12.89%). The increase in calls from "indefinite causes" has been observed since 2013 (1.75% vs. 25.19% in 2015). The percentage of other causes has decreased. There was a constant increase in interventions with the use of light and sirens, up to 97.48% in 2015. In the years 2011-2015, the median of EMT arrival time at the scene in the city was 8 minutes, and the third quartile was 11 minutes. The maximum time of arrival was 177 minutes. The duration of medical rescue operations decreased each year 36,7 min vs 30,5 min in year 2015). There was a systematic increase in the medical procedures performed. The most frequently performed medical emergency procedures are physical examination (24.11%), blood pressure test (23.71), pulse oximetry, intravenous access and nursing care. Most often, primary EMTs intervened in patients with diagnosed symptoms and general pathologies (R50–R69, 15.90%), cardiovascular and respiratory diseases (R00–R09, 13.04%) and Diseases of the digestive and abdominal system (R10–R19, 11.36%). Head injuries constituted 9.25% of interventions and arterial hypertension 8.88%. In the analyzed period, most of the patients were transported by the basic EMT to the St. Queen Jadwiga's Regional Hospital No. 2 in Rzeszów (32.9%). 18.7% of patients were transferred to the City Hospital of John Paul II in Rzeszów, 15.75% to the Provincial Specialist Hospital No. 1 in Rzeszów, and 2.77% to the Health Care Center of the Ministry of Home Affairs. 23,8% of interventions were provided at the scene. 4,017 unjustified interventions were reported (5.34%). In 2011-2015, 3,510 interventions to patients under the influence of alcohol were carried out, which accounted for 4.67% of all calls. In particular years of the study, a statistically significant increase in calls to patients under the influence of alcohol was noted.

## **Conclusion**

There has been a steady increase in the number of calls of emergency medical teams, more than three-quarters of them were realized by P-ZRM. The most common causes of calls were „indeterminate causes”, „cardiological causes” and „injuries”. There were statistically

significant connections between the causes of P-ZRM calls and the time of year, age and sex of patients. The teams most often intervened in patients between 70 and 90 years of age. The time of arrival of P-ZRM to the scene met the statutory norms. In the years 2011-2015 the number of ICD-9 medical procedures increase. Approximately a quarter of all P-ZRM interventions were provided on the scene. S-ZRM and LPR were rarely used, mainly in the case of dyspnoea, unconscious patients, and chest pain. In the study period, P-ZRM transported patients to the hospitals in accordance with the established clinical diagnosis, most often to the St. Jadwiga's the Queen Regional Hospital No. 2. in Rzeszów.

### **Key words**

paramedic-lead medical emergency rescue team, emergency calls, most common causes, medical procedures, response time, „lights and sirens”