INTRODUCTION
The relevance of the study of cardiovascular pathology in the Carpathian region is due to the wide prevalence of diseases of the cardiovascular system in both Ukraine and Europe as a whole. Thus, according to WHO, nearly 85.5 million Europeans suffered from cardiovascular disease, namely: peripheral blood vessels (35.7 million), ischemic heart disease (29.4 million), lesions of the pericardium and heart valves (13.3 million), atrial fibrillation (9.5 million), and strokes (7.5 million) [1].

Analyzing the dynamics of prevalence and mortality in Ukraine of cardiovascular and vascular diseases from 2000 to 2018, we can note their fluctuations - from increase to decrease, both from all diseases and due to diseases of the circulatory system in all regions Ukraine, which leaves the forecast pessimistic.

The Ivano-Frankivsk region occupies an area of 13.9 thousand km$^2$, which is 2.4% of Ukraine's territory. The geographic feature of the region is the division of relief into three zones: plain, foothill, on which the regional center is located - Ivano-Frankivsk (255 m above sea level), mountains (Carpathian mountains, occupy the southwestern part of the region, here is the highest mountain of Ukraine - Hoverla (2061 m)). The relief elevation rises from northeast to southwest.

The climate of the region is moderately continental, moist, characterized by significant fluctuations in temperature, atmospheric pressure, humidity, wind direction in accordance with the relief zones (Fig. 1.) [2].

Population of the region - 1,381.5 thousand, including in plain areas - 369.5 thousand, foothill areas - 708.4 thousand, mountainous areas - 304.7 thousand in administrative division includes 14 districts, and 5 city councils (Fig. 2.).

Main part of the region's population lives in villages - 57.1% (788.2 thousand), the part of urban population is 42.9% (593.3 thousand).

The uneven density of the population, which goes down from the plains to mountainous regions is one of the unique features of the region. An average population density of the region - 101.4 persons/km$^2$, the highest density is in plain areas - 115 persons/km$^2$, the lowest is in the Verkhovinsky district - 24 persons/km$^2$ [3].

ORGANIZATION OF CARDIOLOGY MEDICAL CARE
The municipal institution “Ivano-Frankivsk Regional Clinical Cardiology Center” was organized in December 1986, in which activities diagnostic and advisory and organizational-methodical work prevails.

ABSTRACT
Introduction: Cardiovascular diseases remain a problem of the modern medical community. Mortality from cardiovascular disease is at the forefront in the structure of the causes of mortality, so active support for the prevention and treatment of this group of diseases is the most effective measure as it will affect the continuation of life expectancy.

The aim: To analyze features and patterns of cardiovascular disease in the Carpathian region.

Materials and methods: The features of the course and treatment of acute coronary syndrome in the period 2014-2018 in the Ivano-Frankivsk region are analyzed. Clinical-anamnestic, geographical, demographic, the effectiveness of patient care, statistical and acute coronary syndrome registry data were studied.

Conclusions: Preventive activities, both primary and secondary, with the promotion of knowledge on the preservation and strengthening of health, are a guarantee of positive progress in overcoming cardiovascular diseases. Creation of rehabilitation centers with a multidisciplinary approach, along with medical and physical interventions of psychological support and training, will contribute to the improvement and prevention of complications of cardiovascular disease. The cooperation of cardiological communities between the regions has a social and medical significance, namely the training of specialists, the exchange of experience, scientific projects with the medical community of Opole Voivodship is one of the directions of increasing the efficiency of treatment of cardiological patients.

KEY WORDS: acute coronary syndrome, coronary artery bypass grafting, region, rehabilitation, psychology, training
Fig. 1. The climate map of the Ivano-Frankivsk region.

Fig. 2. The administrative map of Ivano-Frankivsk region.

Fig. 3. Health indicators of the Ivano-Frankivsk region during 2000.

Fig. 4. Health indicators of the Ivano-Frankivsk region during 2018.
Scientists of the Ivano-Frankivsk National Medical University have developed and maintained a local registry of patients at the stage of rehabilitation after heart attack [4, 5].

In 2000-2019 in the regional and central city clinical hospitals, the centers of low-invasive surgery have been organized and are successfully functioning. Coronary angiography, stenting of coronary vessels, the implantation of permanent pacemakers and cava filters are performed. In 2018 angiographic system, ultrasound scanner of the expert class, equipment for laboratory diagnostics were purchased.

The information support and training of cardiologists for the purpose of improving their qualification is carried out by the “Ukrainian Cardiology Magazine”, which is published by the National Science Center “M.D. Strazhesko Institute for Cardiology”, methodical recommendations, wide participation in scientific congresses, conferences of different levels. Every month, cardiologists study at inter-

### Table I. Distribution of patients with ischemic heart disease, who underwent treatment and rehabilitation in the Ivano-Frankivsk Cardiology Center.

<table>
<thead>
<tr>
<th>Age</th>
<th>NSTEMI</th>
<th>STEMI</th>
<th>Repeated MI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
<td>2018</td>
<td>2014</td>
</tr>
<tr>
<td>Less than 45 years</td>
<td>4 (4.8%)</td>
<td>4 (4.1%)</td>
<td>20 (9.0%)</td>
</tr>
<tr>
<td>45-59 years</td>
<td>24 (28.6%)</td>
<td>31 (31.6%)</td>
<td>52 (25.5%)</td>
</tr>
<tr>
<td>60-74 years</td>
<td>40 (47.6%)</td>
<td>36 (36.7%)</td>
<td>86 (42.2%)</td>
</tr>
<tr>
<td>75 and older</td>
<td>16 (19.1%)</td>
<td>27 (27.5%)</td>
<td>46 (22.5%)</td>
</tr>
</tbody>
</table>

Notes: The absolute number of patients is indicated.
mittent courses involving district cardiologists, advanced training courses by leading scientists from Ukraine and the near abroad.

In accordance with the agreement on cooperation with University Clinical Hospital in Opole and the Ivano-Frankivsk Regional Clinical Cardiology Center, the scientific and practical activity continues, and 110 doctors and scientists have been trained on the basis of clinics in Opole.

THE AIM
The aim: to analyze features and patterns of cardiovascular disease in the Carpathian region.

MATERIALS AND METHODS
The features of the course and treatment of acute coronary syndrome in the period 2014-2018 in the Ivano-Frankivsk
region are analyzed. Clinical-anamnestic, geographical, demographic, the effectiveness of patient care, statistical and acute coronary syndrome registry data were studied. The study does not contradict the Declaration of Helsinki and received positive feedback from the ethics committee of the Ivano-Frankivsk National Medical University.

**REVIEW AND DISCUSSION**
The analysis of the basic indicators of health of the population in Ivano-Frankivsk region shows that the most important medical-social problem are circulatory system diseases (CSD) due to the increasing prevalence, morbidity, severe consequences of disability (third part of...
all causes of disability) and high mortality (more than half of all cases of death). These CSD are atherosclerosis, ischemic heart disease (IHD), arterial hypertension (AH) and their complications (heart attack, stroke), which rank first among other.

While analysing health indicators of the population, the primary attention was paid to the structure of total mortality of the population, in which during 2000-2018 growth for diseases of the digestive system (+40.0%), cholesterol (+19.5%), onco (+4.9%) and decrease in respiratory diseases (-82.0%) was noted (Fig. 3, 4).

As for the distribution of ischemic heart disease patients by age and sex (2018), at the age of 45-59, the main percentage is men 27 (27.5%), women 4 - (4.08%) with NSTEMI and 65 (23.5%) and 9 (3.2%) at STEMI, respectively; in the age group 60-74, the proportion of women with NSTEMI 16 (16.3%) and STEMI 52 (16.84%) versus men is 20 (20.4%) and 16 (16.33%), and at the age above 75 years for NSTEMI women prevail - 16 (16.3%). This trend was observed in previous years and is comparable to the general data of Ukraine (Table I).

The distribution of patients with NSTEMI by gender and age is presented in Figure 5, STEMI (Figure 6).

According to the distribution of patients by place of residence the main percentage is the city’s residents. In particular, 63.33% of patients with NSTEMI who were given a conservative treatment were from the city and 36.68% from the village. In the case of conducting PCI, 68% and 32% respectively (Fig. 7). This distribution is same for patients with STEMI.

In the region between 2014 and 2018 there is a decrease in cases of myocardial infarction (Fig. 8). So, the highest level was in 2016 - 1297 cases, in 2018 - 1188 cases. No significant fluctuations in percentages are observed for STEMI and NSTEMI cases. STEMI in 2016 was 962 cases (74.1%), and in 2018 - 815 cases (68.3%). NSTEMI in 2016 - 336 cases (25.9%), and in 2018 - 373 cases (31.7%).
There is an increase in the percentage of patients who have been diagnosed with PCI. So, in 2015, 333 patients with ACS were treated by PCI, in 2018 there were 582 interventions. Due to the geographical features and remoteness of some districts from the only one center in the region where primary PCI is performed, in part of patients, thrombolytic therapy (TLT) was used. There were 75 TLT in 2018 compared to 175 in 2014. (Fig. 9, 10).

Structure of patients by time of admission to the center with the possibility of PCI. 343 patients with ACS in 2018 were admitted to the united center of Ivano-Frankivsk region: up to 2 hours - 66 patients - 21%, 2-6 years - 162 patients - 51%, 7-24 hours of patients - 19-6%, more than 24 hours - 19 patients -6% (Fig. 11).

More than 68.0% of patients were hospitalized after 24 hours without the possibility of providing percutaneous interventions. Such features also have been noted for the past years (Fig. 12.).

REHABILITATION OF CARDIAC PATIENTS
On the basis of the Ivano-Frankivsk Regional Clinical Cardiology Center there is a rehabilitation department where patients of working age underwent rehabilitation after acute coronary syndrome and cardiac surgery.

In the region there is a need for a rehabilitation institution, where provision of more effective rehabilitation for the entire population of the region. The percentage of rehabilitation is low, for example in 2017 - 28.1% of patients (Table II).

The rehabilitation department has a multidisciplinary approach, covering all components of rehabilitation.

Along with medical support, physical rehabilitation is conducted (including morning gymnastics, medical physical exercise, dosed walking, massage, physiotherapy procedures).

Psychological rehabilitation uses suggestive methods (autotraining, music therapy), individual and group counseling, trainings.

One of the methods used in the department is the teaching of patients, for this purpose a school-club “Healthy heart” was created. The purpose of the work is to support patients in the medical and psychological areas; increase awareness of patients with cardiovascular diseases, psychological component of diseases; improve of rehabilitation of patients; increase patient’s attachment to non-drug and medical treatment; form the internal picture of health, work on the internal picture of the disease; form skills and abilities of influence on behavioral risk factors; train self-control skills; provide the first pre-medical care; promote healthy lifestyle, increasing the patient’s responsibility for maintaining his health and motivating him to recover; work with families and relatives of patients.

Also, for social awareness, a web-page is created in social networks.

CARDIO-SURGICAL INTERVENTIONS
In the dynamics from 2014 to 2018, the provision of cardiac surgery is increasing. In the structure of this care there are interventions for infective endocarditis, congenital heart defects, acquired heart defects, implantation of artificial pacemakers, CABG, coronary stenting, cardiac ventriculography.

In 2018 881 cardio-surgical interventions were performed against 744 in 2017, including: with infectious endocarditis - 7; with congenital heart defects - 21; with acquired heart defects - 65; CABG - 95; coronary stenting - 506; implantations of artificial pacemakers - 116 (110 implanted, 6 - reimplanted) (Fig. 13).

The mortality rate for AMI is somewhat diminished. In particular, in 2014 it was 187 cases, which was 17.0%, and in 2018, respectively, 156 cases - 14.2% (Fig. 14).

The health of the population of the region is determined by a number of medical and non-medical factors, in particular demography and the region’s economy, population composition and the availability of modern medical technologies. The gradual introduction of modern reperfusion technologies can significantly affect the effectiveness of rehabilitation of patients, their disability and quality of life.

One of the important factors that determine the above priorities is the age and gender of the patients. In particular, the highest percentages of patients with coronary artery disease were observed at the age of 45-59 and 60-74 years, during these periods, there appeared both NSTEMI and STEMI. In recent years there has been an increase in the number of patients in the older age category.

The introduction of modern reperfusion technologies gradually changes the ratio of NSTEMI and STEMI. In particular, timely planned treatment for patients with SIHD contributes to a decrease in STEMI, with a slight increase in the number of NSTEMI, although this pattern varies in different regions of the region [6].

Thrombolytic therapy is still an important method of reperfusion therapy in a special regional environment. The amount of thrombolysis is gradually decreasing, which is due to the introduction of PCI on the one hand, and, on the other hand, the creation of conditions for rapid transport to the catheterization laboratory.

Growing of the network of reperfusion centers, as well as reforming emergency medical care, helps to increase the quantity, timeliness and efficiency of reperusions. At the same time, at the regional level, a significant percentage of patients with a limited possibility of PCI and full reperfusion remain.

Despite the use of reperfusion tactics or the impossibility of its implementation, the effectiveness of further restorative treatment of patients is determined by the complex of medical treatment, physical and psychological rehabilitation.

It is clear that an effective rehabilitation complex can be carried out in the event of the establishment of appropriate rehabilitation centers and their equipment, using a multidisciplinary approach.

Along with the methods of physical rehabilitation there is a need to introduce a variety of methods of psychological rehabilitation. It is important to effectively study the formation of an optimal internal picture of health [8, 9].

Among patients with SIHD, despite organizational and medical measures to prevent acute coronary syndrome and the introduction of PCI, there remains a certain contingent
of patients whose further healing is possible through the use of CAGB. CAGB along with other cardiac surgical interventions for heart defects, endocarditis, implantation of artificial rhythm drivers is the way that increases the duration and quality of life of patients.

The comprehensive approach to primary and secondary prevention of coronary artery disease and prevention of complications remains the main priorities of improving cardiology assistance to the population.

Economic and medical ties of different regions have important social and medical importance. In particular, during the past 10 years, a close co-operation between the cardiological community of Ivano-Frankivsk region and the cardiology community of Opole Voivodeship has been established. Training of specialists, their internships, exchange of experience, scientific projects is one of the steps to improve the efficiency of treatment of patients.

CONCLUSIONS
Due to increasing rates of the prevalence of circulatory system diseases in the area the following points should be addressed:
1. Medical regularities:
   - reducing the public's attention to their health
   - shortcomings in rehabilitation and medical examination
   - request for medical assistance in critical situations
   - insufficient number of centers with the possibility of percutaneous interventions
   - failure to provide preventive or supportive treatment
   - demographic processes, geographic features, a significant decrease in density of population in the direction from the plains to mountainous areas.
2. Mortality from cardiovascular disease is at the forefront in the structure of the causes of mortality, so active support for the prevention and treatment of this group of diseases is the most effective measure as it will affect the continuation of life expectancy.
3. The urgent need is to use and maintain a registry of patients with cardiovascular diseases.
4. Preventive activities, both primary and secondary, with the promotion of knowledge on the preservation and strengthening of health, are a guarantee of positive progress in overcoming cardiovascular diseases.

REFERENCES
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