DIFFERENCES IN MANAGEMENT OF MEDICAL SERVICES FROM FAMILY MEDICINE OFFICES IN RURAL/URBAN ENVIRONMENTS

Gabriel Geanini Vladu

ABSTRACT

The most important elements of this study were related to the management of the family medicine office and the endowment of the family medicine office. It is a prospective study, carried out on 22 family medicine offices in Constanța county. As a case study, we highlighted the economic aspects of some optional equipment that can be brought into a cabinet, namely: the cost of the equipment, the cost of operation, the price at which it should work so that the investment is profitable and last but not least, the benefits the community that enjoys the respective medical services, the socio-economic impact and on health.

Scientific documentation was used, by extracting information about the topic that is the subject of the research, a survey, to discuss with as many family doctors as possible to obtain essential data, clinical-medical scientific research of the most frequent pathologies from the patient list and the method statistical recording, processing and graphical representation of data.

The purpose of this paper is to study the current state of family medicine offices, the optional equipment they have, the optional equipment found in rural/urban offices, as well as the economic advantage that the family doctor could have depending on these areas.

Keywords: medical services, family medicine, EKG, point-of-care testing

Introduction

In the realm of family medicine, the integration of point-of-care (POC) methods has emerged as a transformative force, reshaping the landscape of primary healthcare. The importance of POC in family medicine is underscored by its ability to expedite diagnostic and treatment processes, enhance patient satisfaction, and contribute to more effective and efficient healthcare delivery. In this era of patient-centered care, the utilization of POC technologies in family medicine stands as a pivotal approach, facilitating rapid decision-making, tailored treatment plans, and immediate interventions, all of which culminate in improved health outcomes. Furthermore, it holds the potential to minimize healthcare costs and extend the reach of medical services, particularly in remote and underserved regions. In this scientific article, we delve into the multifaceted significance of POC in family medicine, exploring its impact on patient care, health management, and the broader healthcare ecosystem. By scrutinizing the diverse dimensions of POC integration, we aim to elucidate its fundamental role in modern family medicine and its capacity to revolutionize the delivery of healthcare services. This investigation contributes to the growing body of knowledge surrounding POC technologies, fostering a deeper
understanding of their potential applications and benefits within the field of family medicine.

This article represents a prospective study, made on 22 family medicine offices in Constanța County. The most important elements were related to the management of the family medicine office and the endowment of the family medicine office. The study represents a shared approach between rural and urban offices. In the last part, I chose to do case studies regarding the economic aspects of some optional equipment that can be brought into a cabinet, namely: the cost of the equipment, the cost of operation, the price at which it should work so that the investment is profitable and last but not least, the benefits brought to the community that enjoy the respective medical services, the socio-economic impact and on health.

This work aims to study the current state of family medicine offices, to find out the optional equipment available to family medicine offices, different from the optional equipment found in offices in the rural environment in comparison with those in the urban environment, identifying the main pathologies from the list of patients of a family medicine doctor, identify the main optional equipment that can be in a family medicine practice and would benefit patients, the economic advantage that the family medicine doctor could have, the economic advantage that could have.

Objectives:
- Find out the optional facilities available to family medicine offices.
- Differences in optional equipment found between the offices in the rural environment and those in the urban environment.
- Identification of the main pathologies from the patient list of the family medicine doctor
- Identification of the main optional equipment that can be brought into a family medicine office and would benefit patients.
- The economic advantage that the family medicine doctor could have.
- The economic advantage that patients could have.

**Material and method:**

1. Scientific documentation - by extracting information about the topic that is the object of the research;
2. The survey method - used to discuss with as many family doctors as possible to obtain essential data for this work.
3. Clinical medical scientific research of the most common pathologies in the patient list.
4. The statistical method of recording, processing and graphical representation of data - used for the visual identification of data trends.

The statistics found in the records of the College of Doctors, the observation sheets from the family medicine offices and the annual reports that are in the records of the Constanța Public Health Directorate, plus the questionnaire below, were used as study material.

The questionnaire was made to create the article entitled "Differences in the management of medical services in rural/urban family medicine offices" by master's student Vladu Gabriel Geanini, under the guidance of associate professor Cosma Sorinel.

I mention that personal data (such as the name of the doctor, the name of the office, the town where he is located) will not appear in this paper. Only the answers to the following questions will be used to carry out the statistical study.

1 Your practice is located in: A Rural B Urban
2 How many patients are registered at your office? Pack no. ______
3 The equipment of your office includes the following medical equipment:
   A Microsurgery kit YES NO
   B Ultrasound YES NO
   C Electrocardiograph YES NO
   D Glucometer YES NO
   E Coagulometer YES NO
   F Vascular Doppler YES NO
4 How many patients with atrial fibrillation are registered at your practice? ______
5 How many patients with diabetes are registered at your office? ______
6 How many smoking patients are registered at your office? ______

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Have you used the microsurgery kit in the last year? ________

Do you have specialized complementary studies? YES NO

Thank you for taking the time to complete this questionnaire!

Results and discussion

The study was carried out on 22 family medicine offices: 10 from rural areas and 12 from urban areas.

Table I Number of patients in urban area

<table>
<thead>
<tr>
<th>Praxis</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>941</td>
</tr>
<tr>
<td>C2</td>
<td>1112</td>
</tr>
<tr>
<td>C3</td>
<td>1403</td>
</tr>
<tr>
<td>C4</td>
<td>1827</td>
</tr>
<tr>
<td>C5</td>
<td>1616</td>
</tr>
<tr>
<td>C6</td>
<td>1230</td>
</tr>
<tr>
<td>C7</td>
<td>881</td>
</tr>
<tr>
<td>C8</td>
<td>1303</td>
</tr>
<tr>
<td>C9</td>
<td>1057</td>
</tr>
<tr>
<td>C10</td>
<td>1721</td>
</tr>
<tr>
<td>C11</td>
<td>2106</td>
</tr>
<tr>
<td>C12</td>
<td>2719</td>
</tr>
</tbody>
</table>

Table II Number of patients in rural area

<table>
<thead>
<tr>
<th>Praxis</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>1801</td>
</tr>
<tr>
<td>R2</td>
<td>3250</td>
</tr>
<tr>
<td>R3</td>
<td>1102</td>
</tr>
<tr>
<td>R4</td>
<td>956</td>
</tr>
<tr>
<td>R5</td>
<td>3521</td>
</tr>
<tr>
<td>R6</td>
<td>3007</td>
</tr>
<tr>
<td>R7</td>
<td>2987</td>
</tr>
<tr>
<td>R8</td>
<td>2712</td>
</tr>
<tr>
<td>R9</td>
<td>2213</td>
</tr>
<tr>
<td>R10</td>
<td>2607</td>
</tr>
</tbody>
</table>

Table III Average number of patients per rural/urban office

<table>
<thead>
<tr>
<th>Environment</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of patients per office</td>
<td>1493</td>
<td>2415</td>
<td>1912</td>
</tr>
</tbody>
</table>

As we can see (Table III) from the data above, in Constanta county, as in the rest of the country, there is a shortage of family doctors in the rural area. This deficit can be seen through the doctor/number of patients ratio. In rural areas, we have one family doctor for 2415 patients, while in urban areas, we have one doctor for 1493 patients.

1. Microsurgery kit

It can be found in all family medicine offices, being part of the minimum mandatory equipment.

But to the question "Have you used the microsurgery kit in the last year?", we observed an affirmative answer in 7 out of 10 offices in the rural area, and in the urban area only one out of the 12 offices gave an affirmative answer. An explanation is that in the urban environment there are many dermatology and plastic surgery offices, doctors with expertise in microsurgery, which is an alternative preferred by patients, while in the rural area there are no such offices, which is why patients call on the doctor's services by family (1).

2. Electrocardiograph

Can be found in 9 out of 12 offices in the urban environment and in the rural environment it is found only in 4 out of the 10 offices. This device is very important due to the fact that it can easily diagnose very common pathologies (2). An explanation for why there are more EKG machines in the urban environment is that 11 out of the 12 doctors in the urban environment answered affirmatively to question 8 (8 Do you have studies complementary to your specialization?), while in the rural environment only 4 out of 10. This because the responsibility for the correct interpretation of an ECG rests with the physician, who should be able to recognize patient-dependent errors, operator-dependent errors, and machine-dependent errors (3).

3. Coagulometer

This device is missing from the family doctor's office.

Atrial fibrillation:

Atrial fibrillation is the most common type of cardiac arrhythmia worldwide. According to
WHO estimates, atrial fibrillation affects up to 3% of the Western population aged 20 or more (4).

The most important complication of atrial fibrillation is a stroke, a pathology that can be prevented through an early diagnosis (5). This pathology has a direct cost on the health service through prolonged hospitalizations (6), prolonged and often incomplete recovery through the persistence of neurological sequelae, and indirect cost through the premature removal from the labor market of some people who would otherwise have been able to work (7).

Considering that in the urban environment there is the possibility to perform an EKG or NRI in the vicinity, and the lack of these devices in the family medicine office does not deprive the patients of these investigations, the emphasis was placed on patients from the rural environment (8).

Given that:
1. in rural areas, only 4 of the 10 offices are equipped with EKG machines and
2. there are no other options (cardiology offices, as we find in the urban environment)

It results that of the 24,156 patients, as far as the 10 family medicine offices have, 60% (14,493) do not have access in proximity to perform an EKG, without moving to the urban environment, of which 391 have fibrillation, considering percentage in this study, all without the possibility of diagnosis in their locality, and probably many of them without treatment.

The health system in Romania has been underfunded for many years, and primary healthcare has been affected, and therefore the development of family medicine would cover the needs of this field (9). The data above show us the importance of having an EKG machine in the family medicine office, being advantageous for patients, for the doctor as well as for the social security budget, with a small investment you can save much higher costs, as well as the importance of the coagulometer which is necessary in the monitoring of patients with atrial fibrillation in anticoagulant treatment with Acenocoumarol

**Case Study:**

At a rural practice, out of 3250 patients, 87 patients with atrial fibrillation are registered. One of the treatment principles of atrial fibrillation involves anticoagulant treatment. The cheapest product is Acenocoumarol, which involves coagulation control by repeating the monthly INR and maintaining it in a range of 2-3.

Therefore, we have the following calculations: Price of coagulometer = 1600 lei, Price of 48 tests = 950 lei, resulting in the price of one test = 19.8 lei.

The lifetime of the device is considered to be 2 years, which is the warranty.

87 patients with fibrillation with one test per month x 24 months lifetime of the device, we have 2088 tests in 2 years.

Costs 2088 X 19.8 + 1600 = 42,942 operating cost / 2088 = 20.56 lei the cost of a test.

Considering that in the urban environment the price of an INR test is 17.6 lei, and in our office the cost of an INR test is 20.56 lei, the Coagulometer will not be a profitable device because patients have a cheaper alternative. While in the rural area, where there are no alternatives, we could apply a price of 22 lei per investigation and we have the following calculation:

22 lei X 2088 = 45936 – 42942 = 2994 lei in 2 years of operation of the coagulometer.

The profit is not very big, but instead the very big benefit is for patients who do not have the opportunity to travel to the medical laboratories in the urban environment.

**References**


