THE PERFORMANCE OF THE PUBLIC AMBULANCE SERVICE AND INFLUENCE FACTORS

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ABSTRACT

The paper presents the Romanian Public Ambulance Service as concept, implications as well as the factors of influence that put a significant mark on its performance. All these along with a research that shows different sides of the subject are analyzed in order to find and recommend solutions meant for increasing the quality of the service offered, into the actual crisis context. All the proposed measures can be used in the way of improving the activity and performance of the public ambulance system, this being the most important one and the one with the largest addressability.

KEYWORDS: *ambulance, performance, influence factors, medical services, performance indicators*

Romanian Public Ambulance Service ensures pre-hospital medical assistance for urgency cases at the requested place and during patients' (such as: ill people, people that suffered from an accident, pregnant women) transportation towards hospital. As well, the service offers medical ambulatory assistance at the requested place and non-medicated transportations. The transport of medicines, of biological products (blood and organs) and medical and sanitary personnel is done on a continuously basis ensuring the requested medical assistance all over the country, 24 hours a day. The Public Ambulance Service responds to the telephonic requests coming from physical persons as well as from medical units (hospitals, clinics).

Being the key point of the medical assistance and major urgencies transportations into the pre-hospital stage, the Romanian Public Ambulance Service is implied also in preventive medical assistance in case of sports activities, cultural activities, socio-political, strikes and other such activities and events that benefit of monitoring and medical assistance offered and transportation in case of urgencies and catastrophes. More than the urgency medical assistance and medical assistance in case of disasters, the Romanian Public Ambulance Service deals also with other activities such as medical assistance at domicile for second degree urgencies, issuing decease certificates on Saturdays, Sundays and on Public Legal Holidays after ascertaining and ensures medical assistance and transportation to the hospital for social cases in case of lack of a social assistance system for which contribution is paid to day.

From the statistics realised for the first semester of year 2008 results that 36 % (~3000 cases) out of the total number of calls received at the urgency number „112" have been directed towards the Romanian Public Ambulance Service. Out of these, 39 % have been major urgencies, 31 % have been 2nd degree urgencies and 30 % medical transportation (source: http://www.112.ro).

The operative medical personnel consists of 95 physicians, 110 medical assistants, 81 call-centre operators that record urgency cases – persons prepared for correct identification of the presumptive diagnosis and 240 ambulance drivers (trained in order to be able to help as third help that completes the rescue team specialized in urgency

interventions on ambulances). The working schedule of the personnel is in two shifts (day and night) and ensures the system functioning 24 hours a day, 7 days a week.

Regarding the performance of the public ambulance service, following a study made by the Public Health Ministry entitled „Auditul performanței serviciului public de ambulanță“ on 42 counties of Romania resulted that the unique urgency number "112" went live on June 2004 in order to improve this service's performance. By this is considered that have been brought following improvements:

- Decrease of the number of false calls;
- Simultaneous mobilization of the rescue teams;
- Accessible addressability for the entire population of the counties;
- Simultaneous response from police, fire-men and ambulance in cases that require all of these teams.

All these benefits came due to the fact that now the number that calls is automatically identified as number itself and as location (GPS - Global Positioning System made this possible) and the name and the address of the phone number owner are found by automatically searching into a database (the same is the way of handling such things in the rest of the European Union countries, in United States and Canada since it's a way of finding the false and true call cases).

At dispatcher level the requests are sorted taking into account the severity of the injuries. Taking into account the fact that there is no operative compartment having a permanent coordinating physician and a sufficient number of operators for urgencies, the dispatcher's efficiency in this idea is restricted and has plenty of room for improvement.

On the other side, the standard form that is filled in for the requesters that call to „112" is quite complex, with detailed questions regarding the state of the patient, thing that in many cases makes the requester nervous, has implication on the reaction speed and the promptness of solving the urgent cases.

Other disadvantages of implementing a unique urgency number (namely "112") are as followings:

- Lack of complete preparation (medical education) of the operators that execute the sorting of the calls that would be useful to correspondingly split the real urgencies out of the total urgency cases;
- The vulnerability of the unique system that suffers if overloaded and technically breaks-down when too many calls, this affecting the population's need to get in contact with a rescue team when needed.

In the idea of combining the advantages offered by the unique number "112" and reaching a certain performance related to the response speed is recommended that data into the standard form are reanalysed, by this reducing the redundant information.

The general objective of the study has been to get an overview picture of the way in which National Public Ambulance Service is offered, to observe how was conducted and organised this service at local and national level, taking into account the exceptional importance of this to population's health and to the corresponding performance indicators.

Another idea was to establish the way in which material, financial and human resources are used and the efficiency they are used with in case of this service, judging by the speed of reaction to the calls, by the percent of personnel costs into the overall ones, the percentage of the expenditures with ambulances repairs in total costs, the cost of one solved case, etc.).

There have been evaluated the big slots of expenditures in order to be able to determine the degree of control of the National Public Ambulance Service over these and the way in which this service's management acts in the way of cost reduction, establishing responsibilities (internally and also in relations with the County's Public Health

departments, with the local Health Insurance departments and with the units of receiving urgencies from the hospitals.

The key elements that have been taken into account for focusing the analyse on were as followings: speed of responding to the incoming calls and way of dispatching the calls, possibility of taking over the calls over the informatic system, completing electronic patient forms, evaluating the programs of professional training for the medical personnel of different specialties as well as for assistants, ambulance personnel, ambulance drivers, evaluating the capacity of case solving by the ambulance services in case of disasters, dispatcher's efficiency and telephonically solving of some cases that do not imply transportation and hospital care, evaluation of the conditions in which this type of services are done, including the estate of the special ambulance cars (how old are they, what type and degree of utilities have they as well as medical machines), the degree of interest of the implied authorities for improving the quality of this service and other similar services.

The analysis focused on the performance indicators of this field so on reaction time to incoming calls and promptness of the National Public Ambulance Service.

After the study has been done the results showed that the reactions time to the incoming calls is basically determined taking into account the way of functioning and the equipments of the dispatchers. The dispatcher centre is the key point in National Public Ambulance Service, due to the fact that it is an operative centre of control, coordination and control that ensures receiving and managing of the incoming calls for medical urgencies. It is the first contact between the National Public Ambulance Service and the suffering patients that totally rely and hope on the solving that will arrive from the other side of the "telephone wire" (voice).

The speed of reaction to the incoming calls is calculated by taking into account the portion of time that passes from the moment the call was made to "112" until the urgencies call-centre operator answers to the call, and then until the coordinating physician in-charge into the respective shift receives the data and the time in which a certain compatible and case-competent rescue team is allocated and ready to start the action.

The speed of reaction is conditioned by the following economic and social factors:

- Technical possibilities (the amount of investments done that allows use of a certain number of telephonic lines, buying PC-s and auxiliary devices for the dispatcher department, increasing the technical status of the radio/telephony network, improving the technical estate of the ambulances, improving the enhancements that the ambulances have and so on;
- The rescue teams available at the rescue station, the professional training and the degree of tiredness of the radio dispatcher, of the coordinating physician on the shift, of the rescue team and so on. At the same time, people working on these positions are in a bigger number if they are more motivated, although as known, the Health sector is not a good paid one and is not appreciated at the real value so that the ambulance teams are also not very enthusiastic and not very many;
- The patient's behaviour that depends at its turn on the degree of general education as well as the degree of medical education so that the patient or the relatives that call could identify correct the situation and provide the key details so that the form filled in should be relevant and useful in the idea of sending the best fitting rescue team for that case, taking into consideration the exactly details offered by the persons that calls to the Rescue service.

Analysing the dispatcher's activity regarding calls from all over the country it has been found out that the majority of the forms are manually filled in by the operator and only after this inputted into the system's database which means redundancy, inefficiency in using the working time by not properly allocating it, and even a certain degree of error (for example in case of the Ambulance Service of Suceava County). Lack of an appropriate

number of physicians per shift to be able to coordinate the dispatcher department's activity and the lack of the electronic request forms are the main factors that negatively affect the speed of reaction to the incoming calls.

In some counties such as Covasna and Harghita do not exist at all computerized system for taking over the incoming calls and electronic forms, the local dispatch activity for urgency calls being done with the exclusive help of the fixed lines, mobile lines and walkie-talkies.

In case of other counties (Braşov for example), although there exists a computerized functional system there have been found some wrong use-cases regarding the use of the system and there are no interfaces for the automatic data transfer from the sub-stations to the central one and also no other redirecting that could have been useful. In some of the sub-stations there are also no standard PC equipments and the efficiency of the dispatchers in these cases is influenced also by other factors, subjective ones such as: wrong mentality of population that regardless the type of medical problem they are standing, hospital care is needed. These situations also appear because of lack of big number of medical personnel which would make possible an increased number of consults at homes as done outside our country.

According to the legal lines of the appendix no. 24 (pct.6 of the Public Health Ministry Order no. 56 from February, 3rd 2005 for the approval of the Methodological Norms of application regarding the conditions under which medical assistance is provided within the social health assurance system, "*The promptness represents the time that goes from the moment the call is received until the rescue team arrives at the place of action"*. Although into the contract it's made reference to "quality criteria", these are not mentioned in clear, the only criteria written being the promptness for the major urgency cases of the urban area for which the maximum time allowed is 15 minutes. For the 2nd degree urgencies and the ones from the countryside, the promptness indicator is negotiated into the contract for services with the National House for Health Insurances. The negative aspect is linked to financing, namely the fact that from legislative point of view, until now there has been no legal document which to concretely regulate the way of financing the ambulance service. In 2005 and 2006, the financing of the public ambulance system has been ensured from their own incomes obtained after finalising the frame-contract with the National House for Health Insurances, incomes from the local budgets and incomes from the local budgets and state budget through the 2.10 program "National Program for pre-hospital urgency services' rehabilitation. The main source of financing the cherishing of population health that ensures access to a basis services package for the insured persons (package in which is covered also the medical assistance for pre-hospital urgency situations) is social health assurance system.

As indicators there have been analysed quantitative ones (number of kilometres corresponding to the urban locations, number of kilometres corresponding to the rural locations and the total number of requests) and qualitative ones: promptness. For the urgency medical services, the amount contracted is calculated taking into account the estimated number of requests multiplied by the tariff per request.

Referring to the degree of patients' satisfaction we can say that after analysing the responses given by the beneficiaries of the national public ambulance system (questionnaire applied on a sample of 1420 persons), it resulted that generally speaking, the patients have been satisfied by the medical services offered by the rescue teams on the ambulances. The majority of the persons inquired have declared that the arrival of the ambulance was relatively fast (in 15 - 30 minutes), but into the rural sites the waiting time was longer (35 – 45 minute).

This fact is caused by the poor infrastructure, namely the economic factor. The lack of investments in infrastructure makes it even more difficult or even stops the fast

access for saving human lives. There are cases when the delays are not fatal but there are also very dangerous cases when a difference of 15 - 20 minutes could have saved one or more human lives.

The behaviour of medical personnel on the ambulance has been appreciated in general as being proper and very good by the questioned persons. The same level of satisfaction has been met in case of quoting medical care received. Regarding the 15% cases in which the medical personnel on the ambulance has been offered "small incentives", the questioned persons mentioned that they did this gesture in sense of "thank you" and not as a request from the personnel (not even a slight or hidden proposal from personnel).

The problem that appears is regarding the following aspect: the ambulance departments are juridical persons financed by their own incomes, being reporting to the Local Departments of Public Health and under the coordination of Public Health Ministry. They are running and are being financed based on the contract they have with the local Houses for Health Insurances.

From administrative point of view, the local ambulance departments of the counties are in the suborder of the Local Departments of Public Health, and from financial point of view they are ensuring the resources from their own sources, incomes by finalising and signing civil contracts with the local houses for Health Insurances and with the hospitals with which they cooperate (taking into account the number of estimated cases and the real number of solved cases).

There is no action at the level of Public Health Ministry in respect of its collaboration with the Local Departments of Public Health for supervising the activity of the ambulance departments. The information related to this service are provided only once a year to the Ministry, on the occasion of the annual reporting activities of the Local Departments of Public Health.

The lack of a dedicated control instance for the ambulance service at the ministry level makes it impossible to have analysed and synthesised the aspects linked to the public ambulance service. In this idea, Public Health Ministry has no obligation related to the activity of providing urgent medical assistance, ignoring even the elements mentioned into its own Organisation and Functioning Regulations document with refer to the control and monitoring of this activity and service.

More than this, the way of ruling the ambulance departments is influenced by the lack of corresponding financial funds and the high deterioration estate of the ambulances. In order to improve the activities of the local ambulance departments, the persons from their management should be focused on negotiating the frame-contract with the National House for Health Insurances. There is no action at the level of Public Health Ministry referring to the direct collaboration with the Local Departments of Public Health in the direction of supervising the activity of the Public Ambulance Service.

At the level of Local Departments of Public Health, as direct coordinators of them the role consists only of checking and approving the financial reports and checking the actual budget as compared to the planned one.

For improving the overall situation and for performance indicator's increase we would suggest the existing of one separate department for receiving incoming calls linked to inter-clinic patients transportations, since now the aspect is very confusing, at the same dispatcher and on the same frequency being received transportation requests, 2nd degree urgency requests and also Ist degree urgencies. We suggest that the transportation activity to be separated of the urgencies one since transportations do not represent urgencies and for them there should not be allocated and therefore blocked resources that could be better managed in urgency cases for saving human lives.

The Local Health Insurance departments do not have as a special focus reaching certain performances or solving certain difficulties with which the public ambulance service deals with. They only have specific tasks in this way, acting only as a contract part, as partners of the frame-contract with the ambulance departments.

Following the presentation and analysis of these aspects, we can make following recommendations for improvement: of the activity and performance registered within the National Public Ambulance service at local stations level:

- ✓ increasing the degree of automation of the ambulance departments that should lead to redundancy elimination and decrease of the time spent with the manual inputting of data. Also, numbers of inputting errors should decrease reports should be better (more exact) and statistics made faster;
- ✓ designing of some utilization manuals for the IT applications and training of the persons that use those programs;
- ✓ splitting the dispatcher's activities in respect of incoming calls for medical urgencies and the ones for inter-clinic transportations of injured and/or ill people by creating a new department with its own phone line and radio frequency.
- ✓ writing off for the old ambulances that are not in a functional estate anymore and that are more threatening the life of passengers and patients than saving their life;
- ✓ convincing the local authorities to participate and pro-actively be implied in getting financial support for improving the equipments and estate of the ambulance departments from counties;
- ✓ improving the equipments from existing ambulances in order to reach the actual legal standards and also corresponding to the activity plans. These actions should be initiated by the management of the ambulance stations in collaboration with the Local Departments of Public Health and Public Health Ministry;
- ✓ ensuring a sufficient number of ambulances as reported to the existing population per county, according to the European Union rules;
- ✓ striving for legal steps for establishing, attracting and motivation of the necessary number of physicians within the public ambulance service according to the legal stipulations of the appendix no. 11 to the Order of Public Health Ministry no. 208/2003, for improving the quality of medical assistance by focusing of one physician at one time on a smaller number of cases, improving the quality of attention and work;
- ✓ The Local Departments of Public Health should adopt strategies, medium-term plans and short -term programs by mean of which to establish the development directions of the National Public Ambulance Service. By this, local communities' requests could also be satisfied better and in a higher percentage (having a better coverage) by designating and concrete splitting of responsibilities between personnel, according to the workload of activity of the Public Ambulance system. These persons should be in charge of activities linked to the Department of Public Health;
- ✓ correct dimensioning of medical services costs taking into account the real needs of the population and budget allocation which to allow investigations, proper interventions and exclusive medical activity focusing, without having financial factor as disturbance element because of low level of money motivation for medical personnel;
- ✓ initiating a procedure for budgeting and payment of the real number of cases solved by the ambulance departments and not only the foreseen number of cases contracted into the frame-contract. These kind of activities are having a very high degree of fluctuation and there is no way the requests can be dropped down since it is about human lives. These aspects should be especially considered since this service has a continuously increasing number of requests (as a second effect of the global warming and continuously increasing

incidence of heart diseases, increase of number of victims of accidents and so on), poor material conditions and not enough medical personnel.

✓ Stronger implication into the pre-hospital urgency medical assistance domain which to have as a result establishing and acting according a certain politic for improving the performances of this service;

✓ Initiation of a group within the General Department for Medical Assistance with clear established tasks for monitoring the public ambulance service which to have as final result an increase of the quality of urgency medical services;

✓ Establishing a set of performance indicators corresponding to these activities such as defining the quality of medical actions done until handing over the patient to the Emergency Room in order to be able to have efficient and effective control.

All these measures can be used in the way of improving the activity and performance of the public ambulance system, this being the most important one and the one with the largest addressability. The private ambulance services are more difficult to access by the ordinary people because of the high costs allocated per patient. These private services are usually used by persons with high-income and some of the medium-income persons in case the public ambulance service cannot respond to the request.

Thus, it is very important that into the actual crisis, since the social and economic conditions are harsh, a priority should be making feasible improving proposals, establishing performance indicators and systematically monitoring them and why not applying some elements that are likely to bring the National Public Ambulance system to a higher qualitative estate, this being a central point on which human life depends on.

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