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EMERGENCIES IN THE PRACTICE OF MEDICAL DISPATCHING IN POLAND. CHALLENGES IN THE COOPERATION OF EMERGENCY MEDICAL TEAMS WITH MEDICAL DISPATCHERS

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ABSTRACT

The article presents the organization of The State Emergency Medical System in Poland in terms of the operation of the medical dispensaries. Particular attention was paid to the cooperation of medical dispatch centers with Emergency Medical Teams (EMTs) in the realities and circumstances of unexpected events. Areas requiring increased attention during an emergency involving medical dispensary systems have been highlighted. Incidents involving, in particular, various types of unavailability of ICT systems are included. These situations make it necessary to change the daily way of working. Due to the differences in professional practice that apply to those who perform their tasks within the framework of medical rescue teams and medical dispatchers, such circumstances may cause a discrepancy in the understanding of the above-mentioned issue.

Given the current tense geopolitical situation and the military conflict beyond Poland's eastern border, special attention should be paid to the possibility of destabilizing the ICT domain in terms of the country's internal security systems. Active local exercises, but also those covering larger areas of the country, will allow to verify the current ways of doing things, the availability of emergency kits and alternative solutions. Above all, however, this will be the only opportunity to learn from non-harmful contingencies that will enable the smooth operation of Poland's prehospital healthcare system during the challenges ahead.

Keywords: emergency medical teams, medical dispatchers, Poland, number 112

INTRODUCTION

The issue of dispatching Emergency Medical Teams (EMTs) is an important issue for maintaining the safety of people in immediate health danger. In the area of pre-hospital assistance, the basis for the provision of health services is the handling of calls and notifications from people calling for help, the disposition of EMTs, and the provision of health services by EMTs at the scene and during transport to the destination of further treatment. In Poland, only a medical dispatcher (MD) working in a medical dispatch center (MSC) is competent to dispatch a medical rescue team to the scene. Currently, dialing 999 makes it possible to obtain a direct connection with MD. Making a call to the single pan-European emergency number 112 results is a call to the emergency number operator in Poland.

If the 112 operator determines that medical assistance may potentially be needed on the spot, he is obliged to connect the person calling for help with MD. In the daily operation of the State Medical Rescue System, medical dispatch centers and EMTs base their cooperation on the State Medical Rescue Command Support System and the Integrated Communications Subsystem (ICS). A feature of ICS systems, including those classified as critical infrastructure, is vulnerability. Here we can distinguish events of human error, hardware or software failures, physical and cyber-attacks, as well as catastrophic natural events. The sudden occurrence of limitations, singly or in association, in functionalities or the complete disabling of information exchange through previously used protocols can cause challenges for personnel performing their duties. Extrapolating this type of event to the space of medical dispatch centers and EMTs cooperation allows us to believe that disruptions may occur at the interface of information exchange in the form of unavailability of some or all of the previously used functions. The unpredictable, as to time, nature of such incidents directly creates a stressful situation. This applies to both the crew of the EMTs and medical dispatchers. The authors' practice leads us to believe that incomplete awareness of the issues that arise for both sides of the communication participants in the course of the inaccessibility (partial or total) of the system contributes significantly to increased tension. The suddenness of the event only intensifies the experience [1,2]

MEDICAL DISPATCHER IN POLAND

In Poland, there are currently 23 medical dispensaries, which are organizational units of individual provincial offices. The above issue is regulated by the Act of May 10, 2018 amending the Act on State Emergency Medical Services and certain other acts [3]. At this point, it should be noted that medical dispatch centers are staffed by medical dispatchers. These are individuals with professional or higher medical training. A medical dispatcher can become a paramedic or a system nurse. Candidates for the position of MD must have three years of professional experience in a medical rescue team, air medical rescue team, hospital emergency department, anesthesiology and intensive care unit, internal medicine department, general surgery department or orthopedics and traumatology department [4]. A medical dispatcher performs a medical profession by providing medical services. Models for dispatching emergency medical teams to medical incidents vary depending on the models adopted in different regions of the world.

For example, in the Czech Republic, a medical dispatcher, as in Poland, must show medical education. As in Poland, a Czech medical dispatcher has the right to refuse to send an ambulance to the scene. In contrast, in some regions of neighboring Germany, an ambulance dispatcher can refuse to send an ambulance only if he is certain that the call is a prank [5]. In this model, the dispatcher does not need to have medical training, as he does not provide health services [6]. In Denmark, centers involved in dispatching ambulances to medical incidents are not medically supervised [7]. A study of this issue in more distant parts of the world brings confirmation that credentials of the person deciding on the disposition of ambulances vary. Not everywhere the dispatcher has medical training. In 3 of 33 centers operating in 14 Asian countries, the person in charge of dispatching ambulances does not have a medical background [8].

Under the 2019 revised Law on State Emergency Medical Services, the Regulation of the Minister of Health dated July 3, 2019 was introduced on the State Emergency Medical Service Command Support System. According to the abovementioned regulation, the Minister of Health is responsible for developing and providing a whole set of ICS tools for the operation of the State Medical Rescue Service. The Air Emergency Service is responsible for administering the system, and the maintenance of the system at the voivodship (province) level is the responsibility of the provincial voivode (governor) [9, 4].

Within this system, there are specific modules designed to perform specific relevant tasks. For the purposes of this material, the State Medical Rescue Command Support System Dispatcher Module and the State Medical Rescue Command Support System Mobile Emergency Response Module will be referred to, as well as the State Medical Rescue Command Support System Stationary Module. The functionalities included in the above modules are listed in the Health Ministry's regulation. This is a catalog of features:

- accepting emergency notifications transmitted from MDC and notifications of incidents directed to MDC,
- recording medical incidents,

- dispatching EMTs,
- positioning EMTs,
- supporting the handling of medical incidents,
- supporting the execution of tasks by EMTs,
- keeping records of rescue resources,
- understood as forces and resources held by dispatchers of EMTs,
- keeping medical records in electronic form [9].

To ensure secure communications of a network nature, the State Medical Rescue Command Support System operates on the basis of the infrastructure of the Nationwide Telecommunications Network for the emergency number 112. This solution is maintained, by decision of the Minister of Internal Affairs and Administration by the Chief of Police [10]. This network implements the cooperation of servers and access stations in medical dispensaries, provincial offices, stationary locations, as well as mobile terminals and Global Positioning System (GPS) devices. Communication is carried out without access to the Internet [11].

COOPERATION OF MEDICAL DISPATCHER WITH EMERGENCY MEDICAL TEAMS

Emergency medical teams base their daily practice of exchanging information with MD by using the State Medical Rescue Command Support System Stationary Module operated through an access station at the stationary location and the State Medical Rescue Command Support System Mobile Module of the MD operated through a mobile terminal in the specialized medical transport vehicle used by the MD [11]. Medical dispatchers use workstations with Dispatcher Module and Map Module, and touchscreen dispatch consoles with Integrated Communications Subsystem [9]. The Map Module is implemented by integrating with an external system in the form of the Universal Map Module. It allows graphical visualization of the location of an emergency call or incident notification and positioning of emergency medical teams [4]. In order to maintain this implementation, the minister in charge of health is cooperating with the Chief Land Surveyor [12]. For the purpose of locating the coordinates of the current location of an EMTs, specialized means of sanitary transport used by EMTs are equipped with GPS devices [11].

Both communication participants (EMTs and MD) exchange content by voice in addition to communication via the State Medical Rescue Command Support System. Both full duplex and half duplex information exchange systems are used for this purpose. As a rule, full duplex transmission allows data, or in this case voice messages, to be transmitted in two directions simultaneously. We understand such communications as cellular telephony. Half duplex transmission allows alternate transmission of information. The sender of the message can be heard by the receiver. This one can start transmitting a message after finishing the transmission started from another point. In this case, we consider radio communications [13,14]. On the DM's side, telephone communications are carried out by the aforementioned with Integrated Communications Subsystem. It is necessary to use backup telephone communications within the DM [15]. Requirements are also placed before the MS regarding the means of communication to be possessed. These are, in turn, the need to have radio communications, cellular communications and Internet access at the EMTs stationing locations. In addition, EMTs were obliged to meet the requirements necessary for the use of the State Medical Rescue Command Support System both at the stationing location and in the specialized means of sanitary transport used by the EMTs [16].

FULFILLMENT OF EMERGENCY NOTIFICATIONS AND EVENT NOTIFICATIONS

The model of how emergency calls and incident notifications are handled holistically, concerning both the tasks performed by the MD and the EMTs, describes the main business process of the State Medical Rescue Command Support System, which is divided into the following sub-processes: acceptance of the call, dispatching of the EMTs, acceptance of the departure order, emergency departure of the EMTs [11].

It should be noted that information about the potential occurrence of a medical emergency can come to the MD from several types of sources. The legislator indicates that the MD can take information transmitted from the MDC as an emergency call and in the form of a direct call directed to the MD as a notification of the event [17]. In addition, the MD may receive information from the Police or the State Fire Service in the form of an electronic call handling form without a voice call. Similar, in terms of voiceless form, is the receiving of a pan-European system for rapid notification of traffic accidents (eCall), from MDC. One more type of non-voice call, which includes the receipt of an electronic call handling form from MDC, is a short message service (SMS) call [17].

At this point, it is important to mention again that in Poland it is planned to maintain the possibility of calling the MD directly by dialing 999. Making a call to the pan-European emergency number 112 results in a call to the emergency number operator, who, if the event is classified as medical, switches the caller to a medical dispatcher. As indicated in the regulatory impact assessment of the amendment to the Law on State Emergency Medical Services, handling a medical event by calling 999 is shortened by more than two times

(Table 1, Diagram 1, Diagram 2).

Table 1 - Comparison of handling times for medical incident calls directed to the pan-European emergency number 112 and directly to 999. Author's study based on [18].

	Handling of a medical call referred by 112	**Handling of a call directed directly to 999**
Service time by the 112 emergency number operator	111,24 sec	-
Service time by a 999 medical dispatcher	131,31 sec	116,31 sec
Total handling time of a medical incident report	243,55 sec	116,31 sec
Proportion	2,09	1

sec - second

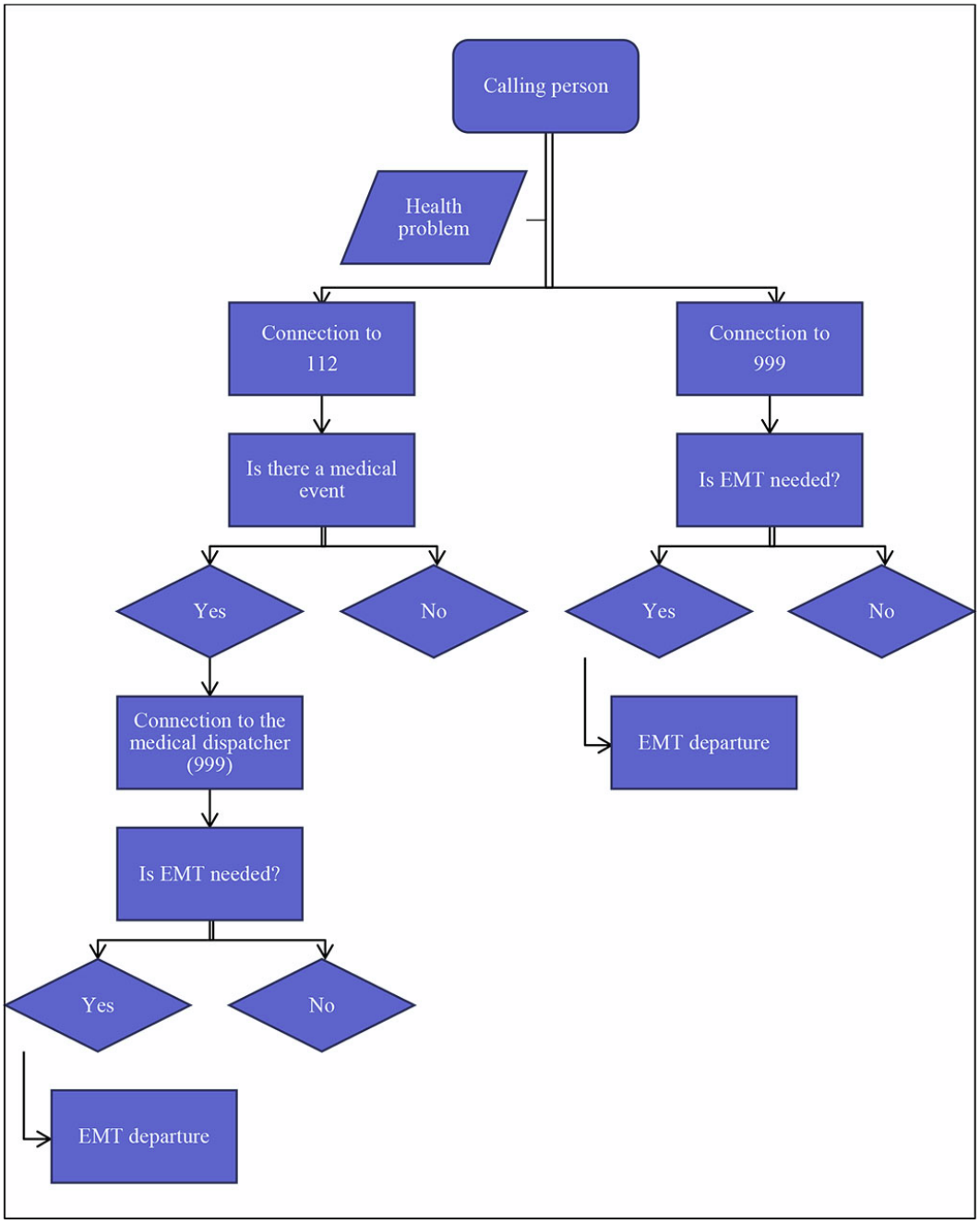

Diagram 1 - The process of handling voice calls about medical incidents directed to the pan-European emergency number 112 and directly to 999. Author's study based on [1].

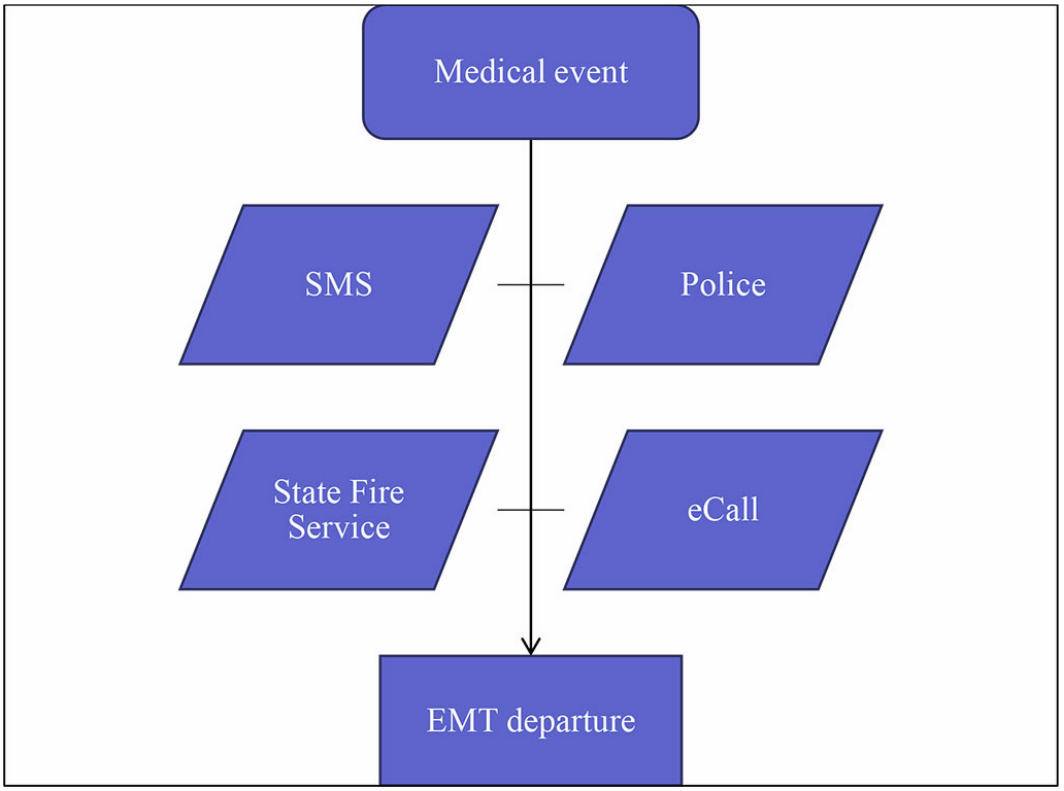

Diagram 2 - The process of handling non-voice notifications of medical incidents directed by SMS, Police, State Fire Service and eCall type. Author's study based on [1].

EMERGENCY CASES

The system for handling notifications and incident notifications, which supports the disposition of forces and resources of the State Emergency Medical Rescue System, requires smoothness, as well as stability of operation. In its basic assumptions, the State Medical Rescue Command Support System ensures the maintenance of business continuity [4]. The above issue should be understood in the context of the need to maintain critical infrastructure. The possibility of recognizing the State Medical Rescue Command Support System in this catalog is allowed by the provisions of the Law on Crisis Management [19]. A decree has been imposed on the minister in charge of health to specify the operation of the State Medical Rescue Command Support System in the event of an emergency [4]. In addition, the State Medical Rescue Command Support System regulation itself specifies that the system maintains 24/7 availability and continuity of operation during an emergency [9]. The inspections bring the conclusion that it is reasonable to take measures that can reduce the number of incidents related to the medical dispensaries' own infrastructure [20]. At this point, it should be noted that the Regulation on State Medical Rescue Command Support System defines functionalities for handling the occurrence of an emergency situation. Here, the Minister of Health defined the following catalog of adverse events. Impossibility to perform tasks on a single medical dispatcher's workstation - the answer is the internal substitutability of each of the positions in the medical dispatch center. Impossibility of data transfer - the safeguard is the implementation of a local record of actions taken by the medical dispatcher off-line and the synchronization of these records when communication is resumed. In addition, the ability to switch between the Primary National Center and Backup National Center architectures used for data storage has been implemented [8].

Another aspect subject to unavailability is the ICS used by medical dispatchers. With regard to the issue of preventing the proper operation of the ICS, the minister in charge of health, by decree, specified that the system should be characterized by a kind of resilience to emergency events. It is supposed to make it possible to reroute a call to another medical dispatcher position located in the same or another location. The scheme for redirecting a call away from a particular dispatch center is supported by the principle of locating the call to that dispatch center where there is the best ratio of calls waiting to be answered to the number of dispatchers logged in [9].

The same regulation also stipulates the necessity of maintaining continuity of operation of the State Medical Rescue Command Support System in the event of failure of a single dispatcher station at a given location, unavailability of the entire medical dispatch center, and inability of several medical dispensaries to operate. The failure of one or more medical dispatch centers has also been provided for by the legislator. In this regard, the method and procedure for the substitutability of individual medical dispensaries has been developed. The substitutability of medical dispensaries also responds, to a broader extent, to incidents

involving the failure or overloading of the ICT network used to handle calls from emergency numbers. This includes challenges related to the unavailability of telephone or radio communications. The guidelines constituting the principles of substitutability of medical dispensaries, once developed by the minister in charge of health, are forwarded to governors. This document constitutes a legally protected secret. Thus, it is not transmitted and made available for public information [4,9].

On April 13, 2018, in connection with the enactment of the Law on Amendments to the Law on State Emergency Medical Services and Certain Other Laws (Journal of Laws 2018, item 1115), the legislator imposed on the dispatcher of air medical rescue teams the need to create a new organizational unit. It was named the National Center for Monitoring Medical Rescue [3]. The tasks set before the medical emergency card, and which directly concern the State Medical Rescue Command Support System, are the administration, expansion, modification and development of this system. In terms of this mission, the National Center for Monitoring Medical Rescue develops, issues and updates documents which are procedures in the event of failure or unavailability of the State Medical Rescue Command Support System or services maintained to enhance the functionality of the State Medical Rescue Command Support System. In addition, the National Center for Monitoring Medical Rescue prepares, provides and updates instructions for the use of individual modules of the State Medical Rescue Command Support System or cooperating software.

Currently, the National Center for Monitoring Medical Rescue, meeting the requirements that the legislator has imposed on the minister in charge of health on the subject of providing emergency operation of the State Medical Rescue Command Support System, has developed and issued a number of important documents. One of them is the procedure for medical dispatchers and provincial emergency coordinators in the event of unavailability of Universal Map Module services on the side of the Central Office of Geodesy and Cartography. It is responsible for the ability to maintain graphical visualization of the place of emergency notification or notification of an incident, as well as positioning of EMTs with an indication of their current status. In the event of failure of the map underlay, which is provided by The General Office of Geodesy and Cartography, access to the OpenStreetMap underlay is provided. On the other hand, for the purpose of ensuring equal operation of medical dispatchers in case of malfunctioning of the ICS and to ensure continuity of telephone communication, the medical emergency card has issued emergency procedures of the end user of the State Medical Rescue Command Support System. The document outlines undesirable malfunctioning events and indicates how to deal with them. The content of the procedure identifies four anticipated situations that may prevent the standard use of system.

The instructions for the use of individual State Medical Rescue Command Support System modules indicate a catalog of exceptional undesirable situations that cause partial or total unavailability of individual component systems. The instructions for the State Medical Rescue Command Support System Dispatcher module clearly indicate to the user what effects the switch to offline mode has on the operation of the software. The dispatcher is informed about the availability or unavailability of particular State Medical Rescue Command Support System functions in this type of event. In addition to the above, users are informed of how the system will respond to an access station failure, particularly if the challenge occurs during the ongoing handling of an event notification or emergency call. A special type of failure is any unavailability affecting entire medical control rooms.

We can generally divide this type of situation into two different types. In the first case, the unavailability of entire dispensaries is partial on a national scale. Here we are talking about the case when the developed rules of substitutability of medical dispensaries sufficiently ensure smooth handling of calls and notifications. As mentioned earlier, for the implementation of tasks in this case, tables of substitutability of medical dispensaries have been issued. The information contained in this document is not subject to publication in public sources and is protected by law.

The State Medical Rescue Command Support System Dispatcher Module User's Manual also makes medical dispatchers aware of the software's resistance to loss of dispatch console connectivity during an ongoing phone call and forced deactivation of the position by an administrator or application update. Regarding problems with the operation of the State Medical Rescue Command Support System on the part of medical dispatchers, it can be assumed that a number of employees have insufficient knowledge and skills in their daily work [21].

A separate category of emergency incidents are any incidents that cannot be handled efficiently with the aforementioned tools. The rules for the operation of individual medical dispensaries in the event of an incident that cannot be responded to using even the principle of substitutability of medical dispensaries are determined by unit managers [4].

It should be noted that the work from the level of the EMTs manager is done through the State Medical Rescue Command Support System Mobile EMTs Module and Stationary EMTs Module. For the needs of the end user, medical emergency card has issued two documents. These are user manuals for each module. According to previous references, the State Medical Rescue Command Support System in use by the EMTs allows supporting the handling of medical incidents and supporting the execution of tasks by emergency

medical teams. The aforementioned components are contained in the sub-processes of trip order acceptance and rescue trip.

The catalog of emergency events that can occur within the State Medical Rescue Command Support System modules used by the MD is small compared to the modules and software used by the medical dispatcher. The modules' manuals give instructions to the managers of the MD on how to deal with situations of off-line mode and mode with limited connectivity. Both situations are characterized by a total or partial inability to exchange information with the server, respectively. As a rule, the EMTs manager can locally create medical records in electronic form even while operating in off-line mode or remaining in limited connectivity. Hence, it should be noted that the sub-process involving a rescue trip can be implemented on the basis of State Medical Rescue Command Support System modules used by EMTs even during an emergency.

The issues concerning the subprocesses EMTs dispatch and acceptance of the departure order are different. While State Medical Rescue Command Support System modules used by EMTs remain offline, it is impossible for a medical dispatcher to effectively communicate the departure order card. In order for such communication to take place, there needs to be a stable connection between the application used by the dispatcher and the EMTs manager and the server space, the maintenance of which is provided, by agreement with the Minister of Health, by the Chief of Police. [4, Article 24a(6)].

Staying offline or with limited connectivity, the Emergency Medical Services manager, after creating medical records in electronic form, can also print them out for transmission to the medical entity, the patient or the patient's legal representative. The authors point out that it is possible to imagine a situation where the State Medical Rescue Command Support System modules used by the Emergency Medical Services manager suffer a failure of the kind that prevents the application from running. For this type of abnormal situation, we do not find a uniform course of action indicated by the legislator or the medical emergency card as the entity responsible for maintaining the application and developing and providing instructions to end users. We also do not find in any of the existing sources, as of today, a legal framework as to the transfer of the responsibility for the development of appropriate standards of conduct in such difficult situations to the dispatchers of the EMTs or any other entity. However, local ways to ensure the availability of paper-based forms of documentation such as emergency medical cards are widely known to handle such challenges.

At this point, it is worth noting that the unavailability, on varying scales, of modules used by a medical dispatcher or emergency manager is not always due to an unforeseen failure. Operating in a state of unavailability of ICT systems during scheduled development work is an equally interesting issue. These incidents can be broadly divided into two types of incidents. One is the unavailability of the State Medical Rescue Command Support System, announced in advance and with a specific duration indicated. In this case, both the medical dispatchers and the managers of the State Emergency Medical Rescue System have the assumed parameters of the task set by the service and administrative group. However, sometimes, this type of incident develops into an unplanned emergency. It can extend to a wider spectrum of inaccessible modules on which medical dispatchers and EMTs managers conduct their activities. The "Message List" is responsible for notifying end-users of planned work, but also of emergencies, through the State Medical Rescue Command Support System modules Dispatcher's Module, Mobile Emergency Response Module and Stationary Emergency Response Module. This is a functionality that was developed in 2020 with the support of the State Medical Rescue Command Support System Council of the National Emergency Medical Monitoring Center. [22]

It is necessary to consider whether the unavailability of the State Medical Rescue Command Support System actually occurs. It can be assumed that the system is stable and non-failure therefore the above considerations do not make sense. However, history shows that employees of the National Emergency Medical System have faced, with varying degrees of severity, emergency situations involving ICT issues. Press reports indicate a series of unavailability of the State Medical Rescue Command Support System in 2021, which relied on the so-called offline mode. In this case, it was necessary to use telephone backup communications and perform tasks using paper documentation. [23] A similar situation occurred in November 2023. Events of this nature also make it impossible to view the current location of the emergency medical teams concerned. [24]

DISCUSSION

To complete the above analysis, it is important to consider whether a centralized ambulance command system has benefits. Researchers of Nepal's pre-hospital care system may provide the answer. The authors have listed the challenges facing the country's healthcare system. Nepal does not have dispatching software in place to exchange information between the ambulance crew and the dispatcher. Due to the accompanying lack of radio communication, all contact is maintained solely by telephone. The researchers conclude that the decentralization of emergency medical team dispatchers and the lack of a formal and unified communication system in pre-hospital care provide space to implement solutions from countries with more developed models. [25]

As shown, the model for the implementation of the main tasks included in the responsibilities of the MD and the Emergency Medical Technician falls into the catalog of receiving the call, dispatching the Emergency Medical Technician, accepting the departure order and the emergency departure of the Emergency Medical Technician. Possible ways of influencing information about the potential occurrence of a medical emergency to the MD are described. It should be noted that the receiving medical dispatcher, during uninterrupted operation of the systems, can receive data from a number of sources. These sources can be divided, in principle, into an initiated telephone call and non-voice reports directed by the patient, caller or institution sending non-voice reports. Regardless of the origin of the data, the medical dispatcher works on an electronic call handling form, which is provided through the State Medical Rescue Command Support System Dispatcher Module. Supporting the service from the level of the medical dispatch center is the work based on the Map Module and the Integrated Communications Subsystem. Taking into account the different escalation of the emergency situation involving individual elements of the MD systems, it is possible that circumstances may arise that force the reduction of all received data to voice form. The performance of tasks related to the need to undertake all information in voice form can be carried out, depending on the extent of the adverse situation, using backup telephone communications inclusive. It is worth noting that, regardless of the function performed by the medical dispatcher, when undertaking and transmitting information exclusively by voice, there is no natural possibility of performing several activities simultaneously. With the smooth operation of the modules, we observe spontaneous multitasking. It is not uncommon for a medical dispatcher to simultaneously transmit an electronic incident handling form to the appropriate emergency medical service, use the PAPL to talk to the head of another emergency medical service, and listen to messages transmitted by radio.

The State Medical Rescue Command Support System modules used by the EMTs show identical functionality. With the main difference that the EMTs manager, while providing health services at the scene of an emergency, uses a mobile terminal with the State Medical Rescue Command Support System Mobile EMTs Module installed. It should be noted that the State Medical Rescue Command Support System modules used by the EMTs have a much smaller catalog of emergency situations that may pose a problem in cooperation with the medical dispatcher. Pragmatics and the authors' own experience indicate that the unavailability as an off-line mode of only the State Medical Rescue Command Support System modules in use by the EMTs and in conjunction with the global nature of the incident are rare. Off-line modes of the EMTs mobile module are most often short-lived and relate to local GSM network outages with subsequent lack of connectivity. The results of the audit indicate that temporary coverage outages, as well as work to update the State Medical Rescue Command Support System, cause delays in getting information about the incident to the EMTs. [20, s. 9]

Most of the described emergencies involving medical dispatch centers are transparent to the EMTs manager handling the departure order. UMP unavailability, Map Module failure or local dispatch center unavailability. These circumstances are all handled by triggering the medical dispatcher to follow the appropriate instructions. The handling of such circumstances by the medical dispatcher does not cause any inconvenience to the head of the ETMs. This has no perceptual or functional limitation as to the sub-processes of accepting the departure order and the emergency departure of the EMTs.

Only a widespread emergency, most often affecting the majority of medical dispensaries at one time, causing a situation that cannot be handled by the rules of substitutability of medical dispensaries, or a global failure of the Nationwide Telecommunications Network for the emergency number 112 causing a breakdown of communication between the medical dispensary and the Emergency Medical Service at the level of the Nationwide Telecommunications Network for the emergency number 112 infrastructure, result in real and perceptible difficulties and challenges for handling the departure order by the Emergency Medical Service manager. It is worth noting at this point that with regard to medical dispensary emergencies, in addition to the instructions for handling, the legislator has imposed an obligation on the medical dispensary manager to prepare a plan of action in case of adverse events, the extent of which exceeds the ability to handle with the available documentation. An examination of the available sources of law does not bring an answer to the indication of a uniform course of action in case of the need to accept a departure order by the head of the medical dispensary with the unavailability of the State Medical Rescue Command Support System. There is also no unambiguous provision in the law imposing on the dispatchers of the EMTs the need to develop instructions according to which the EMTs should be prepared to handle an emergency situation whose extent exceeds the possibilities of handling with the State Medical Rescue Command Support System User's Manual Mobile EMTs Module and Stationary EMTs Module.

In order to ensure the continuity of emergency medical services, it seems necessary for the head of the EMTs to have the tools to accept and handle the departure order during the unavailability of the State Medical Rescue Command Support System including the inability to use the mobile terminal while being away from the place of stationing. Since medical dispensaries are prepared in terms of instructions and procedures to act also in special situations beyond the scope of emergencies described in the instructions, the development of such rules for the EMTs requires combined action with medical dispensaries. The operating procedure for the head of the EMTsshould be a continuation, following directly from the

instructions introduced for medical dispatch centers. This is all the more important because the cited interpretation of the law allows for the development of local, in the area of individual dispensaries, emergency frameworks that include preventing the receipt and handling of event notifications and emergency calls that are not reflected in the relevant documents. In such cases, and when there are no specific documents developed, it is noted that State Medical Rescue Command Support System participants practice pragmatic behavior, which, not recognized by all parties to the operation, can be an obstacle to efficient communication [26].

CONCLUSIONS

In view of the above study, and based on the authors' professional experience, it seems reasonable to take steps towards the possibility of reproducible simulation of an emergency situation involving different levels and spaces of the Command Support System of the State Emergency Medical Service.

Given the current tense geopolitical situation and the military conflict beyond Poland's eastern border, special attention should be paid to the possibility of destabilizing the ICT domain in terms of the country's internal security systems. Active local exercises, but also those covering larger areas of the country, will allow to verify the current ways of doing things, the availability of emergency kits and alternative solutions. Above all, however, this will be the only opportunity to learn from non-harmful contingencies that will enable the smooth operation of Poland's pre-hospital healthcare system during the challenges ahead.

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