

THE ROLE OF TRAININGS FOR FIREFIGHTERS

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ABSTRACT

In the field of fire and rescue services, first response is provided by fire brigades within disaster management. First response, which is firefighting, technical rescue and lifesaving in this case, is hindered by many special circumstances, for example little preliminary information, time pressure on decision-making and the deployable forces. It is imperative that line-of-duty firefighters are skilled in the given situations, including control, reconnaissance and equipment. They must possess competence to carry out interventions under extraordinary circumstances. Although we are not born with these competences and skills, they can be acquired and developed in real and simulated situations. Drills, which are as realistic as possible, can equip firefighters with more experience within safety circumstances, which is the focus of the paper.

Key words: firefighting, safety for firefighter, training for emergency

ABSTRAKT

V oblasti hasičských a záchranných služieb, je prvá reakcia poskytovaná hasičským a záchranným zborom v rámci zvládania katastrof. Prvotná reakcia, ktorou je hasenie, technická záchrana a záchrane v tomto prípade, bráni mnoho špecifických okolností, napríklad málo predbežných informácií, časový tlak na rozhodovanie a nasaditeľnosť síl. Je nevyhnutné, aby line - of - duty hasiči boli odborníkmi v daných situáciách, vrátane kontroly, prieskum a vybavenia. Musí mať právomoc vykonávať zásahy za mimoriadnych okolností. Aj keď sme sa nenarodili s týmito schopnosťami a zručnosťami, ktoré možno získať a rozvíjať v reálnych a simulovaných situáciách. Výcviky, ktoré sú tak realistické, ak je to možné, zabezpečia hasičom viac skúseností v rámci bezpečnostných podmienok, ktoré sú zamerané v článku.

Kľúčové slová: boj s požiarmi, bezpečnostné pri boji s požiarmi, školenia pre mimoriadne situácie

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1 PROBLEMS AND SOLUTIONS

Carrying out first response and rescue is always a more challenging task than a predictable and pre-planned work schedule. This paper deals with such an area, namely the problems and potential solutions related to on-duty fire services.

“Special events are generally shaped by three main factors: the type of the triggering event (the effect of a gas explosion is different from that of a flood or the release of a dangerous material), the features of the scene (population density, the types of dwellings or wind force and direction) as well as the behaviour of the victims (the reactions of the population, the intervention team and outsiders).” [1]

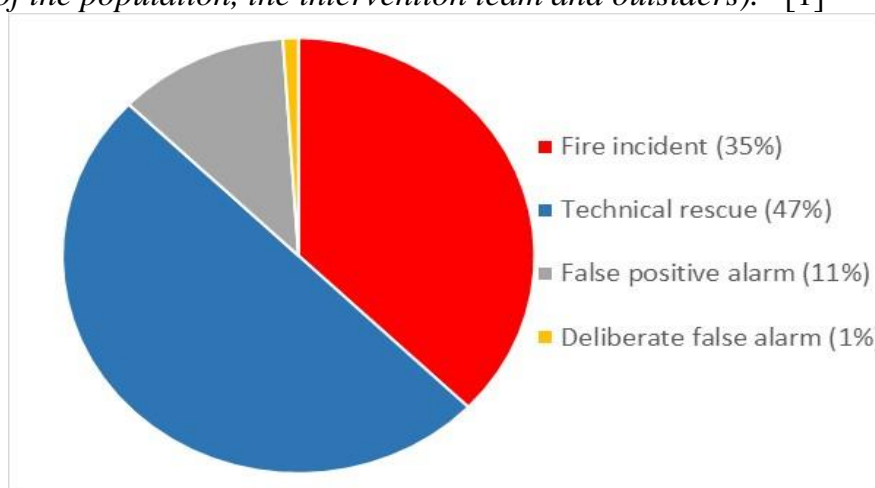


Figure 1. The distribution of firefighter's intervention in 2013, based on NDGDM¹ statistics

A list of difficulties that may arise for the fire fighter unit arriving first at the fire scene, who bear responsibility for the rescue:

- little preliminary information
- limited information gained at the scene
- unknown sources of danger
- time pressure during the intervention

Limited preliminary information is rooted in the situation itself. In a road accident or a dwelling fire, the person informing the fire brigade is likely to provide certain details such as the location, the number of people whose life is in danger and the main circumstances of the event. These details help to identify the appropriate level of alarm and the type and urgency of the incident. The actual circumstances are clarified based on the practical experience of the response team. Further information about the incident can be gathered before getting to the scene, which helps to make preliminary decisions (about assigning the expected tasks to the fire fighters), as at the scene the actual instructions has to be communicated and then carried out as quickly as possible (suppression of fire, technical rescue) in parallel with ongoing reconnaissance for the injured and other sources of dangers.

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Generally, on-the-spot reconnaissance gathers more information at the scene, besides questioning potential witnesses or professionals. Meanwhile, further information might be collected from updates provided by the incident command, such as detailed regulations on hazardous materials, facilities and equipment nearby that can offer help (e.g. fire hydrants, hospitals, water reservoirs, machinery, etc.). Depending on the time of the day and the day itself, some difficulties might emerge. At certain times, for example at the weekend or on public holidays less information can be expected on the incident, specialists may be difficult to reach and due to the light traffic, the incident might be reported at a later time. „*One of the key elements of the cheap but effective fire suppression is early fire detection and quick initial response.*” [2]

A fire fighter unit arriving at an unknown scene (in fact, every scene can be considered unknown, as every case is different) can start reconnaissance at the scene of a fire or accident with the help of preliminary information and their experience. In a more complicated case, they have an opportunity to require a specialist to the scene, but due to the abovementioned reasons, significant delays can occur. They have to do their best to help victims whose life is directly in danger, but even a “familiar” situation might present considerable risks, for instance unnoticed presence of hazardous materials at a road accident, explosive gas cylinders stored in a building or improper wiring in a dwelling house.

Unlike in an everyday situation, under dangerous circumstances people in trouble make emergency calls in a panic to the given organisation (ambulance, police, disaster management). They trust that the emergency units will arrive immediately and they will solve the problem fearlessly in a few moments. In reality, however, paramedics, police officers and fire fighters are people just like us, the laws of physics apply to them as well, the emergency units are not just round the corner and even though they are experienced, well-trained and well-equipped, they might be uncertain, afraid and even make mistakes in certain situations. There is a lot of pressure on the response team at a structure fire in a housing estate, at a technical rescue in a road accident or at a collapsed building. Those whose life is in immediate danger must receive help and be rescued first, while the units have just arrived at the scene. A dangerous place full of cries for help from the injured that everybody is fleeing. A lot of thoughts run through their heads: becoming aware of responsibility, avoiding making mistakes at all costs and external and internal requirements of “being everywhere at the same time” and “rescuing everybody at once”. The chance for survival of possible victims stuck in the building on fire is decreasing minute by minute, as does that of victims stuck in a car after a road accident. From the alarm till the recovery the members of the response team are under constant pressure to mitigate the danger. [3]



Picture 1. Students of disaster management wearing a breathing apparatus during a visit to a fire department. Source: author (2013)

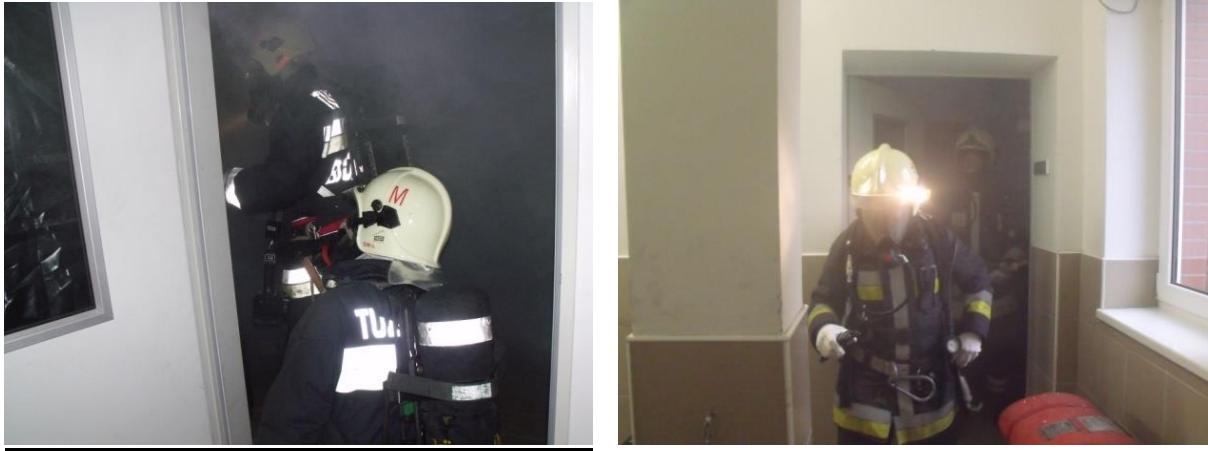
Well-considered and effective reconnaissance at the scene, issuing and executing instructions properly do not depend on skills we are born with or at least only to a limited extent. Experience for potential future tasks can be gained at targeted theoretical and practical trainings. Having finished compulsory education, applicants for law enforcement organisations can go on with their studies and acquire related theoretical and practical knowledge. It is only sufficient for a fire fighter trainee to carry out basic tasks among his more experienced peers. Greater experience and higher skill level can be achieved more quickly and effectively in real or life-like situations. Although it requires more preparation and costs than a course in the classroom, it may be more efficient even in the short term.

On-duty fire fighters attend regular daily trainings in order to develop and update their professional skills. Training plans contain the annual training material of the given fire brigade and the schedule of the subtopics. Various drills ensure that the theoretical knowledge acquired on the trainings is put into practice. Additional goals of the drills are to become familiar with relevant facilities in their area, and for those in leadership roles to practice command and cooperation with partner organisations. [4]

A research has proven that life-like drills do provide practical knowledge, which can be utilised both in the short and long term. These interventions increase the safety of fire fighters and reduce the risk of injuries. In the United States fire fighters are regularly taught how to go through narrow passages and holes safely.

The material of the training and skills that are developed: the fire fighters wearing all their protective clothing have to pass through such narrow passages that are just wide enough to fit through them with their breathing apparatus or sometimes they even need to take the cylinders off their back. Fears and stress that might be evoked by these situations can be reduced at drills. Skills are established how to move in and escape from these situations so that fire fighters will not panic and they will be able to move through and continue the intervention as soon as possible while

maintaining their own and their equipment's safety. Becoming acquainted with and being used to life-like situations significantly decrease the risk of injuries. [5] [6]



*Picture 2 and 3. Professional firefighters during a drill test.
Source: author (2011)*

Conditions for safety and effectiveness can be created with modern solutions. Fire fighters can develop their skills under life-like circumstances with considerably less risk than in an actual structure fire, under continuous supervision.

The research mentioned earlier also studied the feasibility of a low-budget smoke chamber exercise at any fire brigade, which could serve many purposes. It has been proved that various types of equipment can be tried in realistic environment and that both the efficiency and safety of the intervention can be considerably raised.

If the drill is held in a building, obstructions, obscurity, smoke generation and layout can guarantee that everyone has equal opportunities in the simulated practice irrelevant of any prior knowledge about the location.

It has been revealed that drills generate short- and long-term achievements and in the long term the skills of the participants significantly develop. Less time is needed and typical interventions under similar circumstances may become safer. Efficiency of problem-solving increases despite additional obstructions, such as their protective equipment, breathing apparatus and limited visibility. Results do not fade away, as the acquired skills can be taken advantage of several days - or probably even weeks - later as part of the learning process. It can be learnt how to carry out certain operations more effectively, the participants can learn the best practices and learn from their own and their peers' mistakes under safe conditions. The team members can be encouraged to compete against each other to carry out the operations better or more quickly. Although the rate of air consumption grows in race conditions, the time needed and the volume of air consumed reduce, so subtasks are carried out with more success. On the whole, positive results that have been achieved can be utilized in real situations as well. [7]

2 RECOMMENDATIONS

Based on the above study author give some recommendations following it on future drills:

- as many staff members should be involved in the organisation and execution of the drill as possible. Their motivation can thus increase and it is much easier for them to grasp the necessity and usefulness of the drill.
- if there is a high number of participants and especially if more organisations are involved, thorough planning and task allocation is needed to make the drill run smoother.
- safety and effectiveness are worth examining as the expected achievements. Participants can learn from their own mistakes if assessment considers practicality.
- health and safety working conditions, including refreshments, first aid kits and health care providers must be guaranteed – if there is a high number of participants. The location, circumstances and the necessary (protective) equipment should be examined from the viewpoint of health and safety in order to avoid accidents.
- every circumstance and condition has to be recorded for potential later use to offer a rounded picture of the drill (date, external and internal temperatures, the participants' degree of relaxation, etc.). Documentation of the drill has to be accurate and well-organised. Data lost because of poor documentation cannot be recovered later. [8]

Success can be ensured with thorough planning and documentation. According to another research: „*Considering that the countries select the participants of the mission based on standard methods and requirements we examined a homogenous, healthy population looking at age, work, working conditions, and general physical conditions.*” [9]

Actual results will be published later, which underpin the measurable benefits of drills, especially if they are close to life-like circumstances.

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Článok recenzovali dvaja nezávislí recenzenti.

