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Magen David Adom in Israel

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101

Magen David Adom in Israel (MDA), Israel's National Emergency Medical Service is leading in innovation and engaging the community in Emergency Response, by developing and implementing NEXT GENERATION systems for the general public, first responders and professional medical teams.

Through dedicated applications the public can call for help, provide their medical history (and their family's),conduct a live chat, send their geolocation as well as images and videos streaming live from the scene, a novel capacity internationally. Another application linked to the MDA c4i state of the art system, enables locating community based volunteers and dispatching them to a nearby urgent case simultaneously, together with the dispatch of ambulances.
These capacities (developed in house by MDA, and therefore tailored to it's needs), are used on a daily basis to respond to critical patients, and proves its necessity and usefulness in multi casualty situations and large scale emergencies.

With a vast experience of multi casualty incidents (MCI) preparedness and response, MDA has developed an efficient and generic response doctrine, which is taught today worldwide, and is implemented within MDA c4i and applications.

One integrated Command and Control System

Everyone in the EMS field knows, that in a medical emergency, every second counts. That is why in MDA, we saw the need of an integrated system that allows the dispatcher to manage the scene in the most efficient way. The system, developed within MDA, uses a combination of years of field experience, extensive medical knowledge and a suitable operational perception to an emergency organization.

Our command and control system is made of different modules, and allows the dispatcher to receive a layout of all the critical information needed, for example, the patient's vital medical information, current traffic and more, in order to make life or death decisions in a matter of seconds. Although the system is consists of many layers and contains vast amounts of knowledge - it is able to perform many actions automatically, thus avoiding malfunctions and saving precious time, allowing the dispatcher to focus on guiding the patients and assisting them.

The system is connected to a switchboard, and once an emergency call comes in, the details of the caller appear immediately on the dispatcher's screen, allowing him to begin questioning the caller and dispatching teams. At the same

time, the system is able to locate the caller using GIS technology and send the precise location to the teams already in the ambulance. The dispatcher can flag the location on the map and use it in order to direct the teams to the correct address.

In order to insure all the necessary actions to handle a medical emergency are conducted in the best way possible, the dispatcher needs to follow a check list - receiving the call, providing phone guidance, dispatching teams, etc. The systems must be synchronized, therefore all MDA vehicles have GPS installed. The GPS is also installed on the "**MDA Team**" app, which is used by "Life

Ambulance Dash Cam.

Guardians" volunteers and MDA personnel, to respond to calls, and shows their location at the time of the call on the dispatcher's screen. The system handles approximately 40,000 devices at any given time.

Dashboard cameras have been installed on all of MDA's rescue vehicle in order to allow the dispatcher to watch a live video feed from the field. Many times, this ability is a make or break factor in managing an incident, allowing the dispatcher to understand the true nature of it and to call additional MDA teams or other security forces.

Additionally, the system is connected to an organizational human resource supervision module, and is therefore able to manage the team members' authorizations, connection to the payment and inventory modules.

Bus explosions, overturned trains or collapsed buildings, MDA has the skills to manage a multi casualty incident (MCI) efficiently and professionally, thanks to the advanced technology embedded in MDA's core: the 101 dispatch center.

Multi Casualty Incident Management

The MCI module is rooted in MDA's command and control system, allowing one or several MCI scenes to be managed quickly and efficiently using an automatic working process, enhanced control capacity in the dispatch center and utilization of the administrators' monitoring and managing abilities.

We chose to implement an identical system in emergencies as used during routine times, understanding that the dispatcher's acquaintance with the system will assist him in managing the incidents properly, as well as to switch quickly between screens and make educated decisions based on real time informational analysis.

The MCI module optimizes resources based on the geographical information it receives in real time and therefore assists in the assignment of appropriate resources to an emergency as well as to the continuous routine work. Using

this method, we ensure that the people injured as a result of an MCI receive effective treatment rapidly, and at the same time, MDA's routine work across the country doesn't suffer as a result. This way, 8 million civilians know that they will receive the medical attention they require both in times of emergency and everyday.

The module includes many automatic and semi-automatic procedures, including:

• Dispatching rescue vehicles.
• Marking arrival status of rescue vehicles.
• Dispatching announcements to PA systems in MDA stations.
• Sending updates to the MDA managers.
• Sending relevant information to the hospitals that the patients are to be evacuated to.

The system translates the data received into real time information and sends it to the dispatcher and relevant decision makers, while presenting the information in a convenient way.

Another advantage this smart system has, is the ability to provide a real time, updated report of the scene, providing the dispatcher with an exact number of rescue vehicles dispatched to the scene, number of injured civilians and number of people who have already been evacuated. This allows the dispatcher to regulate the patient evacuations based on the amount of injured people and the types of injuries sustained. All this relevant information is simultaneously sent to managers via the "MDA Team" app.

Our MCI module has proven itself on countless occasions over the years, assisting in the management of complex incidents in various parts of the country. Thanks to this module, all team members who participated in the management of these incident, dispatchers and paramedics alike, were able to focus on doing an impeccable job and concentrate on the thing they do best: saving lives.

Next Generation 101: locating the patient within seconds of receiving a call, sending pictures of the injuries to the dispatch center and receiving a live video feed from the scene. Meet MDA's lifesaving cutting edge technologies

Locating the patient within second of receiving a call automatically increases the treatment outcome

During a medical emergency, finding the patients precise location is critical, and is the first step of a successful treatment. This allows EMS teams to reach the patient as quickly as possible, increasing his chance of survival.

Thanks to the advanced technology in MDA's 101 dispatch center, we are able to automatically locate the patient, even in cases of remote areas, such as forests, beaches or the desert.

When the caller is only able to provide an estimated location, the dispatcher sends them an SMS with a possibility to share his or hers location. After clicking the link, the precise location of the caller appears on the GIS screen in MDA's command and control system and forces are immediately dispatched to the incident.

Receiving files and pictures from the scene

It is crucial that the dispatcher get a clear understanding of a scene in order to provide the most professional treatment to the patient. The necessary information to determine the kind of treatment a patient requires is a result of the type of incident (terror attack, accident, disease), the nature of the injury (trauma, cardiac, labor) and the extent of the incident (one patient or a multi casualty incident).

Using this information, the dispatcher can determine which type of rescue vehicle should be dispatched to the incident (basic life support or a mobile intensive care unit), how many and which kind of medical teams, whether there is a need for security forces (like police or the fire department) and which hospital the patients are to be evacuated to.

In order to send files and pictures to the dispatcher, he must first send an SMS to the caller. Opening the massage allows the caller to take a picture of the scene using the mobile in his possession, and send it to the MDA dispatch center's command and control system. Every file gets proofed for viruses or damage and examined before entering the system, in order to maintain information security.

This information usually contains the type of injury, making it easier for the dispatcher to consult with doctors who are either at the dispatch center or in hospitals regarding the recommended treatment. Oftentimes, receiving a picture from the scene makes it possible for the dispatcher to diagnose the severity of the injury and call for a surgical crew who will already be waiting at the hospital with blood units and sergeants. This technique has proven to be very effective.

Live video feed from the scene

MDA's command and control system has a possibility to receive live video feeds form scenes, which the dispatcher can use at the same time as receiving a call and dispatching teams. This is possible due to the implementation of the "My
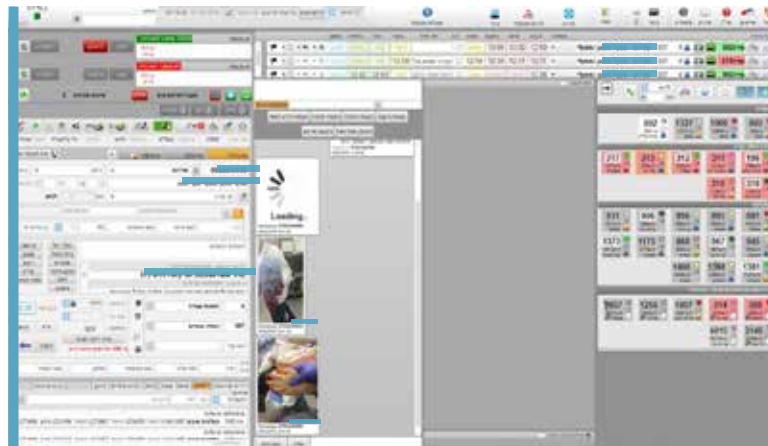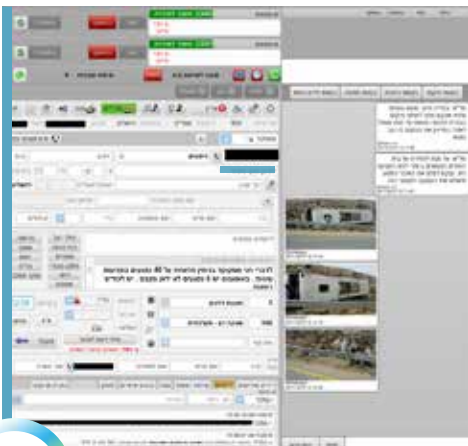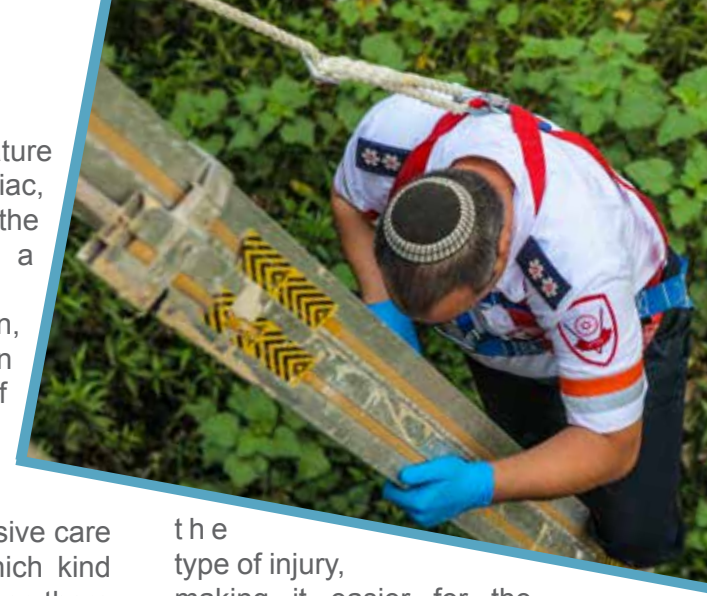
MDA" app data into the existing command and control system- meaning, dialing 101 using the app contacts the MDA dispatch center while simultaneously opening a video feed between the dispatcher and the caller.

Using these unique methods, the dispatcher has the opportunity to assess the type and extent of an incident, the condition of a patient and the Kinematics of an incident before the first team even arrives. He is also able to provide phone guidance if necessary. Having the ability to watch what a caller is doing based on your guidance can tremendously improve the way he follows it, especially considering the fact that it is usually done by untrained civilians.

This also allows the dispatcher to call for a helicopter team or an OR/catheterization room at a hospital (based on the type of injury), thanks to his ability to see the scene with his own eyes and therefore make the best, most accurate diagnosis possible.

"My MDA" and MDA's team Apps: Meet the apps making the mission of tracking, locating, questioning and treating patients easy and efficient

The MDA Teams app connects over 20,000 medical professionals

This app is used by: employees, volunteers, on-call first responders, "Life Guardians" and ICU teams in hospitals. Each user is only exposed to the information that is relevant to them, based on levels of coalification, authorization and relevance to the case.

The great advantage of this app is its diversity: the team is able to receive information from the dispatch center, have a secure phone call, call additional teams to the scene, send the information to administrators in the organization and even let the hospital know of the patient's condition so that they are be fully prepared when they arrive.

Hospital App

Magen David Adom has developed a unique app, along with the ICU and the Stroke units at Israeli hospitals, which allows the teams to send live EKG feeds to the hospitals. The app, installed on smartphones of both neurosurgeons and cardiologists who are on-call at the cardiac intensive care units. It also allows the doctors to track the

ambulance's location on the map and get its ETA to the ER.

The information in the MICU is transferred in a direct, secure, documented and efficient manner to the doctor on call (cardiologist or neurosurgeon). It can also be used to conduct a recorded phone call between the doctor and the paramedic, keeping the doctor updated until the patient arrives at the hospital.

My MDA App

Using the "My MDA" app, launched in 2016, a patient can keep a record of his medical file or information on his smartphone. This information can be sent to the dispatcher during an emergency, shortening the questioning time- and therefore the arrival time- significantly. The app has many features and advantages:

1. Locating: the app automatically sends the location of the caller to MDA's command and control system.
2. Keeping medical information in the system: feeding one's medical information in advance, including recent medical files and EKGs, kept securely on MDA's servers and presented

to the dispatcher the moment the app is used to call an ambulance. The information is then sent to the ambulance and the medical team, helping them to better prepare and handle the incident.

3. Calling assistance for family members: feeding a family member's medical information and history into the app, so that when an ambulance is called to their address using it the dispatcher and the team will be presented with all the relevant information.
4. Chatting with the dispatcher: the app makes it significantly more convenient for civilians with hearing impairments, language barriers or distress to call 101. The caller is able

to chat with the dispatcher and still receive complete, quick and efficient assistance.

5. The app has an option to communicate via chat in different languages. The system simultaneously translates the data, making it possible for the dispatcher to properly assist the caller.
6. Sharing images: a picture can be sent to the dispatch center, providing a clear description of the patient's condition.
7. Live video feed: the app can be used to conduct a live video feed between the caller and the dispatcher, allowing him to understand the circumstances of the incident more clearly.

Sharing information with civilians in distress

Magen David Adom is Israel's national EMS organization. As such, it is bound to be transparent. Anyone who requires emergency medical care can receive a SMS featuring the details of the caller, a link to a map showing the ambulance's location and an estimated ETA. Research has shown that having this information calms the patient, making his more willing to accept treatment by the emergency team.

Magen David Adom
The most advanced life saving technology

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Magen David Adom
Presents Technology for Saving Lives

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