CAPABILITY AND HUMILITY

Dr. Amitai Ziv, fouder of MSR. (Photo: Bethsabée Süssmann)

By Roland S. Süssmann

We have just left an Israeli market where a suicide bomber had just blown himself up, been in a hospital delivery room and then in a pediatric clinic, having also visited an operating theater after having stopped by at a pharmacy. What is the meaning of this jumble of situations and where are we? Aren't we rather confused? In fact we have just passed through several training rooms in the world's largest medical simulation center, The Israel Center for Medical Simulation. It is known as MSR, is situated in the Sheba Medical Center at Tel Hashomer Hospital, Tel-Aviv, and was founded at the end of 2001.

But what is it? To understand what it is about, one needs to know that last year in the USA alone, 98,000 people died following medical errors, which is the equivalent of a Boeing 747 full of passengers crashing every day into the sea! In Israel the numbers are also terrifying, and a straightforward comparison demonstrates the scale of this scourge. In 2006, 400 were killed on the roads, and 2,000 died from medical errors!

Is there a way of improving patients' safety? Absolutely, since it has been shown that 60% of medical errors are avoidable. The MSR that we are going to learn about has as its primary mission to reduce medical errors and to enhance the quality of care. The purpose

of this body is also to improve clinical capabilities and communications between healthcare professionals, without exposing patients to the risks that are typical of medical training. At MSR, future doctors and other members of the medical profession can practice operations and the simplest activities on dummies, rather than learning on actual patients and making them suffer unnecessarily.
To learn about the MSR we visited the center and met its founder, Dr. Amitai Ziv, who is also Deputy Head of the Sheba Medical Center.

The first question that must be asked is how did you get the idea of setting up a medical simulation center?

Having been a pilot and an instructor in the Air Force, when I did my medical studies I had culture shock when I found out that unlike in the air force, training was not done on simulators, but directly on the patients. So my idea was to apply proven methods from the field of flying and to create a complete simulation center that takes every aspect of the medical world into account. By that I mean doctors, surgeons, nurses, social workers, pharmacists, both in the civilian and military spheres. As far as the military goes, I took part in the creation of a simulator specially designed and implemented for the requirements of military medicine (see the article "Saving Lives"). Our work is generated by the mistakes that occur in the medical world, such as prescribing wrong medicines or the wrong dosage, or a wrong operation carried out on the wrong patient etc. Medicine is not a reliable profession, however, I am very lucky as I work on the MSR's computerized dummies and robots, which is the best place to make one's mistakes. MSR is the first and only national simulation center in the world that is both multi-disciplinary and multi-standard. In medicine, mistakes happen regularly and it is not rare that they are stopped before affecting the patient. Unfortunately, this often is not the case, and one of the ways of avoiding catastrophe is training, which involves good preparation and being prepared to face various situations, without of course forgetting skills.

Could you describe your work in a bit more detail?

We are able to create whatever environment we want. So we can simulate a battlefield, an operating theater or any other medical situation. Our center was designed a bit like a virtual hospital. However, our main target is to change the culture and attitudes in the medical world in Israel and abroad. To achieve this , we have a different way of teaching and training doctors. A special program was created for interns, whom during the first week of their internship we make take a five-day seminar under extreme conditions, which we have dubbed the "nightmare scenario". This course is first and foremost to prepare interns for their entry into hospital and to make them come across difficult situations and problems that they are likely to be confronted with. For example, a candidate must transport a baby with respiratory problems from one floor to another in the hospital. Someone who has taken purely theoretical courses does not know what to do to avoid the baby suffocating to death in the elevator. All that sounds simple enough, but face to face with reality, new interns are often completely unequipped to deal with the situation. You should also know that the practical anesthesia examinations take place on our dummies, and that an increasing number of specializations follow this practice.
You have to understand that at the moment the medical culture that we want to change can be summed up as follows, "See the patient, treat the patient, try things out on the patient at the risk of killing him". We put a huge amount of emphasis on debriefings. All our courses

are filmed and then discussed. The participants are questioned in depth on what they have done, how they went through it, and what they learnt from their mistakes etc. Afterwards, we interview the instructors, who carry out debriefings to see how the lectures or the simulation equipment can be improved.

You said that you were a sort of virtual hospital. How are you in fact set up?

The center is located in the middle of the country, which is ideal for the students, as much from Haifa as from Beer-Sheba. Our virtual hospital includes an emergency room, an operating theater, an intensive care unit, and in 2005 we opened a trauma center, a cardiology center and an outpatient reception area. All the simulations are carried out under the gaze of 30 digital cameras, and a set-up of microphones etc. We are currently using over 50 different types of simulation equipment and we have hired around one hundred actors, including both adolescents and the elderly, some of them 80 years old.

How do you select your staff?

We recruit people with wide experience in all the various medical and paramedical fields we teach. However, we also have specialist employees in audiovisual technologies, IT etc.

The idea of working on dummies has been around for a long time. So how is your technique different?

Once, medical simulation was limited to dummies used in medical schools, hospitals and emergency courses, mainly to learn the first steps for survival. Our dummies are fully computerized, and we use them to teach how to use the various instruments. To illustrate what I am saying, I'll give you the example of doctor who has to carry out a colonoscopy. He learns the technique on a puppet that reacts, that cries out when it hurts (using a hidden actor with a microphone) and who says when everything is OK. Further, error messages are regularly put up on the screen, for example, "You have just burst a blood vessel". A doctor can also practice removing a polyp etc. Teaching does not stop with the end of the operation, but by learning to impart bad news to a patient and his or her family. Thus, after the operation, the doctor receives the patient in his office and informs him he has discovered cancer. The medical office is located in a room fitted with a one-way mirror, behind which students can watch how the meeting is going. They take notes, the student is filmed, and at the debriefing his entire performance is analyzed and commented upon. Patients are played by professional actors, who we train for their roles. What's more, we don't just train the doctors, but also the instructors.

When you talk about changing the "medical culture", are you thinking of being able to get doctors down off their high horses from which they so often speak to their patients?

That's exactly our target. We want them to become more humble, that they learn to admit making a mistake and to speak with their patients as between equals. There are still too many doctors, who when they meet up with their patients spend their time tapping away at the computer without even looking at who they are talking to. That's the type of attitude we want to change. Strangely, our approach as been quite well received by the medical world.

How are you financed?

We operate as part of the Sheba Medical Center. In addition, institutions that send us their pupils, Magen David Adom, the medical faculties etc, pay for their students' courses. We sell our know-how in several places around the world, including to the famous Mayo Clinic, in India, Europe and Turkey. We happily accept donations. Several major pharmaceutical companies participate a bit in our finances, and we also cooperate actively with some of them. Johnson & Johnson, for example, has developed new stents that the FDA will not approve until doctors know how to implant them. So we have a whole team of heart surgeons who are training to this end on our dummies. We also offer courses to representatives of companies that need to offer new medicines to doctors, who are often extremely arrogant. Our annual operating budget is around $2 million, but equipment purchase is much higher. A group of computerized dummies costs almost $200,000.

Israel is a country at war, regularly confronted by terrorism, and that might one day have to face a chemical war. Is this type of situation also simulated in your center?

On account of terrorism and the security situation, we have developed a full range of programs in direct cooperation with the civilian and military medical authorities, in order to be prepared against all eventualities of conventional and non-conventional threats. We have simulated pre-hospitalization situations at the national level. Thus, 7,000 medical practitioners and 500 civilians took part in a simulated training session on a battlefield. You should be aware that the doctors in the Army Medical Corps have all sorts of specializations. A psychiatrist has absolutely no experience to deal with victims of a chemical attack or soldiers wounded in battle. During the Second Lebanon War, before leaving for the North, all doctors called up came to do a brief training course here. We have also developed a special simulation program in the event of a biological or chemical attack, in which Army Special Forces and medical teams from several hospitals in Israel took part.

You have spoken a lot about the various communication courses that you offer. Could you give us an example?

I will give you two. The first is a scene by our actors in which a couple turns up with a badly injured baby. It is clear that it is the father who has beaten the child, as he also beats the terrified mother. They both lie, saying that the child accidentally fell off a table. We teach our doctors how to handle the mother, how to handle the father who is violent and who is terrorizing the mother, how, if necessary, to get him out of the room without him getting annoyed etc. The other example takes place in a pharmacy, where an elderly person who has come with a prescription does not understand how to take the medicines. He risks taking too much or too little, which might kill him. The chemist learns how to detect the problem, to speak patiently to the person and to telephone the doctor. However, to make things a bit more complicated, while he is telephoning the doctor, we introduce a very aggressive person who insists on being served first. The pharmacist learns how to handle this type of situation calmly, professionally and with determination. In the same fashion, we teach social workers how to identify women, children or the elderly who have been beaten, abused or terrified. And of course, as I have already said, but it is a key point, we teach our students how to pass on bad news with tact and sensitivity.

Clearly, your work covers various areas, all important. But is there any aspect that you have especially developed?

We accord identical care to each area of activity. However, there is a point to which I would like to draw your attention more particularly. For several years now, to be accepted to the Medical Faculty of Tel-Aviv University, the Haifa Technion and the Hadassah Dental School, candidates are obliged to spend a day with us. During that day we observe in particular their human qualities and the manner in which they behave towards a sick person, in an emergency, and when faced with a personal drama or a family dilemma. We do not ask them to speak, just to act. If we consider that at the human level the person does not have what it takes, we do not let him or her enter the faculty of medicine. We are changing the rules of admission in the medical world. Each year we receive 700 candidates to whom we explain that medicine is not a matter of mathematics, but first and foremost a human program!

How do you see the MSR's future?

Obviously, we want to develop in those areas in which we already are, and we want to create more simulation places for those areas in which we are not yet involved. But we are also carrying out active research. On this topic, I will give you the example of an injured person who has been disfigured, who has arrived in hospital. Having managed to reconstruct his face on a dummy, the doctor or surgeon handling the case can practice before working on the patient itself. We want to promote the image of Israel in the world in the medical field in which we are advanced. In the long-term, this recognition will allow us to sell our know-how on a large enough scale to finance our operations and our development. In this way, are not selling just our know-how, we also organize courses for members of the medical profession from developing countries. In June we had here a dozen doctors from Ethiopia for a course on AIDS, which was given to them in Amharic by Israeli Ethiopian doctors.
You see, in Hebrew MSR stands for "messer", which means message. Our message to the medical world is to make the medical system safer, humbler, more honest, more transparent, and above all more human.