A Prehospital Education System for Nurses and Doctors

The Greater Copenhagen Experience

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Abstract

Danish law demands that public hospital owners are able to send out medical teams to the scene of major and certain minor accidents. This gives a need for training and since 1984 there has been a continuously developed series of courses. The Greater Copenhagen series contains courses for medical teams, for coordinating doctors, for emergency room recieval and for the hospital coordinating facilities. The paper describes the evolution and present state of the course series.

Introduction

Since the 1950's there has been a provision in Danish laws concerning civil defence for sending medical teams to accident scenes. This was based on experiences from World War II, and the conventional war threat picture of the time. The providers - the owners of the public hospitals - were aware of the need for special training of personel but it was not until the early 1980's that proper education for the purpose was started.

The Office of Hospital Emergency Planning for the Greater Copenhagen area started their teaching activities in 1984 in cooperation with the Copenhagen Civil Defence Authorities. The first courses were three day introductions (with a final exercise) to something close to war time

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activities. The courses quickly became popular with the students as they were the only possibility in Denmark for this sort of training in this field.

History

During the late 1980's and early 1990's the focus in emergency planning for the health services was shifted towards a more peace time oriented model. The master plans concerning 50,000 civilian casualties from a several kiloton "device" were finally considered untrustworthy and were abandoned.

Instead another trend surfaced: preparedness for anything major was considered part of the daily activities, and large accidents - and even war - was to be seen as an extension of the everyday situation. The concept was scaled in numbers and needed resources but was considered an extension of daily business. That is planning stopped being an academic exercise and began to be realised.

This new view on preparedness for large incidents was also adopted by our students and they, too demanded a more peace time oriented course. During the last 5 years the course has been nearly 100% "demilitarized". The class room part has been focused on small and large civilian accidents from recent years, sparsely supplemented with some information on war time injuries. The exercises have been totally demilitarized.

During the same period the course for medical teams has been supplemented with other courses as well. Through these teaching activities the planning has changed too. As models have been tested in the exercises on medical team courses and through the very fruitful discussions with the other parties involved in the course (Fire brigades, ambulance services, civil defence authorities, police and others), the new courses have developed.

Our Course Series

In Greater Copenhagen we have 9 somatic hospital to serve a population of some 1.2 million. These hospitals have some 8000 beds and several surgical and anaesthesiological departments to take care of accident victims. We can provide some 50-100 ambulances within a very short span of time, have a high level of preparedness and, based on hospital data, we can absorb some 30-50 polytrauma patients within 1-2 hours and in parallel probably some 2-300 minor injuries. This means that the needs af a traffic incident like two commuter trains colliding or a ferry disaster can be met.

This overall picture had very large influence on the course programs. At present the course series has grown to : the medical team course, a course for coordinating doctors at accident scenes, a course for hospital reception of mass casualties, a course for casualty ward nurses and a course for the secretaries coordinating the hospital services in case of large incidents. These courses complement each other and have grown from a common agreement between the involved forces on how to manage the rare large incident.

The Medical Team Course

The medical team course is at present a three day course. Day one teaches the management of accidents with few injured together with some of the necessary information on other forces like police, fire department, and ambulance services. Day two teaches large scale operations, mainly the organizational aspects like triage[2] and cooperation on the accident scene. Day three consists of a group of 4 individual exercises with a total of some 300 persons involved in training the nearly 40 students.

The medical teams are found in two flavours. One is a combination of an anesthesiologist and an anesthiological nurse. The other type augments this with an emergency room nurse and an orthopedic surgeon.

[2] The initial sorting of casualties into treatment priority groups.

Day One

The first day is an introduction to principles in management of one or a few casualties. Mainly the cooperation with other forces, and principles in first aid (including the specific types made possible by nurse or doctor training).

Some time is spent looking into the equipment chosen for medical teams out of hospital, describing the types of diagnostic and possible and required therapeutic interventions.

Day Two

The second day goes on to describe the specifics of larger accidents. A large part of the day is spent in a small play with a scripted version of a train accident. The accident is described from the viewpoints of all cooperating forces with a specific goal of giving some sort of understanding of the complex interactions needed to give success.

The Medical Team Course Exercise

This has been developed into four carefully planned stages. We decided from the beginning, that one classical full scale exercise of several hours would be fine for follow up of the course, but not for the basic training.

Instead we developed four stages each with one or two central theoretical points. These were chosen to supplement each other and to show a few main points which we wanted all students to be able to remember. In recent years we have put in exercises for the crisis intervention team courses in parallel to this.

We have moved our exercises from a civil defence training facility to working with actual working industries and ships to give more realism. This results in several beneficial effects in the synergy with the firms involved. For example they have the possibility to set up much larger exercises than they would on their own (our setup is about 300 persons). Both parties thus benefit economically from such an arrangement.

Our 32-40 trainees are grouped into medical teams of four comprising one anesthesiologist, one orthopedic surgeon, one anesthesiological nurse and one casualty room nurse. Each part exercise except the fourth runs for 1 ½ hours, split in two parts, each consisting of some 30 minutes of intensive exercise and some 15 minutes of technical debriefing.

Exercise Part One

The first exercise is a car accident in which a person vehicle collides with a small van. The van transports some household chemicals, containers break and from the mixture of hypochlorite solution and acetic acid we get chlorine gas. This poses three problems: 1) the injured need analgesics, 2) personal safety (is there anything else besides the chlorine?), and 3) extricating the injured in the person vehicle in the correct order to save as many of them as possible.

The first two problems really amount to ethical questions: What costs am I ready to pay to help, do I have an obligation to accept personal risks in doing my job?

The third is trying to teach the students to survey the situation to find the most critically injured and treat them before the screaming lot of the less injured.

Exercise Part Two

The second exercise is a hostage situation, where the students once more meet the question of personal safety in a desperate moment. Several badly wounded are needing help, they can give it, or can they? The police are told to - against normal orders - try to engage the medical team in negotiations with the hijacker. Students feel a very real stress from this.

Exercise Part Three

The third stage is an explosion accident, where noise is high, light is low, vision is blocked by building parts and the 5-8 injured are scattered in the area. Here the known points from the first two exercises are supplemented with a problem of dispersing personnel and equipment. Working

in unknown surroundings stresses a lot. Discussions are started on the proper distribution of work between forces, and whether it is reasonable at all to send out medical teams in an urban setting.

Exercise Part Four

The fourth stage is an aid post where a medical team meets some 50 patients, many of which are multiply injured. They have to focus on management, survey of the situation, distribution of effort, and accepting greater treatment responsibilities across specialities than usual in daily practice.

The Crisis Intervention Team Course

Part of the medical teams' course is a course for the psychiatrists, psychologists, nurses and priests working in the care of many in need of mental support in the time immediately after the incident. There is a system for helping the injured, the bystanders, family and staff emotionally stricken by the accident.

There are several part exercise in this course. One is a crisis intervention centre out of hospital, one is individual work in conjunction with the aid post of the medical team exercise four.

The priest have their own two exercises. One is the handling of a family of four, of which one child is badly injured and eventually dies. The other is a memorial service with participation of the fire fighters and other helpers.

The Course for Coordinating Doctors on Accident Scenes

The course for coordinating doctors on accident scenes consists of three days and is built around cases from Greater Copenhagen. The focus is on local area knowledge: of risk industries and activities, hospital structure, transport system, knowledge of other actors. The course is mainly taught to the anesthesiologists manning the Copenhagen rendezvous emergency teams.

This course consists of some lectures interspersed with some "paper" exercises, and ending up with an indoor "full scale" exercise.

The Lectures

There are lectures on risk evaluation, communication, press contact, triage and cooperation with other forces.

Press contact is one essential part of the course. We need the press as much as they need us, thus we have to make clear to our selves how we want the interaction to be best for both. The press is not the traditional enemy - unless we make them so.

The Exercise

The exercises train the actual cooperation with other forces. We discussed using full scale exercises with actors but rejected the idea. It would only train very few and would be very expensive. It was found more economical to use paper, pencil, telephones and radio in teaching the difficult part - management - rather than to lean on cheap theatrical effects not gaining by using them.

The Hospital Reception of Mass Casualties Course

The course on hospital reception of mass casualties is very short, only one day. It consists of a presentation of the general emergency plans for the area and for the local casualty ward, and two exercises. The intention is to familiarize the persons working in the casualty ward and the doctors from the anesthesiology and orthopedics departments with their roles in the local mass causalty reception plan. Even though the course is very short it has grown very popular.

This course consists of two lectures. One on the Greater Copenhagen general plans for large accidents and the cooperating authorities and hospitals. The other on the local reception plan, with focus on action cards and some details at the moment on chemically polluted patients as the paradigm plans for their reception is changing at the moment.

The lectures are followed by two one hour exercises. The exercises are based on not too unlikely accidents. One is an explosion in a department store, the other is a large traffic accident with buses and several cars.

The exercises are done with a large table plan of the casualty room area, and marked pieces representing the personel. Patients are presented as ambulance records, supplemented by some medical detail.

Focus in the exercises is mainly on management and communication, not much on treatment. Some attention is paid to ressource allocation.

The Casualty Ward Nurse Course

The course for casualty ward nurses is at present two days. One in Copenhagen on local plans and organizations, and one in Oslo on Norwegian concepts. The course is visited by nurses from other regions in Denmark, facilitating discussion and transfer of ideas, routines and general knowledge.

The first day of this course teaches ambulance principles, chemically polluted patients, crisis intervention programs and the Greater Copenhagen plan for large accidents.

The second day consists of a visit to Oslo's Ullevål Hospital, which runs a very efficient trauma protocol in good facilities. On top of this there are a number of lectures on more technical aspects.

From this course and our experiences in the Copenhagen casualty rooms, stems a new project. We want to provide a diploma course for casualty room nurses, granting them rights on top of their standard nursing diplomas.

The Hospital Services Coordination Secretary Course

The course for secretaries coordinating the hospital services is only half a day, consisting of a presentation of the general plan, some special knowledge of the area and two exercises. It is,

though, supplemented with visits to the central ambulance coordinating centre and to other corresponding facilities to familiarize the persons working at these place with each other in order to facilitate the day to day operations and cooperation.

The course consists of a one hour lecture on the Greater Copenhagen plan for cooperation in large accidents, and on the cooperating forces organizations.

The other lecture goes through the detailed plans for the distribution of casualties and speciality distribution in one of the two administrative areas into which Greater Copenhagen is divided.

This is followed by two one hour exercises, where a number of phone calls and radio contacts are simulated, to train the actual dispatch operations.

Conclusion

We have a comprehensive course programme which is continously being developed in close relation to the development of the plans the courses are teaching. We have had good experience in trying out plan details in the courses before implementing them in real life.

We deem it very essential that central planning and teaching is managed from *one* office, facilitating the development and integration of both.