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# The Casualty Handling System (CHS)

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## Abstract

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## 1. INTRODUCTION

An accident or disaster causing a great number of injured or acute patients produces a variety of different problems. They have to be solved within a short period of time. Special models have been developed in order to save lives.

Attention has to be paid to the following:

- sort on the spot and ascertain the urgency of treatment and transport
- make emergency treatment/operations at the damage area
- organize
- master mass transport requirements
- manage an optimal distribution of patients to different hospitals
- register and handle these patients

The special model - called first aid organization - was developed and is described by the system First Aid Station (FAS) (at the damage area in the case of mass accidents).

## 2. IDENTIFICATION OF PATIENTS

Until recently, the marking of patients for registration and

handling had not been sufficiently solved. We became aware that personal details about the patient were of no importance until arrival at the hospital. Ten years ago, we developed a casualty handling system with the goal:

- to have the possibility to record a rough diagnosis
- to have a survey about the number of the injured being assigned to a certain hospital and
- to deliver at the same time information about administration of medication

The Swiss Rescue Association issued therefore guidelines in 1988. In June of 1990 the Casualty Handling System CHSTM had been introduced into Austria and is being used since then as a standard in the whole country. The introduction of the CHS TM had been designated as an important contribution to improve the medical help in case of disasters and major accidents. As per today, the CHS TM has been introduced also in Slovenia and in some places in Germany.

The CHS TM pouch has been used in the past repeatedly with great success and proved to be valuable in its present form. In addition, the pouch proved to have also a positive psychological effect. Every person affected by a large accident wants to be identified by a pouch and thereby feeling "registered" and taken care of.

The CHS TM also proved to be valuable during missions abroad as alternative for a medical chart.

Guidelines, uniformly approved by the Federal Army, the Federal States and all First Aid Organizations of Austria have resulted in final appearance and use of the CHS (tm).

**Figure 1**



### **3. PURPOSE OF THE CHS**

The main goals for the use of the CHS TM are:

first to support an organized way to sort, treat, transport and hospitalize patients in the case of an disaster

secondary to register the patient in a simple and easy way and to deliver the most important information at the earliest possible time about

- the immediate medical and organizational data
- measures such as medical treatment

However, formal and administrative requirements must not delay rescue, treatment or transport.

Basically, we wanted to create an easy and quick identification system for a great number of patients. The system should fulfill the following requirements:

- resistant against damage and dirt
- waterproof lettering, also if blood and dirt is being removed
- optimal information and documentation recorded in the shortest possible time
- possibility of individual registration of the patient without knowledge of personal data
- unmistakable assignment of personal belongings as well as medical records, x-ray pictures, blood samples etc.
- simple handling system for the patient at the

damage area, the transport and hospitalization area

CHS TM enables the record of

- a rough diagnosis
- instructions for sorting
- any additional medical messages
- assignment to a certain hospital

and consequently to record

- the assigned ambulance service
- the assigned hospital

without losing time.

It is also possible to mark contaminated patients as a warning for the rescue personnel.

If extra time is available one may add or complete the additional enclosed forms

- additional medical information on the “treatment record” and
- personal data on the “identification record”

The Casualty Handling System CHS TM does not substitute any first aid measures at the damage area. A functional first aid station FAS is an essential part in the optimal usage of the CHS TM.

### **4. DESCRIPTION OF THE CHS**

The CHS TM consists of a white water-resistant patient-pouch. It is printed orange and black and consists of non-polluting plastic with an elastic band for fixation to the patient. The back side has a cover with a transparent field.

This cover contains:

- a treatment record (blue)
- an identification record (pink)
- 5 yellow reflecting and self-adhesive triangles with black frame to mark contaminated persons and property
- 30 self-adhesive labels with numbers

The pouch has two tear-off sections

- one for organization authorities at the damage area and
- one for the assigned hospital

Pouch, tear-off sections, record forms and self-adhesive labels have to contain the same number.

The luminous orange color is eye-catching. Use preferably water-resistant markers for writing. Other types of pens or pencils can also be used.

### Figure 3

Urgency of Treatment	Sorting Category
T1	immediately (emergency operations on the spot)
T2a	early (immediately transport)
T2b	retarded (second priority for transport)
T3	minimal (slightly injured persons/minimum treatment at the damage area)
T4	wait (hopeless patients)

## 5. NUMBERING OF THE CHS-POUCHES

The numbers will go to the following spots on the CHS TM-pouch:

- to the front of the pouch, right upper corner
- to front side, tear-off section for hospital
- to front side, first tear-off section
- to treatment record (in the pouch)
- to identification record (in the pouch)

The numbers were distributed all over the Federal State according to a uniform system. A careful control guarantees that each number is unique and only exists once.

It is forbidden to use pouches without numbers for training or operation purposes.

## 6. USE OF THE CHS

Each patient or registered person at the damage area will receive a CHS TM-pouch. The pouch will be visibly fixed - at the latest at the sorting area. Should there be a great number of obviously uninjured persons (e.g. in case of a train accident with hundreds of uninjured) you may use the pouch for victims only.

The CHS TM-pouch stays with the patient until final registration at the assigned hospital.

This means that the pouch will be removed only in the

hospital and will be a part of the patient's records as soon as the situation returns to normal and the person is identified.

The sorting physician makes - in the ideal case recorded by a paramedic - notes about:

- a rough diagnosis
- urgency sorting (sorting category)
- name and sex of the patient if responsive and known
- ev. any other measures on the back side of the pouch

The following information can be filled in at the sorting place:

### FRONT SIDE

#### DIAGNOSIS:

Check of vital functions, injuries or disease

For normal consciousness, respiration and circulation make a checkmark on "OK", for other findings make a checkmark on the arrow pointing downwards (negative)

Fill in additional important remarks on the empty lines (e.g. paralysis symptoms)

Mark findings of injuries on the appropriate spot on the human symbol on the right.

#### SORTING:

Make a checkmark in the upper field of the according sorting category and confirm the sorting with time and name of the physician or his personal registration number.

{image:3}

T1-patients have to be treated on the spot. The efficiency of the therapy has to be evaluated and the sorting category has to be newly assigned. The new sorting category has to be marked in the upper sorting field by an arrow directed towards the new category.

The sorting field below may be used later at another sorting area (e.g. at arrival at the hospital)

### BACK SIDE

#### THERAPY:

Therapy field is used for instructions of medical measures by the sorting physician or other physicians.

### **CONFORMATION OF EXECUTION:**

The execution of medical measures has to be noted in the field "CONFIRMATION OF EXECUTION" (with signature).

If there is not enough time (i.e., great number of patients for sorting) the physician may only complete "DIAGNOSIS" and "SORTING".

Purpose of the tear-off sections:

Complete on the lower tear-off

- assigned hospital
- number plate or radio number of the ambulance
- time of patient's loading

The lower tear-off section has to be removed just prior to loading the patient and is kept by the transport manager (= minimum transport record).

The upper tear-off section is for

- writing the name of the assigned hospital

On the back of the upper section time of arrival at the hospital are noted. It is then removed and added as first information to the patient's registration documents.

### **7. TREATMENT RECORD**

Should there be enough time - especially in case of emergency treatment/operations at the FAS (T1 patients) - additional information about treatment and administration of medication may be recorded on the CHS TM-pouch. This information goes back into the pouch and is kept with the patient (until arrival at hospital). The completion of this records must in no way delay the transport. Otherwise do not complete the treatment record.

### **8. IDENTIFICATION RECORD**

The identification record of the patient is of special importance for the police. Should there be enough time please complete also the pink record. The police will receive this document on site. The completion of this record must also in no way delay the transport.

### **9. SELF-ADHESIVE NUMBER LABELS**

The pre-numbered, about 30 self-adhesive labels of the pouch may be used wherever an identification of the patient is necessary, e.g. for the bag for properties, other objects of the patient (luggage etc.), but also for documents of the hospital's registration and blood samples (drawn at the damage area for cross-matching and ordering blood products).

In case of traffic accidents it may be helpful for the investigation to label the location in the car in which the patient was found. This measure should be kept within a reasonable scope.

### **10. TRANSPORT SURVEY**

The transport manager at the first aid station keeps a prepared "transport record" with a list of potential hospitals. Capacities of the suitable hospitals should be continuously updated.

The lower tear-off section is kept at the damage area. Together with the transport record it represents a control of actual distribution of patients.

### **11. USE OF THE CHS-POUCH BY THE MOBILE SORTING TEAM**

It is necessary to indicate to the rescue personnel which patients have to be evacuated first. For this purpose you can also use the Casualty Handling System (CHS)TM. The mobile sorting teams take these CHS TM-pouches with them. They put blank pouches on those patients who have to be rescued first and have to be transported urgently to the sorting area. The emergency physician of the mobile sorting team should only in exceptional cases complete the CHS TM-pouch.

Using this system, two category of urgency are created and the rescue personnel will first rescue patients with CHS TM-pouches.

### **12. MARKING OF CONTAMINATED PATIENTS**

In case of radioactive, biologic or chemical contaminated patients (or if a special warning of the rescue, treatment and transport teams should be required) stick a yellow reflecting triangle symbol - which you find in the pouch - to the front and back side of the CHS TM-pouch . By doing so, the danger can be recognized, even under the flashlight conditions. Use all other triangles for contaminated objects.

### 13. SUPPLY OF CHS-POUCHES

Have at least the following quantities of CHS TM-pouches in store:

- for each ambulance and rescue helicopter: at least 25 units
- for medical first-aid kits for mass accidents, mobile head offices, material kits and vehicles for disaster operations: 200 units each.

### 14. EVERY DAY USE OF THE POUCH

CHS TM-pouches can be used for routine accidents (traffic accidents, industrial accidents and so on) where several persons are involved. Thus, the emergency physicians, the other rescue staff, and the hospitals become experienced by using this system on a “daily” base.

### 15. THE CHS AT THE HOSPITAL

Arriving at the hospital, the CHS TM-pouch stays with the patient - according Austrian regulations -until first medical care including stabilization has been completed and the patient is accommodated at the intensive care unit or a normal ward. The remaining labels are useful for labeling the patients personal properties and records.

We recommend to deposit some CHS TM-pouches at the entrance of the emergency room ER to use them in case of mass accident for patients arriving without pouches. Such a stock is already available in different hospitals. The “University hospital of Zurich” in Switzerland is using pouches with great success in the daily routine for unknown individual patients.

### 16. TRAINING

All emergency physicians, public health officers, hospital staff and other being confronted with the CHS TM-pouch

have to be instructed on the system and have to be trained regularly.

The CHS TM and its use has to be a part of the education of medical staff (course for emergency physicians, nurses etc.)

Use the normal pouch with numbers for disaster and mass accident operation training.

### 17. CONCLUSIONS

This system has proved to be very successful in Switzerland and Austria. It has been introduced in Slovenia and seems to be of great interest for the principal disaster authorities of further countries. It is partly used in Germany. Motions to introduce the CHS TM as an European standard are on the way.

Without doubt, it will always be possible to improve this system in detail. However it doesn't seem to be constructive to develop repeatedly new systems with a lot of new details. Such “improvements” often result in complicated systems. Adding to much information is not suitable and not practical for working conditions in case of disasters.

All inventors with the best of intentions for improving the system should keep in mind:

- In case of major accidents and disasters only simple systems will be accepted and successful.
- Uniformity covering if possible a number of different countries will be an important point.
- The second best but approved uniform system will prove better than the best solution which only applies to one location and differs from all other systems.

### References

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