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# TRAUMI ADDOMINALI - L' EMERGENZA CHIRURGICA

GÜNTHER SITZMANN, BOLZANO



Waidring, Tirol (A) 05/2000



Bolzano, BZ (I) 11/2010

SOLDA 18-11-2010



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## **ICAR-Recommendations**

**Recommendations - Terrestrial Commission Recommendations -**  
**Air Rescue Commission Recommendations -Avalanche Commission Recommendations -**  
**Medical Commission Recommendations - Managing Committee**

NO RECOMMENDATION

Your keyword search was: **ABDOMINAL TRAUMA RESUCITATION**

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# LA GESTIONE DEL TRAUMA

Dal territorio al Trauma Center

A cura di **Antonio Cennamo** II Università degli Studi di Napoli

SOCIETÀ ITALIANA DI CHIRURGIA  
Fondata a Roma 1882  
Presidente **Enrico De Antoni**



## MORTALITÀ IN PAZIENTI POLITRAUMATIZZATI SECONDO DONALD TRUNKY 1983

<b>IN POCCHI MINUTI</b>	<b>IN POCHE ORE</b>	<b>DOPO GIORNI</b>
50%	30%	20%
POLITRAUMA MUTILANTE	POLITRAUMA GRAVE	SIRS E MOFS



## MORTALITÀ IN PAZIENTI POLITRAUMATIZZATI SECONDO DONALD TRUNKY 1983

IN POCCHI MINUTI	IN POCHE ORE	DOPO GIORNI
50% ↑	30% ↓	20% ↓
PREVENZIONE?	118 - OSPEDALE	OSPEDALE

## TRAUMI ADDOMINALI

- TRAUMA CHIUSO: ACCELERAZIONE/DECELERAZIONE
- TRAUMA PENETRANTE: IMPALAMENTO, ARMA BIANCA, ARMA DA FUOCO

## TRAUMA ADDOMINALE CHIUSO

- ROTTURA DELL' AORTA, DELLA VENA CAVA SUPRA- O INFRAEPATICA
- ROTTURA DEGLI ORGANI PARENCHIMATOSI
- ROTTURA DEGLI ORGANI CAVI
- ISCHEMIA DI ORGANI CAVI E/O PARENCHIMATOSI

## TRAUMA ADDOMINALE PENETRANTE

- IMPALAMENTO ADDOMINO – TORACALE
- IMPALAMENTO ANO – RETTALE
- LACERAZIONE ANO – RETTALE
- FERITE DA ARMA BIANCA
- FERITE DA ARMA DA FUOCO

## CASE

- 37a MASCHIO VIENE RICOVERATO AL PS DAL COMPAGNO
- ANAMNESI: ABUSO DI ALCOOL E DROGHE, NON RICORDA L' EVENTO
- PARAMETRI VITALI INSTABILI (RR 87/65mmHg, P 112/min, SO<sub>2</sub> 93%)
- SINTOMI: DOLORI ADDOMINALI DIFFUSI, PERITONISMO
- ECO FAST: VERSAMENTO IN MORISON E DOUGLAS POUCH
- RX TORACE ED ADDOME: NON EVIDENZA DI ARIA LIBERA IN CAVITÀ ADDOMINALE

## CASE

NON C'È EVIDENZA NÈ DI VERSAMENTO NÈ DI ARIA LIBERA	➔	TNO
ARIA LIBERA DUBBIA	➔	LAPAROSCOPIA/TNO
ARIA LIBERA CERTA	➔	LAPAROSCOPIA/-TOMIA
VERSAMENTO CON PARAMETRI VITALI STABILI	➔	LAPAROSCOPIA/-TOMIA
VERSAMENTO CON PARAMETRI VITALI INSTABILI	➔	LAPAROTOMIA
➤ INDICAZIONE A LAPAROTOMIA ESPLORATIVA		

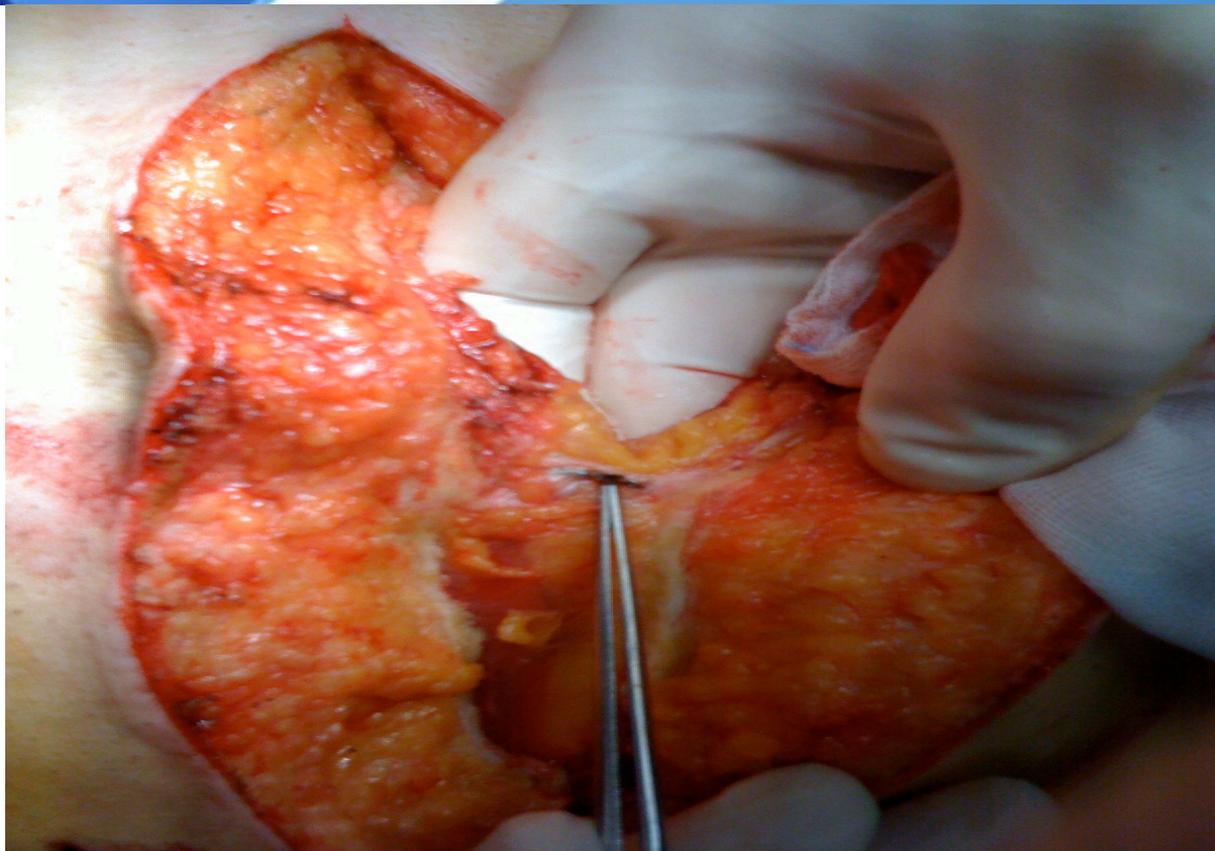
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SOLDA 18-11-2010

28.2.2009

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28.2.2009

SOLDA 18-11-2010

## CASE

- LESIONE DI VASO MESENTERIALE CON EMOPERITONEO E SANGUINAMENTO IN ATTO
- ISCHEMIA SEGMENTARIA DI 20cm DI ILEO
- DUPLICE PERFORAZIONE DIGIUNALE
- RESEZIONE SEGMENTARIA ILEALE CON ANASTOMOSI E DUPLICE RAFIA DIGIUNALE

## SINTOMI DEL TRAUMA ADDOMINALE

- DOLORE SOMATICO E VISCERALE
- IPERTENSIONE - IPOTENSIONE ARTERIOSA
- TACHICARDIA – BRADICARDIA - ASISTOLIA
- TACHIPNEA – BRADIPNEA - APNEA
- EVISCERAZIONE
- SANGUINAMENTO ESTERNO
- VOMITO, NAUSEA, ILEO



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**TERAPIA DEL TRAUMA ADDOMINALE**

**DAMAGE CONTROL PH**

**SCOOP > AND > PLAY**

**ATLS**

**DAMAGE CONTROL IH**



## VALUTAZIONE DELLA RISPOSTA EMODINAMICA

ATLS	RISPOSTA TIPO A	RISPOSTA TIPO B	RISPOSTA TIPO C
PARAMETR VITALI	RITORNO ALLA NORMA	TRANSITORIO MIGLIORAMENTO POI ↓PA E ↑FC	PERMANGONO ALTERATI
PERDITA EMATICA STIMATA	MINIMA (10-20%)	MODESTA ED IN ATTO (20-40%)	GRAVE (>40%)
NECESSITÀ DI ULTERIORE INFUSIONE DI CRISTALLOIDI	BASSA	ELEVATA	ELEVATA
NECESSITÀ DI EMOTRASFUSIONI	BASSA	DA MODESTA AD ELEVATA	ELEVATA
SANGUE DA UTILIZZARE	SANGUE CON GRUPPO E PROVE CROCIATE	SANGUE TIPO SPECIFICO	SANGUE PER EMERGENZE
PRECOCE PRESENZA DEL CHIRURGO	SI	SI	SI

RISPOSTA ALL' INFUSIONE INIZIALE DI 2000ML DI RINGER NELL' ADULTO; 20ML/KG NEL BAMBINO; SIC ROMA 2010

*Emerg Med J* 2009;**26**:128-134 doi:10.1136/emj.2008.059899

## **Prehospital care**

### **Influence of air ambulance doctors on on-scene times, clinical interventions, decision-making and independent paramedic practice**

K Roberts<sup>1</sup>, K Blethyn<sup>2</sup>, M Foreman<sup>3</sup>, A Bleetman<sup>4</sup>

**Background:** Critics of air ambulance doctors question their contribution and believe on-scene time is prolonged. Two helicopter emergency medical service (HEMS) models operate in the West Midlands, one with doctors and the other without. A study was undertaken to compare on-scene time, management and decision-making between the two units.

**Conclusions:** Appropriately trained HEMS doctors provide advanced management and decision-making. This is without a negative effect on on-scene time, even when performing complex procedures. They are more likely to declare death or discharge patients at the scene, increasing the availability of this limited resource.

*Emerg Med J* 2008;**25**:444-449 doi:10.1136/emj.2007.052662

## **Prehospital care**

### **Prehospital interventions: time wasted or time saved? An observational cohort study of management in initial trauma care**

M W A van der Velden<sup>1</sup>, A N Ringburg<sup>1</sup>, E A Bergs<sup>1</sup>, E W Steyerberg<sup>2</sup>, P Patka<sup>1</sup>, I B Schipper<sup>1</sup>

**Objective:** Preclinical actions in the primary assessment of victims of blunt trauma may prolong the time to definitive clinical care. The aim of this study was to examine the duration of performed interventions and to study the effect of on-scene time (OST) and interventions performed before admission to hospital on hospital resuscitation time.



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*Emerg Med J* 2008;**25**:444-449 doi:10.1136/emj.2007.052662

**Prehospital care**

**Prehospital interventions: time wasted or time saved? An observational cohort study of management in initial trauma care**

M W A van der Velden<sup>1</sup>, A N Ringburg<sup>1</sup>, E A Bergs<sup>1</sup>, E W Steyerberg<sup>2</sup>, P Patka<sup>1</sup>, I B Schipper<sup>1</sup>

**Conclusion:** For most trauma patients the initial life- and limb-saving care is achieved within the “golden hour”. Prehospital treatment occupies most of the golden hour. More prehospital interventions were performed with HEMS than with EMS only, but the higher number of interventions did not result in a longer OST with HEMS. Although the numbers of subsequent in-hospital interventions may be lower, no reduction in time in hospital may be expected from the interventions performed before hospital admission.

The top of the slide features a blue-tinted image of a helicopter with a paramedic standing by its side. On the left, the HEMS Association logo is displayed, with 'HEMS' in large black letters and 'ASSOCIATION' in smaller yellow letters below it. The 'M' in 'HEMS' is stylized in red.

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Prehosp Emerg Care. 2007 Oct-Dec;11(4):383-8.

**Outcomes of blunt trauma victims transported by HEMS from rural and urban scenes.**

McCowan CL, Swanson ER, Thomas F, Handrahan DL.

Emergency Department Clinical Operations, University Health Care, University of Utah School of Medicine, Salt Lake City, UT, USA. [Christy.mccowan@hsc.utah.edu](mailto:Christy.mccowan@hsc.utah.edu)

**OBJECTIVE:** Mortality differences exist between victims of urban and rural trauma; however, it is unknown if these differences persist in those patients who survive to HEMS transport. This study examined the in-hospital mortality, length of hospital stay, and discharge status of adult blunt trauma victims transported by HEMS from rural and urban scenes to regional trauma centers.

**CONCLUSIONS:** Despite longer flight and scene times for rural patients, adjusted in-hospital mortality rates were similar for patients transported from urban and rural scenes. Factors prior to HEMS arrival may contribute to increased mortality rates of rural blunt trauma victims documented nationally.



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Unfallchirurg. 2009 Oct;112(10):846-53.

**[Standardised primary care of multiple trauma patients. Prehospital Trauma Life Support and Advanced Trauma Life Support]**

Wölfel CG, Gliwitzky B, Wentzensen A.

Klinik für Unfallchirurgie und Orthopädie, Luftrettungszentrum Ch. 5, BG-Unfallklinik Ludwigshafen, Ludwig-Guttman-Str. 13, 67071, Ludwigshafen. [woelfl@bgu-ludwigshafen.de](mailto:woelfl@bgu-ludwigshafen.de)

**INTRODUCTION:** Standardised management improves treatment results in seriously injured patients. For conditions like stroke or acute coronary syndrome (ACS) there are set treatment pathways which have been established for prehospital and primary hospital care. The treatment of critical trauma patients, however, follows varying procedures in both the prehospital and primary hospital phases. From an analysis of the trauma register of the German Society for Trauma Surgery (DGU), we know that a seriously injured patient remains on the road for 70 min on average before transferral to hospital. This requires improvement. With the 2003 introduction of the ATLS programme in Germany, the initial clinical phase could be improved upon simply by means of standardised training. PHTLS und ATLS complement one another.



Injury. 2009 Nov;40 Suppl 4:S27-35.

**Current trends in resuscitation strategy for the multiply injured patient.**

Stahel PF, Smith WR, Moore EE.

Department of Orthopaedic Surgery, University of Colorado, Denver, Colorado 80204, USA. philip.stahel@dhha.org

ATLS:

- **AIRWAY MAINTENANCE WITH CERVICAL SPINE PROTECTION**
- **BREATHING AND VENTILATION**
- **DISABILITY: BRIEF NEUROLOGIC EVALUATION**
- **EXPOSURE WITH ENVIRONMENTAL CONTROL (PROTECTION FROM HYPOTHERMIA)**



Injury. 2009 Nov;40 Suppl 4:S27-35.

**Current trends in resuscitation strategy for the multiply injured patient.**

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Department of Orthopaedic Surgery, University of Colorado, Denver, Colorado 80204, USA. philip.stahel@dhha.org

- HEMOTHORAX: ACUTE MANAGMENT BY CHEST DRAIN PLACEMENT AND EVALUATION FOR THE POTENTIAL NEED OF AN URGENT THORACOTOMY IN CASES OF PENETRATING TRAUMA AND/OR BLUNT TRAUMA WITH ONGOING BLEEDING THROUGH THE CHEST TUBE.



Injury. 2009 Nov;40 Suppl 4:S27-35.

**Current trends in resuscitation strategy for the multiply injured patient.**

Stahel PF, Smith WR, Moore EE.

Department of Orthopaedic Surgery, University of Colorado, Denver, Colorado 80204, USA. philip.stahel@dhha.org

➤ INTRAABDOMINAL BLEEDING:

INDICATIONS FOR URGENT LAPAROTOMY INCLUDE HEMODYNAMICALLY UNSTABLE PATIENTS WITH BLUNT ABDOMINAL TRAUMA AND POSITIVE FAST, AND PATIENTS WITH PENETRATING ABDOMINAL INJURIES.



Injury. 2009 Nov;40 Suppl 4:S27-35.

**Current trends in resuscitation strategy for the multiply injured patient.**

Stahel PF, Smith WR, Moore EE.

Department of Orthopaedic Surgery, University of Colorado, Denver, Colorado 80204, USA. philip.stahel@dhha.org

- RETROPERITONEAL HEMORRHAGE: UNSTABLE PELVIC INJURIES ARE ASSOCIATED WITH POTENTIALLY UNCONTROLLED RETROPERITONEAL HEMORRHAGE (UP TO 5,000 ML) RELATED TO PRESACRAL AND PARAVESICAL VENOUS PLEXUS AND CANCELLOUS BONE BLEEDING. MORE THAN 80% OF PATIENTS WITH HYPOTENSION DUE TO PELVIC HEMORRHAGE ARE „NON RESPONDERS“



Injury. 2009 Nov;40 Suppl 4:S27-35.

**Current trends in resuscitation strategy for the multiply injured patient.**

Stahel PF, Smith WR, Moore EE.

Department of Orthopaedic Surgery, University of Colorado, Denver, Colorado 80204, USA. philip.stahel@dhha.org

- **DAMAGE CONTROL SURGERY:**
  - 1 - LIFE SAVING SURGERY WITH EARLY RECOGNITION OF THOSE TRAUMA PATIENTS WHO WARRANT DAMAGE CONTROL („GROUND ZERO“ RECOGNITION PHASE).
  - 2 – SALVAGE SURGERY FOR CONTROL OF HEMORRHAGE, CONTAMINATION, AND STABILISATION OF LONG-BONE AND PELVIC FRACTURES („OR PHASE“).
  - 3 – INTENSIVE CARE MANAGEMENT FOR RESTORATION OF PHYSIOLOGICAL AND IMMUNOLOGIC BASELINE FUNCTIONS („ICU PHASE“).
  - 4 – SCHEDULED DEFINITIVE SURGERY DURING THE PHYSIOLOGICAL „TIME-WINDOW OF OPPORTUNITY“ („RECONSTRUCTIVE PHASE“)

The image features a blue-tinted background showing an emergency scene with a white ambulance and a paramedic in full gear. In the upper left corner, the logo for the HEMMS Association is displayed. The logo consists of the letters 'HEMMS' in a bold, sans-serif font, with the 'M' in red and the other letters in black. Below the letters, the word 'ASSOCIATION' is written in a smaller, lighter font. A circular graphic element is partially visible behind the letters.

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[Prehosp Disaster Med. 2005 Jul-Aug;20\(4\):228-34.](#)

**Prehospital management and fluid resuscitation in hypotensive trauma patients admitted to Karolinska University Hospital in Stockholm.**

[Talving P, Pålstedt J, Riddez L.](#)

Karolinska Trauma Center, Department of Surgery, Karolinska University Hospital, Stockholm, Sweden.

**CONCLUSION:** The time interval at the scene of injury exceeded PHTLS guidelines. The vast majority of the hypotensive trauma patients were fluid-resuscitated on-scene regardless of the type, mechanism, or severity of injury. A predefined fluid resuscitation regimen is not employed in hypotensive trauma victims with different types of injuries. The outcome was worsened by male gender, progressive age, and ISS > 20 in the exact multiple regression analysis.

The top of the slide features a blue-tinted background image of a helicopter. On the left, the logo for the Helicopter Emergency Medical Services (HEMS) Association is displayed. The letters 'HEMS' are in a bold, black, sans-serif font, with the 'E' and 'M' in red. Below the letters, the word 'ASSOCIATION' is written in a smaller, light blue font. The background image shows the side of a white helicopter with a person in a dark uniform standing near the open door.

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[Radiographics. 2008 Jan-Feb;28\(1\):225-42.](#)

**Current Role of Emergency US in Patients with Major Trauma.**

[Körner M, Krötz MM, Degenhart C, Pfeifer KJ, Reiser MF, Linsenmaier U.](#)

Department of Clinical Radiology, University Hospital Munich, Nussbaumstr 20, 80336 Munich, Germany.

**Abstract**

In patients with major trauma, focused abdominal ultrasonography (US) often is the initial imaging examination. US is readily available, requires minimal preparation time, and may be performed with mobile equipment that allows greater flexibility in patient positioning than is possible with other modalities. It also is effective in depicting abnormally large intraperitoneal collections of free fluid, which are indirect evidence of a solid organ injury that requires immediate surgery. However, because US has poor sensitivity for the detection of most solid organ injuries, an initial survey with US often is followed by a more thorough examination with multidetector computed tomography (CT). The initial US examination is generally performed with a FAST (focused assessment with sonography in trauma) protocol. Speed is important because if intraabdominal bleeding is present, the probability of death increases by about 1% for every 3 minutes that elapses before intervention. Typical sites of fluid accumulation in the presence of a solid organ injury are the Morison pouch (liver laceration), the pouch of Douglas (intraperitoneal rupture of the urinary bladder), and the splenorenal fossa (splenic and renal injuries). FAST may be used also to exclude injuries to the heart and pericardium but not those to the bowel, mesentery, and urinary bladder, a purpose for which multidetector CT is better suited. If there is time after the initial FAST survey, the US examination may be extended to extra-abdominal regions to rule out pneumothorax or to guide endotracheal intubation, vascular puncture, or other interventional procedures.

[Curr Opin Crit Care. 2010 Sep 16. \[Epub ahead of print\]](#)

**Management guidelines for penetrating abdominal trauma.**

[Biffi WL, Moore EE.](#)

Department of Surgery, Denver Health Medical Center/University of Colorado, Denver, Colorado, USA.

**Abstract**

**PURPOSE OF REVIEW:** Patients with penetrating abdominal trauma are at risk of harboring life-threatening injuries. Many patients are in need of emergent operative intervention. However, there are clearly patients who can be safely managed nonoperatively. This review evaluates the literature to identify management guidelines for patients with penetrating abdominal trauma.

**RECENT FINDINGS:** Accumulating evidence supports nonoperative management of patients with stab wounds to the thoracoabdominal region, the back, flank, and anterior abdomen. Furthermore, select patients with gunshot wounds can be safely managed nonoperatively.

**SUMMARY:** Shock, evisceration, and peritonitis warrant immediate laparotomy following penetrating abdominal trauma. Thoracoabdominal stab wounds should be further evaluated with chest X-ray, ultrasonography, and laparoscopy or thoracoscopy. Wounds to the back and flank should be imaged with CT scanning. Anterior abdominal stab wound victims can be followed with serial clinical assessments. The majority of patients with gunshot wounds are best served by laparotomy; however, select patients may be managed expectantly.



J R Army Med Corps. 2010 Sep;156(3):139-44.

**Traumatic diaphragmatic injury.**

Morgan BS, Watcyn-Jones T, Garner JP.

East Midlands Deanery, Queens Medical Centre, Nottingham.

J Hepatobiliary Pancreat Sci. 2010 Oct 9. [Epub ahead of print]

**Prognosis and treatment of pancreaticoduodenal traumatic injuries: which factors are predictors of outcome?**

Antonacci N, Di Saverio S, Ciaroni V, Biscardi A, Giugni A, Cancellieri F, Coniglio C, Cavallo P, Giorgini E, Baldoni F, Gordini G, Tugnoli G.

Department of Emergency, Emergency Surgery and Trauma Surgery Unit, Maggiore Hospital, Bologna Local Health District, Largo Nigrisoli 2, 40100, Bologna, Italy.



Arch Pediatr. 2010 Sep 29. [Epub ahead of print]

**[Abdominal aortic injury in a child: Seat-belt syndrome.]**

[Article in French]

Berthet S, Quiviger S, Kurzenne JY, Djafari M, Pradines P, Coache C.

Service de pédiatrie, CHI, 240, avenue de Saint-Lambert, 83600 Fréjus-Saint-Raphaël, France.

J Accid Emerg Med. 1996 Mar;13(2):137-8.

**Munchausen syndrome presenting as major trauma.**

Meek SJ, Kendall J, Cornelius P, Younge PA.

Accident and Emergency Department, Frenchay Hospital, Bristol, United Kingdom.

The top of the slide features a blue-tinted background image of an ambulance with a paramedic standing by the open rear door. On the left side, the logo for the HEMS Association is displayed. The letters 'HEMS' are in a bold, black, sans-serif font, with the 'M' in red. Below 'HEMS', the word 'ASSOCIATION' is written in a smaller, light blue, sans-serif font. A circular dotted line surrounds the 'HEMS' text.

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TAKE HOME

SCOOP > AND > PLAY TO THE TRAUMA CENTER

# Preparazione professionale



Check e concentrazione



# Decisione e coraggio



GRAZIE PER L'ATTENZIONE!

