

Specialized military healthcare, Always, Everywhere

Contribution of military medicine to our civilian colleagues



**Major General Pierre NEIRINCKX, MD
Aide-de-Camp to His Majesty the King**

Surgeon General



Agenda

Level of ambition and scope of military medicine

Holistic approach

From usual medicine to combat medicine

A short overview of principles concerning Traumatology at War

Trimodal distribution of death

Avoidable mortality and morbidity

From « Lessons Identified » to « Lessons Learned »

Organizational and Clinical

Contribution of the military medicine

From Strategy to Tactics => From Planning to Execution

Medical Operational Planning, but ...

Example of March 22nd, 2016

Specific military medical education and training

Organizational and clinical



Travailler à la Défense.
Plus qu'un job, une mission.

Ambition of the Military Medical Service...



« *Total Force Fitness* »

Holistic approach of Physical & Mental Health and Resilience of the Soldier





A Medicine to prepare the soldier for operations ...

• Health Promotion ...

- Nutrition & Fitness
- Dental care
- Quality of sleep
- ...

Multidisciplinarity

Med

Pha

Den

Vet

Inf

Kine

Psy

Medic

Plan

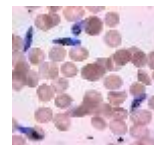
• Healthcare for usual pathologies ...

- 1st & 2nd line healthcare
- Support & care in mental health
- Travel Medicine & Infectious Diseases



• Prevention & Health Surveillance ...

- « Force Health Protection »
- Occupational medicine
- Expertise medicine





... but also combat medicine to treat the wounded

- **War pathologies ...**
 - Explosions
 - Burns
 - Penetrating wounds
 - Mental Health

Multidisciplinary

Med	Pha	Den	Vet
	Inf	Kine	Psy
		Medic	Plan



Demonstration of boundary effect on the temporary cavitation due to a high-energy rifle bullet: the apple literally explodes after the passage of the bullet.



From Waterloo 1815 ... to Mazar-e-Sharif 2021

Continuum of Care and Timelines



Buddy Aid	
Tactical Combat Casualty Care	10'

Role 1	
Damage Control RESSUCITATION	1Hr

Fwd Surgical Team	
Damage Control SURGERY	1-2 Hrs

Role 2 Basic	
Damage Control SURGERY	1-2 Hrs

Role 2 Enhanced	
Damage Control SURGERY & RESSUCITATION	1-2 Hrs

Homebase Hospital	
Definitive Care	???

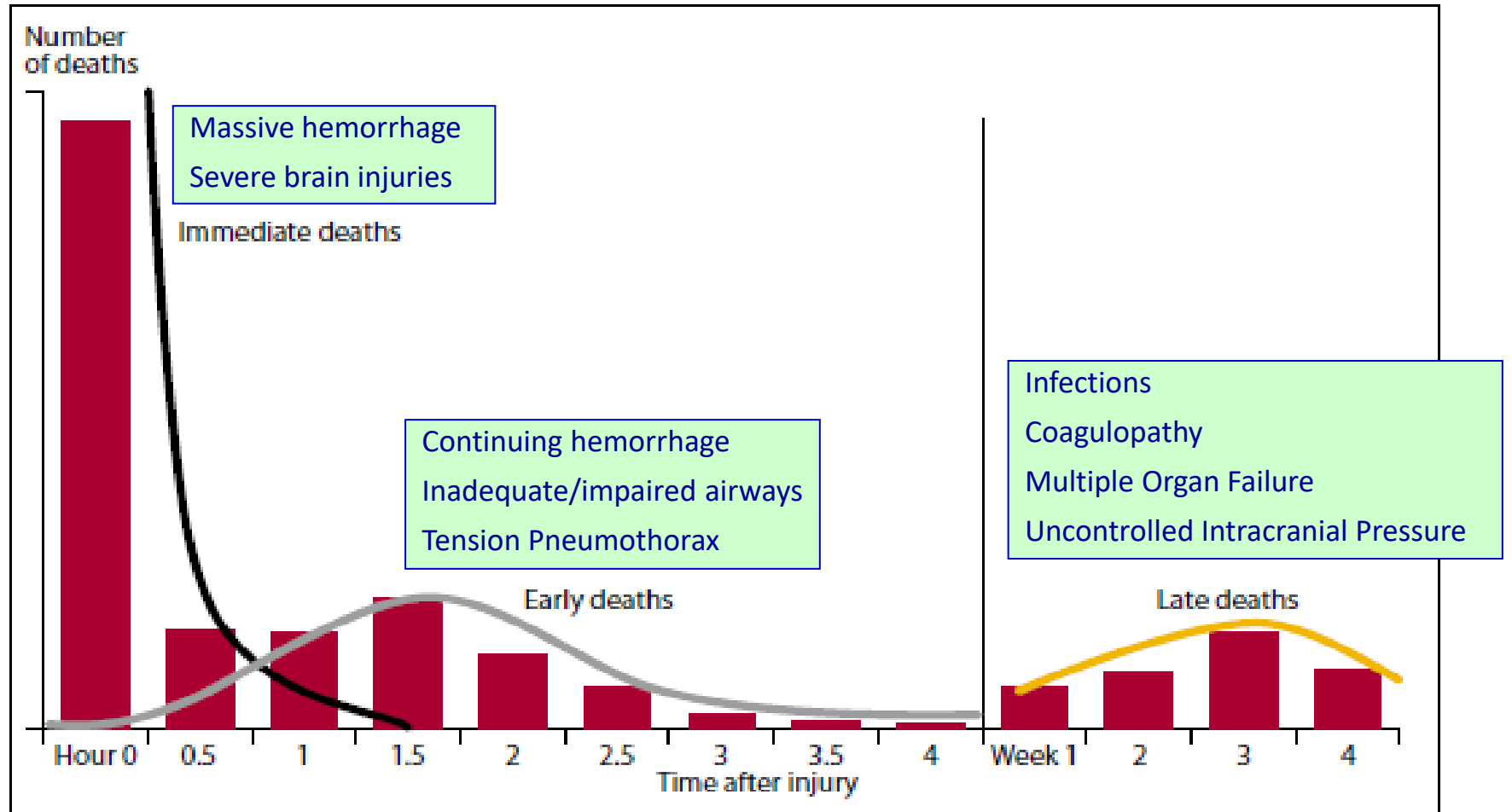
« Remote » HealthCare
Prolonged Field Care
« En route » Care

Casualty Staging Unit	
Holding & preparation of patient Damage Control when needed	48-72 Hrs





Trimodal distribution of trauma deaths



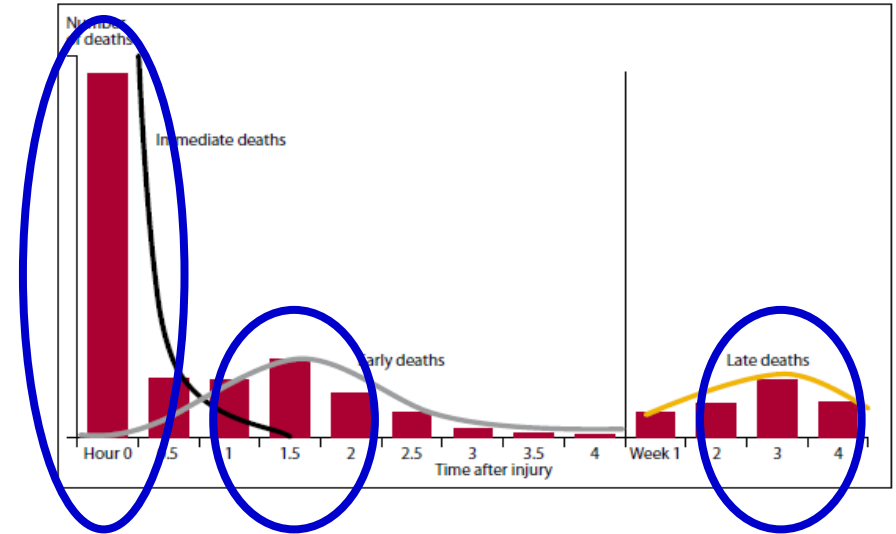
Source: International Committee of the Red Cross

Avoidable mortality & morbidity ...



... it's a matter of **ORGANISATION** ...

- Medical Support Plans to operation
- Phasing of Care processes (staggering)
- Timelines for Evacuation processes



CRISIS PLANIFICATION

Major positive Impact on

- Mortality
- Morbidity

... and a matter of **COMPETENCIES**

- Damage Control
- Rapid Triage & Stabilisation
- Delayed definitive care

EDUCATION & TRAINING



From what we saw at war... to what we learned at home



What we learned in military medicine from Cesar's campaigns till today operations

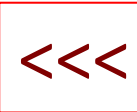


Casualties rates



Total Battle Casualties

- Killed in Action
- Wounded in Action
- Casualties Missing in Action



Diseases & Non Battle Injuries

- Infectious diseases
- Physical activities
- Mental disorders



Trauma Registration & Statistics



Prevention & Disease Surveillance

From what we saw at war... to what we learned at home



What we learned in military medicine from other Military Colleagues...

... From the Navy

DAMAGE CONTROL

Keeping afloat a badly damaged ship by procedures to limit flooding, stabilize the vessel, isolate fires and explosions and avoid their spreading



... From the Air Force

AVIATION SAFETY

A system and an organization in which risks associated with aviation activities, related to, or in direct support of the operation are reduced & controlled to an acceptable level



Change of paradigm for
Combat Medicine

Damage Control
Ressuscitation
integrating
Damage Control
Surgery
for a better
Quality of Care



From what we saw at war... to what we learned at home



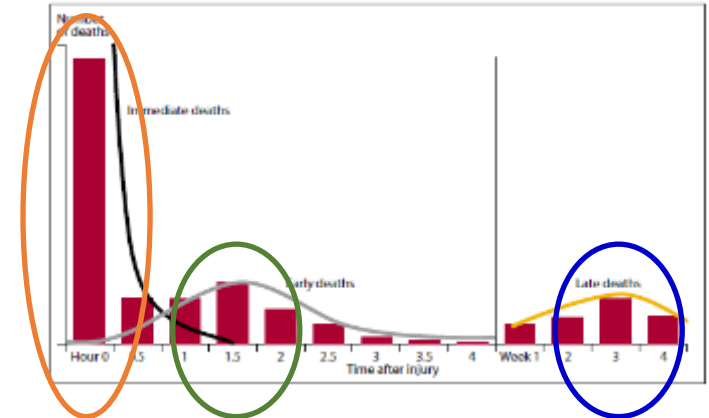
Massive hemorrhage ...

- Tourniquet
- Control of coagulations disorders
- Prudent control of hypovolemia
- « Pre-Hospital » blood transfusion
- « Golden Hour » for Damage Control Surgery
- Emergency Ultrasonography
- Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA)

Damage Control Resuscitation ...

- Multiple Organ Failure
- Control of coagulopathy
- Fight against (multiresistant) infections

Avoidable mortality...



Damage Control Surgery...

- Strategy for controlling haemorrhage
- Limbs,, Abdomen, Thorax, Head and Face
- Temporary closure
- Delayed subsequent surgical procedures

Mental Healthcare ...

- Care for Post Trauma Stress Disorders
- Strategy for suicide prevention

Specialized Education & Training of Personnel

Initial Care of the Severely Injured Patient
David R. King, M.D. New England Journal of
Medicine 380;8 nejm.org February 21, 2019



From Strategy to Tactic



Contribution of the military medicine



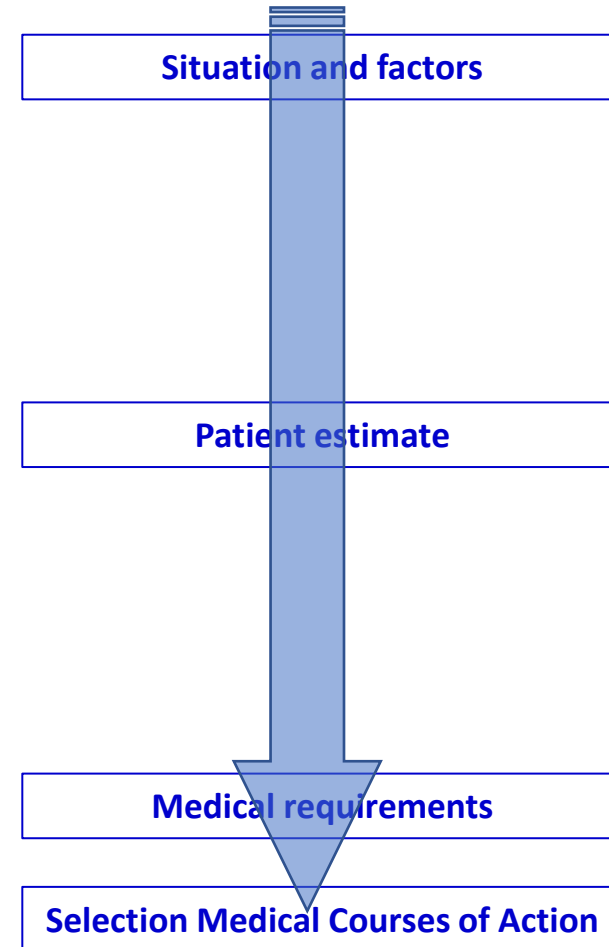
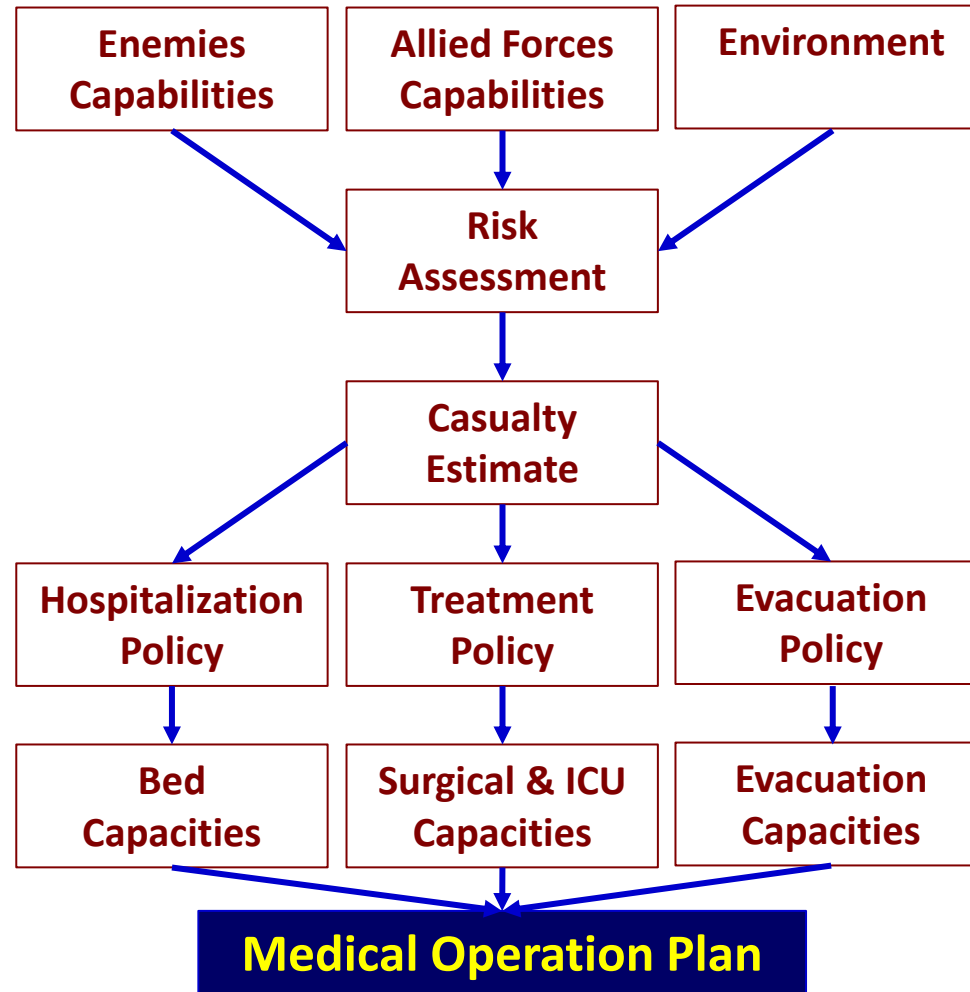
OPERATIONAL PLANNING

MISSION

ENEMY

ENVIRONMENT

MEANS



Contribution of the military medicine



OPERATIONAL PLANNING

MISSION

ENEMY

ENVIRONMENT

MEANS

Development of Emergency Plans...



But keeping in mind that ...



Helmuth Johannes Ludwig von Moltke

« The first victim of the war is ... the plan »

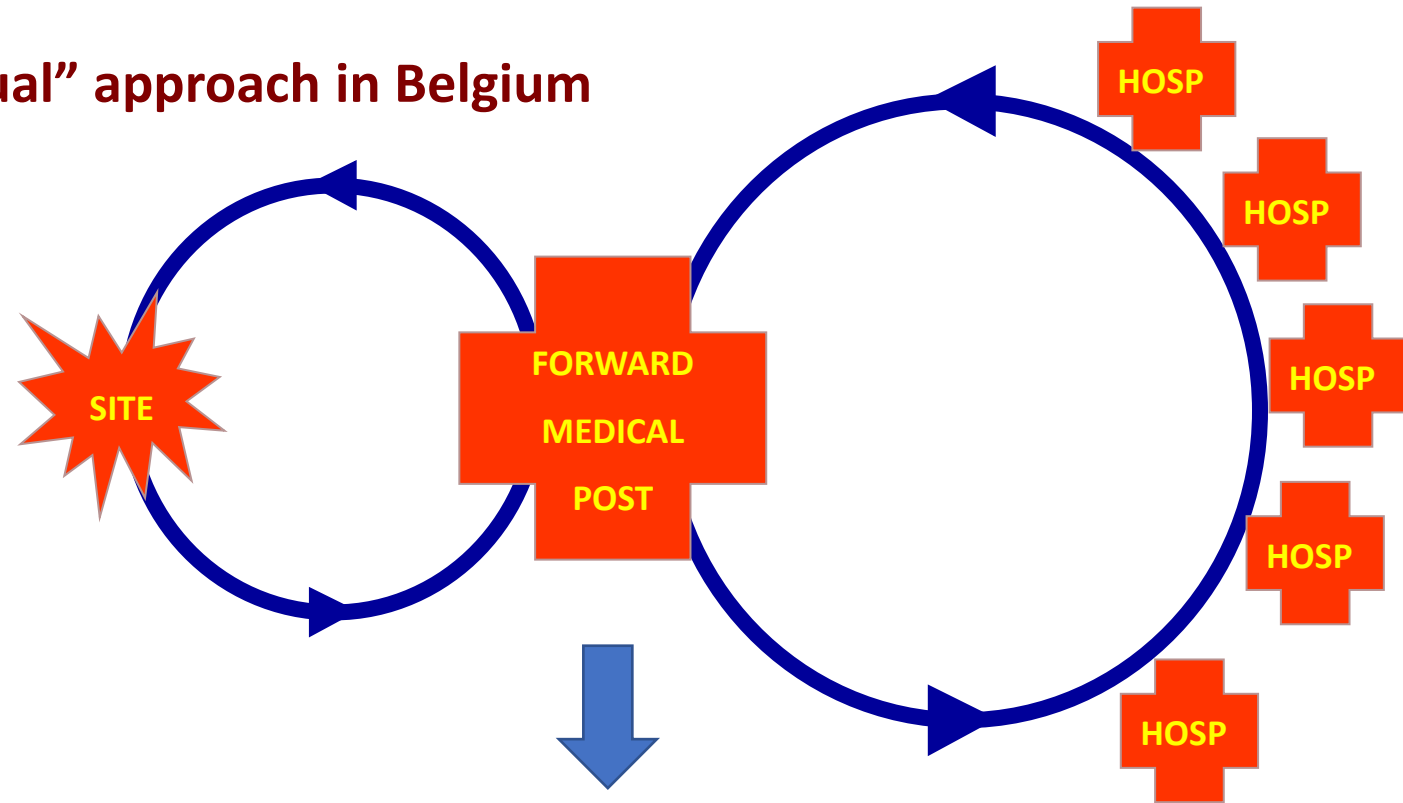
... and be prepared to adapt the Plan during crisis



ZAVENTEM March 22, 2016

Disaster Management “on the scene”

The “usual” approach in Belgium



1. Triage T1 – T2 – T3
2. Reception and Registration
3. Stabilization
4. Preparation for transfer
5. Registration of medical Data
6. Evacuation towards Hospitals

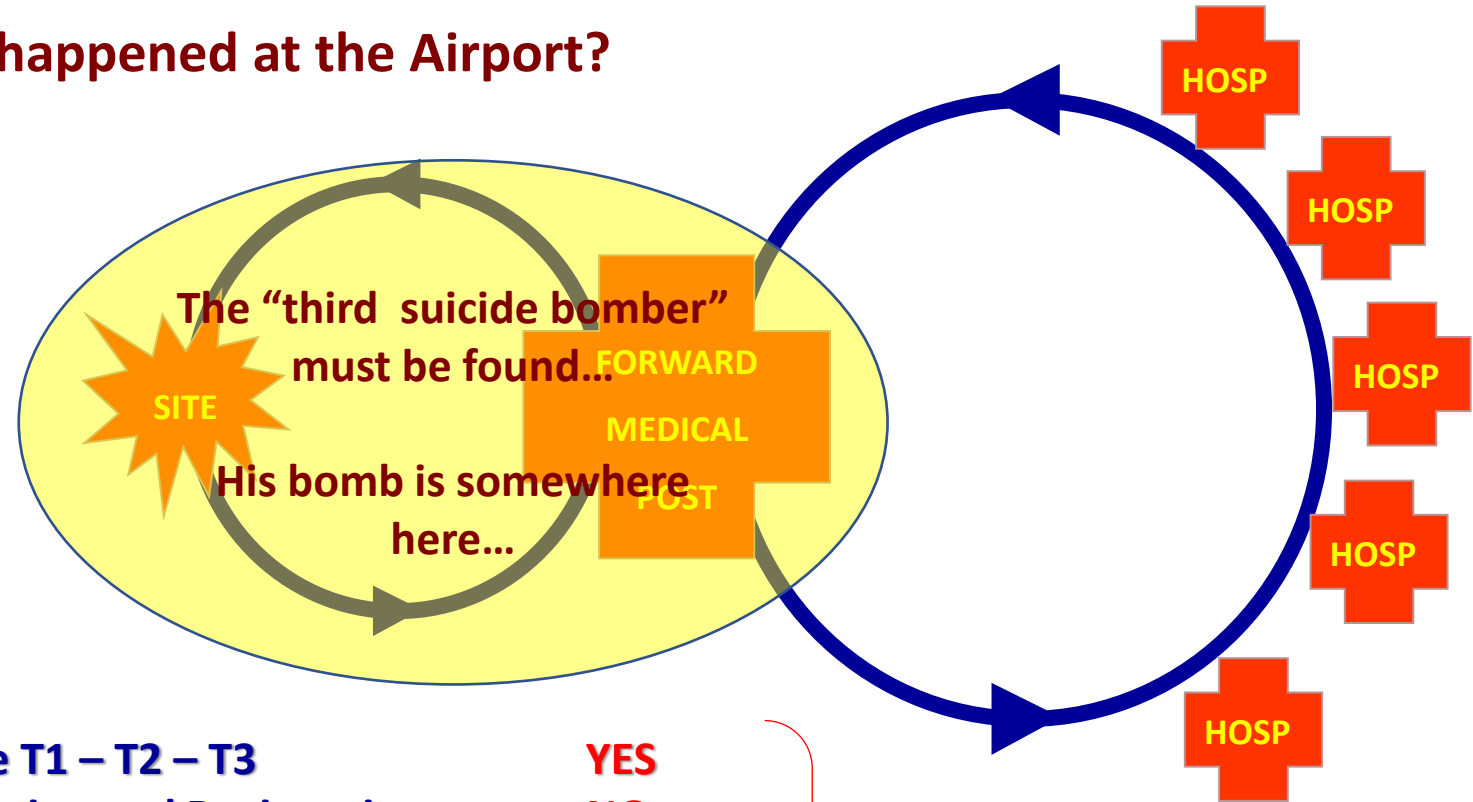




ZAVENTEM March 22, 2016

Disaster Management “on the scene”

But what happened at the Airport?



1. Triage T1 – T2 – T3
2. Reception and Registration
3. Stabilization
4. Preparation for transfer
5. Registration of medical Data
6. Evacuation towards Hospitals

YES
NO
LIMITED
MINIMAL
NO
QUICKER

But... not easy if not prepared to do so ...





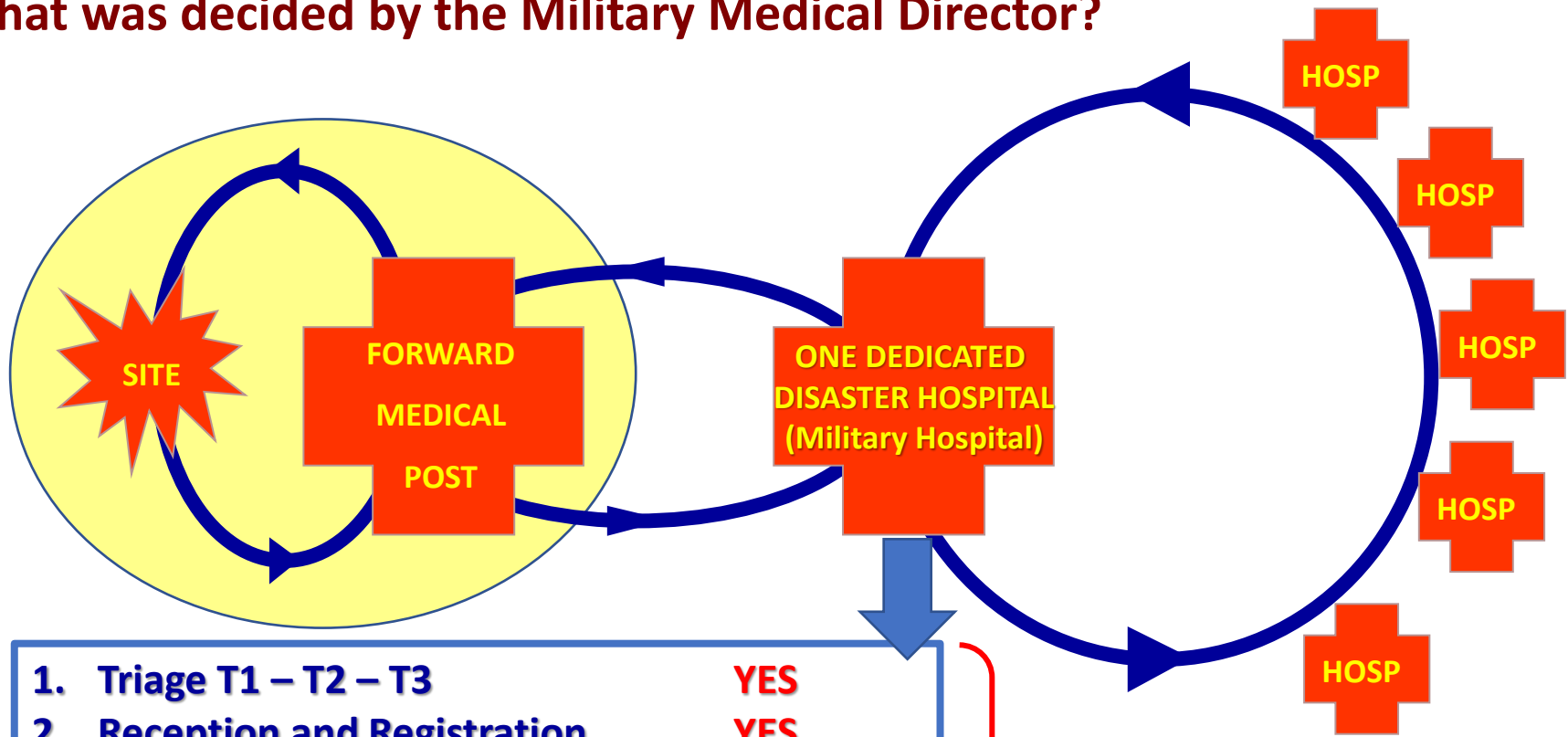
ZAVENTEM March 22, 2016

Disaster Management “on the scene”

Think out of the box...



What was decided by the Military Medical Director?



- | | |
|----------------------------------|---------|
| 1. Triage T1 – T2 – T3 | YES |
| 2. Reception and Registration | YES |
| 3. Stabilization | YES |
| 4. Preparation before transfer | YES |
| 5. Registration | YES |
| 6. Evacuation to other Hospitals | QUIETLY |

This Hospital serves...
... as buffer capacity
... in order to allow “the surge”
... for the stabilization of the greatest number of victims

Military education for every military healthcare professional



PLANNING

MISSION

ENEMY

ENVIRONMENT

MEANS



INTERVENTION FORCES

DOCTRINES

LEADERSHIP

ORGANISATION

PERSONNEL

TRAINING

INFRASTRUCTURE

MATERIEL

INTEROPERABILITE

CAPACITY DEVELOPMENT

INTEGRATED TRAINING OF CAPACITIES



Military education for every military healthcare professional



Some differences between military and civilian approaches
(personal advice)

MILITARY

- Mandatory planning for each intervention (even in BELGIUM)
- Based on a modular system of interconnected standardized medical capacities
- Systematic approach of trauma care: TCCC-DCR-DCS at all levels. Standardized multinational Doctrine
- Mandatory cycle for Lesson Identified to be transformed in Lessons Learned

CIVILIAN

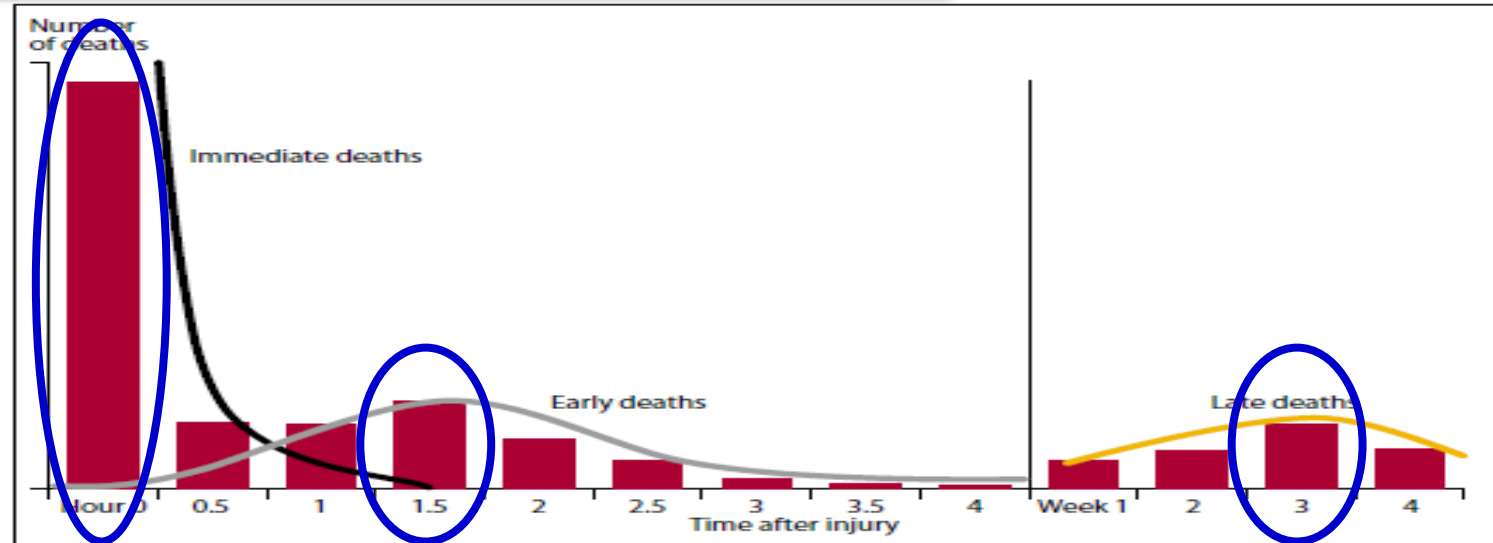
- Uncertainty of the adherence to the emergency planning at hospital level
- Highly specialized structures/services and different organization in each hospital
- Hyper specialisation and clinical practices somehow different in each institution
- Few systems for systematic approach of Lesson Identified / Lessons Learned

TCCC : Tactical Combat Casualty Care
DCR : Damage Control Resuscitation
DCS : Damage Control Surgery

Military education for every military healthcare professional



In the military in healthcare niches of expertise ...



Principles of Combat Medicine



PREHOSPITAL CARE



WAR SURGERY



Heavy Burns and Skin banking



Fight against multiresistant infection



Crisis Psychology

Suicide Prevention

Dirty bombs ...

Military education for every military healthcare professional



In the military niches of expertise in planning techniques ...

In the field of ORGANISATION ...



EMERGENCY PLANNING

Reinforce multidisciplinary

Develop specific plans (S-O-T)

Evaluate plans at all levels

Finetuning development of capacities

Highly specialize specific capacities

S-O-T: Strategic-Operational-Tactical

In the field of COMPETENCIES



EDUCATION & TRAINING

Principles of Combat Medicine

Principles of Crisis Psychology

Extend scope of education program

Integretated training of capacities

Register & better exploit data's



A Civ-Mil dedicated training platform ?





La réponse médicale aux attaques terroristes simultanées sur plusieurs sites à Paris

ERASME – 12 décembre 2015

Les chirurgiens civils doivent commencer à se mettre au courant de la 'chirurgie de guerre': damage control surgery, chirurgie partielle, chirurgie d'attente. Par exemple, amputation si nécessaire, shunt en quelques minutes, laparotomie avec sortie de salle d'opération 'ventre ouvert'

*Professeur Bruno RIOU, Chef du Service d'Accueil des Urgences
Hôpital Pitié-Salpêtrière
Doyen de la Faculté de médecine Pierre et Marie Curie*

Contribution of military medicine



Be always prepared ...



... for the next one !



Civil-Military Cooperation



#StrongerTogether





Dr Jules VONCKEN
(1887–1975)

**The Belgian
Military Medical
Service presents...**

**... the World Congress
of the International
Committee of Military
Medicine**

delayed till September 2022

Secure the legacy

*The battle against infection
& phage therapy*

Far forward surgery

From rehab to prehab

*From shell shock to
mental fitness*



Square

Brussels Convention Centre

Belgium



The advertisement features a group of seven military medical personnel in various uniforms (flight suits, camouflage, medical scrubs, and standard military dress) standing in a modern, brightly lit indoor space. In the center of the advertisement is the circular logo of the Belgian Defense Medical Services, which consists of a blue outer ring with yellow stars, a red inner ring with a yellow caduceus, and a central yellow circle with a red caduceus. To the right of the logo, the text reads: **Werken bij Defensie.**
Geen job, wel een missie.

www.mil.be .be

Feel free to join us as Active or Reserve Medical Officer ...