

## International Cooperation for Emergency Medicine And Health Vigilance in Africa

NEW APPROACH OF A HUMANITARIAN, SCIENTIFIC AND INTERNATIONAL SOLIDARITY ORGANIZATION (OHSSI), WHICH IS  
MULTIDISCIPLINARY AND SYNERGIC WITH AN EDUCATIONAL VOCATION AND HOSPITAL PARTNERSHIPS FOR AFRICA

ASSOCIATION PER REGULATION  
OF 1901 N°1943 JO 18 / 12 / 1996

- Our Motto**
- Access to Health Insurance and Urgent Care in Africa
  - Training and Research focused on Local Realities
  - Health Partnerships: Expertise in Management, Maintenance and Public Health



# Emergency Cart(s)?

*Hemou P<sub>1</sub>, Eho S., Aholu A., Sama H. et al*

**1** [coordination@cimuvisa.org](mailto:coordination@cimuvisa.org)

# Emergency Cart(s)?

**Multidisciplinary and Transversal Concept** for  
Response to Vital Emergencies

Inclusive Concept of Actors involved in  
Emergencies

# OUTLINE

## I- Definitions - Rational

- **Vital Emergency** – Syndromic Approach: respiratory, circulatory, neurologic
  - Pathogenic Approach : infectious, obstetrical, traumatic etc...

*Vital Emergencies and Disasters in Africa: from reality to perspectives, Hemou P et al 2017 Ed Universitaires Européennes*

- **Emergency Cart(s)**
- **Emergency Kit(s)**

## II - Objectives

## III – Regulatory Framework

## IV - Container – Content (consumables and non-consumables, Pharmacy)

- **Maintenance, Control, Supply, Alert Procedure: Role of Actors**
- **Which cross-training for actors?**

## V - Conclusion



# VITAL EMERGENCIES

**Syndromic Approach:** respiratory, circulatory, and neurological distresses

## **Pathogenic Approach**

**1 – Transmitted Diseases:** bacterial, viral, parasitic, and mycotic

**2 – Non-Transmitted Diseases (epidemiological transition )** as CVA, trauma, mother-child emergencies, burns, health and social scourges....

**3 – Natural, ecological, technological, and societal disasters**



# Introduction

Any person who is neither breathing nor reacting is in **cardiac arrest**.

## CHAIN OF SURVIVAL



### Response Time:

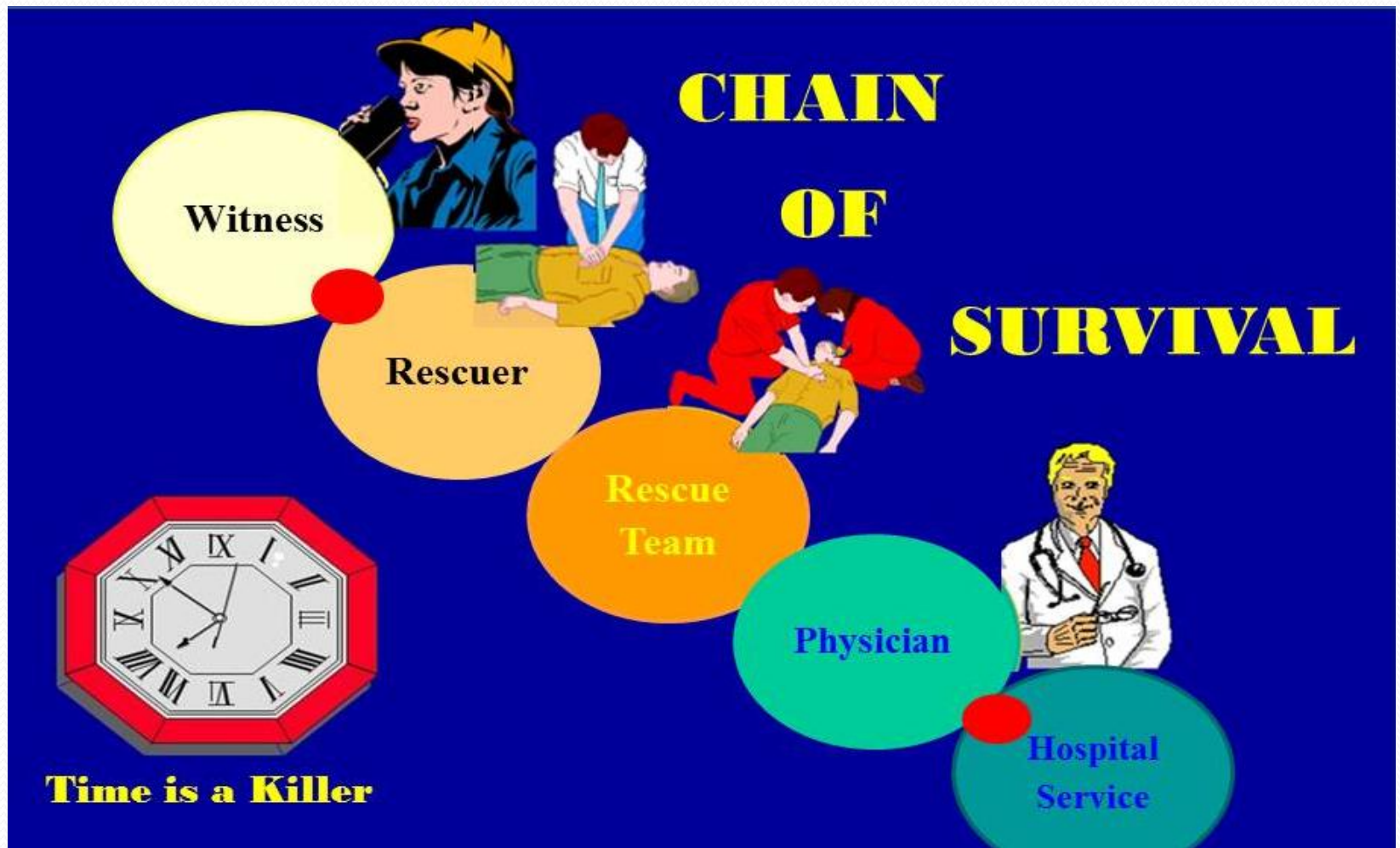
**Alert** in less than **2 minutes**

**Early CPR** in less than **3 minutes**

**Early Defibrillation** in less than **5 minutes**

**Early Advanced Care** in less than **8 minutes**

# Chain of Survival





CIMUVISA dedares being duly authorized to organize training activities of a humanitarian nature, in accordance with the purpose of its Constitution. CIMUVISA also serves as Project Manager in identifying care facilities according to local needs and realities. It also contributes to periodical medical missions and the recycling of French hospitals' equipment in favor of the most destitute Health Institutions. Health and Academic Authorities of the home country of the Intern or any other accredited African Organization may define the needs, identify the Interns and provide for their travel expenditures. Particularly, the Institution must register within the framework of a project or a program well defined beforehand, which guarantees to the Intern a school-to-work transition after his training. The multidisciplinary and cross-training of actors guarantees the strengthening of the weak link and the upholding of the chain of survival "Every citizen has the obligation to assist a person in danger anytime and anywhere."



Medical Specialist of Civilian and Armies Instruction Teaching Hospitals, Pitchaki Frédéric Hemou is an honorary member of the French Speakers' Society for Resuscitation (SRLF). He is the Coordinator – Chairman Emeritus of CIMUVISA-ACP: International Cooperation for Emergency Medicine and Health Vigilance in Africa.



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Urgences vitales et catastrophes

Hemou

**EUE** ÉDITIONS  
UNIVERSITAIRES  
EUROPÉENNES



Pitchaki Frédéric Hemou

## Vital Emergency and Disasters in Africa:

from Realities to Perspectives  
Pedagogical Project for Management and  
Health Research

Hemou P et al CIMUVISA-AfCEM, Kigali  
2018

## II - Objectives

- ✦ Providing for vital emergency conditions before transfer to an ICU or resuscitation department
- ✦ Immediate availability of necessary equipment and medications
- ✦ Compulsory seals allowing for the cart to be closed after each use or verification



# Legislative Aspects

**Emergency Cart:** Medicolegal, Regulatory and Ethical Obligation / Avoiding the **failure to assist a person in danger**

Several laws and decrees variable according to each country.

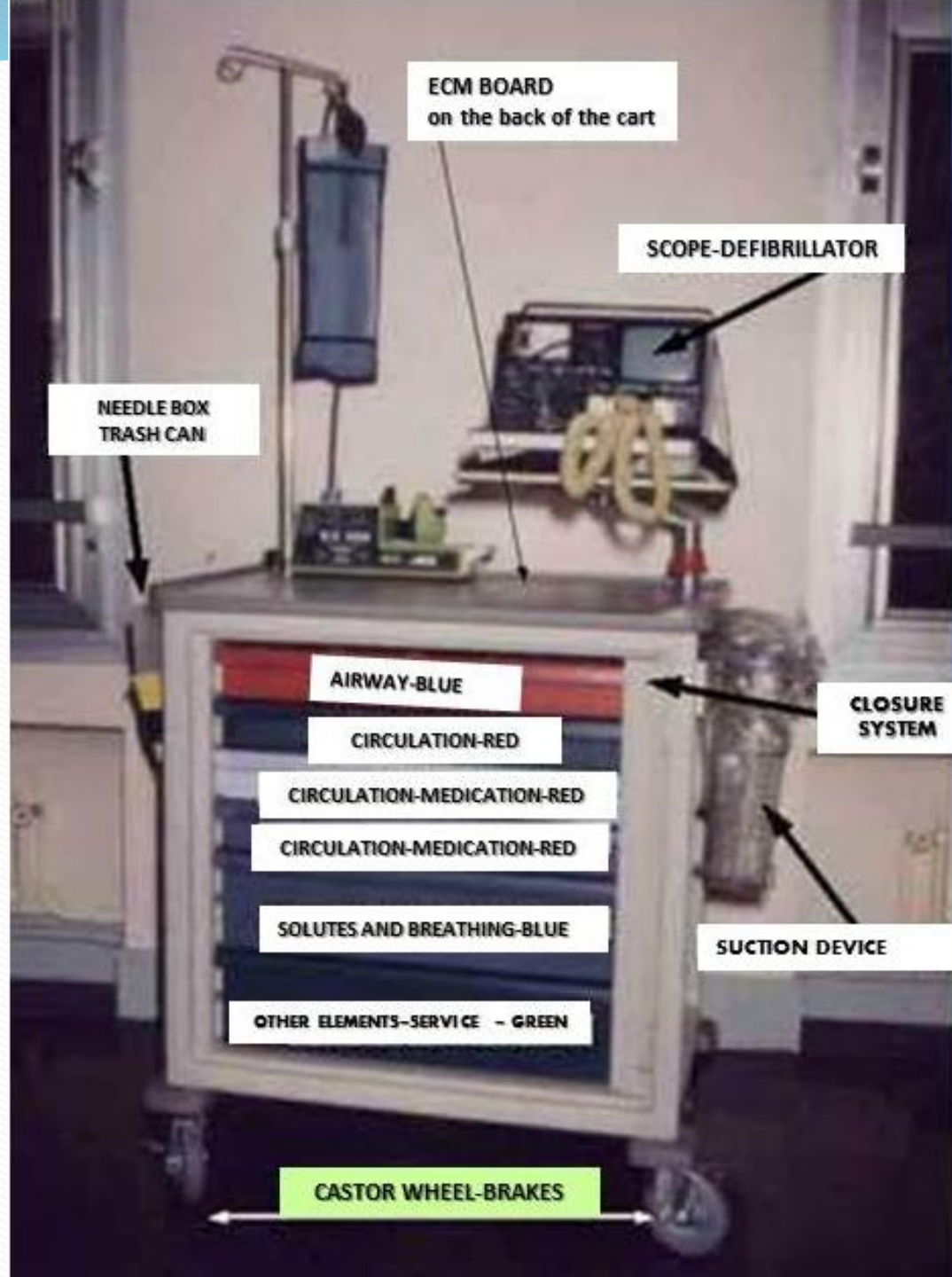
## Laws Related to the Role of the Nurse

- Decree No 2002-194 issued on February 11, 2002 related to Professional Acts and Nursing Practice (State Registered Nurse)
- Decree No 93-221 issued on February 16, 1993 related to Professional Rules as for State Registered Nurses

## Pharmaceutical Regulations

- Decree No 2000-1316 issued on December 26, 2000 related to Pharmacies for Internal Use, amending the Public Health Code
- Decree issued on March 31, 1999 related to Prescription, Dispensing and Administration of Medications Subject to Poisonous Substances Regulation in Healthcare Centers.

# Standard Intra-Hospital Cart



ECM BOARD  
on the back of the cart

SCOPE-DEFIBRILLATOR

NEEDLE BOX  
TRASH CAN

AIRWAY-BLUE

CIRCULATION-RED

CIRCULATION-MEDICATION-RED

CIRCULATION-MEDICATION-RED

SOLUTES AND BREATHING-BLUE

OTHER ELEMENTS-SERVICE - GREEN

CLOSURE  
SYSTEM

SUCTION DEVICE

CASTOR WHEEL-BRAKES

# PRINCIPLE: Accessibility-Functionality

- Cart always accessible, Location known to all
- Ergonomics, Mobility, Rationality (no more than 6 drawers)
- Closing seal (Plastic Lock)
- Dimensions adapted to corridors, passages, or care rooms (example: not exceeding 95 cm high, 80 cm wide 80 cm and 40 cm deep)

★ On top

- Defibrillator (SAD) if possible disengaged in manual mode at best integrated with a multiparameter monitor including SpO<sub>2</sub> and if possible FeCO<sub>2</sub>
- Perfusion stand, self-inflating balloon with valve, receptacle for sharp objects

★ On the side

- **O<sub>2</sub> Shell** with pressure regulator checked and ready for use
- Suction System set up, ready to serve, in plastic bag
- Suction receptacle with pipes

\* On the anterior side

- **Cardiac massage board (or automatic system?)**
- Electrical outlets with extension and circuit breaker



# CONTAINER-CONTENTS

- ★ List of medications and adapted equipment depending on the location
- ★ According to the needs of each department, some medications may be added without overloading the cart
- Role of each actor in the management of the emergency cart
- Paramedic - Health Executive – State Registered Nurse – Care Assistant
- Medical
- Pharmacist
- Logistician
- Maintenance Technician and Engineer

# Content of the Cart

- ★ **A** : Airway = Freedom of the upper airways
- ★ **B** : Breathing = Airing
- ★ **C** : Circulation = Ventilation
- ★ **D** : Drugs = Medications
- ★ **E** : ECG = Electrocardiogram
- ★ **F** : Fibrillation = Defibrillation

# Contents (1)

- \* Drawer 1 : « Airway » and « Breathing » - Intubation tray
  - Guedel cannulas of different sizes
  - Laryngoscope with 2 blades, functional and for single use
  - Batteries and spare bulbs
  - Magill's forceps and Eichmann's mandrel
  - +/- Mouth holder
  - Contact anaesthetic (Xylocaine gel and spray)
  - Intubation probe of different sizes
  - 20ml syringe
  - Nasal O2 probe
  - O2 pipe with bulge
  - Antibacterial filter
  - Ring connection
  - O2 Flowmeter
  - Suction probe (different pits)
  - Kocher's forceps

# Difficult Intubation Tray

- Eschman chuck type guides
- Laryngeal masks of different sizes
- Fast Trach Laryngeal Masks
- Air Traq Device
- Mc GRATH Type Video-laryngoscopy Equipment
- Percutaneous or Surgical Mini-Tracheostomy Equipment
- Location of the FIBERSCOPE ?

# Contents (2)

## \* Drawer 2 : « Circulation »

- Tourniquet, compresses, adhesive plaster
- Peripheral catheters of different sizes
- Needles and syringes (5, 10, 15 & 20 ml)
- Infusion tubing (+ 3 channels)
- Electric Syringe Pump tubings
- Flow regulator
- 3-way stopcock, infusion extension
- Required sampling (gas, ion, nfs ... 2 tubes)
- Tegaderm type dressing, Opsite, Sterilitrip ...
- Antiseptic broad-spectrum fast action type alcohol hibitane or betadine yellow and red or alcoholic (to be replaced systematically after opening, single dose)
- Electrodes
- ECG paste and defibrillation plate adapted



# Contents (3)

## \* Drawer 3 & 4 : « Drugs »

Adrenalin Noradrenalin	Saline	Ventolin spray	<u>On the side</u>	<u>On the side</u>
Atropin Ephedrin	Lenitral	Bricanyl	Lactated Ringer	Ventilation masks
Xylocaine 1% and 2%	Striadyne	Hydro-cortisone	Voluven	Insufflator
Brevibloc Cordarone	Ephedrine	Soludecadron	Plasmion	Sounds/Probes Aspiration/ Extraction
Isuprel	Lasilix	Celestene	Sodium Chloride	Silisonde
Calcium Chloride	Bicarbonate 8.4%	Hypnovel Diprivan	Glucose 5%	Stethoscope
Dobutrex Dobutamin	Heparin Tranexamic acid	Valium Celocurin Magnesium Sulfate	Bicarbonate	Fixing Probe
Natispray	Gluconate Calcium	Etomidate Ketalar		+/- Laryngeal Mask
Loxen Artesunate	30% Glucose	Narcan Anexate		Minitrach Set

# Contents (4)

- \* Drawer 6 : « Other Contents and Services »
  - Non-sterile disposable gloves
  - Sterile surgical gloves
  - +/- Sterile Fields and Blouses
  - Gastric suction handle
  - Backpressure sleeve
  - Pleurocath
  - Catheter for central way
  - Suture (+/- Needle holder)
  - Knife Blade
  - Disposable razors
  - Flash light
  - Specific equipment to be used by the specific Department

# Control - Maintenance - Alert (1)

- ★ Projected Planning (Role of the Health Executive)
- ★ Cart control **at minimum once a month**
- ★ **Oxygen, Laryngoscope Light**
- ★ Easily Accessible, Permanently Functioning **Defibrillator**
  - ★ Must be charged to the sector when not in use;
  - ★ Conductive paste and electrodes always available;
  - ★ Must be cleansed (desinfected) after each use.

# Control - Maintenance - Alert (2)

- \* Weekly controls (and after each use) by the different teams.
- \* Control **Check-list Printout** and attendance sheet available on the Cart.
- \* Monthly Control of Expiry Dates,
- \* **Hygiene:** Cleaning and disinfecting according to written protocols during each control session and a "Deep" Cleaning (inside drawers) every quarter.

# Control - Maintenance - Alert (3)

- Alert: Reporting of any malfunction or serious adverse event (SAE) in the management of a patient
- Sending a "risk management" sheet describing the nature of the incident for the purposes of quality assurance



# Logistics and Pharmacy

- ★ Pharmacies for internal use must ensure all the following missions:
  - Management, supply and dispensing of medications
  - Implementation of the magistral preparations
  - Sterilization of medical devices ...
- ★ The medications are kept in premises, cabinets with a mode of closure

# Healthcare Security, Assignment of Duties and Training

- ★ Initial and continuous training, multidisciplinary and cross-training of actors: importance of simulation exercises
- ★ Duty of updating and improving professional knowledge
- ★ Assignment of Duties: the nurse is authorized to carry out the following care **upon medical, written, qualitative and quantitative, dated and signed prescription:**
  - Placing and removing a short catheter
  - Laying an oxygen probe
  - Blood sample collection through venous or arterial puncture
  - Using a defibrillator and monitoring the patient

# Specific Emergency Carts

- **Emergency kit:** container, miniaturized-type of cart , containing medications and tools for first aid care in case of emergency
- **Syndromic or pathogenic approach according to the Technical Support Center**
- Non-exhaustive specific kits +++++ and Departmental Duties
- Transmissible diseases such as EBOLA, Obstetrics, Traumatology (Skull, Thorax, Abdomen, Limbs, etc.); eg: Immobilization kits, Hemostatic kits, Drainage kits; High Concentration Masks etc.
- **Lots of disasters:** **WHITE PLANS, AMAVI** (Massive reception of many victims) etc.
- **According to geographical approach:** What emergency kit for Africa?

# What emergency Kit for Africa?

*Hemou P & al, 3<sup>ème</sup> All Africa Anesthesia Congress Tunis 2005 (poster)*

- Adapt the composition of kits and carts according to :
- **the local conditions: (ref?)**
  - Prehospital Precariousness
  - Climate and pharmacological constraints: Issues pertaining to the storage of medications (cold chain \*\*)
  - Operational constraints specific to medical evacuations
- Example
- **“Vital Minimum” kit (insert photos for instance)**
- Thermometer, Sphygmomanometer, Dextro Device, Sampling and Infusion Equipment, Guedel cannula, Analgesics, Antiseptics, Adrenalin, Benzodiazepine, Beta 2+ Spray, Antimalarial, Trinitrine, Hypertonic Glucose and Saline Ampoules, Anti-anaerobic Emergency Antibiotic

# Multidisciplinary and Cross-Training of Actors

- Staff training in maintenance, control and use of the emergency cart
- **Simulation +++**
- Logistics Partnerships and Equipment Donation Charter  
(**Specific Form**) based on inventory and Departmental projects
- (Annex)





Hemou P et al CIMUVISA - AfCEM Kigali 2018

# CONCLUSION

- **Emergency Cart:** one of the fundamentals of Emergency Medicine, Anaesthesia and Resuscitation
- Management, Cross-team maintenance
- Need for initial and ongoing training of the members of the teams : Interest SIMULATION
- **Emergency kit:**
- Much lighter and easily transportable in intra-hospital (in-between Departments) as well as in extra-hospital

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