

# **From Emergency Medicine to Disaster Medicine**

Delivering critical care in civil  
conflict and natural disaster

Prof A D Redmond

“Concepts and developments  
in Emergency Medicine”.

1992

# **From Emergency Medicine to Disaster Medicine**

Delivering critical care in civil  
conflict and natural disaster

Prof A D Redmond



## HOW TO DIAL

Before commencing to dial lift receiver and wait for dialling tone (a purring sound)

**1**

INSERT FINGER IN HOLE SHOWING FIRST LETTER OF NAME OF EXCHANGE REQUIRED

**2**

TURN DIAL TO FINGER-STOP

**3**

LIFT FINGER. DIAL WILL THEN RETURN TO NORMAL POSITION

REPEAT FOR 2ND AND 3RD LETTERS OF EXCHANGE NAME AND FOR FOUR FIGURES

---

**FREE EMERGENCY CALLS**  
 DO NOT INSERT COINS. LIFT RECEIVER,  
 DIAL 999 AND ASK EXCHANGE FOR  
**FIRE. POLICE. AMBULANCE**

# It's a continuum

- Multiple problems in one patient
- Multiple problems in multiple patients
- Multiple problems in multiple patients in multiple areas

The principles are the same

# Prepare, Practice and Have a Plan

The approaches that have led to improvements in Resuscitation, Pre Hospital Care, A&E services, Trauma Care and Disaster Management can (and should) be extended to Emergency Humanitarian Assistance

# Emergency Medicine

- College of Emergency Medicine (Governing Body)
- Guidelines and standards (Core Knowledge)
- Approved Training
- A recognised expert (FCEM)
- Data

# Resuscitation

- Resuscitation Council (Governing Body)
- Guidelines and standards (Core Knowledge)
- Approved Training
- A recognised expert
- Data

# Prehospital Care

- Faculty of Immediate medical Care (Governing Body)
- Guidelines and standards (Core Knowledge)
- Approved Training
- A recognised expert (DIMC FIMC)
- Data

# Emergency Humanitarian Assistance

- (Governing Body)
- Guidelines and standards (Core Knowledge) (Sphere Project)
- ?Approved Training
- ??A recognised expert
- ???Data

# The Sphere Project

[info@sphereproject.org](mailto:info@sphereproject.org)

# **An authority for crisis coordination and accountability**

Burkle FM, Redmond AD,  
McArdle DF, Lancet 2012

# Emergency Humanitarian Assistance

- Water
- Food
- Shelter
- Safety

# The South Manchester Accident Rescue Team



# Armenian Earthquake



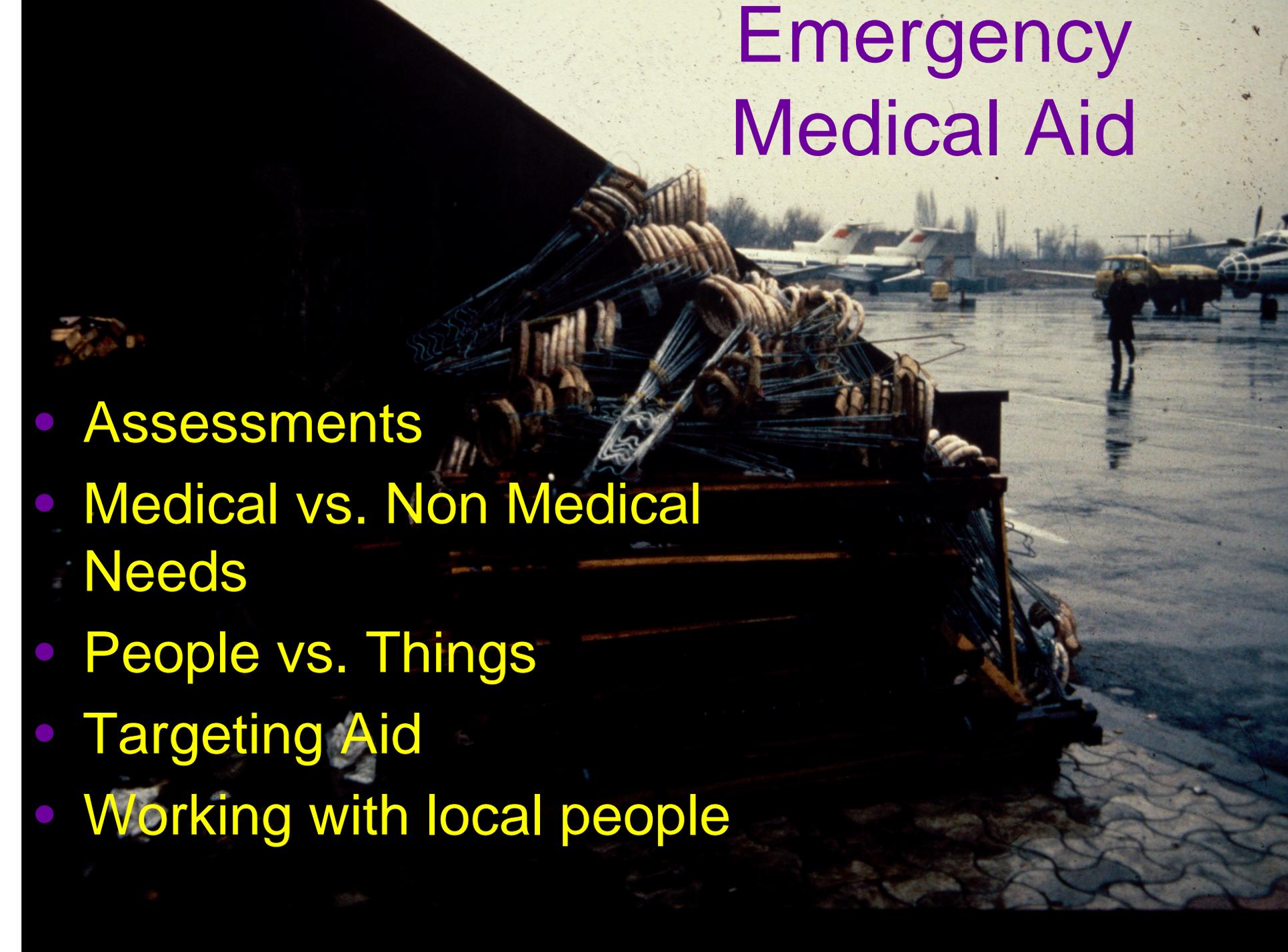
> 25000 killed





# Emergency Medical Aid

- Assessments
- Medical vs. Non Medical Needs
- People vs. Things
- Targeting Aid
- Working with local people





# International SAR

- Most (90%) are rescued by fellow survivors
- Remainder are rescued by national teams
- Few (if any) are rescued by ISAR

# Provided EHA to many places including

- Sarajevo, Serbia and Montenegro, Macedonia, Kosovo
- Africa
  - Sierra Leone, Uganda
  - Kenya, Malawi
  - Cape Verde
- Armenia, Iran, Pakistan, China, Indonesia, Haiti

# The Big Lessons

Only go if you

- are asked
- have specific training
- are self sufficient
- Are registered to practice medicine in that country









## **John Travolta flew his own plane into PaP**

Over 200 scientologists carried out healing by touch

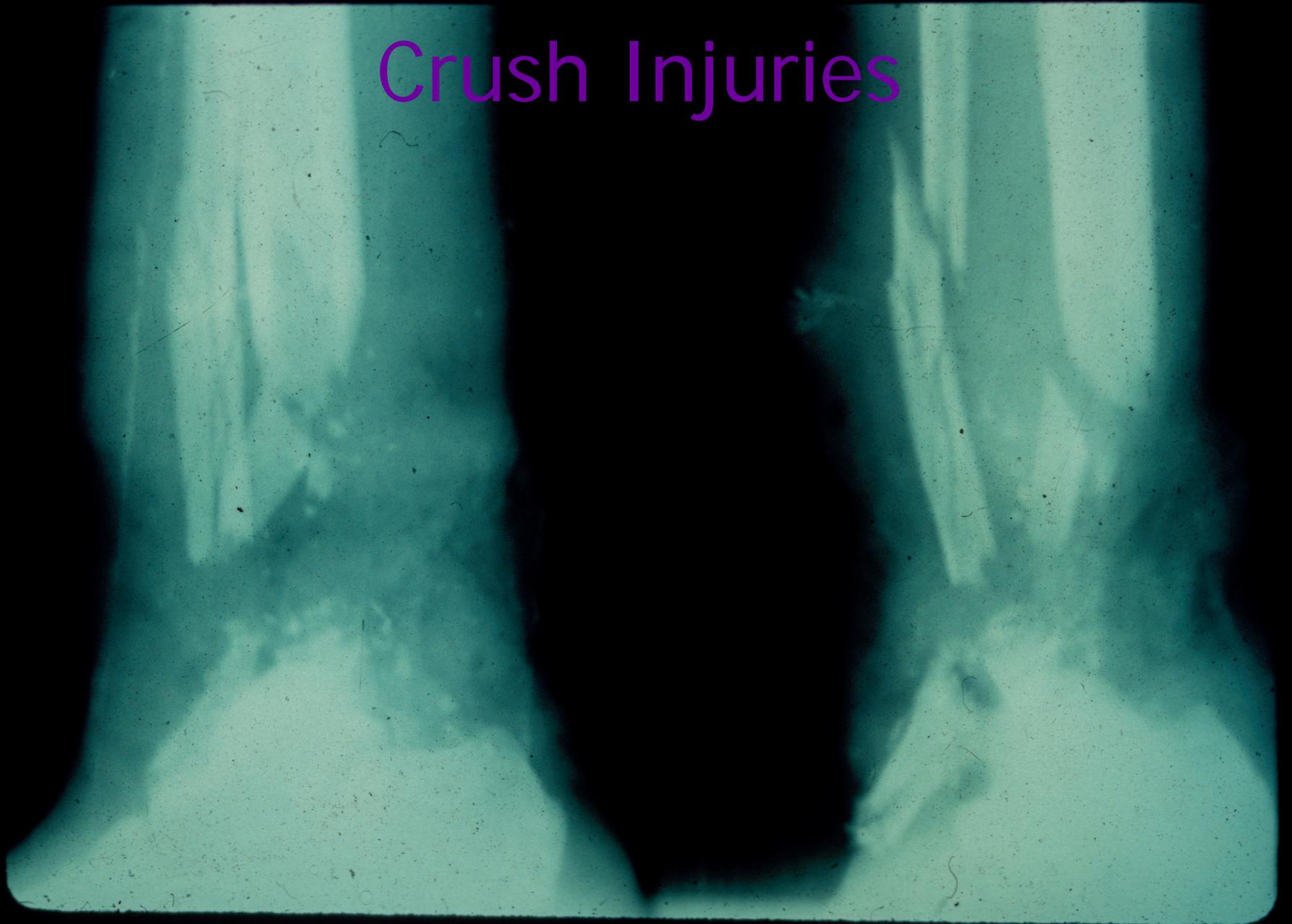




# Earthquake Injuries

- Peripheral limb injuries
- Spinal Injuries
- Amputations

# Crush Injuries







# UK Response

- Core surgical team
- Supported clinically by emergency medicine specialist nurses and physicians
- Supported logistically by Merlin









LOPE DE VEGA TENNIS CLUB

# Waiting Room



# Emergency Room



# Dressing Clinic



# Wards



# laboratory



# Initial Operating Theatre



2 tables



# Second Operating Theatre



# X-Ray



# Orthoplastic Surgery







# Eye Surgery





# UK Team

- 623 major operations in 3 months
- (2/3 under GA)
- 6 amputations (<1%)
  
- China 5.5%-6%
- Bam 0.4%-2.9%-10.8%
- Pakistan 0.6%-3.6%



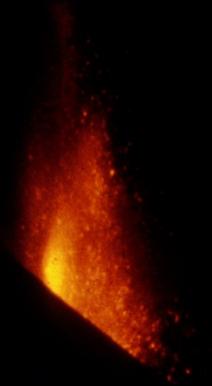




# Natural Disasters







# “Natural” Disaster

- There are natural phenomena
- The disaster is proportional to vulnerability which is
  - Economic
  - Social
  - political

# Conflict





# WHO Office Sarajevo



# High Velocity Gunshot Wounds

# Operating Theatre Sarajevo



# Shelling of Civilians



- 52 years old woman in kitchen
- Hit by shell
- Lost left arm
- Lost right leg at the hip

# Targeting Aid

Taking aid in may reduce the flow of doctors and patients out  
Oxygen concentrators were for a while the only source of medical oxygen

# Intensive Care Unit Sarajevo

- Anti aircraft shell went through-wall to wall-missed patients and didn't explode



# Operation Phoenix



Reconstructive surgery

Eye surgery

Established artificial eye unit

Specialist drugs and equipment

Maintained professional contacts

International solidarity

# Kurdish Refugees



# Tented Hospital



- Landmine injuries
- Typhoid outbreak
- Snake bites
- Meningitis



The special  
needs of  
women  
and  
children

# The Hidden Casualties of War

- The Old
- The already ill
- The mentally ill

# Kosovo 1999-2000



- Hospital trashed
- Packs of dogs eating human remains in hospital grounds
- Bodies liquefied in mortuary
- Gunfights in casualty
- Patients armed with grenade

# Kosovo 1999-2000



- Infant mortality rate reduced by 20%
- ICU mortality reduced by 50%
- New A&E, ICU, Pharmacy
- Hospital repaired
- Artificial Limb Centre Established

# Some Issues

# The emergency response can (should) merge into the development response

The UK medical response to the Sichuan  
earthquake  
Redmond and Li EMJ 2010

# 保护临时家园

中国连锁经营协会理事单位  
波司登  
BOSIDENG  
世界名牌 民族品牌



救灾专用

救灾专用

救灾

生产单位: 浙江波司登羽绒有限公司  
联系电话: 0571-8800-1111  
生产日期: 2003年9月



成都市

诚

医

## National Health Service

- Public-funded system – care free to all, subsidised cost for drugs

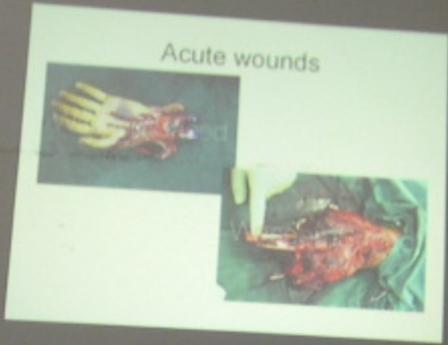
Private sector – small, but growing, mainly through work insurance

Primary Care – all patients registered with GP, from GPs to Acute Services

Secondary Care – medical/surgical services provided in local hospitals

Tertiary Care – specialist medical/surgical services in small hospitals e.g. cardio-thoracics, neurosurgery, PICU, burns etc.

+ 成都市第二人民医院





英国医疗队  
British Medical Team

感谢真诚的国际人道主义援助  
With Sincere Appreciation For Your Humanitarian Assistance

中国四川省5·12汶川大地震抗震救灾指挥部  
Presented by  
5·12 Wenchuan Earthquake Relief Headquarters  
Sichuan Province, the People's Republic of China



# Dealing with the dead



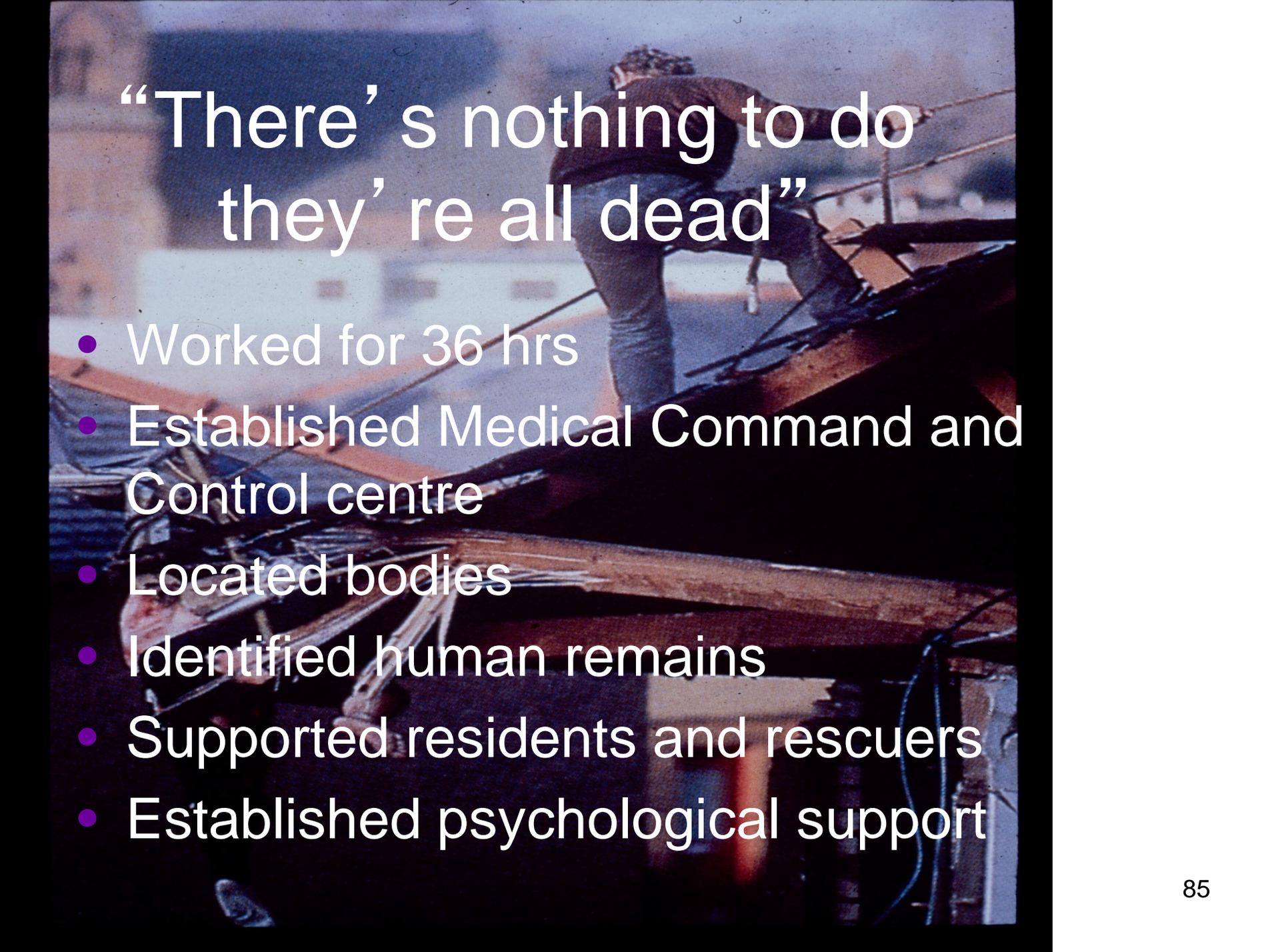
# Epidemics and Disaster

- The unburied dead pose little or no threat to the living
- It is the mass movement of the living into tented cities that produces disease



Goyet “Epidemics caused by dead bodies: a disaster myth that does not want to die”.

Pan Am L Public Health 2004

A photograph of a person in a dark jacket and blue jeans working on the deck of a ship. The person is leaning over a wooden structure, possibly a railing or part of the deck. The background shows a blurred view of the sea and a distant building. The overall tone is somber and focused.

“There’s nothing to do  
they’re all dead”

- Worked for 36 hrs
- Established Medical Command and Control centre
- Located bodies
- Identified human remains
- Supported residents and rescuers
- Established psychological support

# Telemedicine

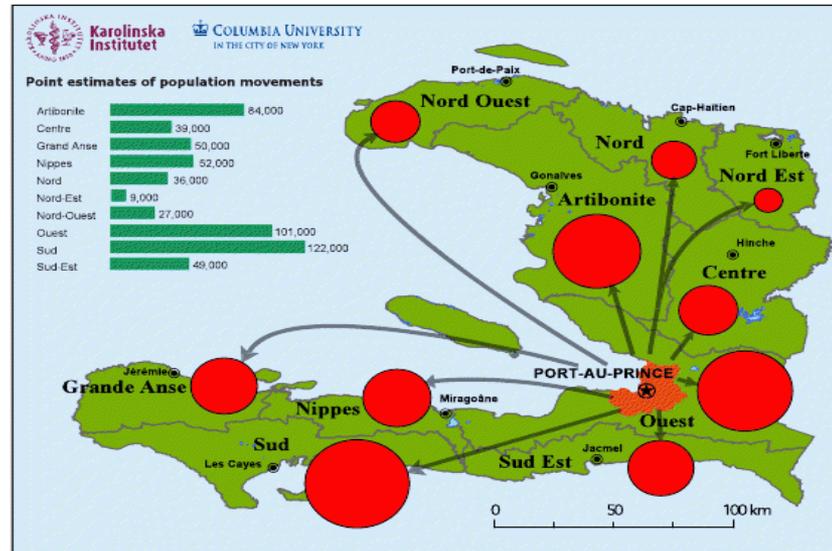
- Gunshot wound to abdomen
- Inappropriate and inadequate first surgery
- Pictures emailed to Manchester before, during and after surgery
- Treatment completed in UK
- Full recovery



## D. Results

### 1. About 570,000 person (22% of the population) had left Port-au-Prince by January 31 st - The destinations of these persons were considerably different from previous assumptions

Map 1 below shows the estimated number of persons who on 31 January had relocated from Port-au-Prince metropolitan area to departments outside.



*Map 1: Estimated number of persons who on 31 January had relocated from Port-au-Prince metropolitan area*

Our point estimate of the overall number of people who left Port-au-Prince (570,000 persons) concurs with a previous OCHA estimate from 17 February (511,000 persons).<sup>3</sup> However the destinations of people displaced from Port-au-Prince are considerably different from what has been previously suggested. It has been assumed that Artibonite had received a third of all displaced persons (163,000 persons or 32% of all displaced) and that Artibonite together with Centre and Grand-Anse were the three top recipients of displaced people from Port-au-Prince. Furthermore the Sud region was assumed to be one of the regions that had received the fewest number of displaced persons from Port-au-Prince (25,000 persons).

In contrast, our results indicate that the largest number of displaced persons seem to have been received by Sud. The top three recipient departments in absolute numbers are,

With modern communications do countries need to invite as many people in (do as many need to go)?

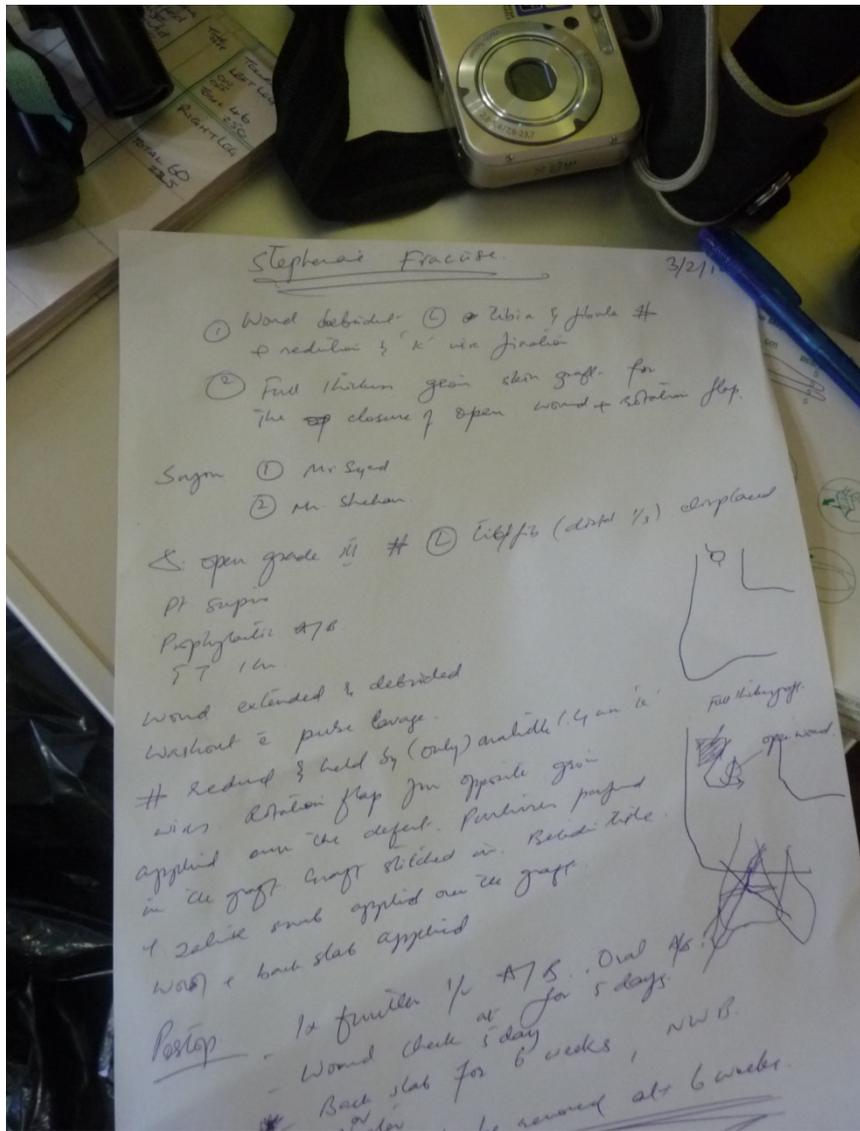


300,000 injured, >4000  
amputations

PAHO/WHO sitrep 18 May 2010

# A Qualitative and Quantitative Study of the Surgical and Rehabilitation Response to the Earthquake in Haiti, January 2010

Redmond et al, Prehospital and Disaster Medicine December 2011 26 : pp 449-456



Stephanie Fracise.

3/2/11

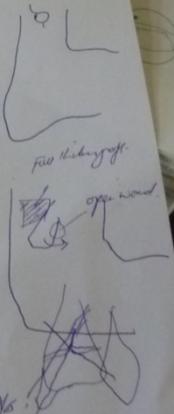
- ① Wound debrided @ 2.5cm x 1.5cm # + reduction of 'x' via fascial
- ② Full thickness groin skin graft for the closure of open wound + rotation flap.

Sayon ① Mr Syed  
 ② Mr Shehan

S. open grade III # ② Uterus (distal 1/3) displaced

PT Supra  
 Prolapsed A75  
 ST 1cm

Wound extended & debrided  
 Washout & pulse lavage.  
 # reduced & held by (only) available 1.4cm x 1.5cm rotation flap from opposite groin applied over the defect. Peritoneum pushed in the graft. Graft sutured in. Bedside title. + Z-plast suture applied over the graft.  
 Wound + back slab applied



Postop - 1x fentanyl 1/4 A75. Oral 40ml  
 Wound check 5 days  
 Back slab for 6 weeks, NWB.  
 \* on low ... 1. removed at 6 weeks.

Medical records

“...there were no physical records accompanying patients to indicate their diagnoses, operations or care plan....”

Peranteau et al J Am Coll surg 2010



# Harvard Humanitarian Initiative: Best Practice for Amputations following Disasters and During Conflict

A meeting of  
experts in  
December 2010 in  
Cuba identified the  
need for an  
international  
initiative

# Recommendations

- The establishment of a Foreign Medical Teams Working Group FMT WG
- Draft Terms of Reference for FMT WG
- That FMT WG oversees international registration of foreign medical teams.

# Commitment

- Adherence to a minimal set of professional and ethical standards and work in support of the national response.
- Fostering onsite coordination with, and accountability to, local health service framework.
- Operational coordination, cooperation and record keeping, data collection, data sharing and appropriate reporting.
- Working only to the competencies for which they are recognised in their own country.
- Supporting the development of a uniform reporting system to facilitate later analysis.
- Securing an organised exit strategy agreed with local health providers.

# Registration

- Providers of teams are formally registered internationally to promote accountability and a level of training, equipment and preparedness that meets an agreed international professional and ethical standard.
- Registration of FMTs is to be seen as the first step on the road to quality assurance.

# Registration

To maintain quality, all countries will be encouraged to fund, support and deploy only those teams that are registered and therefore met internationally agreed standards.

# Humanitarian Emergency Response Review

- Medical teams are 200 times as cost effective as UKISAR
- That is they cost less, stay longer, treat more people and save more lives

The image shows the interior of a medical tent. In the center, a gurney is positioned, facing towards the right. To the left of the gurney, there are several medical monitors and equipment on stands. A green oxygen tank is visible near the gurney. The tent's interior is dimly lit, with light coming from an opening at the far end. The tent's structure is made of dark fabric, and the floor is covered with a dark tarp. On the right side, a white metal frame is visible, with a green curtain hanging from it. The overall scene depicts a temporary medical facility in a field setting.

**UK International Emergency  
Trauma Register**

REDMOND AD, O'DEMPSEY TJ, TAITHE B (2011)  
“Disasters and a register for foreign medical teams”  
Lancet, 377, 1054-55

[www.uk-med.org](http://www.uk-med.org)



# Register

- Maintain current availability of registrants
- Check vaccinations etc
- Ensure deployment within 24 hours
- Liaise with fire and rescue services
- Run training/refresher courses
- Release mechanism with employer

# The aim

Each country

to have a national register

only deploy registered teams

only receive registered teams

To have regionally based teams

# Final Thoughts

# The impact of a disaster

- Is proportional to the vulnerability of those affected
- The poor are always the most vulnerable
- The very poorest are the most vulnerable of all

# Disaster Prevention

- Economic
- Environmental
- Political





**Snipers targeted civilians**

# Negative Effects of Aid

- Distorts local economies
- Relieves burden of provision from local governments
- Creates dependency
- Promotes corruption
- Inappropriate to local needs
- Promotes the superiority of the foreign

“It is a moral and logical fallacy to conclude that because aid can do harm, a decision not to give aid would do no harm.”

Mary B Anderson



Doing  
Nothing  
is  
never  
neutral