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HSSA



Our Little Steps to Improve Disaster Health Management in Indonesia

Ali Haedar

The last 3 big disasters in Indonesia

1. Earthquake @ West Sumatra



On 30 September 2009, a 7.6 RS tectonic earthquake stroke West Sumatra and lead to 1117 death and 3515 injured people

The last 3 big disasters in Indonesia

2. Flash flood @ West Papua



4 October 2010

- claimed **159** lives
- left **123** missing people
- severely injured **250** people
- lightly injured **535** people
- Left **4,000** people homeless
- forced **4,423** residents to seek refuge
- Destroyed **90%** of the town



The last 3 big disasters in Indonesia

3. Mt. Merapi volcano eruption @ Central Java



26 October 2010 17.02hrs, claimed **386** lives, severely injured **2,782** people, lightly injured **62,879** people, forced **399.403** residents to seek refuge



THE INCONVENIENT TRUTH?


What happened on the disaster affected area?

- Victims and refugees did **NOT** receive proper medical care
- **NO** good coordination among Disaster Action Teams
- Responders did **NOT** perform their appropriate roles
- Responder posts were used as the best media for **political parties promotion**
- Responders were **burden** for the affected people





SUGGESTED SOLUTION?



4 steps to perform as a Disaster Medical Action Team; CARE & SAFE (Ali Haedar, 2012)

1. **C**oordination

2. **P**repare Equipment & Tools

3. **B**uild the System

4. **A**rrange the Facilities

Ali Haedar, 2012, 'CARE & SAFE'; a Simple System in Composing Disaster Action Team, 3rd Place Winner for Creative & Innovative Medical Equipment (CIME) in the 19th International Symposium on Critical Care and Emergency Medicine 2012

Haedar, Ali; Maharani, Tri; Ratnawati, Retty. Simple "Care & Safe" Concept for Disaster Action Team - Lessons Learnt from Several Natural Disasters in Indonesia. Prehosp Disaster Med 2013; 28: 11. Doi: 10.1017/S1049023X13000253. ISSN: 1049-023X.

1. Coordination

Disaster Action Team (Team of Emergency & Disaster (TED) of University of Brawijaya):

- 1. Rapid Response Team*
- 2. Rapid Health Assessment (RHA) Team*
- 3. Health Assistant Team*



Rapid Response Team



- The team is expected to move quickly within 0-24 hours after disaster event information, comprising:
- Medical Services:
 - Disaster Standby Brigade doctor (BSB) : 1 person
 - Surgeon : 1 person
 - Emergency Physician : 1 person
 - Emergency Nurse : 2 person
 - Disaster Victims Identification (DVI) : 1 person
 - Pharmacist : 1 person
 - Ambulance Driver : 1 person
- Epidemiologist/Sanitarian: : 1 person
- Communications Officer : 1 person

Team of Emergency & Disaster (TED)
University of Brawijaya

Rapid Health Assessment (RHA) Team




The team can be dispatched simultaneously with the Rapid Response Team or followed in less than 24 hours, led by RHA coordinator , comprising:

- Emergency Physician : 1 person
- Epidemiologist : 1 person
- Sanitarian : 1 person

Team of Emergency & Disaster (TED)
University of Brawijaya

Health Assessment

- Population
- Health & Illness
- Health Facilities
- Clean Water
- Sanitation
- Shelter
- Food – Nutrition
- Communication

 *Think globally, act locally, empower with local capacities*

PIRANTI KAJI CEPAT AWAL

Catatan :

1. Untuk pertanyaan yang tidak relevan untuk keadaan darurat tertentu, tandai kotak bertanda "Tidak sesuai"(Not Applicable)
2. Formulir akan dievaluasi guna membedakan pertanyaan untuk Rumah Tangga (RT), Kelompok Roub (Focus Group), Informan Kunci, dan Observasi

BAGIAN 1 INFORMASI IDENTIFIKASI

1.1 Tanggal Kajian: ___/___/___ (Hari/Bulan/Tahun)

1.2 Tim Kaji:

Nama: _____
Posisi/Jabatan: _____ Organisasi: _____

Nama: _____
Posisi/Jabatan: _____ Organisasi: _____

1.3 Lokasi pengkajian: lokasi yang tercapuk oleh kelainan/formulir ini

Propinsi	Kabupaten	Kecamatan	Desa

Koordinat GPS

Garis Lintang	Garis Bujur	Route

Interview dilakukan di (pilih yang sesuai):

Desa Camp Informal Masjid
 Daerah perkotaan Camp Formal Gereja
 Pusat Kegiatan Sekolah Lainnya: _____

Orang yang diinterview (pilih yang sesuai):

Dink Wanita Kepala Desa Kepala Kesehatan Pemimpin Agama
 Kelompok-kelompok Fokus Warga Pemimpin Informal Pemimpin Camp Formal Guru Sekolah
 Polisi Petani Masyarakat Dan lain-lain (di bawah ini)

1.4 Akses ke lokasi bencana:

Dapat dicapai dengan:

Mobil 2x4 Mobil 4x4 Truk Motor
 Perahu Bergalan Kaki Tidak Ada Akses
 Lainnya

1 | Rapid Health Assessment

Health Assistant Team

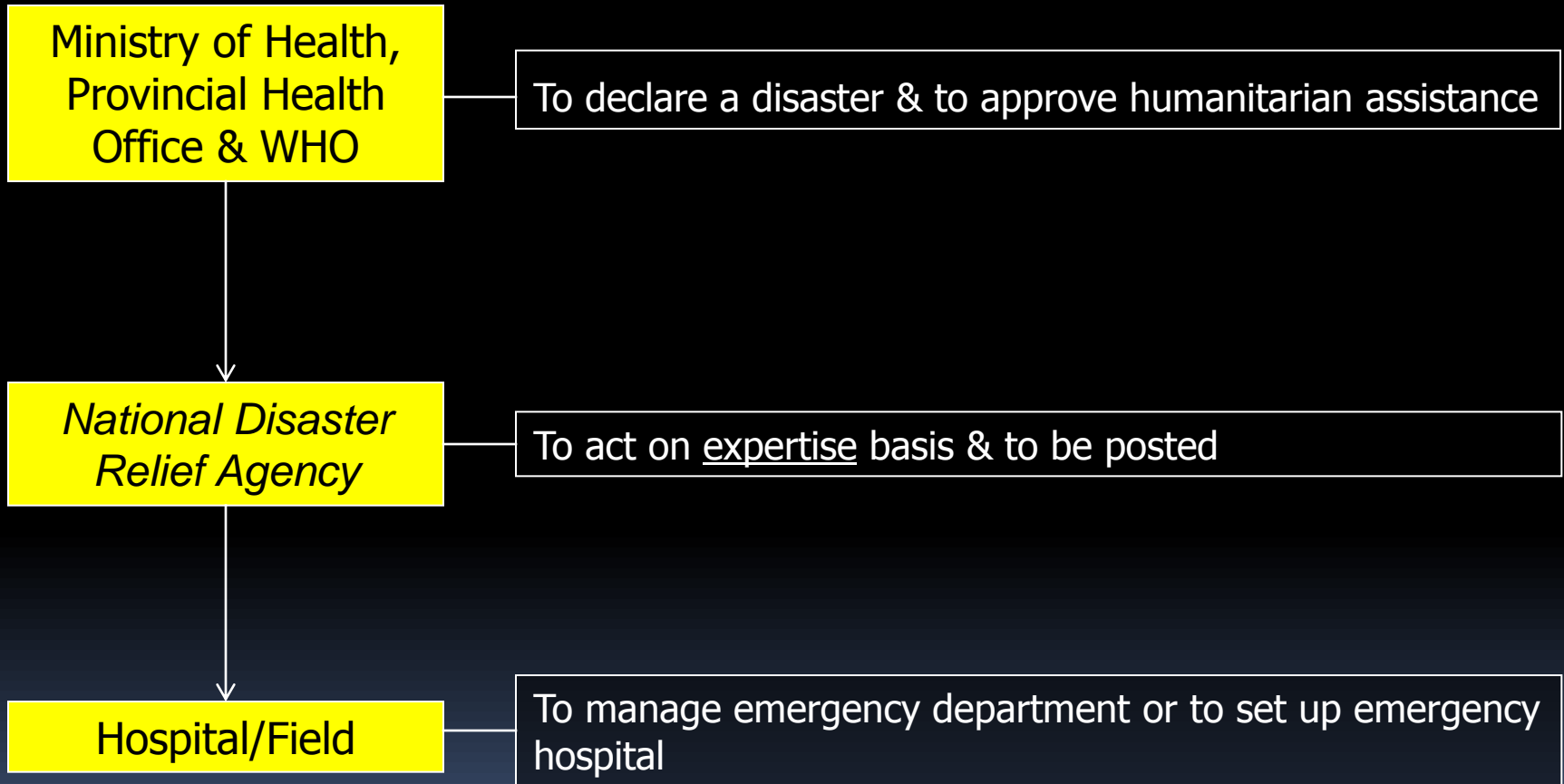


Team of Emergency & Disaster (TED)
University of Brawijaya

This team is dispatched based on the needs from the Rapid Response Team and Team RHA after their return with reports of their activities in the field. Their duty is to provide health services, led by the Field Health Services Coordinator, comprising:

- Emergency physician
- Pharmacist
- EMT
- Emergency Nurse
- Midwife
- Sanitarian
- Nutritionist
- Surveillance

External Coordination



2. Prepare Equipment & Tools



- TED Ambulance
- Emergency Drugs
- Portable Pulse Oxymeter
- Triage Tag (P1-P2-P2, different colors)
- Pts Observation Charts
- Non-Rebreathing Masks (adults & Paeds)
- Nasal Canules (adults & Paeds)
- Nebulizer Masks (adults & Paeds)
- Portable Ventilator
- Airway Management Set
- Oxygen Regulator
- Name tag with logo for team personnel
- TED Vest
- Sterile Gel
- Laboratory Labels
- Sticky Labels
- Disposal Bags (Yellow)
- Trays for paperworks flow
- Rapid Health Assessment
- Sign Boards
- Triage Tag
- Medical Record
- Registration Form
- Observation Chart
- Nursing Progress Note
- Emergency Drug List
- Non-emergency Drug List
- Informed Consent



Personal Equipment

- All DAT disaster workers must wear attire that is professional & appropriate
- DAT identification
- Disaster action team bag equipped with forms, pens, etc.
- A flashlight
- Optional Personal Items:
- Hiking or heavy duty shoes, rubber boots
- Rain gear and other weather-appropriate clothing



Attire for DAT

Health Problems in Wasior Vs National Data

Number of pts in FKUB field hospital aftermath flash flood disaster day 7-14

No.	Health Problems	n	%
1	Upper Respiratory infections	19	42.20
2	Skin infection	6	13.30
3	Headache	4	8.90
4	Irritant Contact Dermatitis	3	6.70
5	Myalgia	3	6.70
6	Malaria	3	6.70
7	Nausea & Vomiting	1	2.22
8	Gastroenteritis	1	2.22
9	Pterygium of eye	1	2.22
10	Contusio of shoulder	1	2.22
11	Unspecified Fever	1	2.22
12	Toxic Effect of Methanol	1	2.22
13	Functional Dyspepsia	1	2.22
Total		45	100.00

Number of pts in all health facilities aftermath flash flood disaster

No.	Health Problems	n	%
1	Upper Respiratory infections	1.675	39.3%
2	Myalgia	727	17.0%
3	Trauma	653	15.3%
4	Skin infection	333	7.8%
5	Cephalgia	258	6.0%
6	Malaria	235	5.6%
7	Gastritis	152	3.6%
8	Gastroenteritis	132	3.1%
9	Eye Disease	58	1.4%
10	Hipertension	40	0.9%
Total		4.264	100%

Top 10 disease in health facilities in Indonesia

No.	Health Problems	%
1	Upper Respiratory infections	52,88
2	Musculoskeletal problems	10,79
3	Chronic respiratory infection	6,27
4	Skin Infection	5,39
5	Skin allergy	5,22
6	Myalgia	5,07
7	Acute Gastritis	4,38
8	Gastroenteritis	4,13
9	Malaria	2,94
10	Other Diarrhoea	2,92
Total		100,00

Haedar, Ali; Maharani, Tri; Donna, Bella; Andarini, Sri.
*Prevalence Study of Health Problems in the Field Hospital Post
 Flash-flood Disaster at Wasior, West Papua - Indonesia.*
Prehosp Disaster Med 2013; 28: s132. Doi:
 10.1017/S1049023X13007000. ISSN: 1049-023X.c

No significant difference of infectious disease pattern!

Rank	Post-Flash flood	National Statistic
1	Upper respiratory infection	Upper respiratory infection
2	Skin infection	Skin infection
3	Malaria	Gastroenteritis
4	Gastroenteritis	Malaria

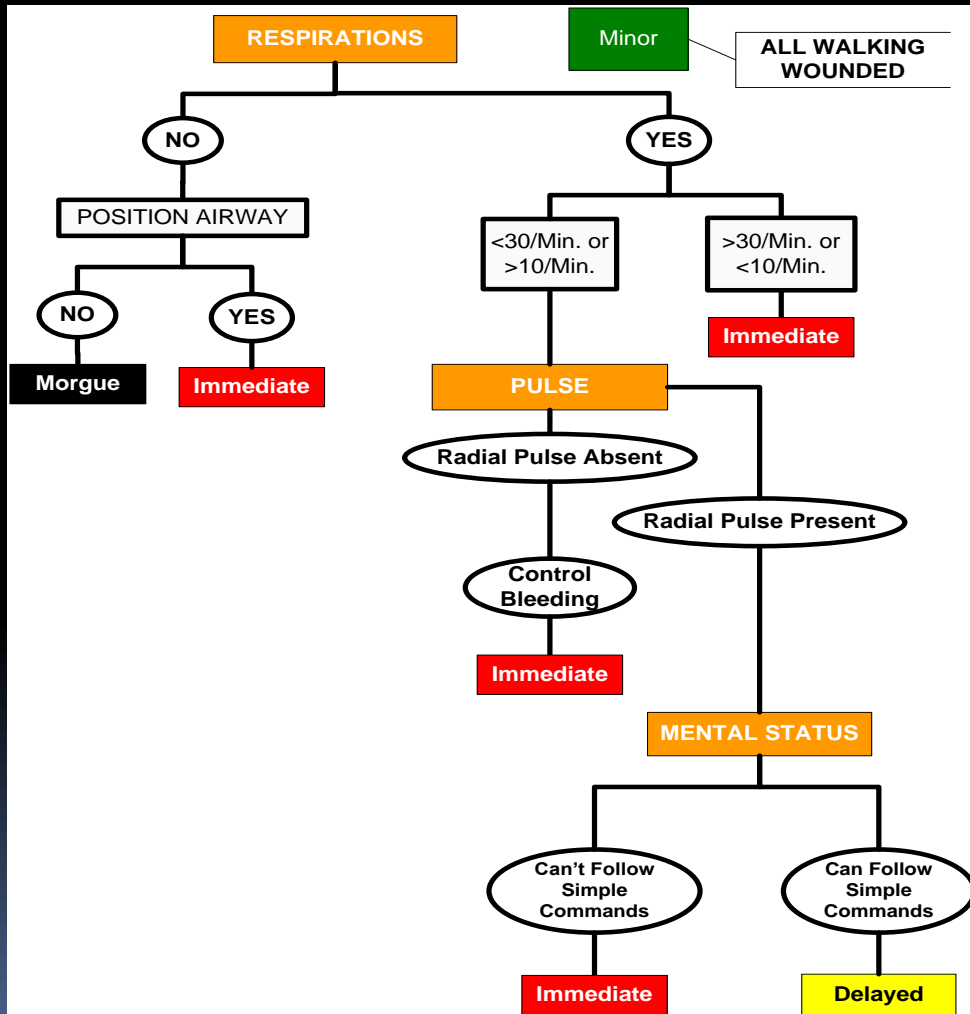
3. Plan the System

Handling of Mass Victims:

- Immediate medical treatment for **large numbers of injured victims** is needed after the disasters.
- The greatest need for **first aid** and **emergency services** appeared in the first few hours.
- Many people are not helped because **absent of the local resources**, including transportation are not mobilized immediately.
- Therefore, **local resources** are crucial in the handling of victims in the emergency phase.

S.T.A.R.T.

(Simple Triage And Rapid Treatment)



Team of Emergency & Disaster

 Faculty of Medicine - University of Brawijaya

 Saiful Anwar General Hospital Malang

Leave the correct Triage Category ON the end of the Triage Tag

Move the Walking Wounded **MINOR**

 No respirations after head tilt **DECEASED**

 Respirations - Over 30 **IMMEDIATE**

 Perfusion - Capillary refill Over 2 seconds **IMMEDIATE**

 Mental Status - Unable to follow simple commands **IMMEDIATE**

 Otherwise- **DELAYED**

MAJOR INJURIES: _____

HOSPITAL DESTINATION: _____

ORIENTED DISORIENTED UNCONSCIOUS

 TIME PULSE B/P RESPIRATION

TIME	PULSE	B/P	RESPIRATION

DECEASED

IMMEDIATE

DELAYED

MINOR



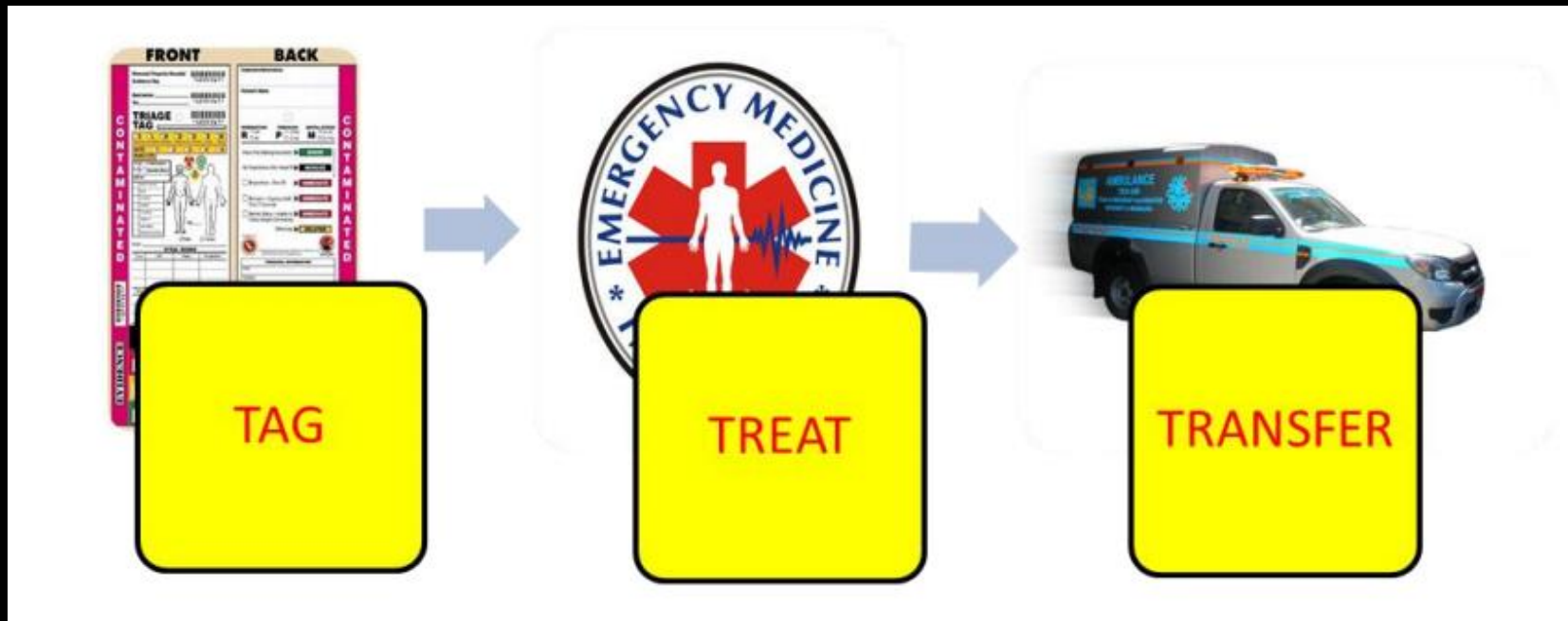
Basic Medical Service Post

First aid carried out by volunteers, fire officers, police officers, personnel from emergency medical team and trained emergency nurses.

First aid can be provided at these following locations:

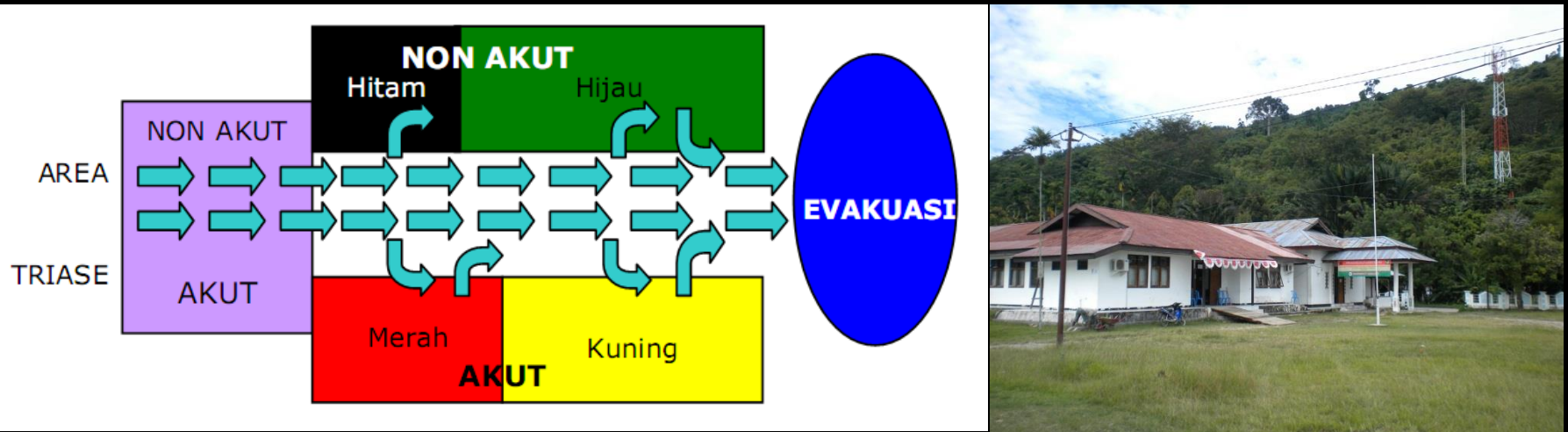
1. Disaster site, before the victim is transferred
2. Temporary shelters
3. In the "green area" of the advanced medical post
4. In the ambulance when the victim was transferred to a health facility

Advanced Medical Service Post



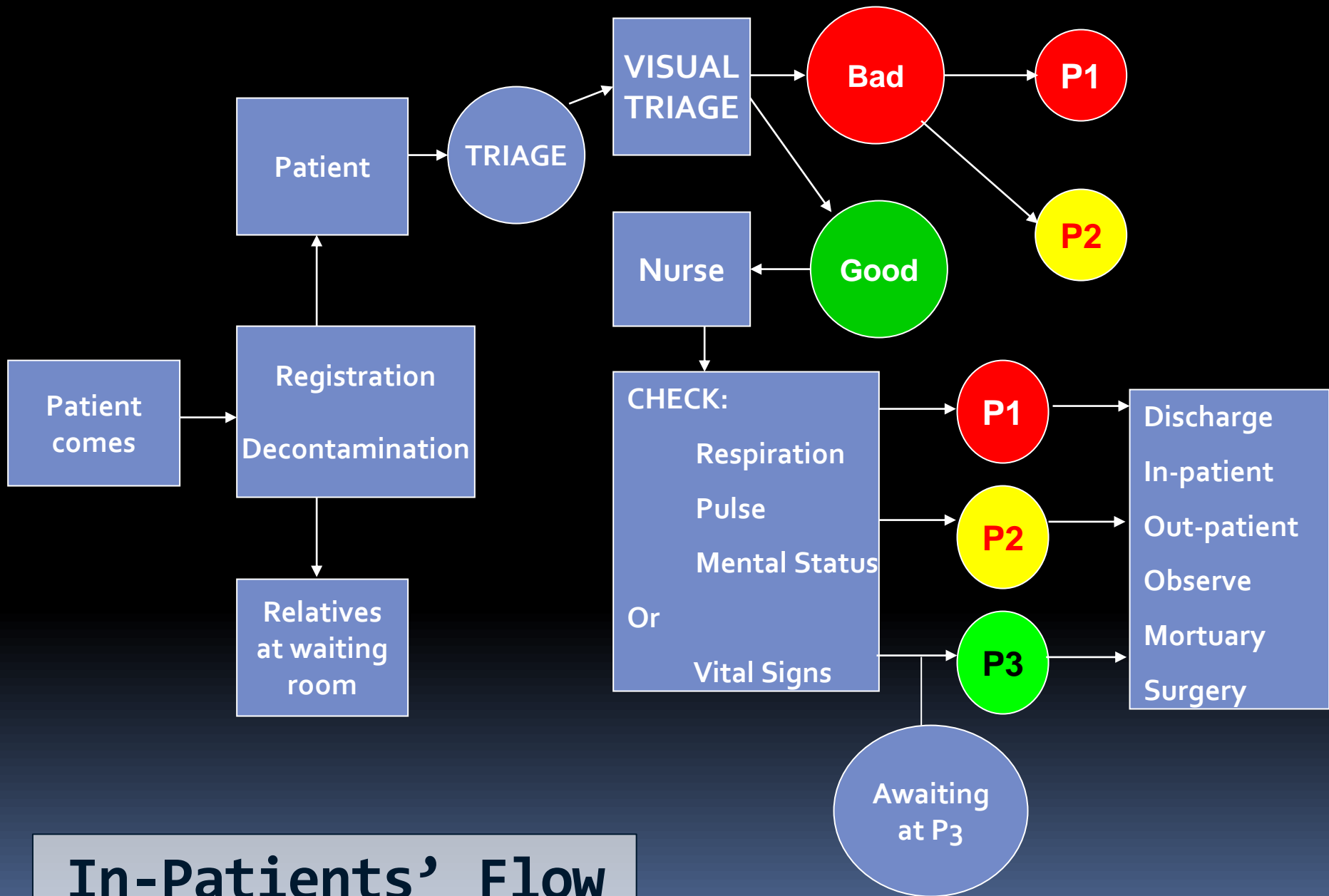
Advanced medical postal established as an effort to reduce the number of deaths by providing effective treatment (stabilization) of the victims as quickly as possible.

Advanced Medical Service Post; including Field Hospital



The internal structure of the advanced medical post basis, consists of:

1. One entrance that should easily be found or identified.
2. One place the victim reception/triage site that can accommodate at most two victims simultaneously
3. One point of care that can accommodate 25 people at the same victim

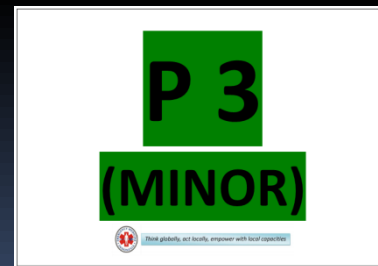
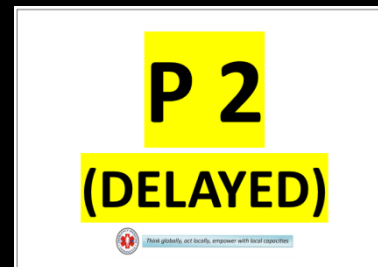


In-Patients' Flow

Sign Boards Templates

(Ali Haedar, 2011*)

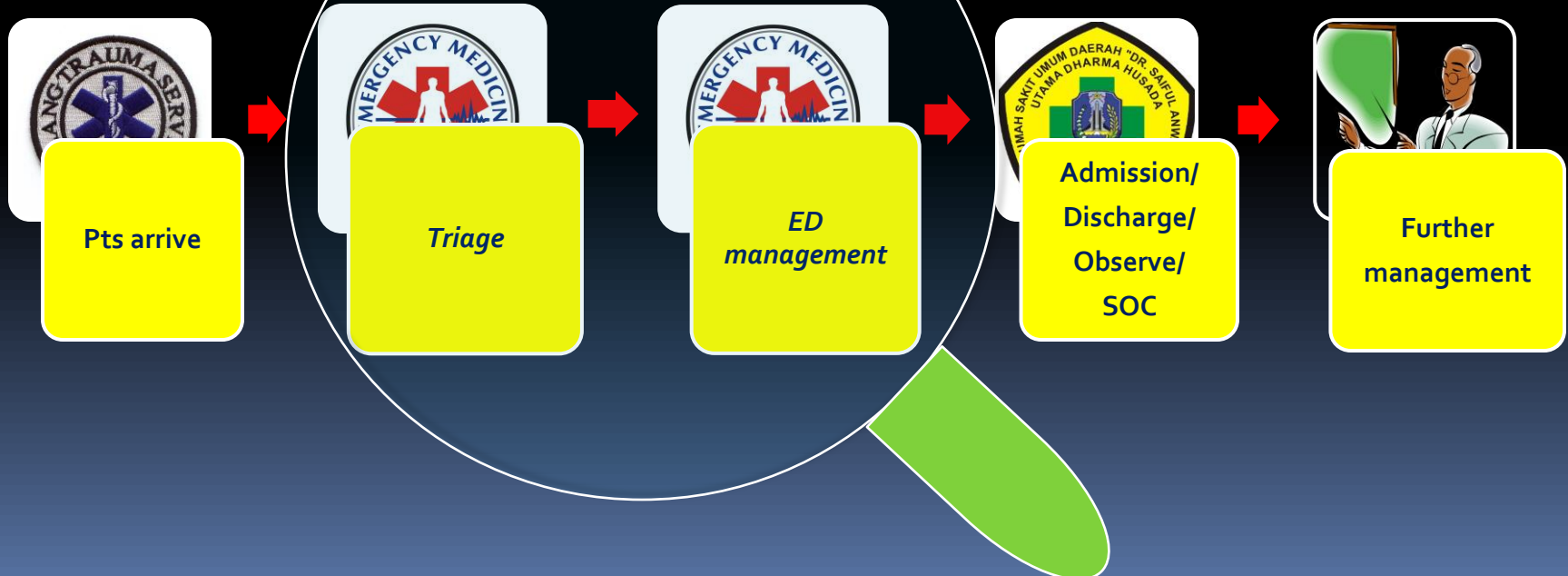
Print, laminate, and attach to the wall!



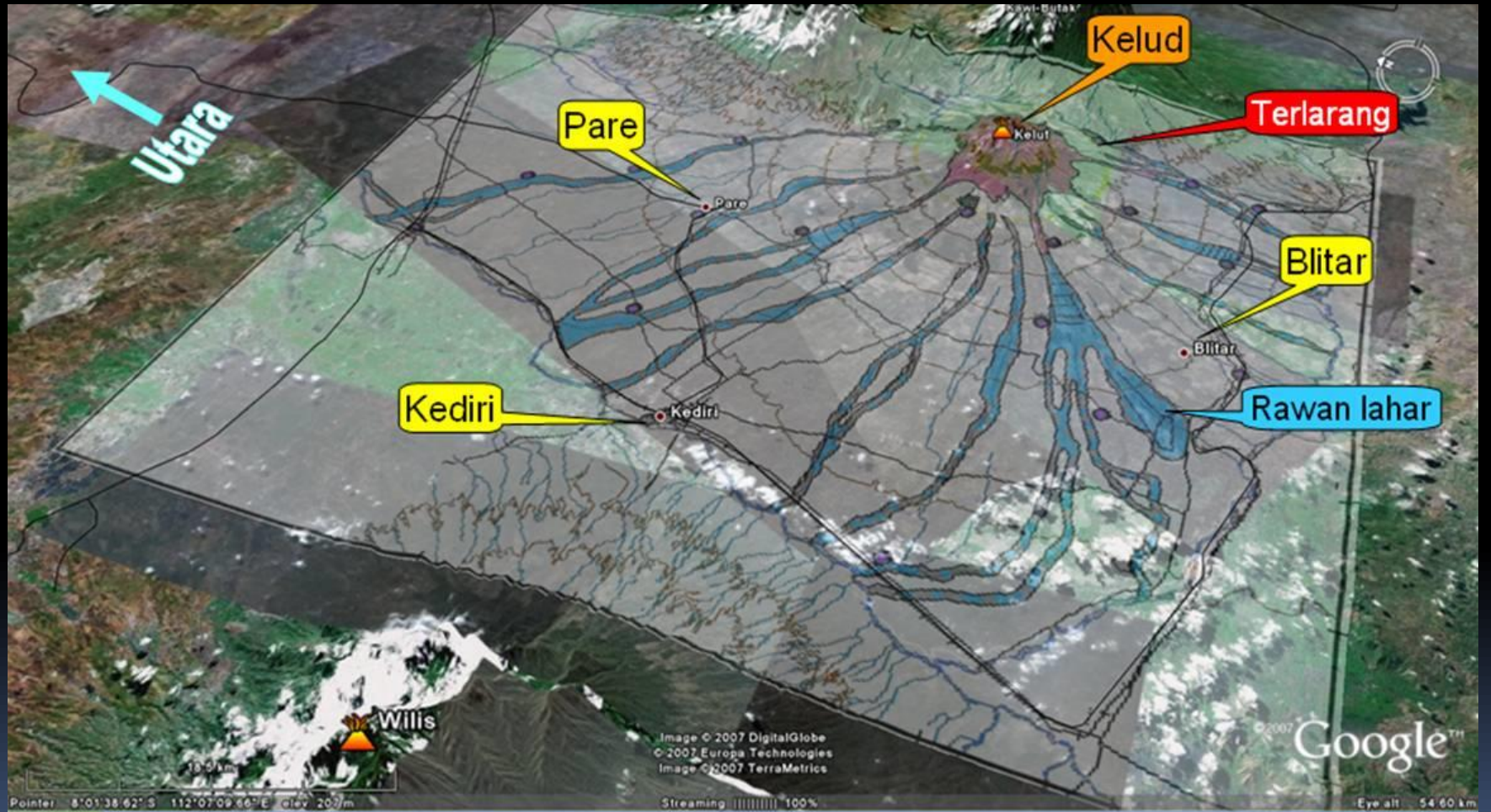
* Ali Haedar, 2011, Template for Emergency Medical Assistance; Lessons Learnt from Several Natural Disasters in Indonesia, 2nd Place Winner for Creative & Innovative Medical Equipment (CIME) in the 18th International Symposium on Critical Care and Emergency Medicine 2011

ED FLOW; *we are not only dealing with number of patients but also...*

Response Time



HAZARD MAPPING



4. Arrange the Facilities



General:

- Command Post
- Information Center
- Public Relation
- Public Kitchen
- Logistic depot
- Volunteer post
- Relatives/Family room

Victims Management:

- Triage
- Minor OT
- OT
- Isolation Room
- Wards
- Intensive-intermediate care unit
- Mortuary

Supporting Facilities:

- Electricity
- Clean water
- Medical gas
- Fuel tank
- Communication system
- Waste disposal
- Air and ventilation

FOOD !!!

General

Command Post



Information Center



Public Relation



Nutrition/Public Kitchen





General

Logistic & Pharmacy



Volunteer Post



Relatives/Family Post



Victims Management

Registration



Triage



Victims Management

P₁ (RED)



P₂ (YELLOW)



Victims Management

P₃ (GREEN)



Minor OT



Victims Management

Ward



Mortuary



Victims Management

Office



Nurse Station



Supporting Facilities

Water Source



Disposal





THE EXPECTED OUTCOME

Significant Patient

Tn. YR/♂/50 th/Wondomawi with Encephalitis dt. Cerebral Malaria (? Falciparum)

A male was referred from primary health service post, brought by ambulance. History of fever since 4/7, loss of consciousness 4/24, & seizure x1 for 30 minutes, lives in malaria endemic area. GCS was E1V1M4, respiratory distress with rate 30x/min, BP 90/70 mmHg, pulse 110x/min, axillar temp 40.5 C, cyanosis, SaO2 76%, severe dehydrated, absent of focal neurologic, and in epileptic state. Results: Despite of minimal equipment and no diagnostic tools, we diagnosed as Cerebral Malaria. We had decided to perform Rapid Sequence Intubation with Succinylcholine, assist breathing with manual positive pressure ventilation, to rehydrate with IV NaCl 0.9% 2L, to stop the seizure with IV drip Midazolam & IV Phenytoin, to administer IV loading Quinine 1 gr & IV drip Quinine 1 gr within 24hrs, antibiotic, antipyretic, to give enteral feeding via NGT & to insert urine catheter.

Haedar, Ali. Managing Cerebral Malaria during Disaster with Minimum Equipment and Tools; A Challenge for Disaster Action Team'. Prehosp Disaster Med 2013; 28: s135. Doi: 10.1017/S1049023X13007097. ISSN: 1049-023X.



The next 3 days... discharged!



Mr YR said “Thank you very much for curing me, I will never forget what you have done. God knows...”



Conclusions

- We need to understand and to set up our role during the disaster
- We should empower local capacities in performing humanitarian assistance
- Research in disaster is important as our evident base in preparing EMS and Disaster Team
- Prepare for the best, expect for the worst



Thank You...