A HOSPITAL IN THE FIELD:
A GAME CHANGER

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• Death or casualty is something inevitable in the war zone or disaster area. Instead of bringing the injured to the medical facilities, we bring the medical support the field hospital to the injured.
Field Hospital

• Def :
  Can be defined as mobile, self contained, self sufficient health care facility capable of rapid deployment to meet immediate emergency requirements for a specified period of time.
  – Can be set up in an existing structure, or in a structure, tent or similar that is brought to the area
Containerisation

• Containerised system for components of deployable field hospital
  – Operation theatres – most common
  – Intensive therapy units
  – Laboratories
  – Imaging suites
  – Central sterile supplies department (CSSD)

• Containerised system is a major enhancement to provide a standard of care as near to peacetime best practice
Purpose

- Provide early emergency medical care
- Provide follow up trauma care, routine emergency and health care
- Act as temporary health care facility
Ideal Field Hospital

• Be operational on site within 24 hours
• Be self sufficient
  – ie - not put demand on logistic support from the affected area
• Be comparable or higher standards of medical care than were available
• Be familial with the health situation and culture of the affected area
General design

• Should include 4 functional component
  – Clinical services
  – Command
  – Administrative support
  – accommodation
• Because they are large and relatively difficult to move, field hospital are not the front line of battlefield medicine

• Batalion Aid Station/Forward support medicine batalion/Forward surgical team are usually the first point of contact medical care for wounded soldiers

• Field hospital receives patient via ambulance land/air, stabilised them for further treatment at fixed facility hospital
Level of medical care in battlefield

• Basic level (first aid)
  – Immediate first aid by nearest person (paramedic)
    • CPR, bleeding control, fracture immobilisation, dressing wound/ bandaging.
    • Casualty transport and evacuation
    • And also communication and reporting
Level 1
• Batalion Aid Post/Forward Surgical Team
  – To do immediate damage control surgery, lifesaving and resus services for patient who will not survive the transport back to FH
  – Therefor placed closed to battlefield
  – So will manage/operate in very austere and often dangerous environment
  – First level of medical care where a doctor is available
  – Limited inpatient services
Level 2
basic field hospital

• Basic surgical expertise available
• Life support services
• Basic imaging/ lab/ pharmacy
• Preventive medicine and dental services

ie. – level 1 plus emergency surgery, damage control, post-op services and HDU
Level 3 advance FH

- Specialised services – plastic recon, neuro, cardio thoracic, maxillofacial
- ICU / HDU
- Specialised diagnostic services ie CT

From our passed experiences, our deployment is between Type 1 and type 2
• General surgeon are the most commonly deployed doctor in the military
  – Mostly in FST or FH
• So its not unusual for military surgeon ie bariatric surgeon to go from performing a SIL sleeve gastrectomy in a state of the art hospital one month to performing a neck exploration for gunshot wound in a poorly lit, non ventilated OT in the jungle of Lahad Datu the next month
Some of our experiences

• Acheh Tsunami 2004
• Yogyakarta Earthquake 2006
• Ops Daulat 2013
Acheh Tsunami 2004

• On 26th December 2004, a great tidal wave (tsunami), the biggest the world has known, caused death and destruction in several countries bordering the Indian ocean.

• The effects of the tsunami was experienced as far a field as the east coast of Africa – Indonesia, Malaysia, Thailand, Burma, Bangladesh, Nicobar & Andaman Islands, India, Sri Lanka, The Maldives, Mauritius, Madagascar and Somalia.
• This tsunami was the aftermath of an earthquake of magnitude 9.1 with its epicenter near the west coast of North Sumatra.
• The entire west coast of the Province of Aceh, at the northern tip of Sumatra, took the brunt of the tsunami.

• The destructive effects of the tsunami reached up to 8 kilometers inland from Banda Aceh to Meulaboh

• Total deaths: > 200,000
Our team:
1 x Anesthetist (Team Leader), 1 x General Surgeon, 1 x Emergency Physician, 1 x Medical Officer, 8 x Operation Theatre Technicians. Added: 7 x Nurses & 2 x Cooks.
Our Friends & Compatriots
Navy, Air Force, Police, Search & Rescue Team (SMART), Fire Services, Ministry of Health (KKM). Non Governmental Organizations: Red Crescent Society, Mercy Malaysia, World Vision,
Setup

- Air Force Hangar
MALAYSIA

展開週

1. 医療用品 : すべての医療用品は用意されます。
2. 保護 : 防护服、ヘルメットが用意されます。
3. 装備 : 分散する装置が用意されます。
4. 訓練 : 通常の訓練が行われます。
5. 救援 : シリーズ1の救援が行われます。
6. 倉庫 : 装備が保管されます。
7. 救援 : 通常の救援が行われます。

救命措置 : この措置は救命を提供します。

救急隊員 : その他の救命措置を提供します。
Going in search of locations to set up the medical center
Locations

• Polyclinic TNI-AU near the airport
• Fakhina Hospital: private hospital: abandoned
• Kasdam, the military hospital
• Hospital Zainal Abidin – civilian hospital
Setup:
The Medical Center
TNI-AU Polyclinic
Cases seen 4000
Medievac x 2
Referred out x 2
Death x 1
• Collaboration with our own organizations -
  – MOH, Bomba Search & Rescue, SMART, Red Crescent Society, Other Voluntary relief agencies
• Collaboration with other medical services
  – Australian field medical team, TNI Kasdam Hospital, USS Mercy, Singapore Armed Forces and many others

For medical expertise, medical support (lab, imaging, blood bank, pharmacy), vector control and hygiene care

SMART – special Malaysian assistance and disaster response team
Yogyakarta Earthquake 2006

• AT APPROX 0600G LOCAL TIME 27 MAY 2006
  EARTHQUAKE OF 6.3 RICHTER SCALE HIT YOGJAKARTA AND ITS SUB-DISTRICTS IN SOUTH CENTRAL JAVA, INDONESIA

• EPICENTRE 6KM OFF THE SOUTH COAST OF SOUTH CENTRAL JAVA ISLAND

• ESTIMATED 5,700 DEAD; 37,000 INJURED; 155,000 HOMES DESTROYED WITH APPROX 370,000 INTERNALLY DISPLACED PERSONS

• WORSE HIT AREA WAS BANTUL 5KM SOUTH WEST OF YOGYAKARTA
Initial Response Team

• ARRIVED BY TWO RMAF C-130 VIA SOLO AT 0430G 28 MAY 2006 LOCAL (WITHIN 24 HOURS OF DISASTER)

• TASK
  – MAKE ASSESSMENT FOR A FORWARD HOSPITAL ESTABLISHMENT
  – AUGMENT SEARCH AND RESCUE MISSION AND PROVIDE FIRST AID
Initial Response Team

– 3 X MILITARY DOCTORS
– 7 X MILITARY PARAMEDICS
– 2 X PR PERS
– 3 X SIGNALS (ARRIVED 29 MAY 2006)
Initial Response Team
• OPTIONS
  – JODOG – ON RECOMMENDATION BY TNI
    • ASSIST TNI- AL (MARINES)
  – RUMAH SAKIT BANTUL AND SLEMAN
    • ASSIST DISTRICT HOSPITAL CASES
CONSIDERATIONS

• JODOG (SMP PANDAK SCHOOL FIELD) – FORWARD HOSPITAL
  – 3KM FROM MAIN DISASTER AREA
  – 5KM FROM BANTUL DISTRICT HOSPITAL
  – EASY ACCESS FOR VICTIMS
  – BOTH OUT-PATIENTS AND IN-PATIENT
  – REQUIRE WATER SUPPLY, ELECTRICITY
  – WORK WITH TNI

• SLEMAN – DISTRICT HOSPITAL
  – 30KM AWAY FROM MAIN DISASTER AREA
  – AWAY FROM VICTIMS
  – IN-PATIENT
  – AVAILABLE WATER AND ELECTRICITY SUPPLY
  – WORK WITH LOCAL HEALTH AUTHORITY
OFFICERS
1 X ANAESTHETIST (CONTINGENT CMDR)
1 X GENERAL SURGEON
1 X ORTHOPAEDIC SURGEON
1 X FLIGHT SURGEON
3 X MEDICAL OFFICERS (1 X LADY MO)
1 X ADMIN OFFICER

NCO
20 X NURSING (4 X LADY PARAMEDICS)
7 X OT TECH (2 X LADY PARAMEDICS)
1 X LAB TECH
2 X X-RAY TECH
2 X HYGIENE
1 X PHARMACIST
Strategies

• WORK WITH THE LOCAL AGENCIES
• MULTI-PRONGED APPROACH
  – OUT-PATIENT CARE
  – IN-PATIENT CARE
  – MOBILE CLINICS
  – DISTRIBUTION OF MEDICAL SUPPLIES AND RELIEF ITEMS
Capabilities

• Mobile clinic – 1 VEHICLE
• Out patient clinic
• 20x in patient beds
• 1 X OT
• X-Ray
• LAB
• Pharmacy
• Hygiene
MASMEDITIM - YOGYAKARTA
DAILY ROUTINE – 24 HOURS MED

- 0530 G - SUNRISE
- 0645 G – PARADE
- 0700 G – CLINIC
- 1200-1300 G – LUNCH
- 1300-1500 G – CLINIC
- 1730 G - SUNSET
- 1900 G – ‘O’ GROUP
- 2000 G – ELECTIVE SURGICAL CASES
- 1500-0700 G – ON CALL
Patients = 3614

- URTI: 38.8%
- WOUNDS: 36.8%
- OTHERS: 10.5%

n = 3614
Major Surgery

- ORTHO PLATING
- ORTHO AMPUTATION
- ORTHO DEBRIDEMENT
- ORTHO K-WIRING
- EX FIX
Military conflict in Sabah

From 11/02/13 - 24/03/13, around 3 weeks

Standoff arose after 200+ militant from the Royal Forces of the sultanate of Sulu and North Borneo arrived by boat in Lahad Datu from Simunul Island in Southern Philippines

– their objective – to assert the unresolved territorial claim of the Philippines to Eastern Sabah.

Several weeks of nego and unmet deathline for the intruders to withdraw, the Malaysian security forces attacked, routed the Sulu militants
Mission – to give medical services to

ATM

Friendly Team

Local

Injured enemy
Our team

- **Forward surgical team – level 1+**
  
  (5 officers and 20 other ranks)

- **Combat stress reaction team**
  
  pre-deployment, intra-deployment and also counselling to family

- **Primary health care**

- **Dental and dental forensic**

Holistic approach
JENIS PENYAKIT

n = 627

TREND PENYAKIT

- SALURAN PERNAFASAN: 24.4% (153)
- SAKIT KULIT: 5.7% (389)
- TEKANAN DARAH: 1.4% (9)
- SAKIT USUS: 5.4% (36)
- DEMAM: 9.4% (59)
- OTOT SENDI TULANG: 5.1% (32)
- SAKIT KEPALA: 23.1% (145)
- CIRIT BIRIT: 20.7% (130)
- SAKIT GIGI: 24.4% (153)
KIA/WIA

TREND KECEDERAAN

- KIA GSW: 9.1% (1)
- KIA MVA: 9.1% (1)
- WIA GSW/SPLINTER: 18.1% (2)
- WIA MVA: 54.5% (6)
- WIA FALL: 9.1% (1)

n = 11
Other activities…
Some of KKD experiences…

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Complete list of countries / territories below:

- Battagram
  - October 05 - January 06
  - Earthquake

- Chamman
  - January – April 02
  - War Refugees

- Tacloban
  - November 13
  - Supertyphoon Nargis

- Myanamar
  - May 08
  - Cyclone

- Aceh
  - December 04 – March 05
  - Tsunami

- Padang
  - October 09
  - Earthquake

- Yogakarta
  - May – June 06
  - Earthquake

- Flores
  - December 92
  - Tsunami
Thank You