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Tarikh : 4hb. Disember 2001

Pengarah Kesihatan Negeri.....

Pengarah
Hospital Kuala Lumpur

Pengarah
Hospital Selayang

Y.Bhg Dato'/Datin/ Tuan/Puan.

Surat Pekeliling Ketua Pengarah Kesihatan Malaysia Bil.12/2001.

Pelan Tindakan Umum Bencana Untuk Hospital-Hospital Dibawah Kementerian Kesihatan Malaysia.

1. Tujuan.

Perkeliling ini bertujuan untuk memaklumkan pelan tindakan umum bencana untuk hospital-hospital Kementerian Kesihatan Malaysia sebagai panduan untuk menguruskan segala jenis bencana yang mungkin berlaku didalam dan luar hospital.

2. Latar belakang

Arahan supaya setiap hospital mengadakan pelan tindakan bencana telah dikeluarkan dalam tahun 1987 melalui surat bil. (54) dlm KKM-87(45/1) Bhg 6 oleh Pengarah Perkhidmatan Perubatan. Dalam tahun 1997 melalui Arahan 20 Majlis Keselamatan Negara, satu bengkel telah diadakan dimana kebanyakan hospital kerajaan telah menghasilkan pelan tindakan bencana daerah masing-masing.

Walau bagaimana pun kajian ringkas keatas 20 hospital di Semenanjung menunjukkan beberapa masalah didalam implimentasi arahan tersebut. Di antara isu-isu yang dikenal pasti mengenai pelan yang sedia ada, adalah

2.1 Ianya bersifat *stand alone*, iaitu tanpa mengira *networking* dengan hospital berhampiran
2.2 Tindakan pentadbiran yang tidak jelas
2.3 Tidak seragam mengikut katergori perkhidmatan kecemasan yang terdapat dalam perkembangan perkhidmatan kecemasan.
2.4 Prosidur kerja dan peralatan yang tidak dikenal pasti dengan jelas
2.5 Latihan amali atau *table top* tidak dilaksanakan
2.6 Pelan yang ada tidak dikemaskini. selain dari itu terdapat kemunculan bahaya selain bahaya fizikal seperti radiasi, biologi dan toksik.
2.7 Pelan yang ada tidak mengambil kira kegiatan pasukan perubatan yang pada masa ini meliputi kerja-kerja mencari dan menyelamat.

Oleh itu satu pelan tindakan umum telah diadakan, hasil kerjasama ketua-ketua jabatan/ unit kecemasan hospital bersama dengan Jabatan Bomba, Polis, Tentera dan SMART.

3. Garispanduan Pelan Tindakan Umum Bencana Untuk Hospital-Hospital Dibawah Kementerian Kesihatan Malaysia.

Pelan tindakan umum bencana meliputi perkara seperti berikut

3.1 mengenal pasti hospital yang bertanggung jawab dan sistem *networking.*
3.2 proses pentadbiran dan klinikal serta tindakan susulan persiapan di hospital
3.3 tindakan dan tugas di tempat bencana
3.4 syarat untuk bertugas bersama kumpulan mencari dan menyelamat
3.5 keperluan peralatan mengikut kategori perkhidmatan kecemasan hospital
3.6 latihan
3.7 keperluan hospital mengenal pasti risiko bencana di daerahnya supaya senantiasa bersedia.

4. Tarikh berkuat kuasa

Garispanduan ini berkuat kuasa pada tarikh surat ini dikeluarkan.

5. Tindakan

Pengarah Kesihatan Negeri adalah bertanggung jawab mengedarkan pekeliling ini kesemua hospital dibawah pentadbiran Y.Bhg Dato'/Datin/Tuan/Puan.

6. Pertanyaan

Sebarang pertanyaan dan permasalahan dalam mengimplimentasikan garispanduan ini hendaklah dirujukkan kepada

Pengarah Perkembangan Perubatan
Bahagian Perkembangan Perubatan
Cawangan Perkhidmatan & Kepakaran
Jalan Cenderasari
Kementerian Kesihatan Malaysia
Kuala Lumpur.

Sekian, terima kasih

BERKHIDMAT UNTUK NEGARA

Saya yang menurut perintah

(DATU DR. HAJI MOHAMAD TAHA BIN ARIF)
Ketua Pengarah Kesihatan Malaysia
Kementerian Kesihatan Malaysia.

s.k. : - Timbalan Ketua Pengarah Kesihatan (Perubatan)

- Timbalan Ketua Pengarah Kesihatan (Kesihatan Awam).

- Timbalan Ketua Pengarah Kesihatan (Penyelidikan dan Sokongan Teknikal).

- Pengarah Bahagian Kawalan Penyakit.

KERTAS KERJA CADANGAN PROSEDUR

PELAN TINDAKAN UMUM BENCANA UNTUK HOSPITAL-HOSPITAL DI BAWAH KEMENTERIAN KESIHATAN MALAYSIA

Disediakan oleh :

Cawangan Perkembangan Perkhidmatan Perubatan & Kepakaran
Bahagian Perkembangan Perubatan
Kementerian Kesihatan Malaysia.

KERTAS [1]KERJA CADANGAN PROSEDUR

PELAN TINDAKAN UMUM BENCANA UNTUK HOSPITAL-HOSPTAL DI BAWAH KEMENTERIAN KESIHATAN MALAYSIA

1. TUJUAN

Tujuan kertas kerja ini adalah untuk menggariskan panduan akan tatacara penyeliaan bencana di hospital-hospital kerajaan.

2. LATAR BELAKANG

2.1. Takrifan Bencana

Arahan 20 Majlis Keselamatan Negara (MKN) mendefinasikan bencana sebagai satu kejadian yang berlaku dengan tiba-tiba menyebabkan kemusnahan harta benda yang besar, kehilangan nyawa yang ramai dan gangguan kehidupan harian sesebuah masyarakat. Tiga agensi utama yang dikenal pasti sebagai agensi utama adalah Polis, Bomba dan Kementerian Kesihatan Malaysia.

2.2. Keadaan Semasa

Arahan supaya setiap hospital mengadakan pelan tindakan bencana telah dikeluarkan dalam tahun 1987 melalui surat Bil.(54)dlm. KKM-87(45/1) Bhg.6 oleh Pengarah Perkhidmatan Perubatan. Melalui Arahan 20 Majlis Keselamatan Negara satu bengkel telah diadakan untuk menyediakan pelan tindakan bencana berlandaskan tugas-tugas yang ditetapkan di dalam arahan tersebut. Hasil dari bengkel tersebut kebanyakan hospital kerajaan telah secara individu menghasilkan pelan tindakan bencana daerah masing-masing.

Terdapat beberapa buah hospital yang telah menghantar pelan tindakan bencana mereka ke Bahagian Perkembangan Perubatan. Kajian temu bual (bulan Ogos 2001) ke atas 20 hospital di Semenanjung telah dibuat untuk mendapatkan data asas implementasi arahan mengadakan pelan tindakan bencana. Kajian tersebut menunjukkan 15 hospital yang dikaji mempunyai pelan tindakan bencana. 10 dari pelan bencana tersebut dihasilkan dalam tahun 1997. Lima hospital yang mempunyai pelan tindakan bencana tidak melakukan latihan amali dalam masa 2 tahun kebelakangan ini.

Peralatan yang ada untuk bencana adalah terhad kepada peralatan ubatan (drugs/bandages/ IV fluids/ portable ventilator). Ianya merupakan peralatan asas rawatan dalam keadaan kecemasan.

[2]Walaupun sampel yang diambil adalah kecil dan tidak boleh dijadikan asas keputusan, ianya jelas menunjukkan terdapat masalah dalam kesiapsiagaan hospital-hospital dalam menghadapi bencana.

3. ISU-ISU YANG DIKENAL PASTI

Hasil dari kajian atas pelan tindakan bencana yang dikemukakan, kajian ke atas 20 hospital di Semenanjung Malaysia dan bengkel ke atas kesiapsiagaan bencana di Port Dickson pada 2 - 4 Mei 2000, beberapa isu implimentasi telah dikenal pasti seperti berikut :

3.1. Pelan yang dikemukakan **bersifat 'stand alone'**. Ianya lebih menitikberatkan tindakan Jabatan Kecemasan dan bukan tindakan hospital. Ia juga bersifat bersendirian tanpa mengira 'networking' hospital yang berhampiran.

3.2. Pelan tindakan tersebut lebih menitikberatkan respon klinikal dimana **tindakan pentadbiran tidak berapa jelas.**

3.3. Ianya **tidak seragam** antara satu sama lain mengikut kategori hospital seperti yang dirancang dalam perkembangan perkhidmatan kecemasan dalam Rancangan Malaysia Ke-8.

3.4. Prosedur kerja dan peralatan tidak dikenal pasti dengan jelas.

3.5. **Latihan** warga kerja dalam bencana tidak sempurna.

3.6. Pelan yang dikemukakan menitikberatkan bencana fisikal yang mana dengan pembangunan pesat negara punca bencana meliputi bahaya toksik, radiasi dan biologi seperti keadaan Nipah di Negeri Sembilan baru-baru ini.

3.7. Pelan tindakan bencana yang dikemukakan tidak mengambil kira perubahan konsep Arahan 20 MKN yang mana kegiatan pasukan perubatan diperluaskan dari menerima mangsa untuk dirawat kepada mengambil bahagian dalam kegiatan mencari dan menyelamat.

3.8. Ianya tidak mengambil kira keadaan dimana berlaku **'mass casualty'** yang lebih kerap dialami oleh perkhidmatan perubatan seperti perlanggaran yang melibatkan ramai mangsa.

3.9. [3]Peralatan yang sedia ada tidak mencukupi untuk membantu pasukan perubatan dalam kegiatan mencari dan menyelamat.

4. CADANGAN

Bengkel Kesiapsiagaan Tindakan Bencana di Port Dickson telah melibatkan agensi-agensi lain yang menyelia tindakan bencana iaitu Bomba, Polis, Angkatan Tentera dan Pasukan SMART. Bahagian Kesihatan Awam juga memberi input hasil dari pengalaman mereka semasa menghadapi Virus Nipah. Cadangan untuk mengatasi isu di atas telah dikemukakan dan dikumpulkan untuk dijadikan Garispanduan Pelan Tindakan Bencana Umum Untuk Hospital-hospital Kementerian Kesihatan Malaysia (Lampiran 1). Ianya meliputi :

i. Mengenalpasti hospital yang sepatutnya bertanggungjawab dan tugas setiap jawatan kritikal.
ii. Mengenal pasti proses pentadbiran dan klinikal bencana dan tindakan susulan persiapan di hospital.
iii. Tindakan dan tugas di tempat bencana.
iv. Syarat-syarat untuk mengikuti kumpulan mencari dan menyelamat.
v. Peralatan asas dan peralatan yang ditempatkan di hospital regional.
vi. Keperluan latihan warga kerja yang terlibat dalam kordinasi bencana.
vii. Keperluan setiap hospital mengenal pasti risiko bencana di daerah masing-masing dan hospital skunder.

viii. Keperluan latihan amali sama ada secara 'table top' (senario driven discussion) atau secara amali.

[4]Secara ringkasnya cadangan tersebut adalah seperti berikut:

4.1. Hospital Tindakan Primer Bencana

Ianya ditakrifkan sebagai hospital utama yang akan mengendalikan bencana. Di kebanyakan keadaan hospital terdekat akan merupakan hospital tindakan utama semasa kejadian bencana. Hospital Rujukan akan dijadikan hospital tindakan skunder yang selalunya adalah hospital rujukan hospital primer.

4.2. Peranan Bahagian Pentadbiran dan Bahagian Klinikal

Pengarah Hospital dikenal pasti sebagai koordinator hospital yang di antara tugas adalah untuk mengisytiharkan bencana dan mengkordinasi aktiviti dalaman dan dengan agensi luar.

Pegawai Pentadbir bersama Penyelia Hospital dan Penyelia Jururawat dikenalpasti sebagai kordinator pentadbiran. Pakar Bedah atau Pakar Perubatan Kecemasan ditugaskan koordinator klinikal. Di hospita tanpa pakar, pegawai perubatan y/m kecemasan dilantik sebagai kordinator.

Pegawai Perubatan berpengalaman akan ditugaskan di kawasan bencana. Pegawai ini merupakan pakar atau mereka yang arif dengan tindakan di tempat bencana.

4.3. Pengisytiharan Bencana

Satu sistem pengisytiharan bencana dikemukakan dan tindakan susulan di hospital digariskan. Tindakan hospital merupakan :

- Panggilan warga kerja untuk bersiap sedia di hospital.
- Pembukaan bilik operasi pentadbiran dan bilik operasi klinikal.

- Pembukaan zon rawatan mengikut kategori kecederaan, zon menunggu, zone informasi, zon 'bereavement' dan zon meletakkan mayat.

4.4. [5]Tindakan Di tempat Bencana

2 pasukan perubatan disarankan dihantar ke tempat kejadian. Pasukan 1 bertugas menyediakan perkhidmatan perawatan di tempat bencana sementara pasukan 2 bertugas bersama pasukan mencari dan menyelamat agensi lain. Syarat-syarat untuk pasukan perubatan mengambil bahagian dalam tugas mencari dan menyelamat adalah seperti berikut :

- Warga kerja kesihatan yang dilatih dalam tugas mencari dan menyelamat.
- Pasukan perubatan mempunyai peralatan keselamatan yang berpatutan dengan bencana.
- Keselamatan kawasan bencana adalah stabil.
- Keadaan dimana terdapat pesakit tenat terperangkap di kawasan bencana.

4.5. Penempatan Peralatan Asas dan Khas

Peralatan yang disediakan boleh dibahagi kepada 3 kumpulan itu :

i. Peralatan rawatan di tempat kejadian seperti khemah, ubatan, katil mudah alih dan sebagainya.
ii. Peralatan keselamatan warga kerja yang bertugas.
iii. Peralatan untuk digunakan usaha menyelamat.

Pembekalan peralatan berlandaskan faktor berikut:

i. Kategori Jabatan Kecemasan dimana Jabatan Kecemasan 1a ke 1b peralatan asas seperti Lampiran garispanduan dan Jabatan Kecemasan kategori 2c dan regional dibekalkan dengan peralatan lebih kompleks seperti lampiran dalam garis panduan yang sama.

Lampiran 1

GARIS PANDUAN
PELAN TINDAKAN UMUM BENCANA UNTUK HOSPITAL-HOSPITAL DI BAWAH KEMENTERIAN KESIHATAN MALAYSIA

Disediakan oleh :

Cawangan Perkembangan Perkhidmatan Perubatan & Kepakaran
Bahagian Perkembangan Perubatan
Kementerian Kesihatan Malaysia.

GUIDELINE FOR THE MANAGEMENT OF MAJOR INCIDENT/ DISASTER IN PUBLIC HOSPITAL

Content

SECTION 2

Management At Site Of Major Incident

2.1. Human resource organisation

2.2. Work process for on site medical services

2.3. Search and rescue concept for medical personnel.

SECTION 3

Equipment Needs

3.1. Equipment for on site disaster management

3.2. Equipment for operation room

3.3. Communication system.

SECTION 4

Professional Skill Development Training and Team Development.

GUIDELINE FOR THE MANAGEMENT OF MAJOR INCIDENT/ DISASTER IN PUBLIC HOSPITAL

INTRODUCTION

The critical success factor of any disaster/ major incident planned will be the coordination of team work of skill personnel, familiar to the plan of action and acted in a highly disciplines manner. This necessitated a hospital response rather than the emergency department response lead by a well verse leader. It is essential for effective coordination that a good communication system is put in place. It is also helpful if the relevant hospital could conduct a risk assessment of what type of disaster are more likely to happen in the area its cover.

SECTION 1

HOSPITAL PREPAREDNESS AND ACTIVATION FOR DISASTER/ MAJOR INCIDENT

1.1. Definitions

1.1.1. Primary responding hospital

This refers to the main hospital leading the management of the disaster. Its role will be :

i. to coordinate its function with inter and intra agencies.

ii. To provide online supervision and assistance to the incident site.

iii. To coordinate with communication and despatching center.

1.1.2. Secondary responding hospital

This term refers to other hospital involved in the management of victims and is activated only with instructions from the state/federal agencies or on request by the primary responding hospital. Diagram 1 shows this relationship.

ii. Pembekalan peralatan khas juga bergantung kepada risiko yang terdapat berdekatan seperti pakaian Hazmat untuk hospital berdekatan dengan kilang bahaya kimia.

4.6. Latihan

Komponen latihan yang dikenal pasti untuk anggota yang terlibat secara terus bencana merupakan kursus asas resusitasi, kemahiran triagging dan tatacara mencari dan menyelamat. Adalah juga disarankan pembentukan pusat latihan bencana kebangsaan yang mana ketiga modul ini dapat dilakukan.

4.7. [6] Pasukan Pakar Bergerak

Hospital regional disarankan membentuk satu pasukan pakar bergerak terdiri dari pakar pembedahan, otopedik, bius dan pegawai lain yang berpengalaman dalam bencana supaya dapat digerakkan di daerah bencana jika diperlukan.

5. FAEDAH CADANGAN

5.1. Dengan penyeragaman sistem tindak balas kepada bencana akan memudahkan latihan untuk semua anggota yang terlibat.

5.2. Selain daripada itu, penempatan anggota secara sementara untuk membantu dalam bencana lebih mudah kerana tatakerja telah dikenali di tempat asal mereka.

5.3. Penempatan peralatan untuk tindakan bencana secara lebih praktikal, dengan itu menjimatkan kos pembelioan.

6. IMPLIKASI KOS

Pengiraan implikasi kos adalah berasaskan kepada jumlah peralatan yang perlu dibekalkan. Kajian temu bual jelas menunjukkan peralatan ini sangat tidak mencukupi. Kos ini dijangka sebanyak RM49 juta.

7. [7]KESIMPULAN

Pada masa ini pelan tindakan bencana yang terdapat di hospital kerajaan tidak seragam dan perlu dikemaskinikan. Selain daripada itu peralatan yang ada tidak mencukupi. Warga kerja yang terlibat perlu mendapat latihan tatacara pengurusan bencana.

8. SYOR

Garis panduan yang dikemukakan secara amnya dapat mengatasi masalah yang ditemui. Adalah disyorkan garis panduan ini djjadikan sebagai garis panduan kebangsaan yang dapat digunakan sebagai tempat tindakan tempatan.

Disediakan oleh :

Caw. Perkembangan Perkhidmatan Perubatan & Kepakaran
Bahagian Perkembangan Perubatan
Kementerian KesihatanMalaysia.

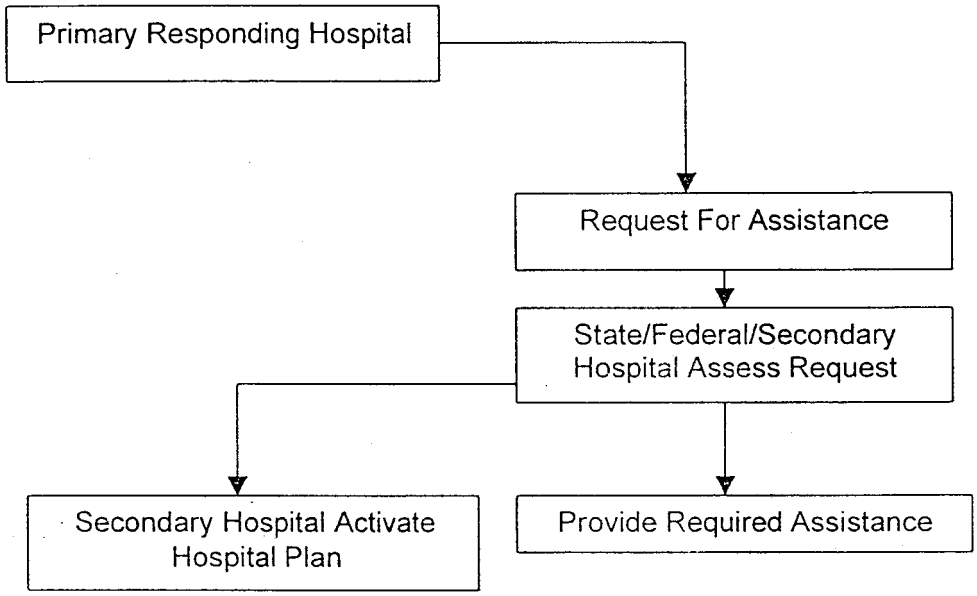


Diagram 1 : Flow chart of relation between primary and secondary responding hospital.

1.2. Duties of Designated Personnel

1.2.1. Hospital Coordinator

The hospital coordinator should be one with overall authority to the hospital. Thus it is proposed that the hospital director fill this role.

The duties include :

i. Declaration of alert phase
ii. Activation of supporting hospital
iii. Reporting to the State Health Office and Ministry of Health
iv. Identify clinical coordinator
v. Identify clinical coordinator
vi. Identify administrative coordinator
vii. Liaise with relevant agencies
viii. Establish control center
ix. Public information and press release.

1.2.2. Clinical Coordinator

The clinical coordinator will be the medical personnel whose duties include:

i. Overseeing the need for medical personnel.
ii. Ensuring the doctors will be called back
iii. Preparation of emergency department for patient reception
iv. Deploying medical team at the site of incident
v. Ensuring the preparedness of team at various zones
vi. Identifying the triage team within the hospital.

1.2.3. Administrative coordinator

The administrative coordinator will be responsible for :

i. The operation room
ii. Waiting area for relative of the victims
iii. Identifying ward for accommodation of influx of patients
iv. Information center.
v. Clinical, pharmacy, radio-imaging, blood bank, forensic support services.
vi. Non clinical support service such as security
vii. Media press release and up date.

1.3. Hospital Activation Phase

1.3.1. Activation of alert system

Diagram 2 showed the process where the hospital disaster/ major incident is activated with activation of staff response. On confirmation the hospital coordinator will initiate calling of additional staff via the operator. It is proposed that an action card is pre-prepared so that staff will act in accordance to this card.

1.3.1. Establishment of specific zones/centers

(i) Hospital Operation Room

The Hospital Operation room will serve as

(a) Nerve center where all decision and strategies are dicussed /issued.

(b) Coordination of all activities

(c) Act as main communication center and sources of all information/ press statement.

Personnel of this center comprised of medical director, administrative coordinator, hospital supervisor, administrative officer and other members identified by the medical director.

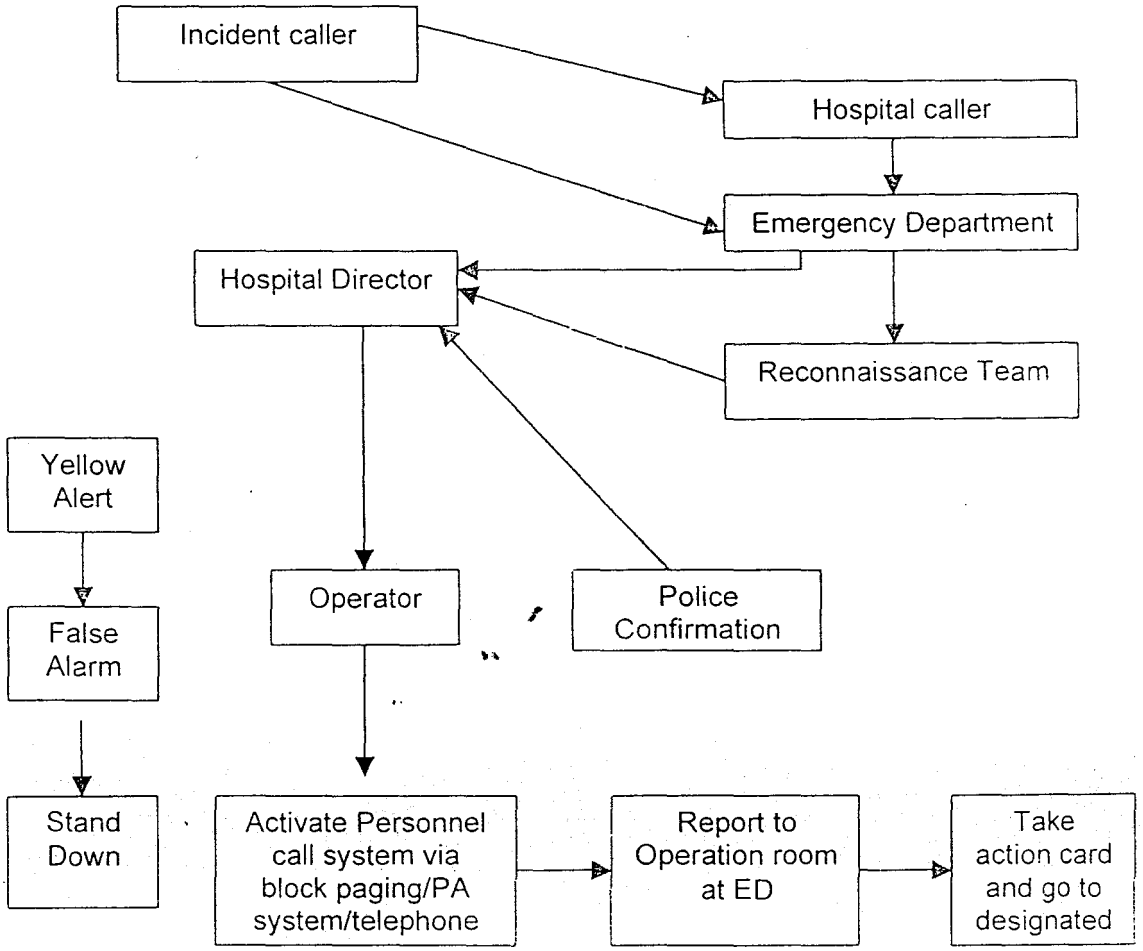


Diagram 2 : Activation of Alert System

(ii) Clinical zones

(a) Patient reception & triage area

- designated for triaging & sorting of patient
- usually located at the front entrance of emergency department
- serves as a crowd controlling area
- tight security area
- managed by doctors and paramedic

Relative are to be directed to appropriates zones.

(b) Treatment areas

Red Zone
- Stabilising critically ill victim
- Resuscitated and managed immediately

Yellow Zone
- Trolley area for semi critical victims
- Expand the existing area
- Decongest ED in anticipation of rapid influx of casualties

Green Zone
- Walk in area for non-critical victims
- Away from the emergency dept.

Record and document **ALL** discharge.

(c) Body holding area

This area is strategically placed away from clinical activity prior to sending body to mortuary

(d) Emergency department control center

Situated in the emergency department for keeping track on patient intake and movement, needs at casualty and site of incident. Its function is also to relay and update hospital operation committee.

(e) Hospital Information Center

The function of this center is to provide information and answer queries of relatives of victims. It should also be able to provide assistance and counseling to relatives when needed. It is suggested that the hospital lobby is used for such purpose and that it is manned by medical social officer and non-critical hospital staff.

(f) Relative Management Area

This area functions as a waiting area for relatives of the victim. It is best placed beside the information center. It should be decorated as a conducive setting.

(g) Bereavement room

Close to the body holding area, staff with personnel trained in grief management and counseling.

1.3.3. Critical pathway for the management at clinical zone

Diagram 3 showed the pathway used in receiving patient, triaging and further management of those injured.

1.3.4. Forensic/ Pathology & Dental Services

If available and required the forensic/pathology and dental services can be used for bodies identification. Furthermore the forensic services is used in handling body part and storage.

1.4. Management Of Recovery Phase

A briefing to all staff handling the major incident is necessary to prevent long term psychological and emotional problems. It is important not only to identify weakness in the action plan but also to prevent post traumatic stress disorder.

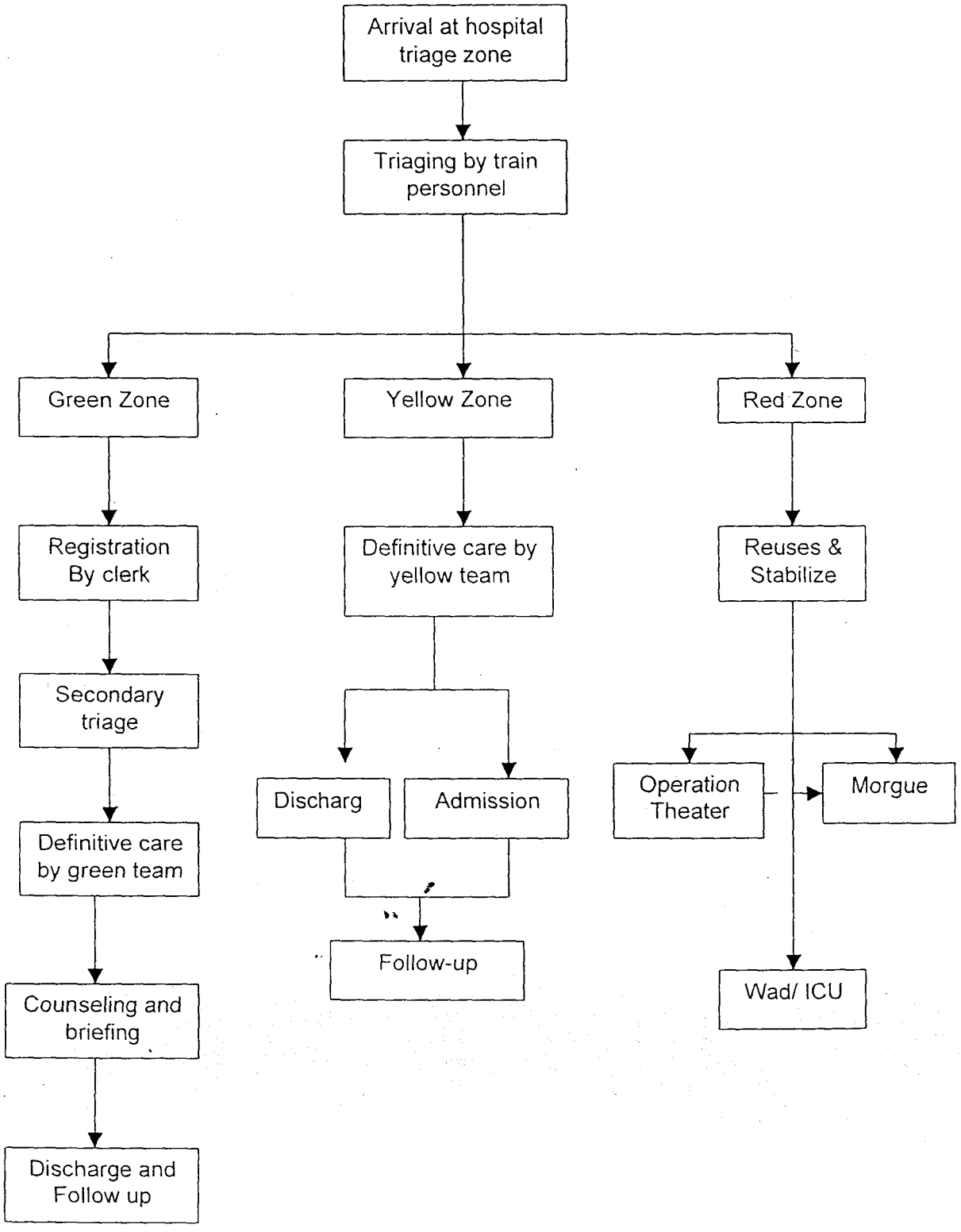


Diagram 3 Critical care pathway for receiving and treatment of victims

SECTION 2

MANAGEMENT AT THE SITE OF MAJOR INCIDENT

2.1. Human Resource Organisation

2.1.1. TEAM 1

i) First Medical Responding Team on Site - Medical Command Control

ii) Can be the Main Responding Hospital, Pusat Kesihatan Kecil.

iii) Should be of Trained Medical Personnel with the knowledge of Major Accident and Disaster Management.

(a) The Medical Team from main responding Hospital will comprise of:

Medical Officer with Specialist	1
Medical Assistant	1
Staff Nurse	1
Atendan Kesihatan	1
Ambulance Driver	1

With Basic Medical Resuscitation equipment

(b) The Medical Team from Pusat Kesihatan Kecil

Medical Assistant	1
Atendan Kesihatan	1
Ambulance Driver	1

With basic medical equipment/First Aid

2.1.2. TEAM 2

i) Second Responding Team

ii) Search and Rescue Team

iii) Specifically trained in S&R, Major accident and Disaster Management

Team members consist of :

Specialist

Medical Officer

Medical Assistant

Staff Nurse

Atendan Kesihatan

Ambulance Driver with ambulance fully equipped with Resuscitation equipment.

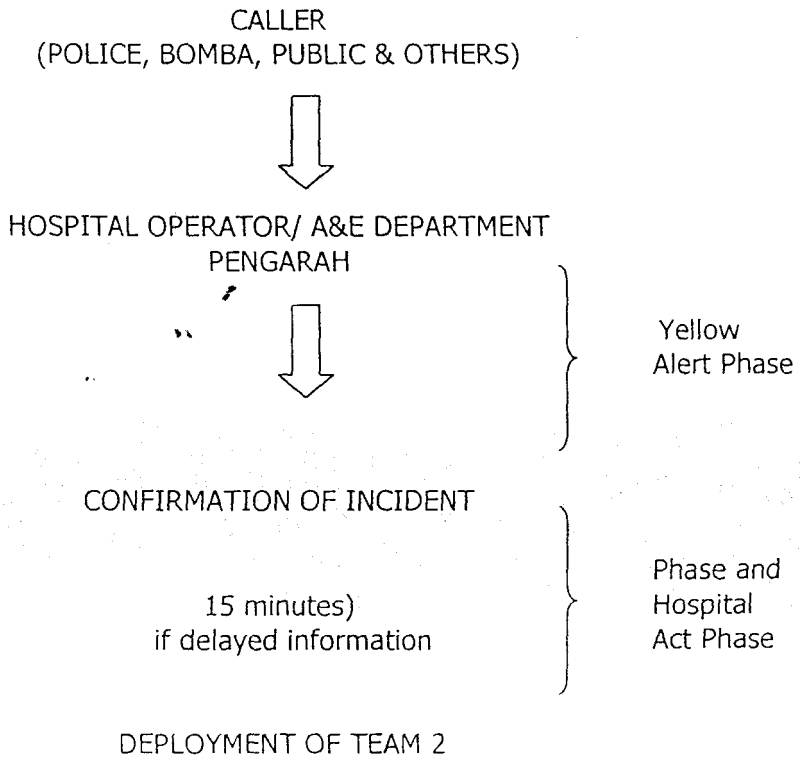


Diagram 4 : Activate and Deployment

INCIDENT SITE - BOMBA, SMART, POLICE } ON SCENE COMMANDER } FINAL LEVEL

↓ ↑

MEDICAL TEAM 2

SEARCH & RESCUE

↓ ↑

MEDICAL TEAM 1

(YELLOW ZONE) MEDICAL COMMAND CONTROL PTK

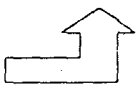
MEDICAL BASE STATION 1

↓ ↑

MEDICAL OPERATION ROOM

MEDICAL BASE STATION 2

AT HOSPITAL



↓ ↑

BENCANA DAERAH

↓ ↑

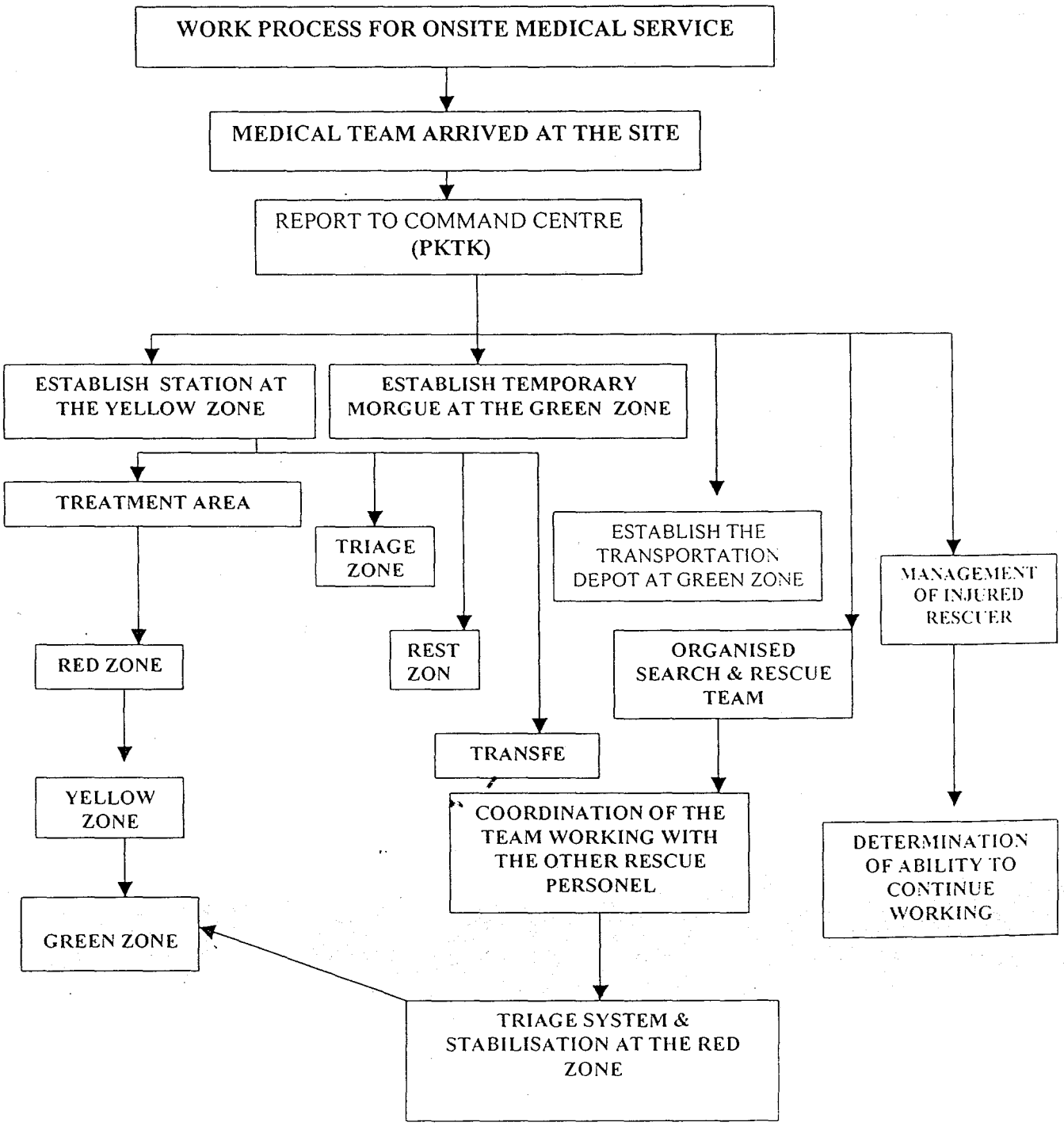
BENCANA NEGERI

↓ ↑

PUSAT KAWALAN OPERASI BENCANA NEGARA

Diagram 5 : INFORMATION FLOW

2.2. **Diagram 6** : Flow Chart of Work Process For On-site Medical Service



2.3. Search & Rescue Concept Medical Personnel Role

CONCEPT

I) Trained Personal

II) Well equipped; Protective Clothing Suit

III) Safety

IV) Indication : A matter of life & death situation, case by case

V) If it does not conclude all the concept above, wait for the respective agency for the search and rescue work.

2.3.1. Medical Personnel Role

(a) TEAM 1 - Medical Commander (Senior MO - trained and knowledge of disaster and major Incident Management.

ROLE AND RESPONSIBILITY

i) Report to the PKTK (on scene commander)
- Manpower
- Equipment available and ambulance.

ii) Situational Evaluation **(CHALET)**
- Number of potential casualties estimated
- Type/ nature of incident
- Back-up support team required

iii) Report to Medical Base Station 2 (Hospital base)
- Situational Evaluation - Back-up/ Support
- Type and Nature of accident.

iv) Setting up a Medical Base Station 1 (On Site)
- Consist of - Base Station
  - Red Zone, Yellow Zone, Green Zone
  - Temp. Morgue

v) Coordinate Communication with the :

- PKTK (On scene commander)
- Medical Base Station 2
- Medical Team 2 (Search and Rescue)

vi) Coordinate manpower of medical support team from other Hospital, St. John, Red Crescent, JPA 3 and ATM including rotation of duty.

vii) Treatment of Casualties & Rescue Workers
- Resuscitation & Stabilisation before Evaluation

viii) Coordinate Registration & Transfer of Casualties to the appropriate Hospitals.

ix) To update information to PKTK and Medical Base Station 2 (Hospital Base).

x) Will be operative till Stand Down - declared by the On Scene Commander.

b) TEAM 2 : Search & Rescue Medical Team (S&R)

i) Trained personal in S & R

ii) Well Equipped with protective clothing suit

iii) Coordinate with Team 1

iv) Responsible for receiving casualties from the Red Zone and Primary Triaging.

v) Coordinate with other Medical support team for transporting casualties from the Red Zone to Base Station.

vi) Team 2 will only enter the Red Zone if :

(a) Trained S&R personal

(b) Safety

(c) Well equip with protective clothing

(d) Indication to safe life, resuscitation

(e) Case by case.

c) ROLE OF THE OTHER MEDICAL TEAM

Coordinate and support with Team 1 and Team 2 at Base Station

2.3.2. Triage System : Tagging & Group Triage

Primary Triage : Should be done starting from the Red Zone by the SAR Team 2

Secondary Triage : Done at the Medical Base Station 1 by the Doctor.

2.3.3. Standard Colour Code

GREEN	:	Walking and Conscious
YELLOW	:	Conscious but immobilize
RED	:	Unconscious and immobilize
WHITE	:	Dead

2.3.4. Tagging System

Propose Standardise Triage Tagging card. Existing Triage available from A&E HKL (MASTEM)

2.3.5. Transportation System

i) Medical Response Team

ii) Casualties

(i) MEDICAL RESPONSE TEAM

The transport for the Medical Response Team should be supplied by the respective Unit/Agencies concern.

(ii) CASUALTIES

- Ambulance should be gathered and coordinated by the Medical Commander on site.
- Resources will be from various agencies including NGO's and other responding hospitals.
- Green casualties may be evacuated or transported out by any from of transportation including public vehicle.
- Yellow and Red casualties will be transported and evacuated out to the hospital by ambulance after being stabilised.

TRANSPORTATION BY AIR e.g. helicopter will be arranged accordingly for Red casualties needing urgent treatment by a special unit at special hospital.

2.3.6. Dead Bodies and Body Parts Management System

The Medical Commander onsite will be responsible to set up a temporary Morgue in Coordination with the Forensic Unit i.e. Mobile Morgue.

TEMPORARY MORGUE :

- Should be set up at the Green Zone
- Enclosed Area / Space
- Proper management and handling system of bodies & body parts
- Sufficient supply of body bags.

All dead body and body part will be transported out by the police/ local authority transport to the Hospital Mortuary.

2.3.7. Medical Management For Rescue Workers : Victim/ relatives

All rescue worker will be given priority for treatment at Base Station onsite and to be transfer out to the hospital if necessary.

2.3.8. Relative of Victim - Management

I) Police will be responsible for the crowd control including the relative at the Relative Holding Bay in the Green Zone.

II) Treatment such as concealing will be provided by the Primary Health Care Personel together with other agencies concerning.

2.3.9. Safety Protection System

Will include :

i) Specific Uniform

ii) Protective Suit

iii) Mask, Gloves and booth, helmet.

2.3.10 For Medical S&R Team

I) Specific Uniform

II) Specific Protective Suit

(Training should be provided by the agencies i.e. Bomba when and needed).

2.3.11 Responding Hospital

Closest most appropriate hospital

Criteria :

i) Nearest District Hospital

ii) District Hospital with Specialist

iii) Nearest General Hospital

iv) Other private hospital with specialist.

SECTION 3

EQUIPMENT NEEDS

3.1. Equipment For On Site Disaster Management

The equipment to be supply to the emergency services will be based on this criteria

3.1.1 Level of Emergency Care

1a to 2b – basic equipment while 2c to regional will be supplied with more advanced equipment.

3.1.2. Presence of high-risk activity such as chemical and radiation in the area cover. Thus even though Dungun Hospital provides a level 1c emergency service, but it will be equip with chemical and fire emergency rescue equipment.

3.1.3. The probability of the medical team to be asked to act as the search and rescue team.

Both lists are enclosed in appendixes. The cost for individual emergency department of level 1c to 2b is calculated as RM 151,770. The cost of individual hospital level 2c to 3 is calculated at 2,017,575. Total cost is calculated as below :

(No. of level 1c to 2b Hospital) 98 x 151,770 = 14,873,460
(No. of level 2c & 3 hospital) 14 x 2,391,825= 33,485,550
Total cost **RM 48,359,010**

The amount is expected to be lower than that calculated as the hospital will already have some of the equipment listed.

Lampiran 2

Kajian temu Bualn Kesiapsiagaan 20 Buah Hospital Aw3am dalam Menghadapi Bencana

Jumlah Hospital 20 buah

Hospital Negeri : 7

Hospital Berpakar : 5

Hospital tanpa pakar :8

Perkara	Keputusan
1. Pelan Tindakan Bencana	
- Ada	15
- Tiada	5
2. Tahun digubal/semak semula	
- Tidak pasti	10
- 3 ke 5 tahun	3
- dalam masa 2 tahun	2
3. Latihan Amali	
- Tiada dalam tahun 2000/2001	5
- Dalam tahun 2000/2001	10
4. Peralatan bencana	
- Peralatan rawatan	10 (Tiada khemah/ kerusi meja dan kabinet mudah alih).
- Peralatan keselamatan	Ada (Jaket keselamatan dan boot)
- Peralatan mencari dan menyelamat	Tiada

3.2. Equipment For Operation Room

The Hospital operation room should be equip with the equipment listed below :

Bil	Equipment	Total
1.	Telephone	2
2.	Facsimile machine	1
3.	Basic office set (chair/settee/etc.)	1
4.	Computer (multimedia)	1
5.	White board (preferably electronic	1
6.	Handset	1
7.	Photostatting machine	1
8.	Stationary	
9.	Electric kettle	1
10.	Crockery	1

3.3 Communication Equipment

As effective communication is one of the critical success factor there is a need to upgrade emergency radio capability to the level indicated below :

3.3.1. Ability for national coverage

3.3.2. Portable

3.3.3. Easily available

It is appropriate that all ambulance be fitted with wide range trunk radio, all casualties to be provided with ATUR and if possible a hand phone is made available.

a) Basic equipment for level 1 to 2b emergency department

BIL.	ALATAN	JUMLAH	KOS/UNIT	JUMLAH
1.	B.P. Sets	2	100	200
2.	Bag-Valve mask Device	2	800	1,600
3.	Basket Stretcher	2	1,500	1,500
4.	Blankets	2	100	200
5.	Mini Resuscitator	1	2,000	2,000
6.	Cervical Collar	2 set	450	900
7.	Chest Drainage Kits	1	500	500
8.	Defibrillator/ Monitor	1	20,000	20,000
9.	Drug Box	1	500	500
10.	Gas Detector portable	1	1,000	1,000
11.	Generator with 5 plug points	1	50,000	50,000
12.	Hard hats	5	100	500
13.	Head Immobiliser	1	250	250
14.	Laryngoscopes	1 set	800	800
15.	Mobile Shelter	1	20,000	20,000
16.	Oxygen Cylinder & Regulators	2	450	900
17.	Pulse Oximeter	1	5,000	5,000
18.	Respirator full face	5	NA	NA
19.	Resuscitator	1	NA	NA
20.	Scissors	1	NA	NA

BIL.	ALATAN	JUMLAH	KOS/UNIT	JUMLAH
21.	Scoop stretcher	1	1,500	1,500
22.	Shield full face	5	100	500
23.	Spinal Board	1	1,800	1,800
24.	Stethoscope	3	200	600
25.	Portable Sucker	1	2,000	2,000
26.	Vacuum Stretcher	1	1,500	1,500
27.	Portable ventilator	1	30,000	30,000
28.	Portable stretcher	5	1,500	7,500
29.	Universal precaution gear	20	10	20
30.	Jump suit	5	200	1,000
31.	Heavy boots with steel palate toes	5 pairs	200	1,000
32.	Heavy gloves	5 pairs	100	500

JUMLAH BESAR **RM 151,770.00**

Regional Disaster Response Centre (budget per centre)

Bil.	Equipment	Qty	Kos/Unit	Jumlah Kos
1.	Four wheel drive ambulance	2	145,000	290,000.00
2.	A Shelter Tent	2	20,000	40,000.00
3.	Freezer container (temporary morgue)	1	100,000	100,000.00
4.	**Disaster Kit**			
	Always Management			
	1. Bag valvemask (adult, child, infant)	5	450	2,250.00
	2. Resuscitator/ Ventilator	5	9,750	48,750.00
	3. Laryngoscope	5	800	4,000.00
	4. Stylet (adult/child)	5	5	25.00
	5. Oxygen Flowmeter with cold Humidifier)	5	450	2,250.00
	6. Airway (various sizes) Sizes 4,3,2	5	5	
	7. High suction unit	5	700	3,500.00
	8. Cricothyroidotomy set	5	250	1,250.00
	9. Endotracheal tube (6,6.5,7,7.5,8,8.5,9)	5	50	250.00
	10. Entonox inhalation system	2	3,500	7,000.00
	11. Ventilator with integral compressor	1	15,000	15,000.00
	Immobilization Kit			
	1. Cervical collars (assorted sizes)	5	450	2,250.00
	2. Head immobilisers	5	250	1,250.00
	3. Fraction stabilisers (femur)	5	2,200	11,000.00
	4. Fracture stabilisers (lower limb)	5	933	4,665.00
	5. Fracture stabilisers (upper limb)	5	834	4170.00
	6. Pelvic Immobiliser	2	13,350	26,700.00
	7. Scoop stretcher	2	1,500	3,000.00
	8. Pole's stretcher	10	1,200	12,000.00
	9. Spinal board	2	1,800	3,600.00
	10. Medical chest trolley	5	1,500	7,500.00
	Disaster Management Kits (AENOR)			
	1. Triage cards	500	750	375,000.00
	2. Foldable chairs	10	556	5,560.00
	3. Foldable couc	10	3,890	38,900.00
	4. Tent	4	4,445	17,780.00
	5. ABNOR Medical Chest	4	1,500	6,000.00
	Rescue Jacket			
	1. Flame resistance jackets	20	200	4,000.00
	2. Helmets	20	100	2,000.00
	3. Boots	20	100	2,000.00

Bil.	Equipment	Qty	Kos/Unit	Jumlah Kos
	Universal Precaution			
	1. Plastic apron	2	10	20.00
	2. Gloves	20	20	400.00
	3. Goggles	20	100	2,000.00
	4. Search light	10	400	4,000.00
	Clinical Examination Tools			
	1. Diagnostic se	1	300	300.00
	2. ECG machine (single channel)	1	4,500	4,500.00
	3. Jar for Tongue deppressors	2	50	100.00
	4. Tendon hammer	1	50	50.00
	5. Digital clinical chermometer	2	10	20.00
	6. Nasal speculum set	1	100	100.00
	7. Sphygmomarometer	2	100	200.00
	8. Medication chart	1	6,200	6,200.00
	Resuscitation Bag			
	1. Medic server	2	70,000	140,000.00
	2. Emergency Resuscitation Trolley	5	16,000	80,000.00
	3. Difibrillator (basis with recorder)	2	16,000	32,000.00
	4. Transport monitor	2	25,000	50,000.00
	5. Nebulizer	2	2,000	4,000.00
	6. Sphymomanometer	2	100	200.00
	7. Volumetric infusion pump	2	3,500	7,000.00
	8. Syringe pump	2	3,500	7,000.00
	9. Procedure light	2	1,800	3,600.00
	Miscelanous			
	1. First responder bag	20	200	4,000.00
	2. MTLS Manual	20	99	1,980.00
	3. FRLS Manual	20	99	1,980.00
	4. Fluid sheild	5	100	500.00
5.	**Training**			
	1. Major incident management course	100	500	50,000.00
	2. Malaysian Trauma Life Support	100	500	50,000.00
	3. First Responding Life Support	100	500	50,000.00
	4. Advance Life Support Course	100	500	50,000.00
6.	Command vehicle	1	200,000	200,000.00
7.	Mobile clinic	1	100,000	100,000.00
8.	Communication vehicle	1	400,000	400,000.00
9.	Motorcycle	5	20,000	100,000.00
	Total Per Regional Centre			**2,391,825.00**

SECTION 4

PROFESSIONAL SKILL DEVELOPMENT TRAINING & TEAM DEVELOPMENT

4.1. Training Needs

4.1.1. All personnel involve in disaster/major incident must be train in the basic of resuscitation (BLS, FRLS, ALS and MTLS and disaster management.

4.1.2. All personnel involve must be train in the art of triaging.

4.1.3. All the above course should be endorse by the ministry to ensure standard. The personnel involved should be periodically trained and registered.

4.1.4. Each hospital will have to develop their own resource personnel comprising of clinician, paramedic and even administrators to be trained to lead this team.

4.1.5. Hospital must take the initiative to conduct a mock disaster exercise. This exercise should be conducted with other agencies involved and if possible should involve secondary responding hospital.

4.2. Formation of Mobile Specialist Team

Regional respond unit can develop a specialist team comprising of relevant specialist such as orthopedic, anesthetist, surgeon and experienced medical personnel that can be transported to the incident area to help in the disaster management. This will decrease time of transport and increase survival rate.

4.3. Disaster Training Center

It is proposed that a National Disaster Training center should be built to provide adequate training for health personnel. This center can be a reference center to assess individual hospital disaster plan. Furthermore other related agencies can use the facilities and thus develop a closer intra-agency teamwork.