Essentials for Prompt Emergency Medical Response in Catastrophe: Lessons learned from the Great Hanshin-Awaji Earthquake in 1995

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Director

Hyogo Emergency Medical Center

Kobe, JAPAN

Functions of HEMC-1

- ✧ Operations during Disaster
  - ➢ Operate a Disaster Emergency Information & Instruction Center
    - ● Collect & provide disaster medical information
    - ● Dispatch relief workers, receive patients
    - ● To arrange for transportation of patients
  - ➢ Receive Patients from Disaster Area
    - ● Temporary beds increase （30→100beds）
  - ➢ Dispatch relief workers/DMAT

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Functions of HEMC-2

- Everyday Operations
  - Level 1 Critical Care Center
    - Doctor car service
    - Receive patients brought by helicopter
  - Disaster Emergency Information & Instruction Center
    - Collect & provide emergency medical information through EMIS
  - Implement research & training on disasters
  - Stockpile Medical Equipment, drugs, & materials

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Introduction-1

- What lessons did we learn from The Great Hanshin Earthquake in 1995?

- Preventable trauma deaths occurred because of the failure to meet the medical needs of the situation in its acute phase. The imbalance between medical supply and demand could not be repaired quickly enough because of the lack of communication among hospitals.

Introduction-2

- What progress has been achieved by recognition for the necessity of preparedness in disaster medical response especially in acute phase since then?
- I would like to make clear the essentials for the prompt emergency medical response/appropriate disaster management to avoid the same kind of failures in the future disasters in ASEAN countries.

Today's Contents

- ✧ Lessons learnt from the Great Hanshin Earthquake in 1995
- ✧ Progress of disaster management system in Japan since 1995
  - – Introduction of the basic functions of EMIS
  - – Introduction of the basic functions of hub hospitals for disaster response
  - – Introduction of the basic functions of JDMATs
- ✧ Effectiveness/Problems of disaster management system in the 2011 Japan Earthquake

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Introduction

20 years ago in Kobe!


Kobe: Sweet Home Town
No preparedness for disaster
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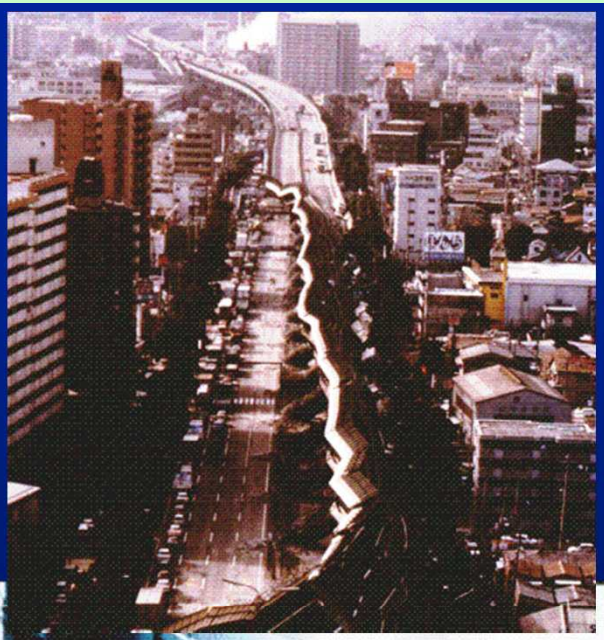
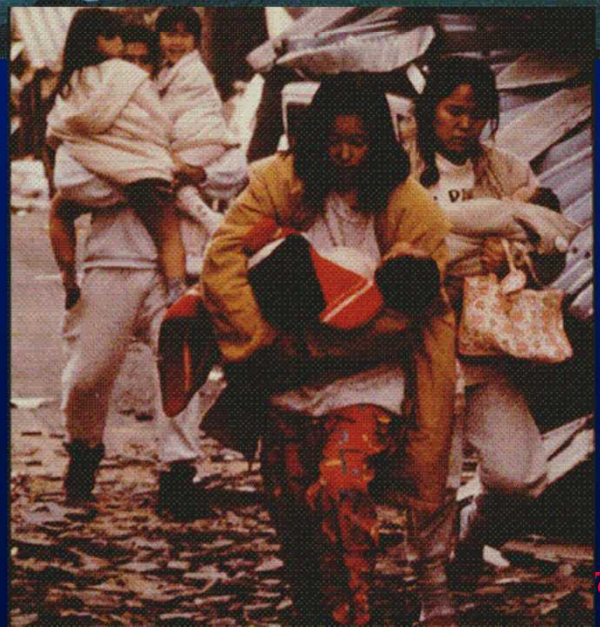
Evening Twilight after the Earthquake

all at once without preparedness





Crush Syndrome

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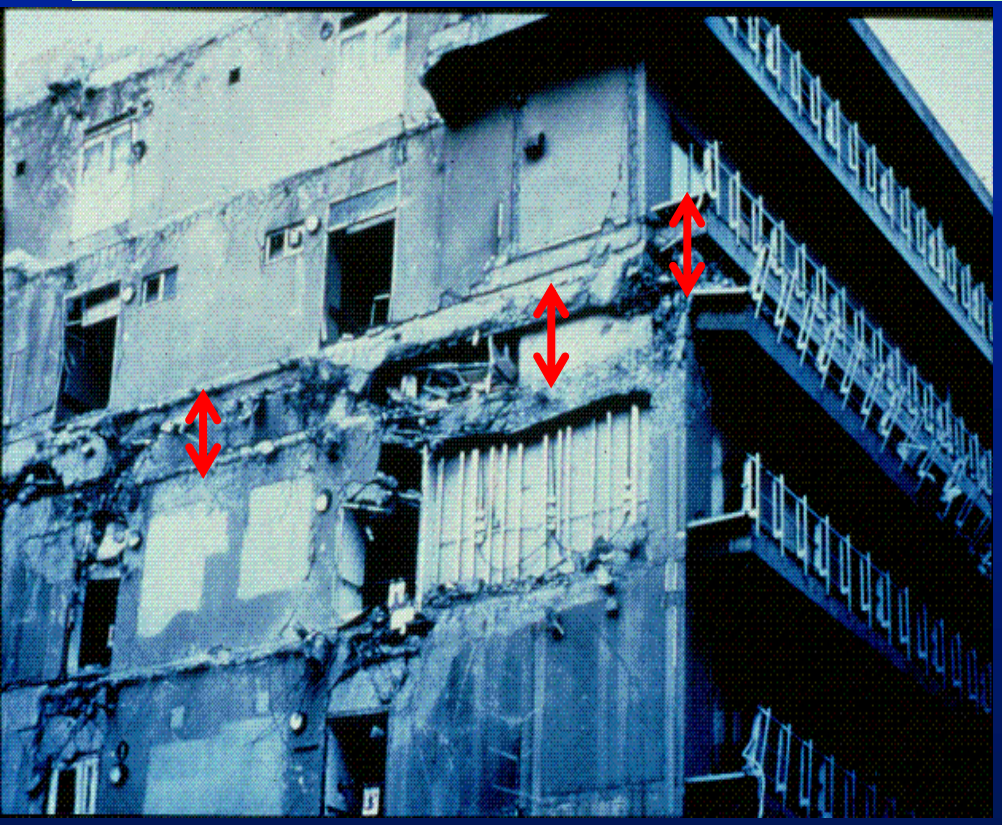
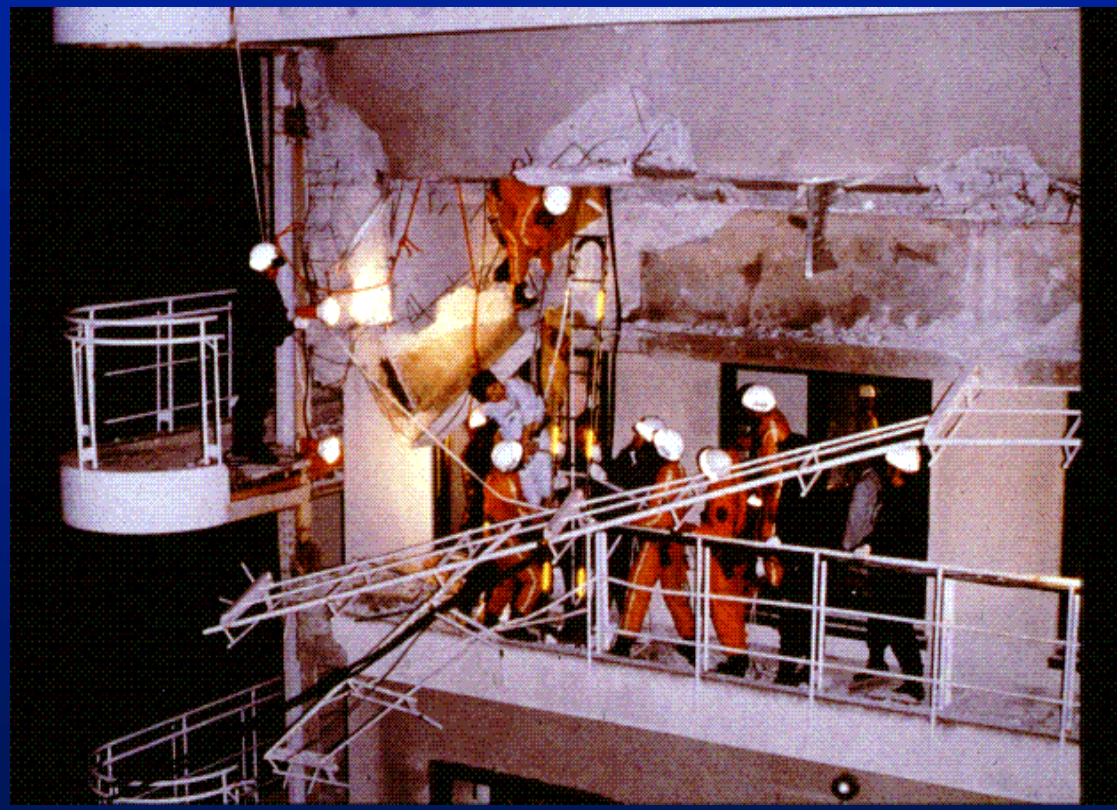
A Hospital in Kobe





It is a matter of course that medical facilities got damaged as well as Fire departments!

140/245 inpatients were transported to 17 hospitals.

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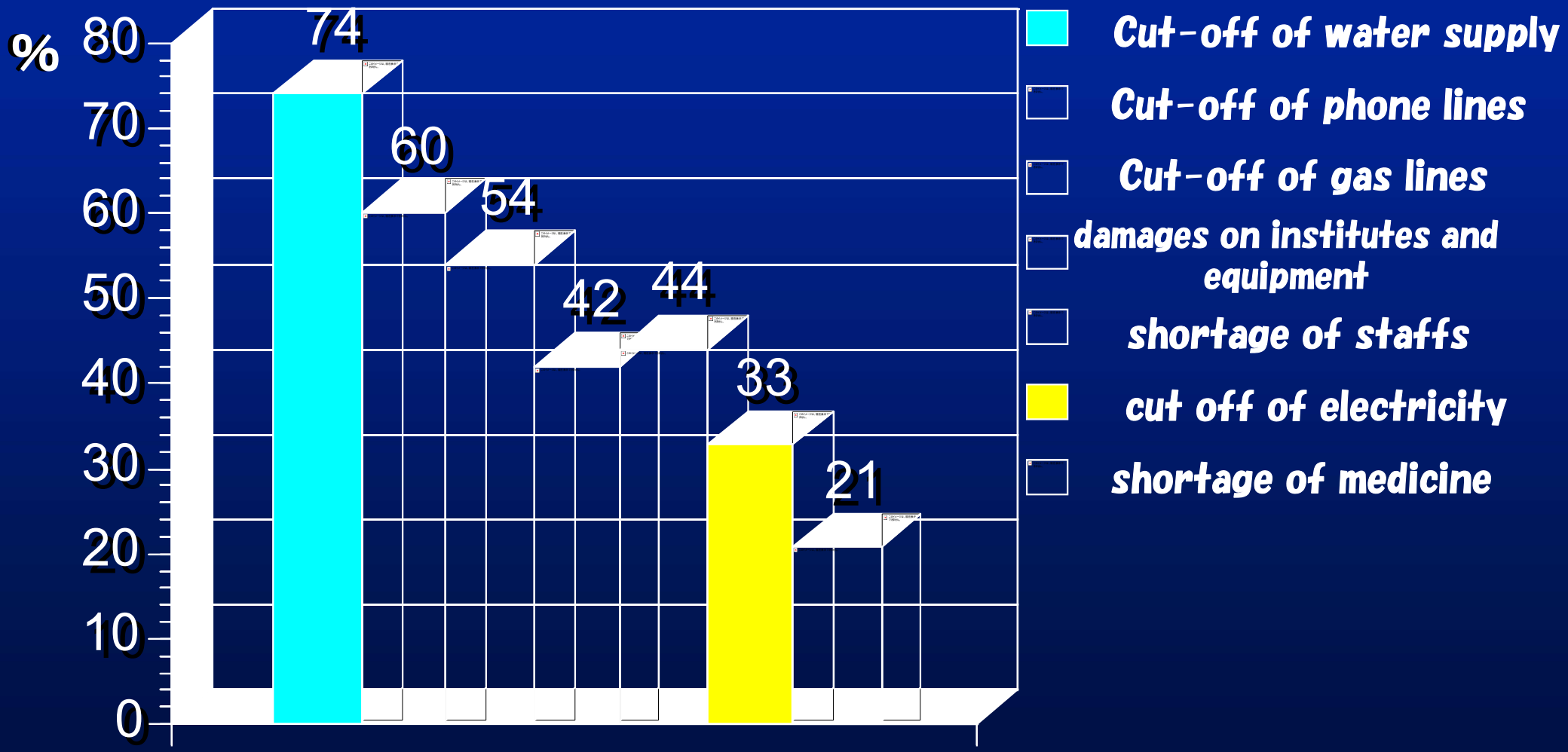
Major Obstacles against Hospital Functions in Affected Area



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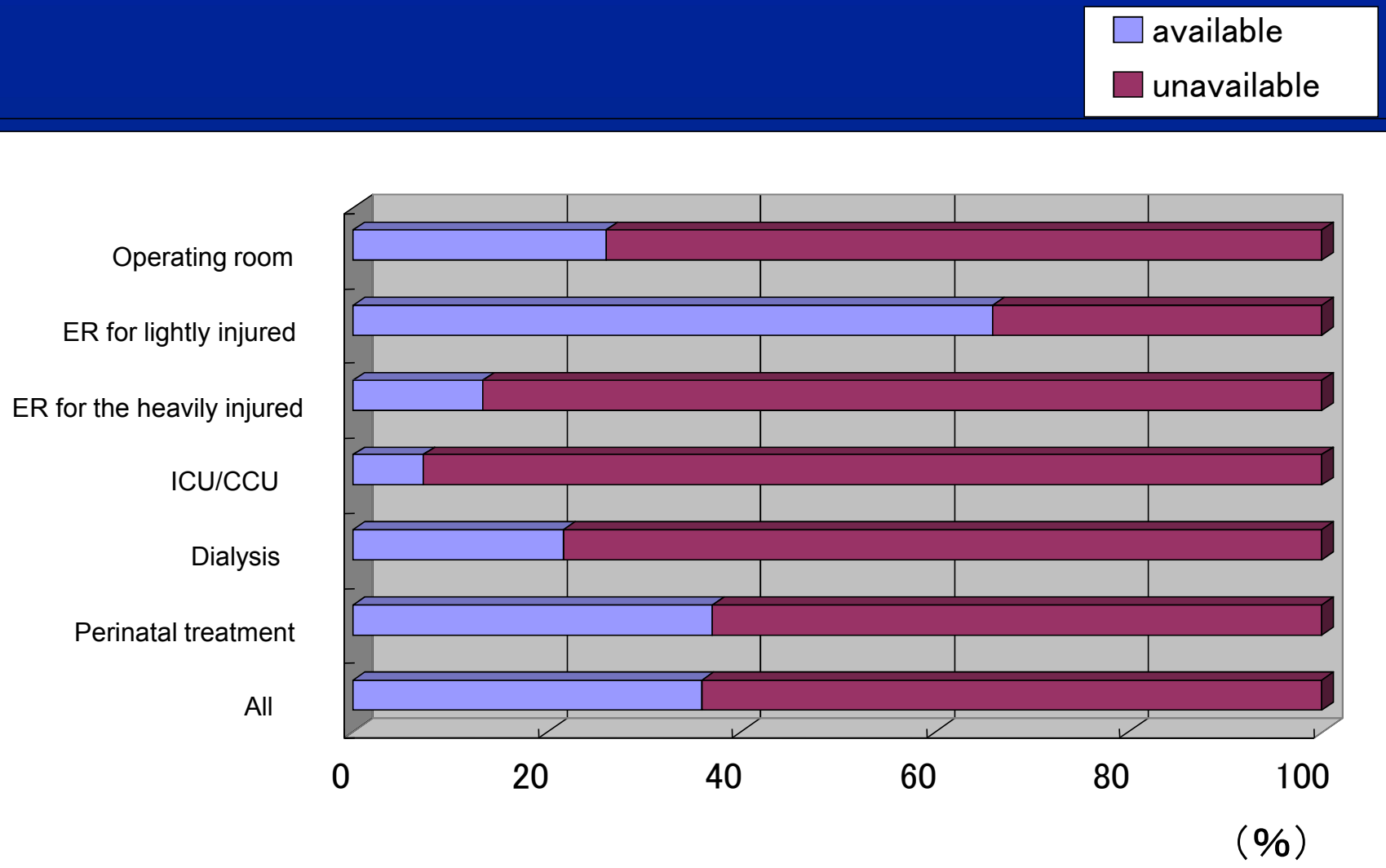
Deterioration of 224 Medical Institutions in Affected Area on Day 1



4 hospitals and 101clinics were completely damaged.

enter

Cracked Wall of Kobe University Hospital

Electricity : resumed quickly

Water : resumed in 7days

City gas : resumed in 25 days

Patient/Doctor Ratio at ER

How many the sick and wounded did a doctor treat on the Day 1 in Kobe?

	Patients	MDs	Pts./MD
KU Hospitals	366	112	3.3
“K” private hospital	1033	7	147.6

Extremely uneven Distribution !

a key question:

"What should I have done?"

An excuse:

"I didn't know this fact. I had NO INFORMATION!"

Monologue of a Victim

* Huge communication gap ALWAYS exists between in the affected region and in the unaffected region!

How to and Where to Transport?

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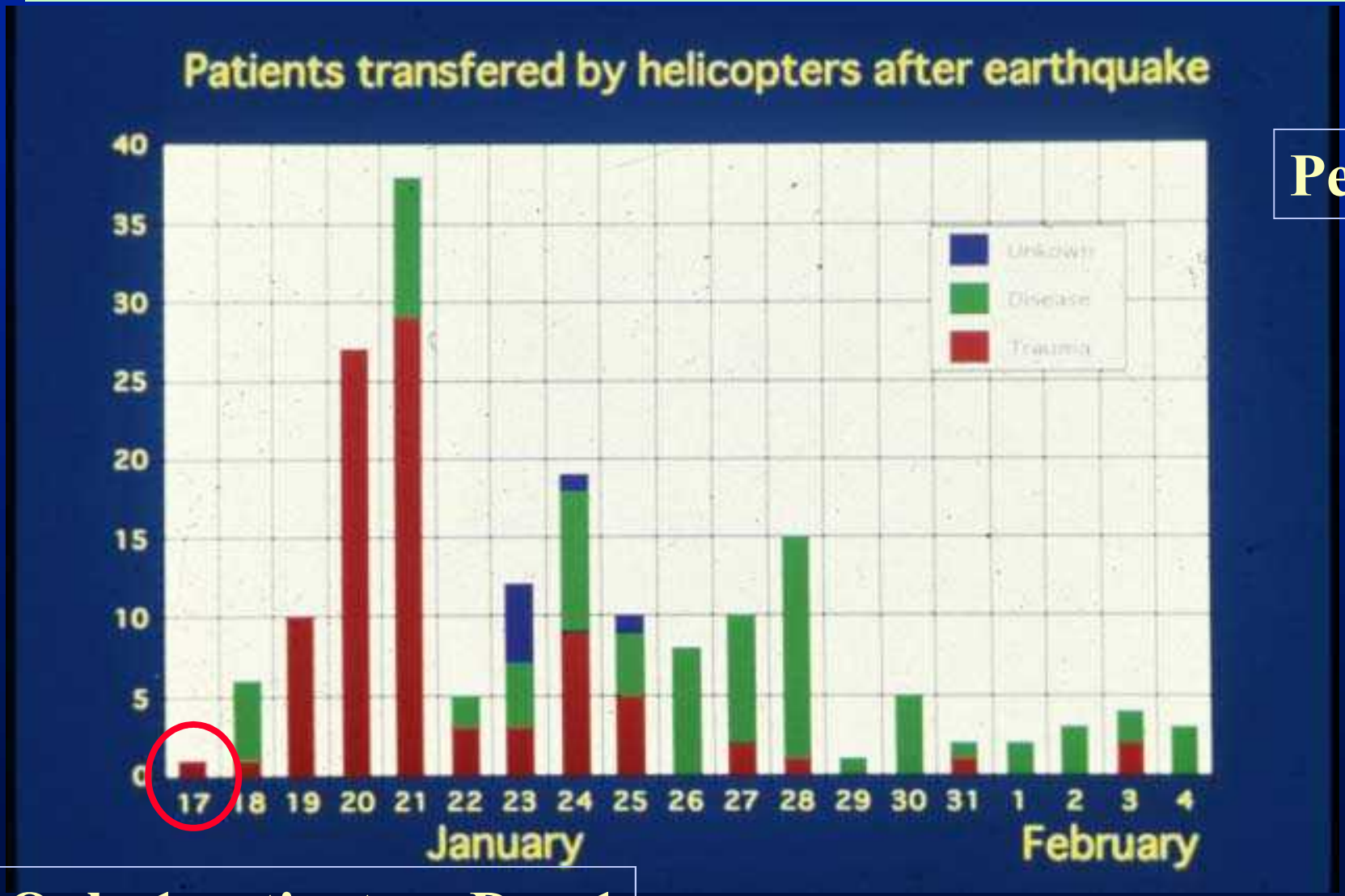
Helicopter Transport in the Great Hanshin Earthquake



Peak on Day 5

Only 1 patient on Day 1

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Medical Problems in the Acute Phase of the Great Hanshin Earthquake

- Uneven distribution of the injured
- Malfunction caused by lifeline damage
- Shortage of medical staff, beds & medical supplies
- Shortage of medical assistance in acute phase
- Air transportation: slow activation

Summary

- In the Great Hanshin earthquake, preventable deaths occurred because of the failure to meet the medical needs of the situation in its acute phase.

- A nationwide emergency medical information system, the education of Disaster Medical Assistance Teams and a system for their prompt dispatch are essential.

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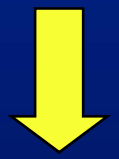
Progress on the Disaster Response System in Japan in 20 years

✧1996~ EMIS: Emergency Medical Information System

✧1996~ Hub Hospitals for Disaster Response



✧2005~ DMATs: Disaster Medical Assistant Teams

(which are promptly dispatched in acute phase of disaster)

✧1996~ Disaster Medical Coordinators

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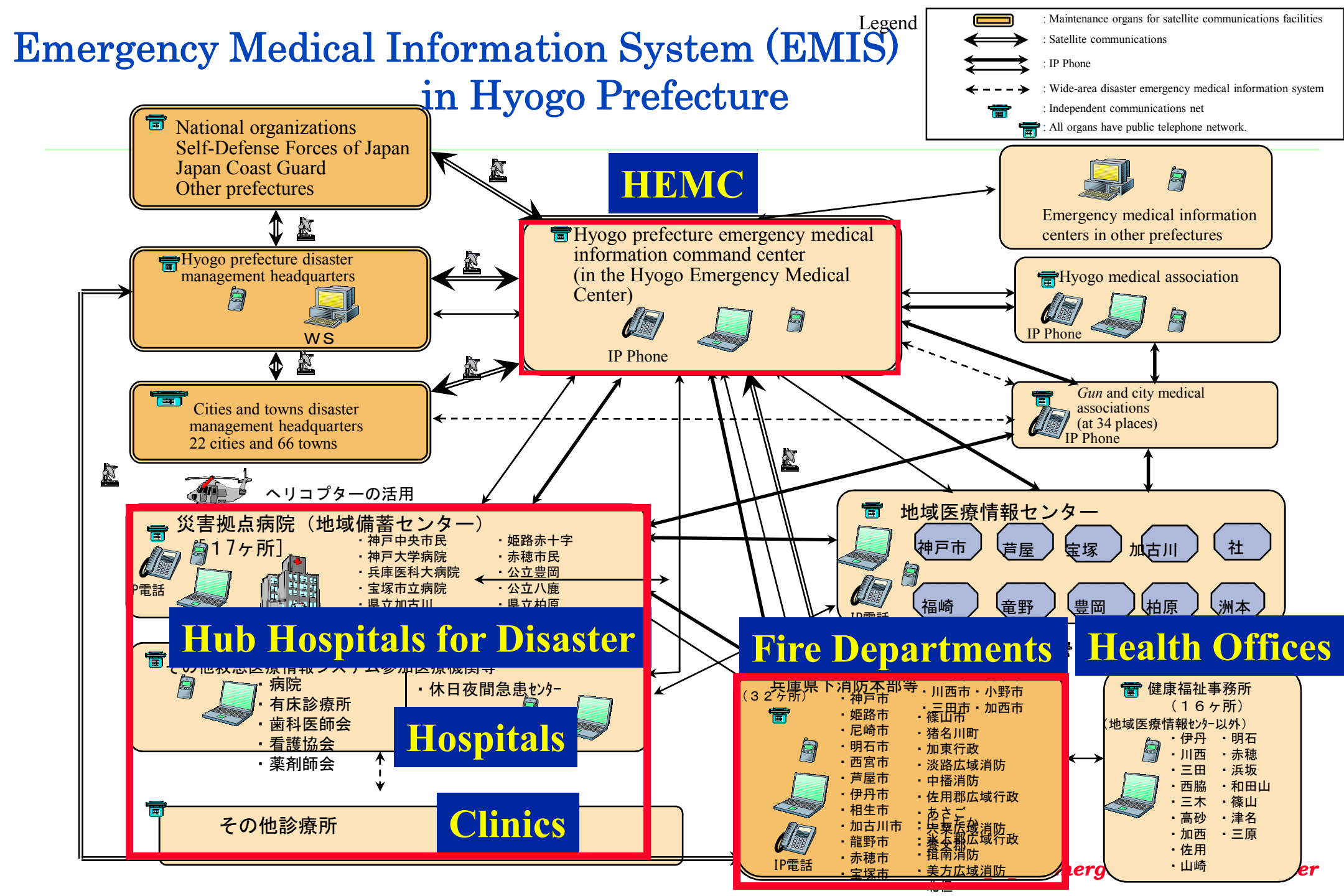
EMIS (Emergency Medical Information System)

- ✧ Nationwide information sharing
- ✧ Internet technology
- ✧ Main functions
  - – To notify emergency situation of the hospitals to headquarters
    - **Damages of the hospitals, lifelines, number of patients beyond capacity, number of Red/Yellow tagged Pts., transportation needs, etc.**
  - – To support DMAT's operation
  - – MATTS (Medical Air-Transport Tracking System)

Emergency Medical Information System (EMIS) in Hyogo Prefecture



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Urgent Situation of the Hospitals-1

緊急時入力情報項目

当てはまる項目にチェックをしてください

緊急時入力（発災直後情報）	
建物・医療施設の倒壊または、倒壊の恐れがある	☐
受入人数の限界を超えている（キャパシティオーバー）	☐
ライフラインが使用不可能（医療行為が行えない）	☐
その他 上記以外で患者の受け入れが困難な理由を入力してください。（200文字以下）	☐

上記の項目でチェックが無い医療機関は患者の受け入れが可能な医療機関となります。
※チェックが無い場合でも入力ボタンをクリックしてください。→ 入 力

※チェックが1つも無い場合
「患者の受け入れが可能」(OK!)

※チェックが1つ以上ある場合
「患者の受け入れが困難」(SOS!)

Hospitals can send "SOS" in their urgent situation.

①建物・医療施設の倒壊

Damages of the hospital building/facilities

②受入人数の限界

Excess capacity of the patients

③ライフラインが使用不可能

Lifelines Damages

④その他

Other situation

Urgent Situation of the Hospitals-2

現在の医療機関の情報を入力してください。

詳細入力(医療機関情報)

医療機関の機能
当てはまる項目にチェックをしてください。

手術が必要な患者の受け入れができない	☐
人工透析が必要な患者の受け入れができない	☐

受け入れている重症・中等症患者数
現在受け入れている患者の人数(累積ではない)を入力してください。

重症患者数(赤タグ)	0 人
中等症患者数(黄タグ)	0 人

患者転送情報

転送が必要な重症患者数	0 人
└ そのうち、広域搬送基準を満たした患者数	0 人
転送が必要な中等症患者数	0 人

ライフライン状況
当てはまる項目にチェックをしてください。

電気が使用できない	☐
水道が使用できない	☐
医療ガスが使用できない	☐

その他
アクセス状況等、特記する事項があれば記入してください。(200文字以下)

入 力

①医療機関の機能

Malfunctions for Surgery/Dialysis

②受け入れている患者数

Number of Patients received

③患者転送情報

Number of Patients who need transportation

④ライフライン状況

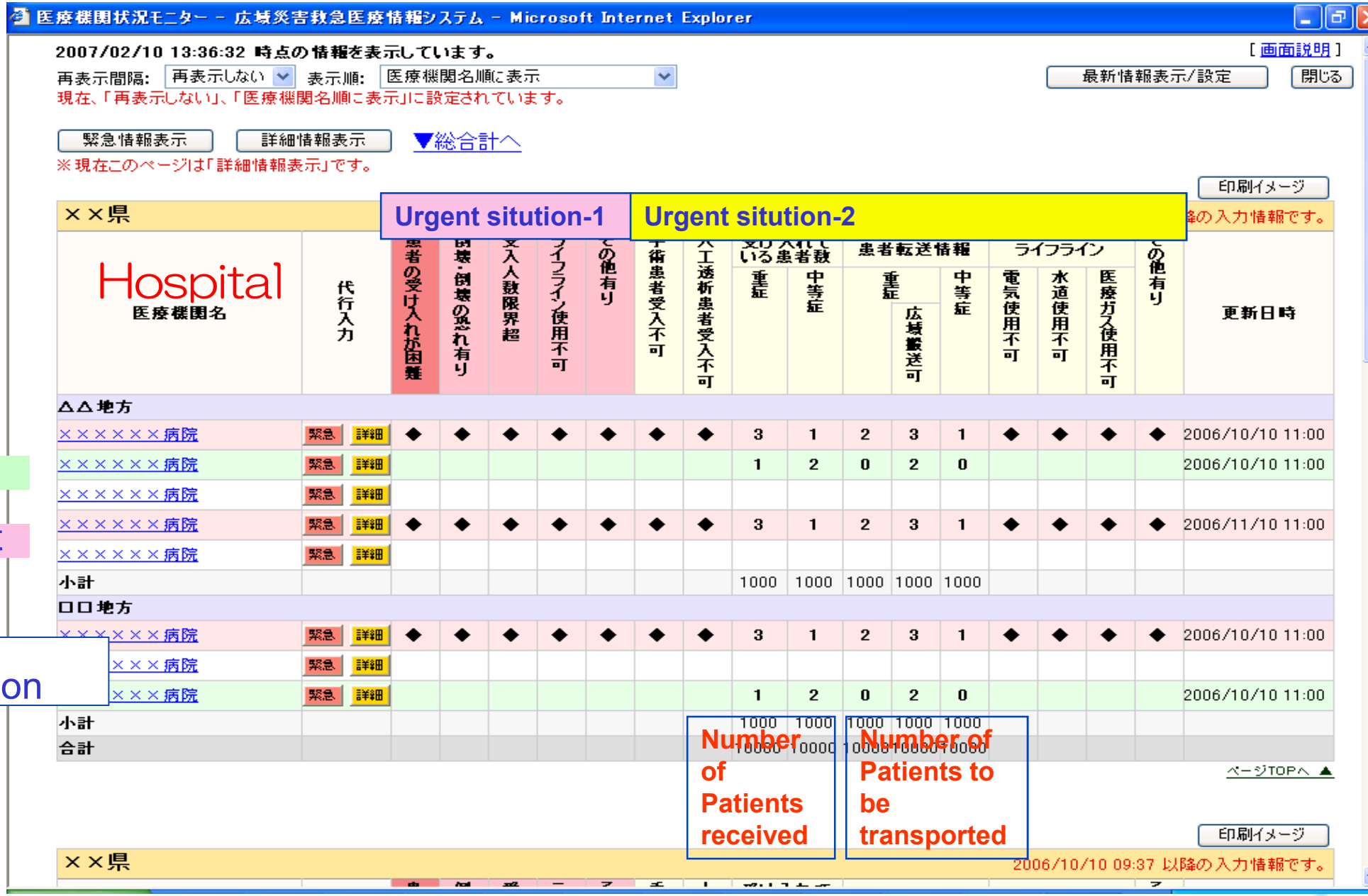
Availability of water, electricity and medical gases

⑤その他

Others

Further information about situation of hospitals!

Hospital Situation Monitor



OK

Urgent

No information

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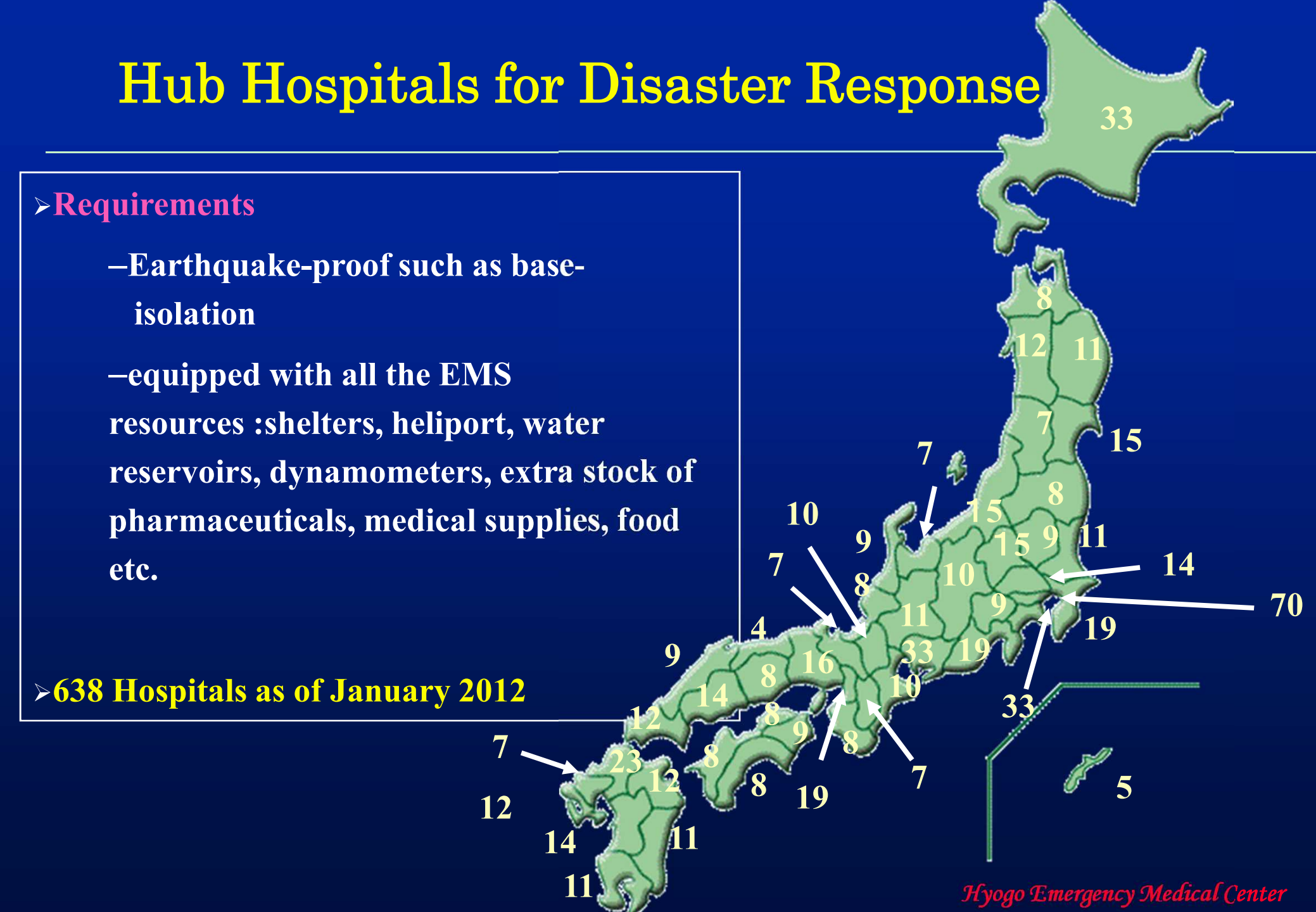
Hub Hospitals for Disaster Response

- M.H.W.L.J. has been trying to promote the establishment of Hospitals for Disaster Response to provide DEMS to cope with disasters.
- Tasks
  - Receiving patients transported
  - Immediate dispatch of emergency medical care teams including DMATs
  - Training EMS crew and stock of EMS supplies (key-hospital or disaster medicine center)

Hub Hospitals for Disaster Response

- **Requirements**
  - –Earthquake-proof such as base-isolation
  - –equipped with all the EMS resources :shelters, heliport, water reservoirs, dynamometers, extra stock of pharmaceuticals, medical supplies, food etc.
- **638 Hospitals as of January 2012**



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兵庫県の災害拠点病院（18病院：2015/7月）

すべてにDMATを配置

併せて災害医療コーディネーターを指名

(2015年7月現在、計75名）

（基幹災害拠点病院）

Hyogo Emergency Medical Center

神戸赤十字病院

- 平時の活発な救急医療活動
- 災害時多数傷病者の治療
- 地域医療機関の連携の中心
- 広域搬送の中継軸（含ヘリ搬送）
- 救護班の被災地への派遣
- 専門ボランティアの調整
- 災害用医薬品・資機材の備蓄
- 職員の災害医療教育・訓練　など

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JDMAT

(Japan Disaster Medical Assistance Team)

✧ Definition

DMAT is a medical team which members are well trained, being quickly dispatched in case of disaster.

"The Committee on Japanese DMAT plan"

Ministry of Health, Labor and Welfare

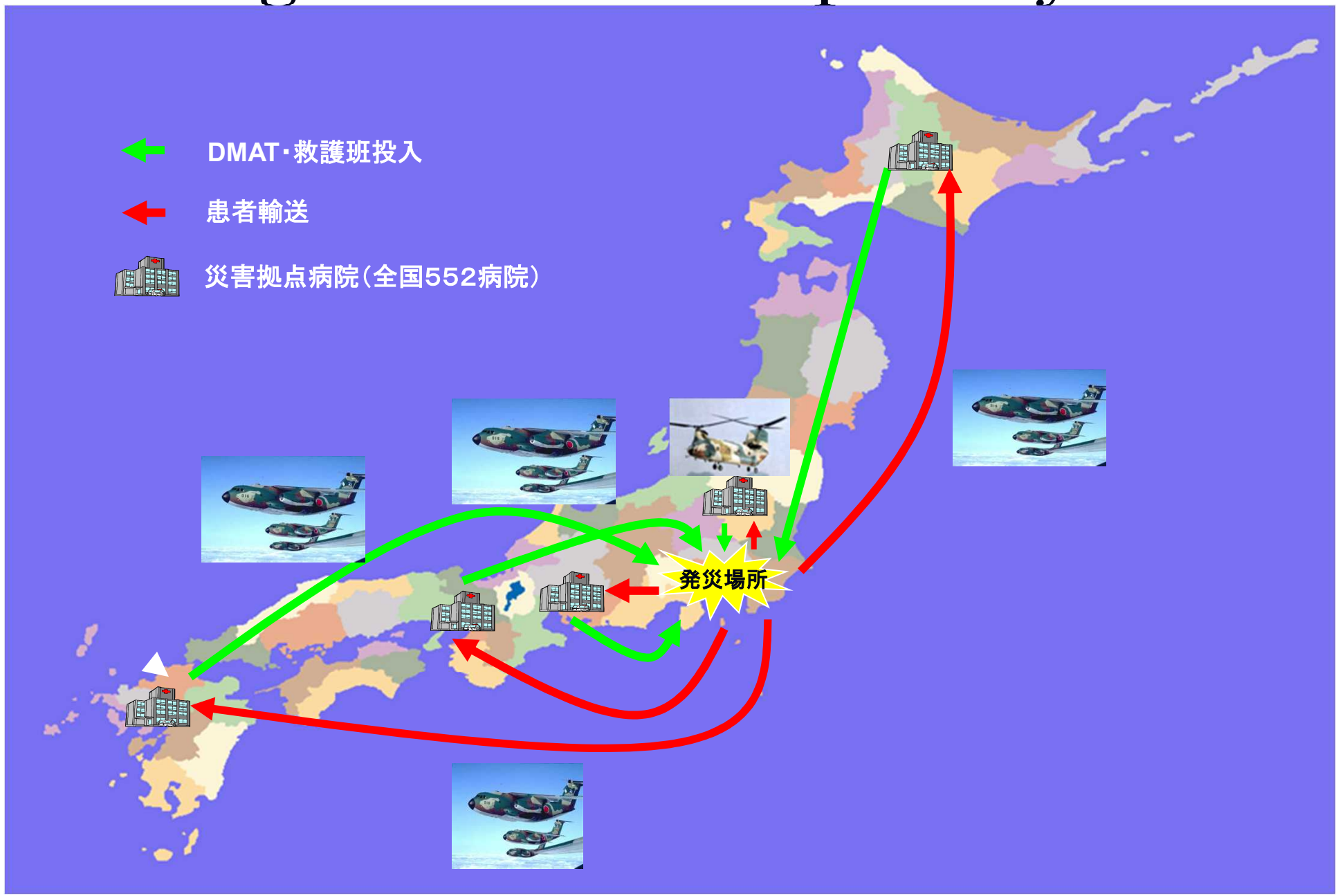
Outline of JDMATs

- JDMAT training course started in 2005
  - funded by national budget
  - The standardized curriculum (4-day course) in Tokyo and Kobe

- JDMAT is a medical response team in acute phase of the disasters
  - Targets:
    - Nationwide natural disasters (ex. earthquake)
    - Local disasters (ex. plane crash, train collision)
  - Mobilized in acute phase and dispatched to the scene, hospitals, and SCU (Staging Care Unit) for a large-scale transportation by air in the area affected
  - Consists of 5 members: doctors, nurses, and logisticians
  - 1,500 teams have been certified as of September 2015




Large-Scale Transport by Air



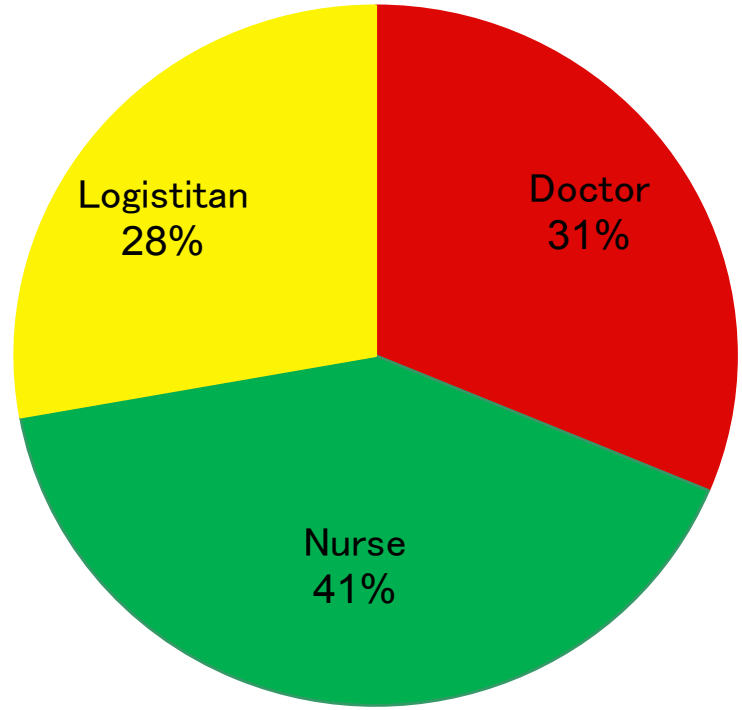
Certified DMATs 2005. 4.1～2015.3.31

- DMAT Hospital 748
- Number of DMAT 1426
- Member of DMAT 9328

→ Key Hospital for Disaster 90%
Others 10%

Occupation

- Doctor 2920
- Nurse 3813
- Logistician 2595



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EMIS: Function to Support DMAT Operation

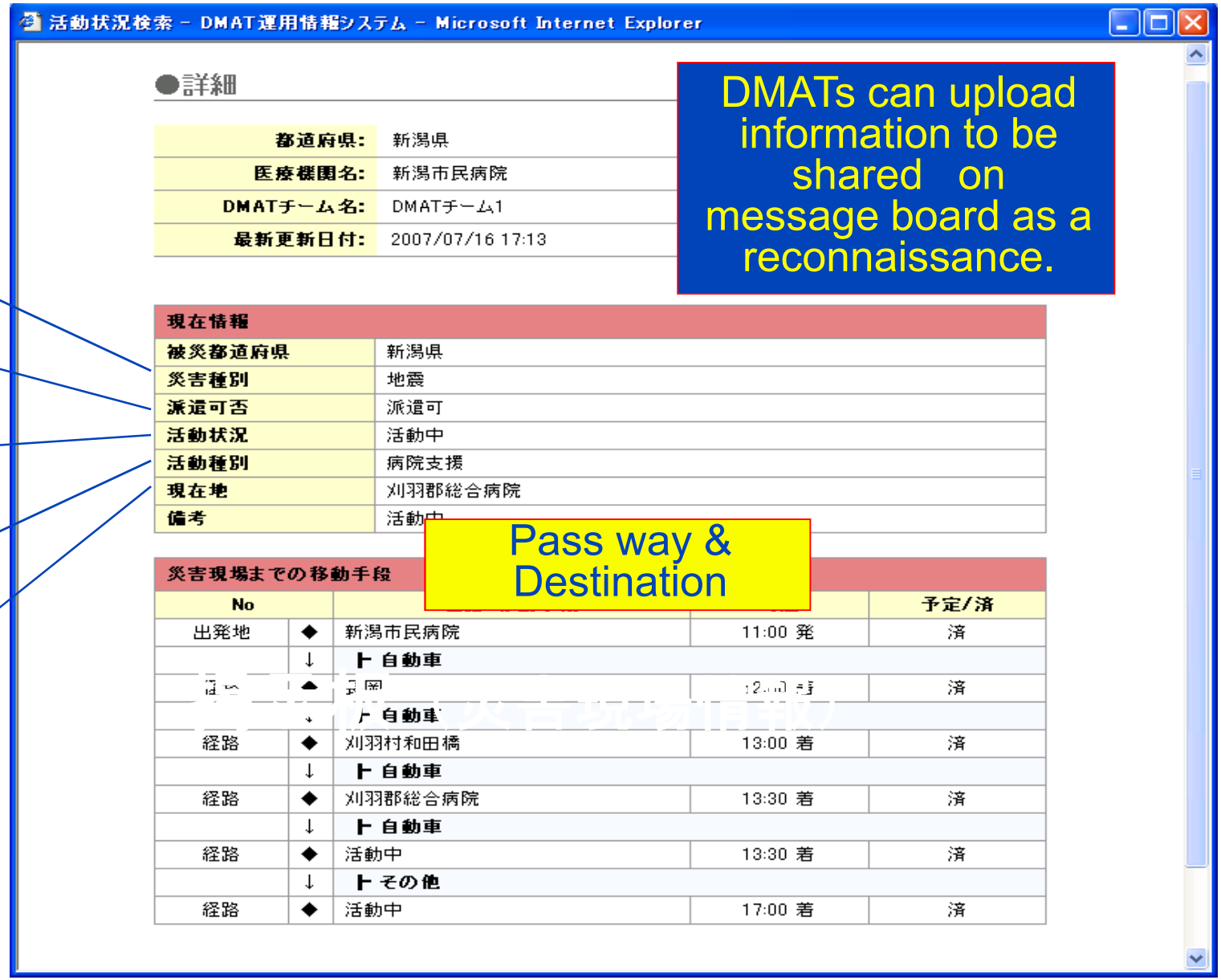
Disaster category

Availability

DMAT's Status

Activity

Present location



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Medical Air-Transport Tracking System

印刷

表示日時：2010年9月2日12時15分

SCU/域外拠点	厚木基地
性別	男
広域医療搬送基準	指定なし
傷病名	指定なし
航空機登録	指定なし
被災地内	○○県 ○○○○○○○○病院、○○県 ○○○○○○○○病院
災害拠点病院	○○県 ○○○○○○○○病院、○○県 ○○○○○○○○病院

SCU/Pt.'s name/ID/Age/Gender/Urgency/Diagnosis/From/SCU/Aircraft/Destination

SCU/域外拠点	氏名	患者ID	年齢	性別	広域医療搬送基準	傷病名	特記	人工呼吸器	内病院	SCU		航空機		域外拠点		外病院	更新日時
○	XXXXX XXXXX	115	50	男	緊急度A	その他	有	不要	○○病院	厚木基地		2		北宇都宮駐屯地		△△病院	2010/9/1 12:15
									発	着	発	出発	到着	着	発	着	
○	XXXXX XXXXX	130	45	男	適用無し	広範囲熱傷	有	要	○○病院	厚木基地		5		富山空港			2010/9/1 13:30
									発	着	発	出発	到着	着	発		
	XXXXX XXXXX	140	20	男	緊急度A	圧挫症候群	無	不要	○○病院			10					2010/9/1 14:35
									発	着	発	出発	到着	着	発		
	XXXXX XXXXX	180	30	男	緊急度B	その他	無	不要	○○病院	厚木基地		15		富山空港		□□病院	2010/9/2 5:30
									発	着	発	出発	到着	着	発	着	
合計:2																	

MATT System enables distantly-positioned DMATs to share information on real time basis for successful wide-area transportation by air and to track the patients for future reference.

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Main Activities of 380 DMATs (1,800 persons)

Iwate

- Duration : 11 Mar.～19 Mar. (9 days)
- DMAT Main Headquarter : In the prefecture office
- SCU: Hanamaki airport, Prefectural school of fire fighting
- Hospital support : 8 hospitals

Miyagi

- Duration : 11 Mar.～16 Mar. (6 days)
- DMAT Main Headquarter : In the prefecture office
- DMAT Second Headquarter : Sendai National Medical Center
- SCU : Kasminome base, Ishinomaki Field Park
- Hospital support : 6 hospitals

Fukushima

- Duration : 11 Mar.～15 Mar. (5 days) , 17 Mar.～22 Mar. (6 days)
- DMAT Main Headquarter : In the prefecture office
- DMAT Second Headquarter : Fukushima Prefectural Medical Collage
- SCU : Fukushima airport, Iwaki Koyo High school, Satellite Kashima
- Hospital support : 3 hospitals

Ibaragi

- Duration : 11 Mar.～18 Mar. (8 days)
- DMAT Main Headquarter : In the prefecture office
- DMAT Second Headquarter : Tsukuba Medical Center
- Hospital support : 3 hospitals

DMAT office

edical Center

Hanamaki SCU with a 15-Bed Capacity

Outlines of the Patient Transported via Hanamaki SCU

Date	No.	Long Distance Air Transportation				Local			
		No.	Means	Destination	Ex. of Dx.	No.	Means	Destination	Ex. of Dx.
3/12	70	4	SDF C-1	Chitose AP Hokkaido	Flail chest, Pelvic Fracture, pneumonia	66	Ambulance	Disaster Hospitals and general hospitals in Morioka and nearby cities	Bruises, Contusions, Hypothermia, COPD, Pneumonia due to drowning DM, CRF, RA, Hepatic Coma, Cerebral Infarction, Decubitus, Aging
3/13	39	6	SDF C-1	Haneda AP Tokyo	Ileus, Gall Stones、Head Injury	33	Ambulance		
3/14	20	3	SDF C-1	Akita AP Akita	Pneumonia due to drowning, Rib fracture, DM	17	Ambulance		
3/15	7	3	SDF C-1	Akita AP Akita	Pneumonia due to drowning, Head Injury	4	Ambulance		
計	136	16	Trauma 8, Disease 7 Survive 13, Not survive 2			120	Trauma 24, Disease 51, u.inv. 45 Survive 68, Not survive 7		

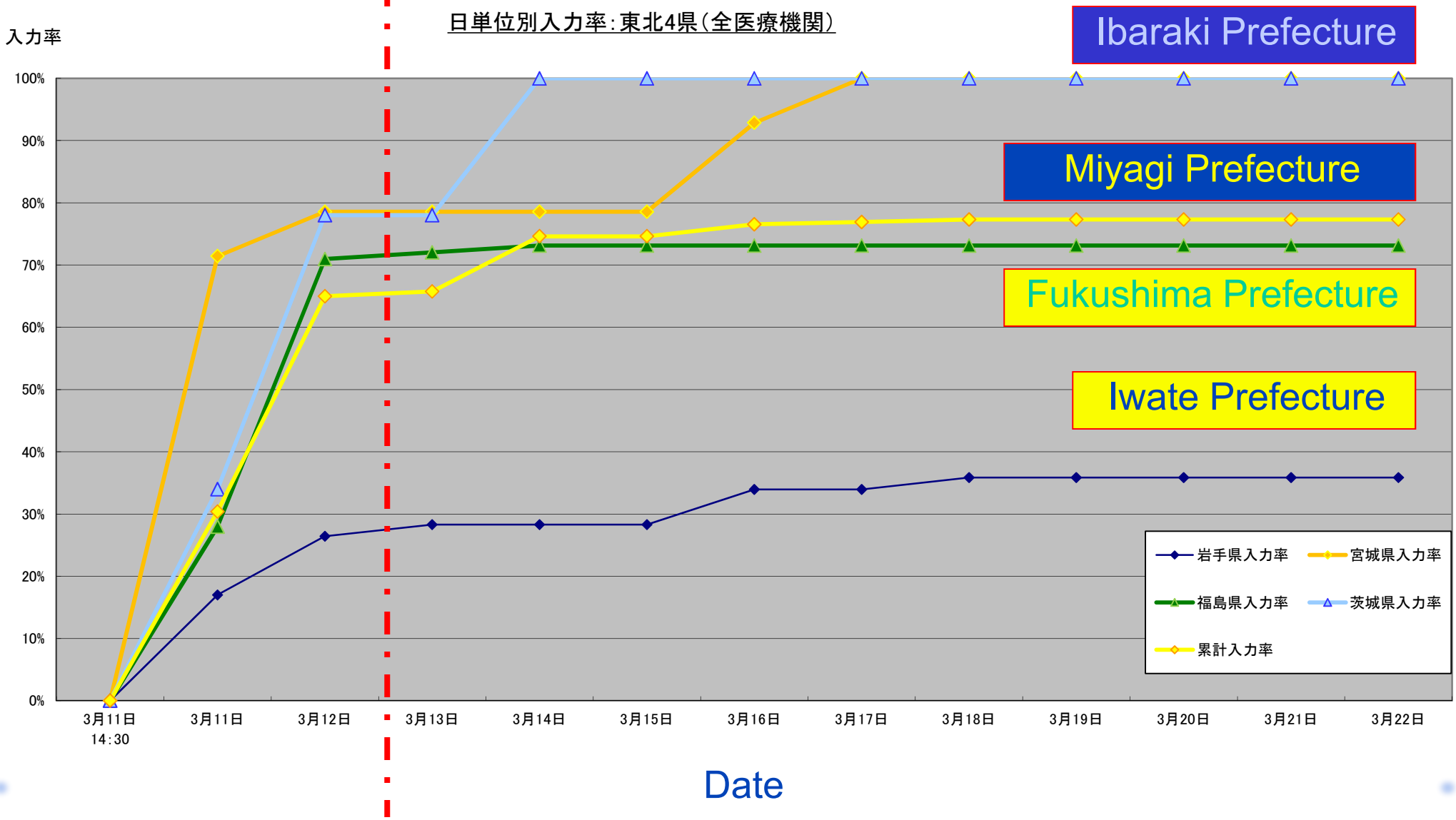
Summary of JDMAT's Activities in the 2011 Japan Earthquake

- In the 2011 Japan Earthquake, the expansive area of devastation and the confused information led to the inappropriate deployment of JDMATs. More than 380 JDMATs, however, were mobilized over a period of 9 days to provide assistance to hospitals in the affected areas and patient evacuation mainly by air with the help of EMIS.

- Of the 4 staging care units (SCUs) stationed in the Tohoku region, the one at Hanamaki Airport in Iwate Prefecture was the most successful.

- A total of 136 patients was transported to Hanamaki SCU by helicopters with the collaboration of many professionals including 74 JDMATs.

Percentage of Hospitals which Sent their Urgent Situation with EMIS in the 2011 Japan Earthquake



Remaining Problems of Disaster Management System of Japan

- JDMATs' dispatch has enabled prompt response in the acute phase, however seamless transition from DMATs to other medical teams was unsuccessful.
- Coordination among various medical teams in a longer period of time
- EMIS has not covered the entire medical institution.
- Secure broadband Internet connection in the affected areas in disasters
- Ignorance & incuriosity → Education/Exercise/Training

Conclusions-1

- The essentials for the prompt emergency medical response/appropriate disaster management were reviewed from the lessons learned from the Great Hanshin-Awaji Earthquake.

- Principal progress has been made by recognition for the necessity of preparedness in disaster medical response especially in acute phase since 1995.

Conclusions-2

- Fundamental approach to the disaster management should be the same in ASEAN countries with different kinds of disasters.

Time has passed, but remember the facts…

20 years ago in Kobe!

Kobe Luminarie™

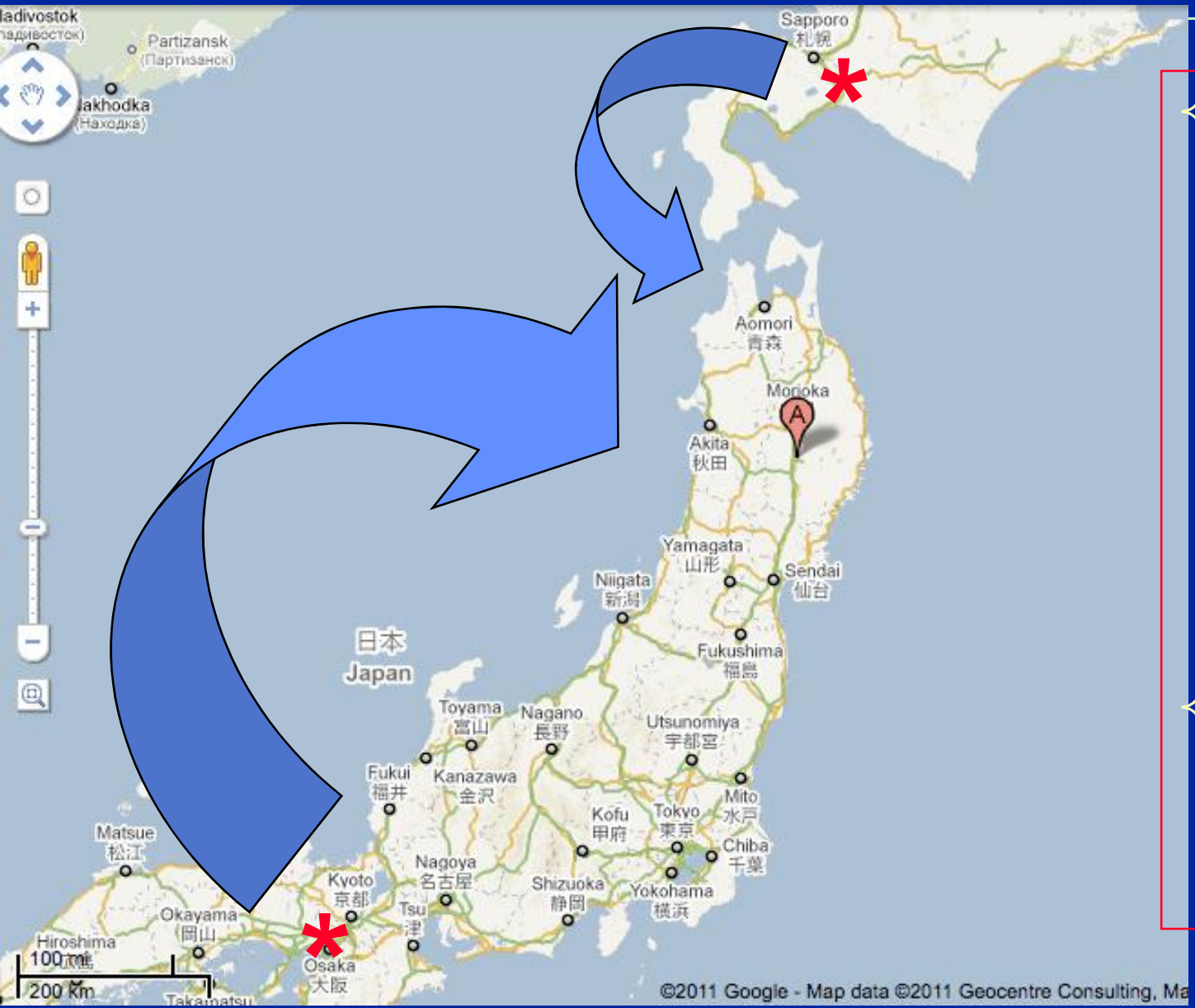
Since 1996
2nd & 3rd week in December
More than 5 Million visitors

It is a sin of omission not to learn from the past tragedy!

Thank your for your attention!

ありがとう/ Arigato!

DMATs Assembly in Hanamaki AP in Iwate Prefecture



- By Air (SDF)
  - from Itami AP, Osaka
  - From Chitose AP, Hokkaido
- By Surface
  - from nearby places

DMAT Report（3/12　1:52am） in EMIS

Name of DMAT		Availability					Destination	Arrival Time	Means
兵庫県	神戸大学医学部附属病院	チーム4	代	03/11 21:33	派遣可	待機完了	大阪府　伊丹空港	03/11 21:30 予定	自動車
兵庫県	兵庫医科大学病院	チーム1	代	03/11 20:12	派遣可	待機完了	大阪府　伊丹空港	03/11 20:45 予定	自動車
兵庫県	兵庫県災害医療センター	チーム1	代	03/11 19:56	派遣可	待機完了	大阪府　伊丹空港	03/11 21:45 予定	自動車
兵庫県	姫路医療センター	チーム1	代	03/11 21:03	派遣可	待機完了	大阪府　伊丹空港	--- ---	自動車
奈良県	県立医科大学附属病院	チーム2		03/12 00:32	派遣可	待機完了	大阪府　伊丹空港	--- ---	自動車
奈良県	県立奈良病院	チーム1		03/12 01:23	派遣可	待機完了	大阪府　伊丹空港	03/12 03:30 予定	自動車
和歌山県	公立那賀病院	チーム1		03/12 00:41	派遣可	待機完了	大阪府　伊丹空港	03/12 02:30 予定	自動車
島根県	益田赤十字病院	チーム1		03/11 23:16	派遣可	移動中	大阪府　伊丹空港	03/12 03:00 予定	自動車
岡山県	岡山済生会総合病院	チーム1		03/11 22:25	派遣可	待機完了	大阪府　伊丹空港	--- ---	自動車
岡山県	川崎医科大学附属病院	チーム1		03/11 20:35	派遣可	待機完了	大阪府　伊丹空港	--- ---	---
岡山県	倉敷中央病院	チーム1		03/11 22:57	派遣可	待機完了	大阪府　伊丹空港	--- ---	自動車
岡山県	津山中央病院	チーム1		03/11 22:28	派遣可	待機完了	大阪府　伊丹空港	--- ---	---
徳島県	徳島県立中央病院	チーム1		03/12 01:33	派遣可	移動中	大阪府　伊丹空港	03/11 23:30 済	自動車
愛媛県	愛媛大学医学部附属病院	チーム1		03/12 01:02	派遣可	移動中	大阪府　伊丹空港	03/11 23:59 予定	自動車
宮崎県	都城市郡医師会病院	チーム1		03/12 01:26	派遣可	移動中	大阪府　伊丹空港	03/12 06:00 予定	自動車
宮崎県	メディカルシティ東部病院	チーム1		03/12 00:32	派遣可	待機完了	大阪府　伊丹空港	03/12 06:00 予定	自動車
山口県	ＪＡ山口厚生連　周東総合病院	チーム1		03/11 22:33	派遣可	待機完了	福岡県　福岡空港	03/12 02:00 予定	自動車
山口県	徳山中央病院	チーム1		03/12 00:11	派遣可	待機完了	福岡県　福岡空港	--- ---	自動車
山口県	山口県立総合医療センター	チーム1		03/11 23:47	派遣可	待機完了	福岡県　福岡空港	03/12 00:30 予定	自動車
福岡県	飯塚病院	チーム1		03/11 21:53	派遣可	待機完了	福岡県　福岡空港	03/11 22:00 予定	自動車

Hospital Situation Monitor in EMIS at 5:02 a.m. on 3/12 2011 in Iwate Prefecture

Urgent sitution-1

Urgent sitution-2

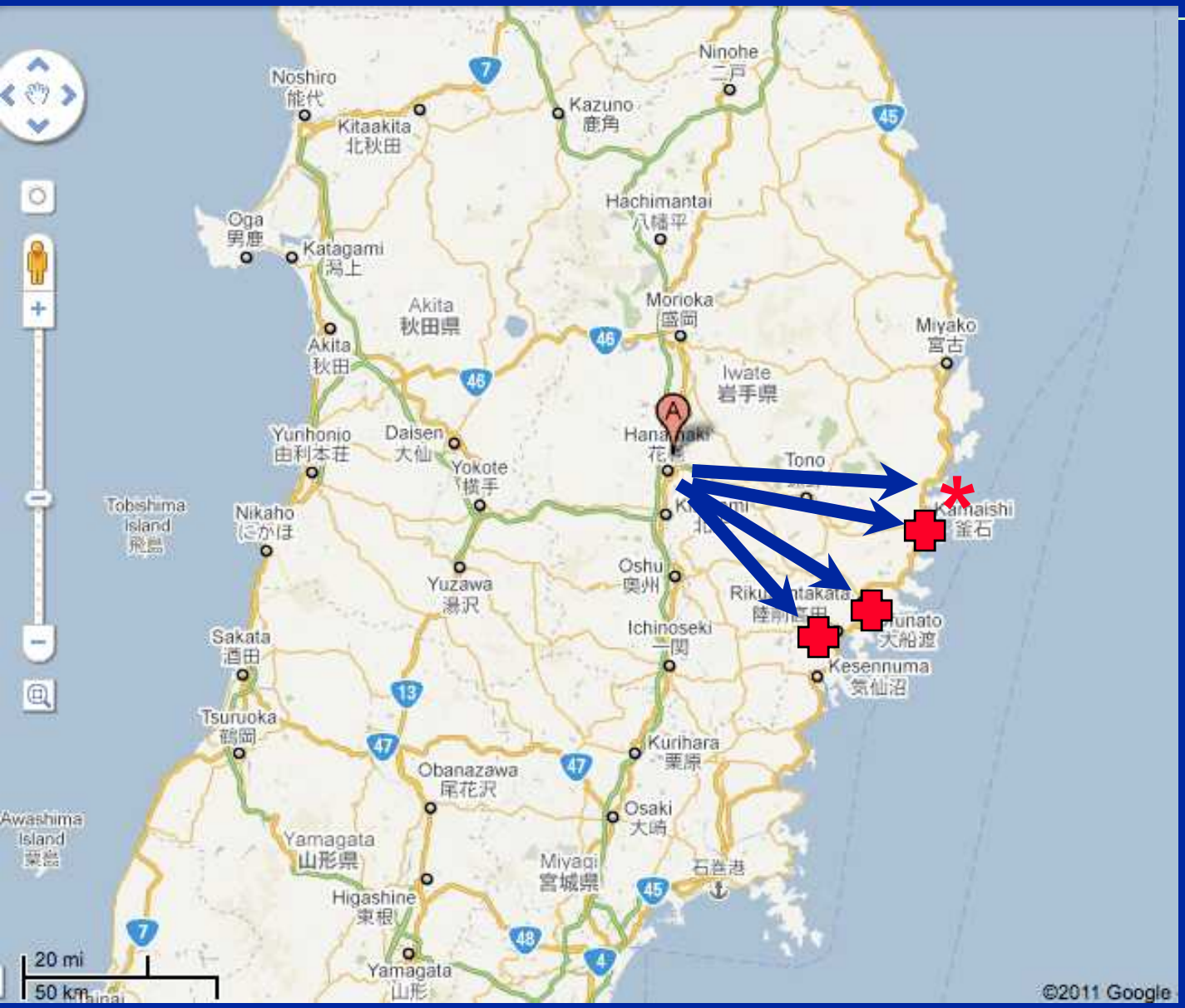
岩手県

:30 以降の入力情報です。

医療機関名	代行入力	患者の受け入れが困難	環境・倒壊の恐れ有り	人工股関節	ライフライン使用不可	その他有り	両腎患者受入不可	人工透析患者受入不可	重症	中等症	重症	広域搬送可	中等症	電気使用不可	水道使用不可	医療ガス使用不可	その他有り	更新日時
盛岡																		
岩手医科大学付属病院	緊急 詳細								7	0	0	0	0					2011/03/12 04:07
県立中央病院	緊急 詳細								0	0	0	0	0					2011/03/12 04:08
盛岡赤十字病院	緊急 詳細								0	0	0	0	0	◆	◆			2011/03/12 04:09
小計									7	0	0	0	0					
岩手中部																		
県立花巻厚生病院	緊急 詳細	◆			◆	◆	–	–	–	–	–	–	–	–	–	–	–	2011/03/12 04:53
県立中部病院	緊急 詳細								7	15	0	0	0				◆	2011/03/12 04:11
小計									7	15	0	0	0					
胆江																		
県立胆沢病院	緊急 詳細						◆		0	20	0	0	0				◆	2011/03/12 04:13
小計									0	20	0	0	0					
両磐																		
県立磐井病院	緊急 詳細						◆	◆	0	0	0	0	0				◆	2011/03/12 03:58
小計									0	0	0	0	0					
気仙																		
県立大船渡病院	緊急 詳細																	
小計									0	0	0	0	0					
釜石																		
県立釜石病院	緊急 詳細																	
小計									0	0	0	0	0					
宮古																		
県立宮古病院	緊急 詳細																	
小計									0	0	0	0	0					
久慈																		
県立久慈病院	緊急 詳細	◆			◆			◆	5	11	0	0	0		◆		◆	2011/03/12 03:59
小計									5	11	0	0	0					
二戸																		
県立二戸病院	緊急 詳細								0	0	0	0	0	◆			◆	2011/03/12 03:58
小計									0	0	0	0	0					
合計									19	46	0	0	0					

No information was sent by some hospitals in affected area!

Activities of Hanamaki SCU-1



* In 4 days, a total of 20 DMATs was dispatched to the affected areas by helicopter.

(Tasks)

1: To collect information (to enter hospital situation into EMIS)

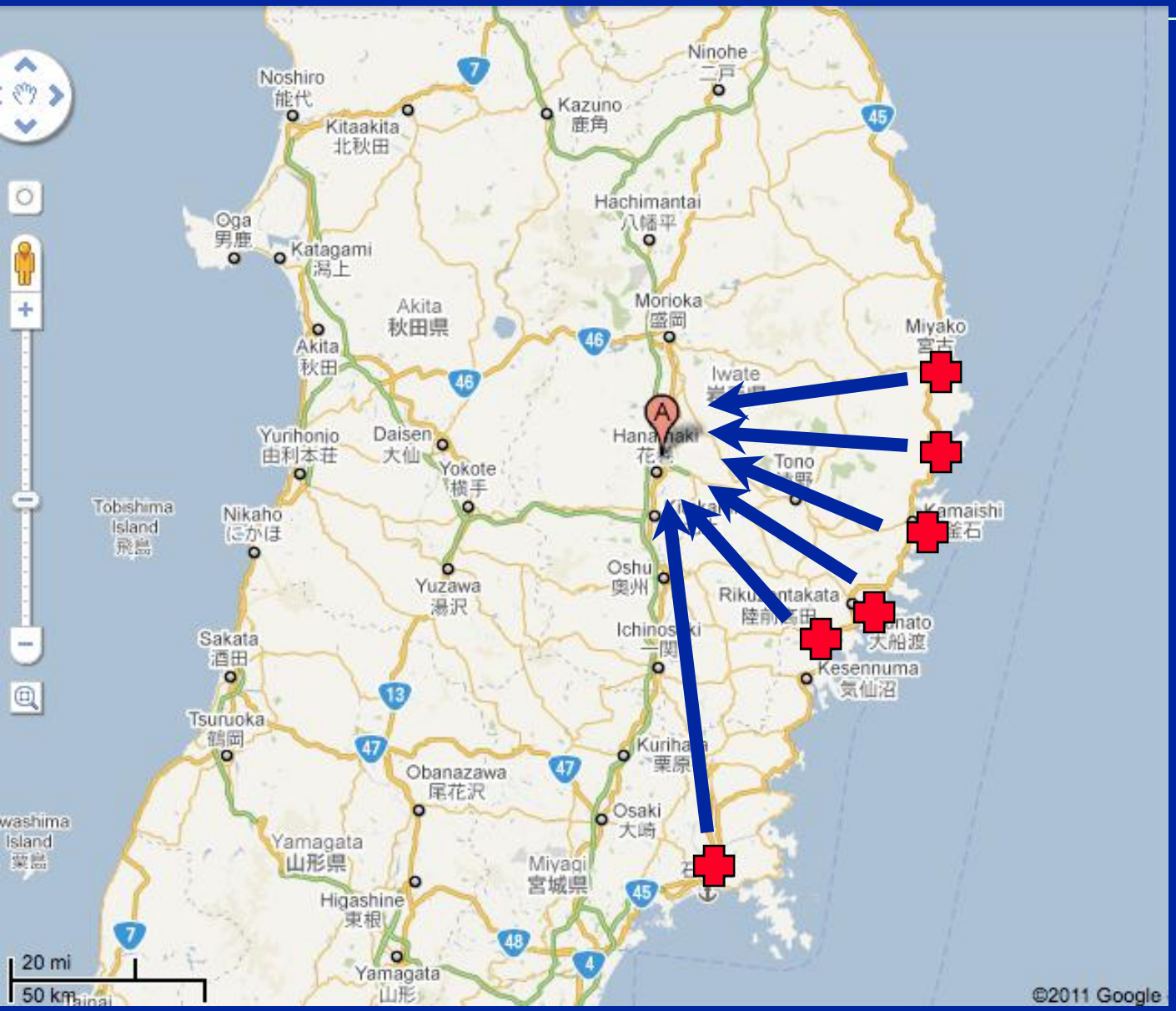
2: To provide assistance to hospitals

3: To attend on medical transport

Hyogo Emergency Medical Center

Standing-by and Igniting

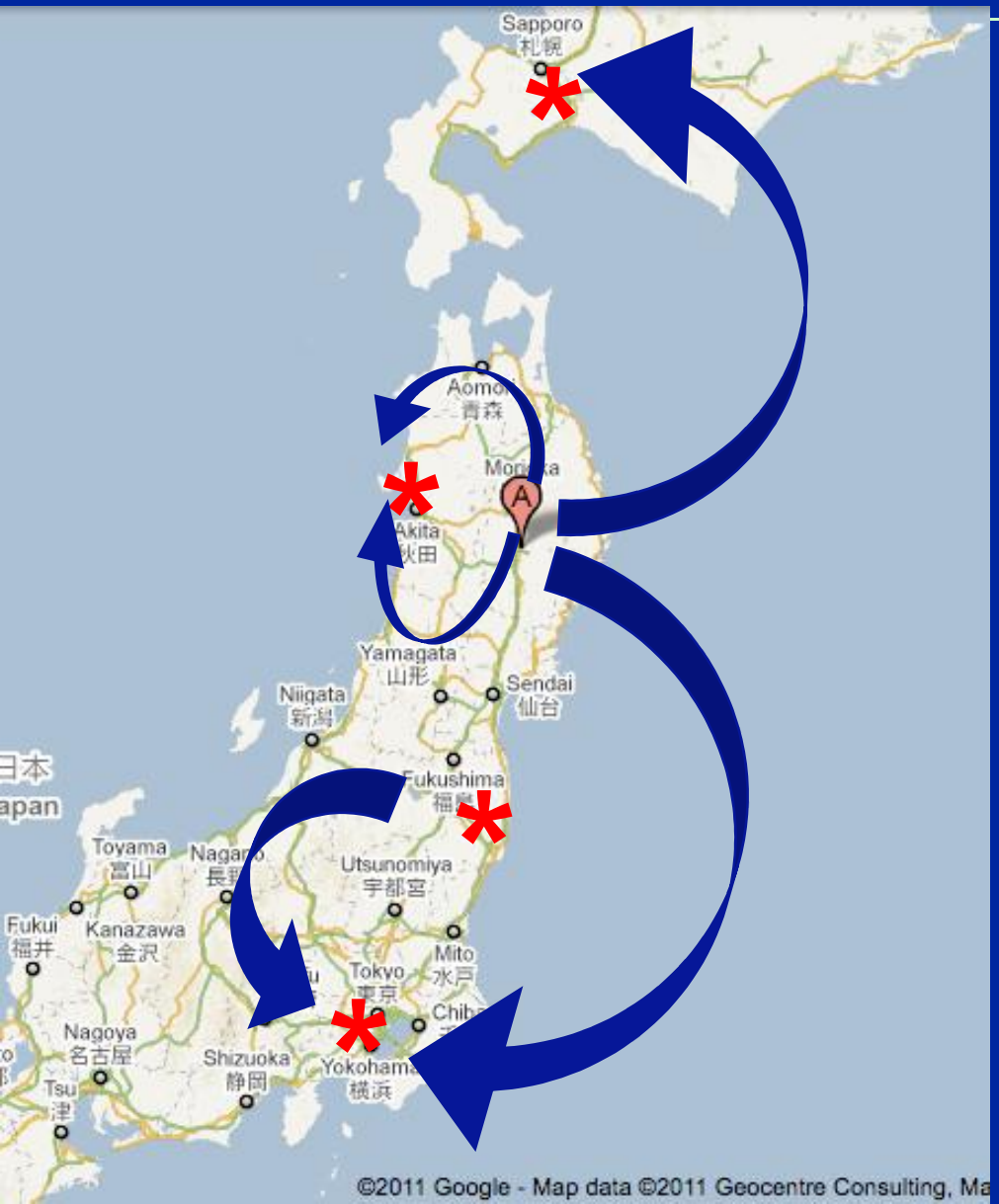
Activities of Hanamaki SCU-2



In 4 days, 136 patients were transported to Hanamaki SCU.

- Mainly from hospitals in affected area not in Iwate but in Miyagi prefecture.
- Mostly by various helicopters
- Some by ambulance

Long Distance Transport by SDF Aircrafts



- ✧ 3/12 : 4 Pts Hanamaki → Hokkaido
  3 Pts Fukushima → Tokyo
- ✧ 3/13 : 6 Pts Hanamaki →Tokyo
- ✧ 3/14 : 3 Pts. Hanamaki →Akita
- ✧ 3/15 : 3 Pts. Hanamaki →Akita

19 Pts.

the large-scale Air Transport by SDF fixed-Wing Aircrafts

An Example of Patients Transported via Hanamaki SCU- MATTS in EMIS -

- Pt.'s ID
- Name
- Age
- Gender
- Urgency
- Diagnosis
- Ventilator

Patient's Information

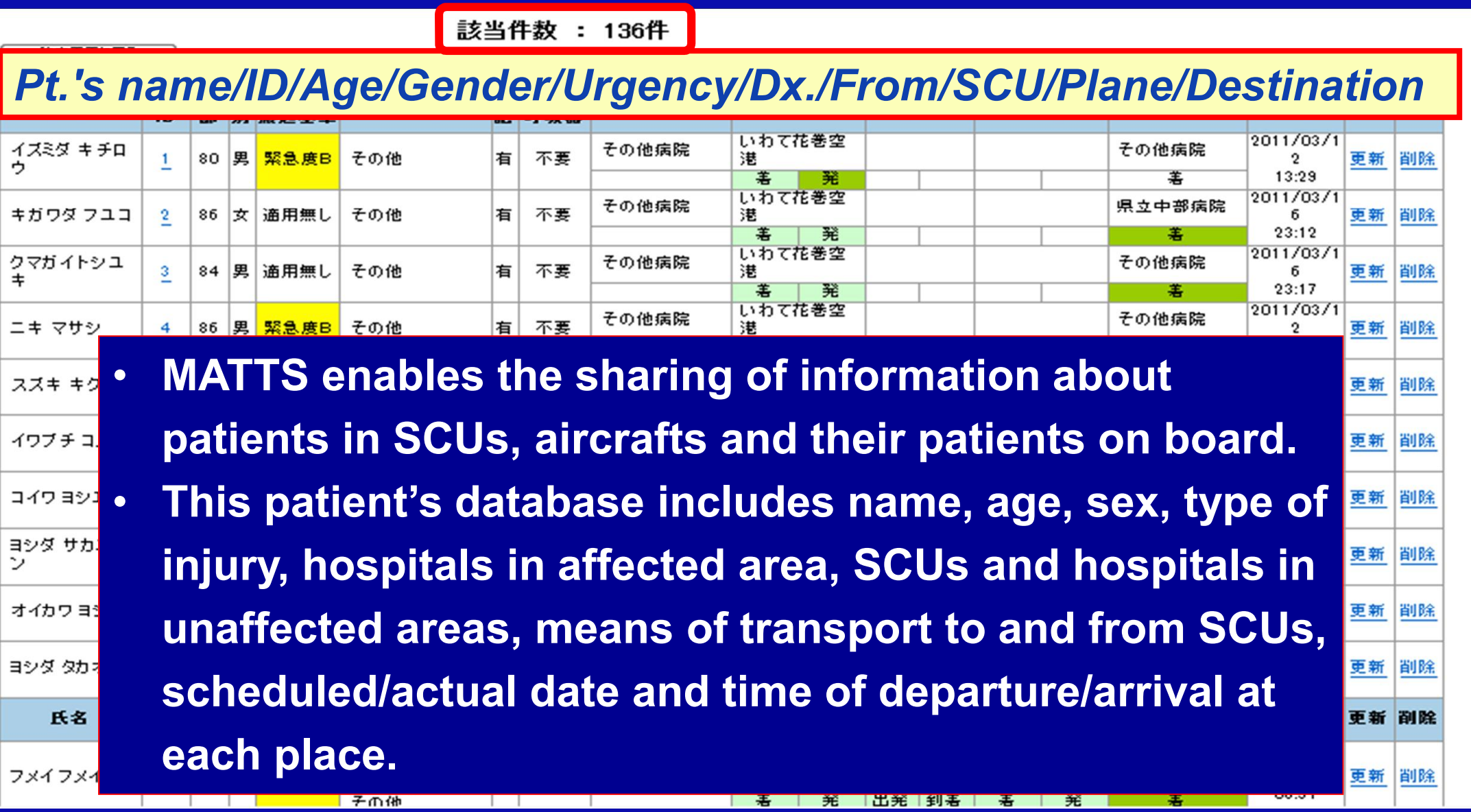
広域医療搬送患者	
患者ID	54
氏名（カナ）	[redacted]
年齢	45 歳
性別	男
広域医療搬送基準	緊急度A
傷病名	重症体幹四肢外傷
特記事項	右気胸。時々胸痛あり。6Ｌ02。ほ補助換気でSP02 95%。フレイルチェスト
人工呼吸器	要
入力者	西村努
更新日時	2011年03月26日 08時51分

Place & Means **Date & Time**

				定/済
被災地内災害拠点病院 ：			発	
↓				
SCU ：	いわて花巻空港	2011/03/12 18:40	着	済
		2011/03/12 20:00	発	済
↓	航空機： C-1	2011/03/12 19:55	出発	済
		2011/03/12 20:40	到着	済
域外拠点 ：	新千歳空港	2011/03/12 21:00	着	済
		2011/03/12 21:15	発	済
↓	ヘリ			
被災地外病院 ：	手稲渓仁会病院	2011/03/12 21:43	着	済

- From
- Name of SCU
- Aircraft
- Destination
- Hospital

A List of Patients Transported to Hanamaki SCU
- MATTS -



- MATTS enables the sharing of information about patients in SCUs, aircrafts and their patients on board.
- This patient's database includes name, age, sex, type of injury, hospitals in affected area, SCUs and hospitals in unaffected areas, means of transport to and from SCUs, scheduled/actual date and time of departure/arrival at each place.

Question

“Is there any good solutions to Ignorance and incuriosity toward EMIS?”

Case 3: JR Train Crash-Outline of the Accident

Occurrence: 9:18 am, 4/25/2005

Estimated passengers aboard:
approximately 700

No. Deaths: 107

No. Injured: 549
serious/moderately injured: 149
mild injury : 391

A commuter express train derailed and crashed into an apartment building, seriously damaging cars 1 to 3.

Case 3: Emergency Alert to Hospitals via EMIS

URGENT!
Train crash!
Number of the injured seems 30.

Send the number of the patient acceptable!

Case 3: Summary of S/R and Medical Response

- More than 5,000 rescuers including EMTs were mobilized from Fire Departments and Police Department in 4 days.
- 17 medical teams worked at the scene to provide triage, treatment, and transport with multiple EMTs, and 3 assisted neighboring hospitals.
- 3 medical teams, multiple EMTs and S/R teams eventually rescued with CSM the last 3 survivors whose bodies were trapped in the tangled wreckage of the first car.

Hyogo Emergency Medical Center, Kobe, JAPAN

Case 3: Confined Space Medicine

- DMATs and rescue teams performed CSM to three trapped victims with crush syndrome.
- The first one was rescued 14h 48mins, the second 17h 26mins, the third 21h 50 after the accident.
- The condition of all of them deteriorated at the last moment of the rescue operation and needed resuscitation.
- The three were hospitalized, and two of them survived.

a question:

“What changes has Mass Casualty Incident Alert System effected?”

Changes/ Improvements:

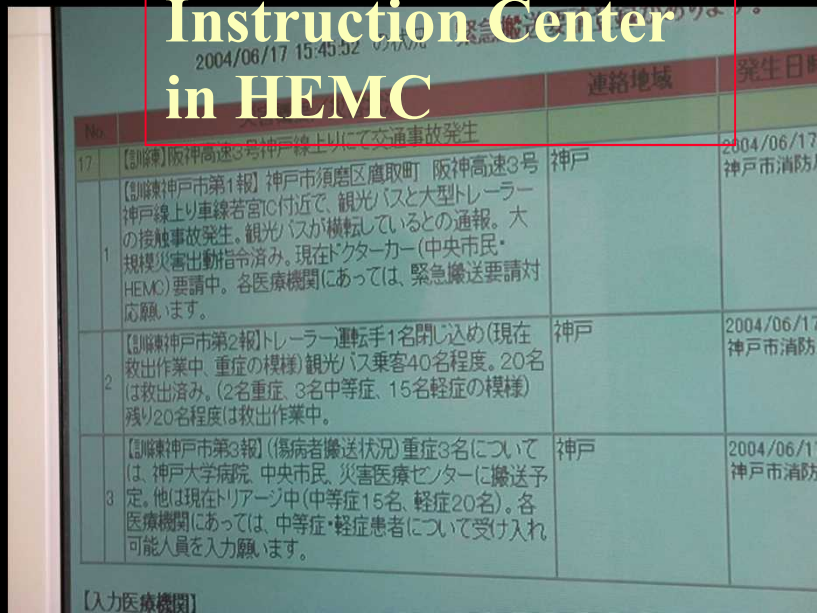
EMS and medical professionals started utilizing this alert system of EMIS for prompt response to MCIs on a daily basis.

→ They have got used to use the system effectively!

Frequent Communication Exercise

At JR Rokkomichi station

Information & Instruction Center in HEMC



Ignorance & incuriosity is the major obstacle!

Frequent usage on a daily basis and exercise of communication with EMIS is essential!

Flood Caused by Typhoon TOKAGE (October 2004)

Thirteen teams were dispatched in flood in Hyogo from key-hospitals for disasters and Red-Cross hospitals in Hyogo.

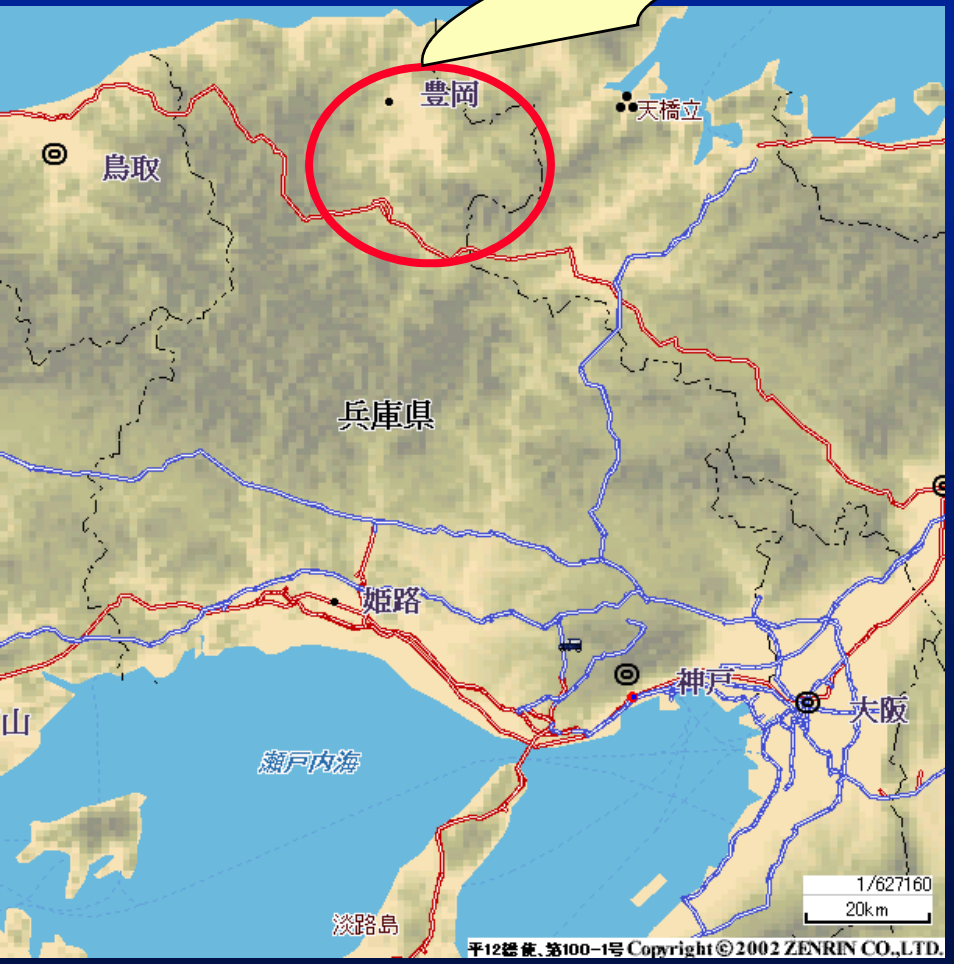
Hyogo Emergency Medical Center

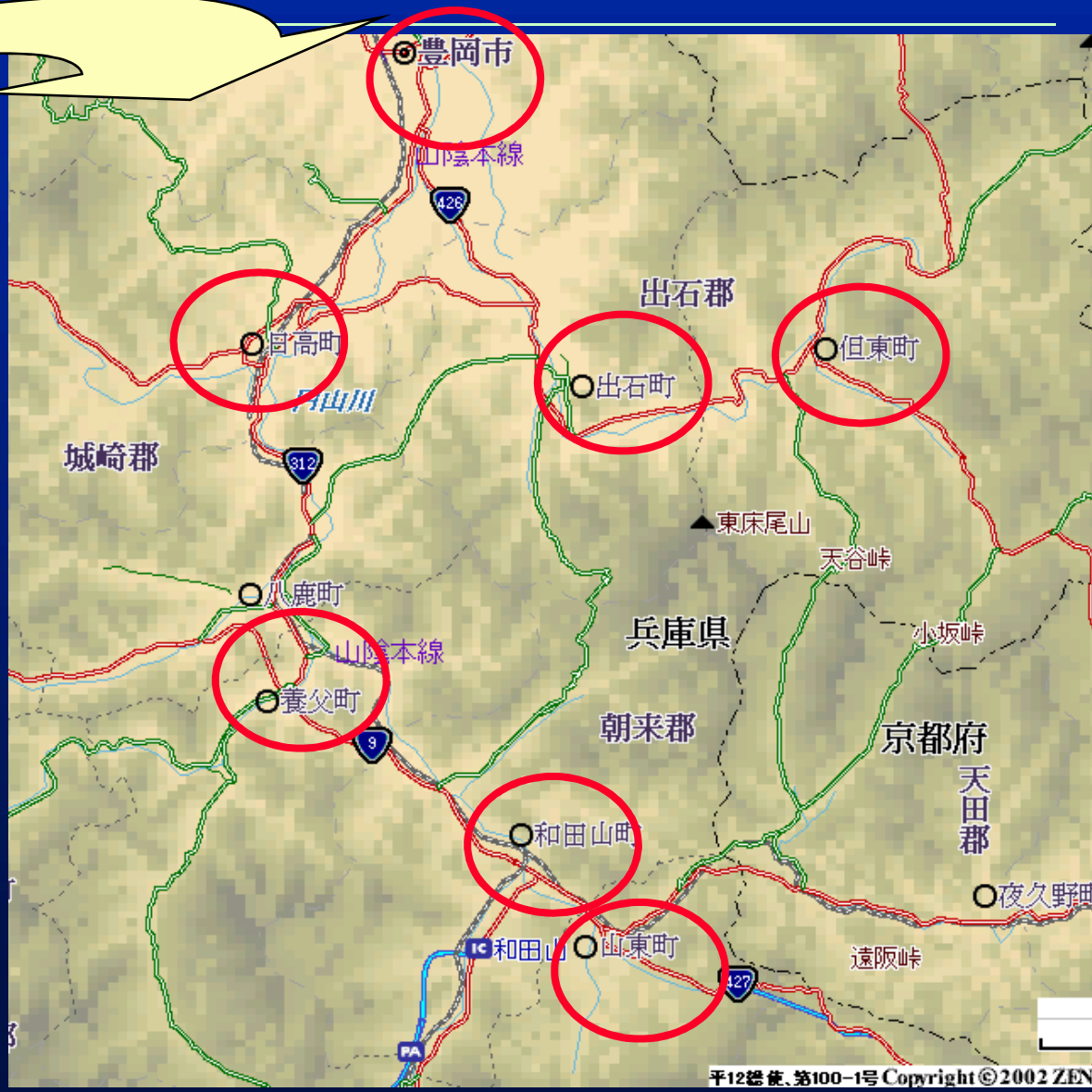
台風23号による但馬地域洪水災害(2004年10月)：公立豊岡病院

台風23号による但馬地域洪水災害(2004年10月)

- 兵庫県下の11災害拠点病院から５日間にわたって救護班派遣が行われた

主な被災地と救護班派遣先





救護班活動状況-1

救護所	救護班	活動日	患者総数
三江小学校、三江公民館（豊岡市）	兵庫県災害医療センター 神戸赤十字病院 柏原赤十字病院	10/22～24 10/22～25 10/25～26	135
豊岡小学校（豊岡市）	神戸大学附属病院	10/22～24	17
豊岡公民館（豊岡市）	神戸市立中央市民病院 兵庫医科大学病院	10/22～24 10/22～24	6
出石温泉乙女の湯（出石町）	姫路赤十字病院 中町赤十字病院	10/22～25 10/25～26	192
宿南ふれあい倶楽部（養父市）	赤穂市民病院 姫路循環器病センター 兵庫県災害医療センター	10/22～24 10/24～25 10/25～26	101
竹ノ内公民館（和田山町）	宝塚市立病院	10/22～24	12
センター若竹（和田山町）	県立加古川病院	10/22～24	8
巡回診療（出石町、豊岡市、山東町）	県立柏原病院	10/22～24	16
巡回診療（但東町）	姫路循環器病センター	10/22～23	4

http://www.sankei.com/

台風18号による大雨等被害

2015年9月10日

栃木県、茨城県、宮城県などの
各県に大きな被害をもたらした

茨城県
死者2名、行方不明1、重症2、軽傷22名
床上浸水4,841棟　床下浸水7,345
避難指示11,230世帯31,398人
避難勧告990世帯　2,775人

（消防庁発表9月16日　13:45現在）

日赤は栃木県・茨城県に対し第2ブロック広域支援体制で対応

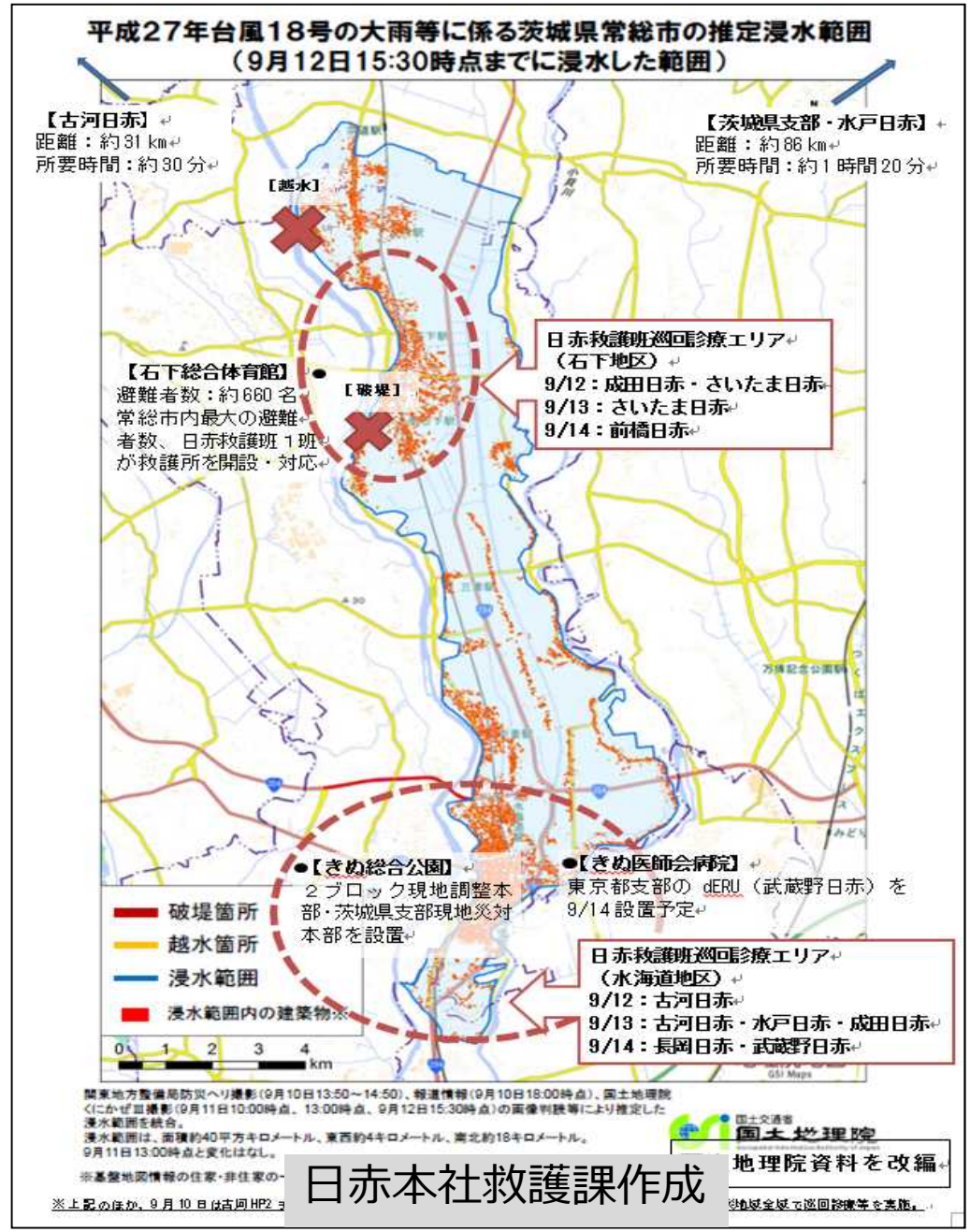
茨城県常総市被災地域

鬼怒川と小貝川に挟まれた地域

水害による医療に係る被害
・常総市役所、保健所の機能低下
・病院機能の低下・停止

9月11日～25日まで
17班の救護班による支援

救護所診療や巡回診療を実施



茨城県常総市
（常総地域災害調整本部：つくば保健所内）

（写真：前橋赤十字病院高橋先生提供）

dERUの医療機関施設としての使用
きぬ医師会病院仮設診療所

9月18日撮影

職員らにより電子カルテを設置

日赤は急患を
受け持つ