



The Great East Japan Earthquake - Where we are and where we are going -

Japan Hospital Association
Tsuneo Sakai, MD

Nature of the Great East Japan Earthquake

- Earthquake
- Tsunami
- Nuclear accident
- Groundless rumors
- “Beyond expectation”

Hard to get accurate information

- Number of Death from Asahi Shimbun

March 12

朝日新聞 2011年(平成23年) 3月12日 土曜日

44853号(日刊)

東京 11 横浜 10 千葉 10 埼玉 10 神奈川 10 新潟 10 長野 10 岐阜 10 愛知 10 大阪 10 福岡 10

朝日新聞東京本社 発行所：〒104-8011 東京都中央区築地5-3-2 電話：03-3545-0111 www.asahi.com

確認された被害者数

	死者	133人
	行方不明	530人
	負傷者	722人

(12日午前1時現在、警察発表のためのため、記事中の数字と違いがあります)

March 13

朝日新聞 2011年(平成23年) 3月13日 日曜日

44854号(日刊)

東京 11 横浜 10 千葉 10 埼玉 10 神奈川 10 新潟 10 長野 10 岐阜 10 愛知 10 大阪 10 福岡 10

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確認された被害者数

死者	686	行方不明	642	負傷者	1426
総計					

March 14

朝日新聞 2011年(平成23年) 3月14日 月曜日

44855号(日刊)

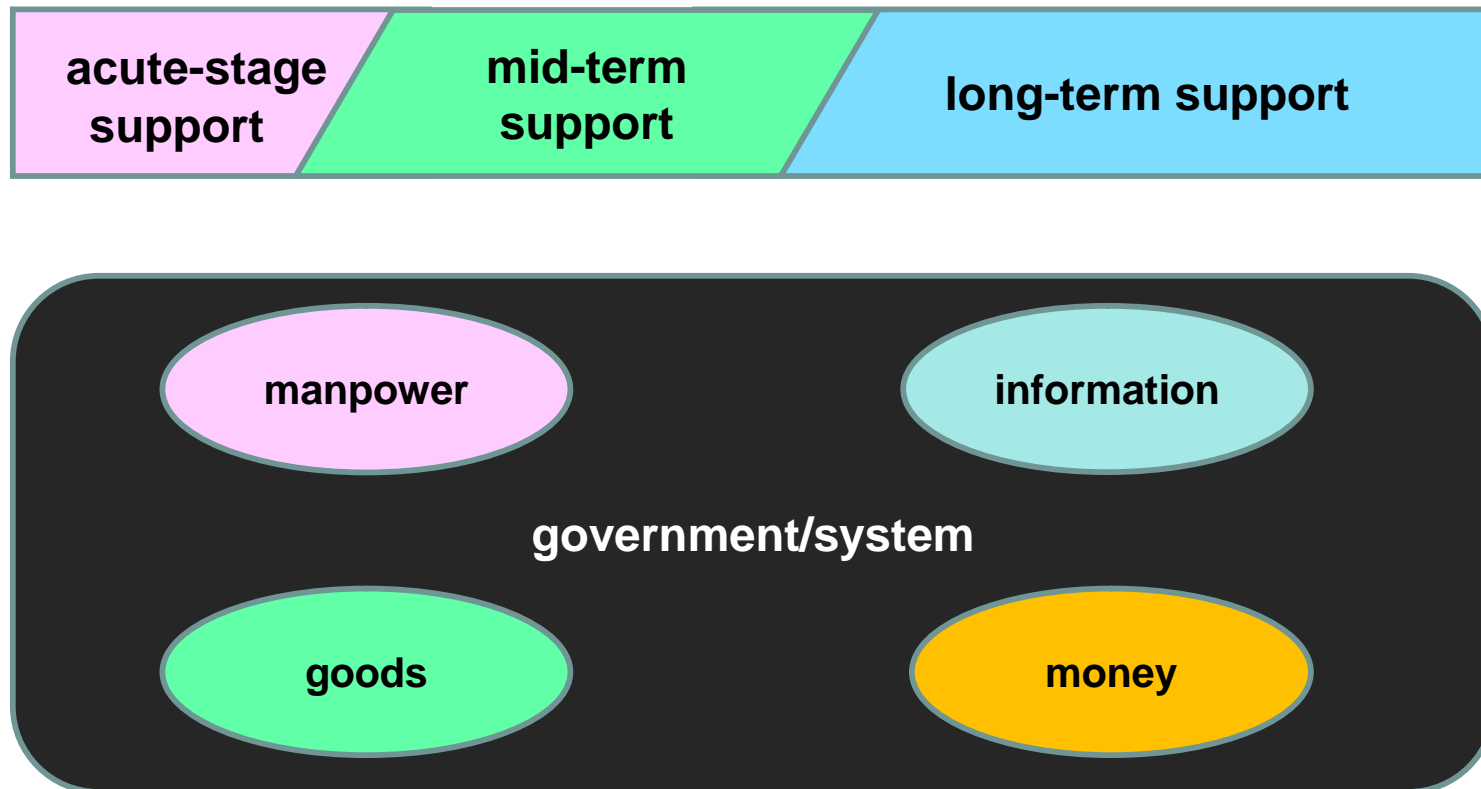
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被害者数 朝日新聞社とめ 14日午前0時現在

死亡	1,697人以上	安否不明	12,412人以上
総計			

Disaster Support System



Acute Stage Support

- **System**
 - Establishment of special disaster committee in JHA
 - Cooperation with the government
- **Manpower, goods, money**
 - Disaster Medical Assistance Team (DMAT)
 - A team of doctors, nurses and medical personnel
 - Over 340 teams were deployed
 - Japan Medical Assistance Team (JMAT)
 - Support of evacuation areas
 - Over 700 teams were deployed
 - Acceptance of patients
- **Goods: drugs and medical supplies**
- **Information: use of GIS**

Mid to Long-term Support

- **Manpower, goods, money**
 - Long-term support of medical staffs
 - Support for mental health care
 - Donation
 - Exemption of membership fees
- **Government & system**
 - Reestablishment of healthcare delivery system
 - Reestablishment of lifelines, medical supply delivery system
 - Reorganization of disaster medical system
 - Reestablishment of disaster recovery system
 - Reinforcement of prefectural hospital organizations
 - Follow-up survey

Use of Geographic Information System (GIS)

- Information collection within 2-3 days
- Aero photography data, earthquake scale and tsunami depth data, medical equipment data*
- Able to add many other information
- Fairly precise estimate of the damage
- Visual understanding of the amount of the damage
- Use for transportation, evacuation plan
- Oversee the damage of wide areas

* Data were cordially provided by the following corporations

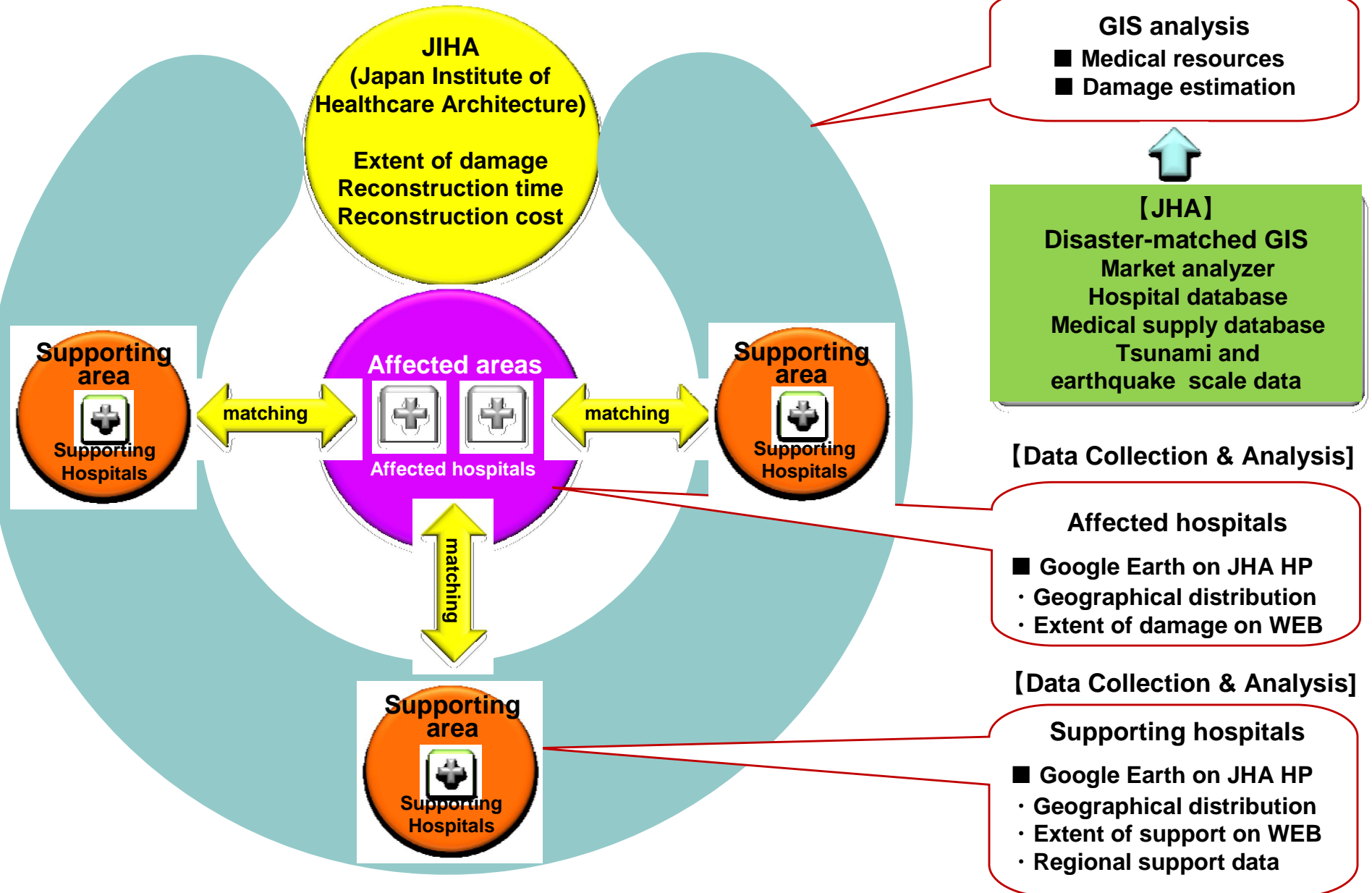
Giken Kagaku International

Kokusai Kogyo

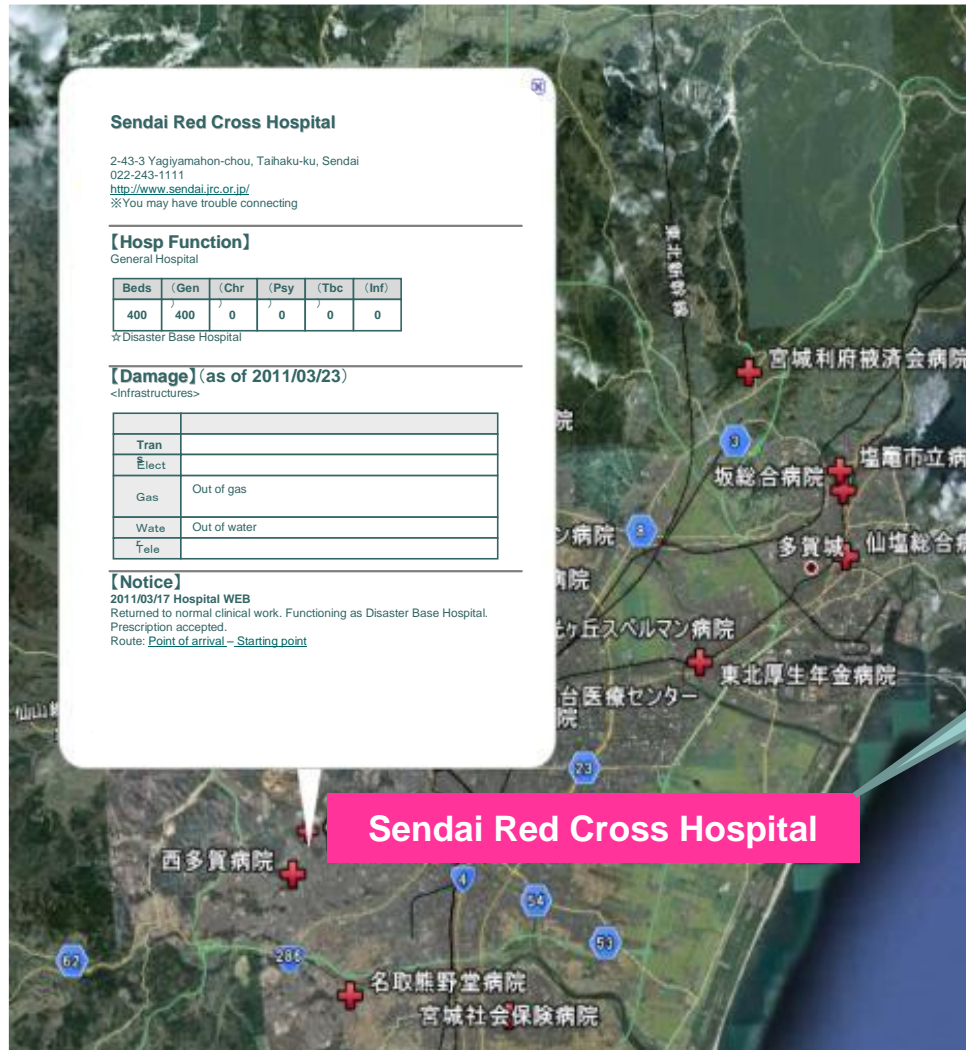
New Medicine

Disaster Recovery System

Collaboration of Government, Hospital Organizations and Corporations



Hospital Information on Google Map



Sendai Red Cross Hospital

2-43-3 Yagi Yamahon-chou, Taihaku-ku, Sendai
022-243-1111
<http://www.sendai.jrc.or.jp/>
※You may have trouble connecting

[Hosp Function]
General Hospital

Beds	(Gen)	(Chr)	(Psy)	(Tbc)	(Inf)
400	400	0	0	0	0

☆Disaster Base Hospital

[Damage] (as of 2011/03/23)
<Infrastructures>

Tran	
Elect	
Gas	Out of gas
Water	Out of water
Tele	

[Notice]
2011/03/17 Hospital WEB
Returned to normal clinical work. Functioning as Disaster Base Hospital.
Prescription accepted.
Route: [Point of arrival](#) - [Starting point](#)

Sendai Red Cross Hospital

Obtain hospital
information by
clicking the name



Estimation of Hospital Damage - Iwate Prefecture

Hospital	Location	Total beds	Earthquake scale	Tsunami depth
Miyako Daiichi	Miyako City	148	5 weak	0m ~ 1m
Takada	Rikuzen Takada City	136	6 weak	11m ~ 12m
Nozomi	Kamaishi City	250	6 strong	1m ~ 2m
Kuji	Kuji City	81	5weak	1m ~ 2m
Yamada	Yamada City	60	5 weak	4m ~ 5m
Otsuchi	Otsuchi Town	121	5 strong	9m ~ 10m

Iwate

- Iwate Prefectural Takada Hospital



Miyagi

- Location Made a Big Difference

Before tsunami



Ishinomaki Red
Cross Hospital

After tsunami



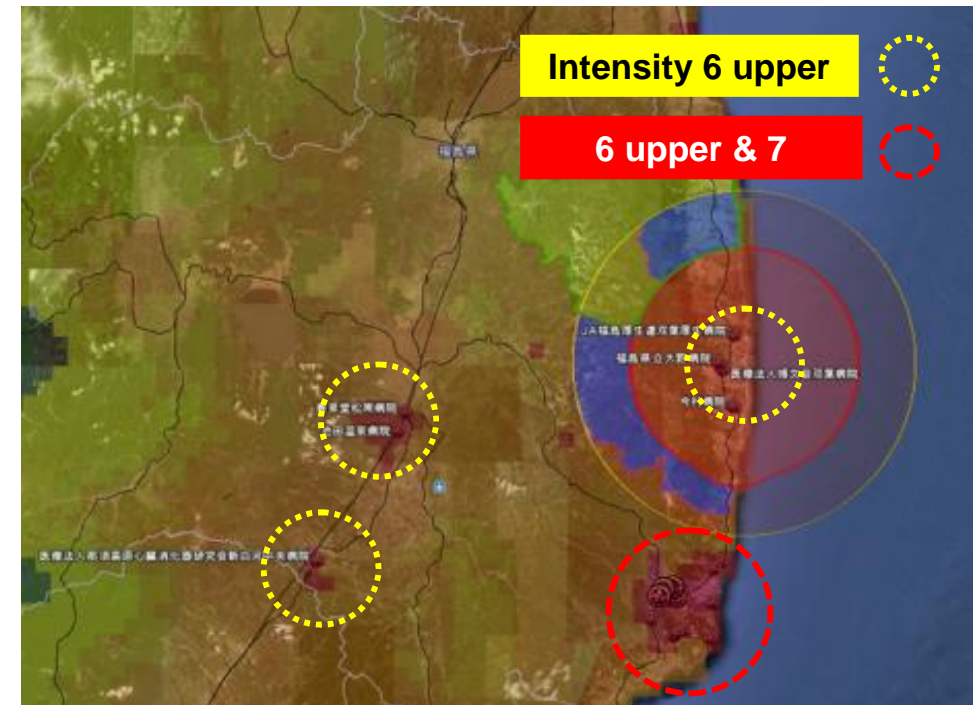
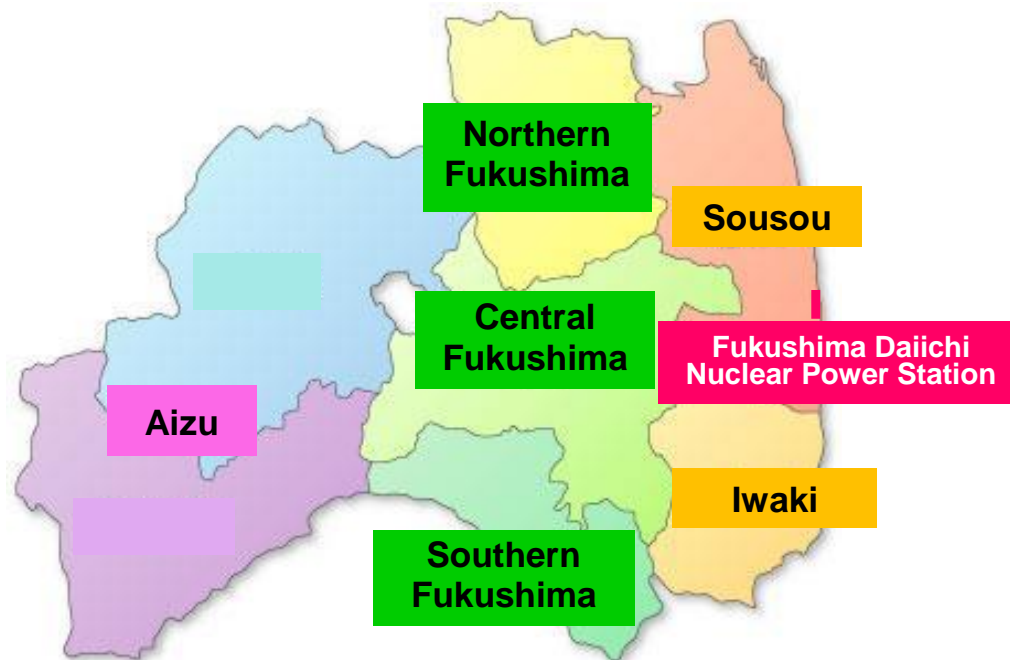
Ishinomaki
City Hospital



Hospital Damage in Fukushima

- Fukushima Hospital Association

- Questionnaire survey: 81 hospitals April 18 – 29, 2011
- Evacuation of inpatients: Earthquake & tsunami:12 Nuclear damage:16



Fukushima

- National Hospital Organization Iwaki Hospital



Hospital Activities in Fukushima

Activity	Aizu	Northern Fukushima	Central Fukushima	Southern Fukushima	Sousou	Iwaki	Total
Regular	10/12	6/14	6/14	3/6	2/2	3/9	30/57
Limited dam.	1/1	1/1	5/2	0/0	2/3	3/2	12/9
Outpatient only	0/0	1/0	4/1	0/0	0/1	0/1	5/3
Limited Outpatient	1/0	3/0	5/3	1/0	0/0	1/0	11/3
ER only	0/0	3/0	0/0	1/0	3/0	2/0	9/0
Closed	0/0	0/0	0/1	0/0	0/8	2/0	2/9

* Number of hospitals: Immediately after / 8 weeks after

Lifeline Damage in Fukushima

- Days needed for restoration

	Aizu	Northern Fukushima	Central Fukushima	Southern Fukushima	Sousou	Iwaki
Water	1	5	5	4	7	13
Electricity	0	1	0	0	1	0
Gas	0	1	3	2	0	1
Liquid O2	0	0	0	2	2	0
Fuel Oil	7	7	4	8	9	10
Drugs	8	6	7	8	9	13
Med Supplies	8	7	4	10	9	13
Foods	13	10	4	11	13	15
Staff Gasoline	17	17	15	18	17	21

Fukushima I Nuclear Accidents

- Damage due to the accidents

	Aizu	Northern Fukushima	Central Fukushima	Southern Fukushima	Sousou	Iwaki	Total
Evacuation	0	0	0	0	7	0	7
Self-evacuation	0	0	0	0	8	1	9
Reduced practice	0	0	0	0	3	6	9
No change	14	15	20	6	1	3	59

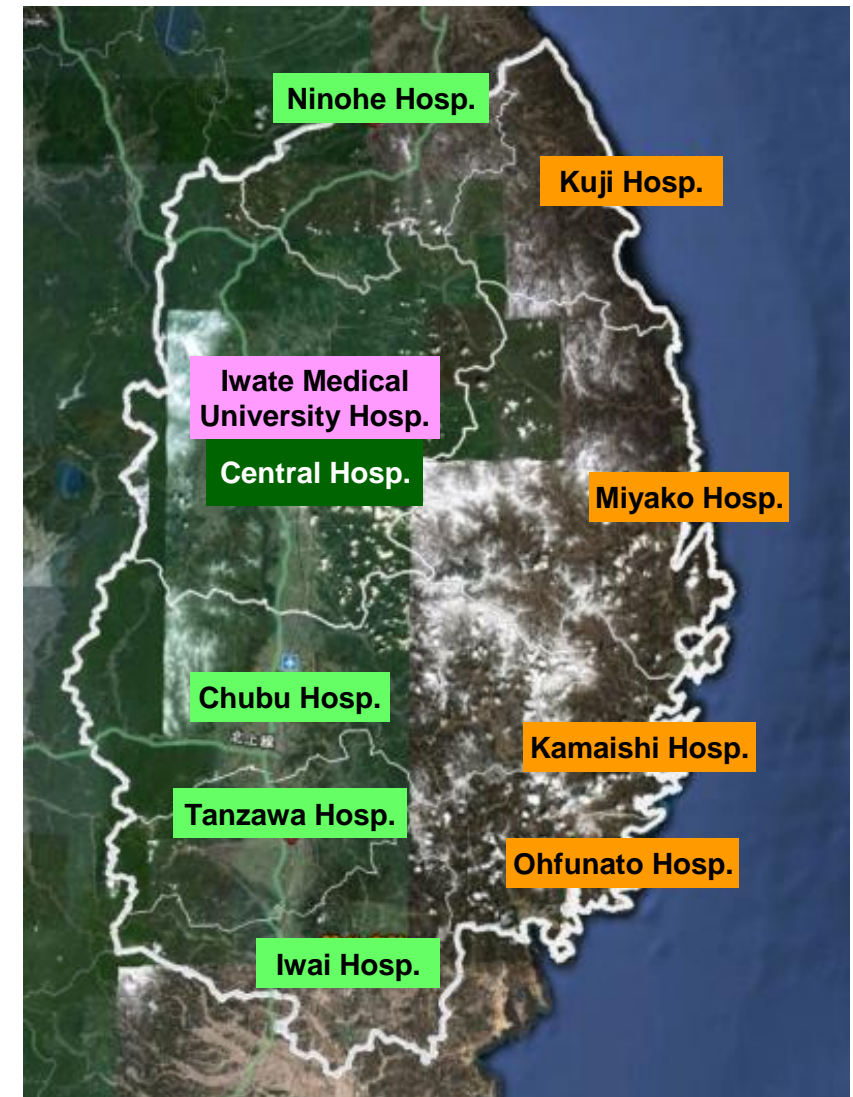
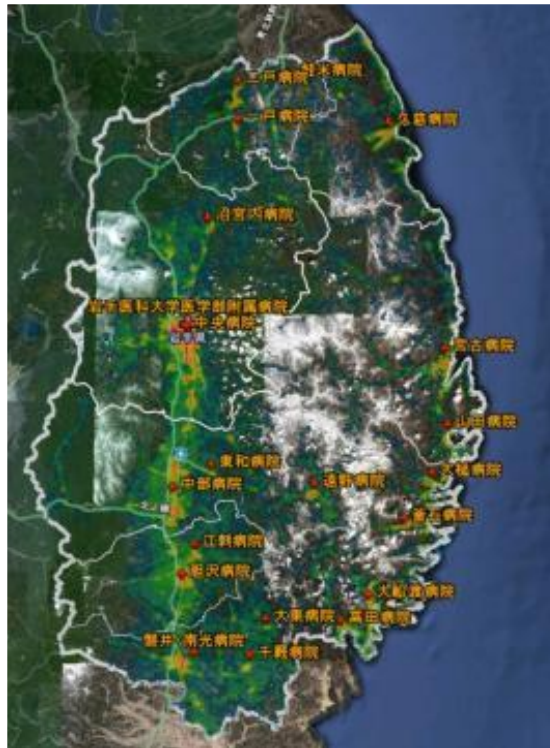
* Total number of evacuated patients: 1,333

Fukushima I Nuclear Accidents - Healthcare Worker's Response

	Aizu	Northern Fukushima	Central Fukushima	Southern Fukushima	Sousou	Iwaki	Total
Total Employee	744	4068	4695	1639	1016	2940	15102
Withdrawal /retiree	0/0	21/10	119/45	5/1	273/107	370/62	788/225
%	0/0	0.5/0.2	2.5/1.0	0.3/0.1	26.9/10.5	12.6/2.1	5.2/1.5
Physicians	0/0	3/1	8/6	2/1	6/6	9/5	28/19
Nurses	0/0	8/3	80/28	3/1	55/51	290/30	538/113

* Immediately after / 8 weeks after

Reconstruction of Healthcare Delivery System in Iwate



Well preparedness - Ishinomaki Red Cross Hospital

- **Ishinomaki City: population of 160,000**
- **Half of 60,000 hoses were destroyed by tsunami**
- **Two core hospitals**
 - **Ishinomaki Red Cross Hospital: 402 beds, inland, hill side**
 - **Ishinomaki City Hospital: 206 beds, costal area**
 - **completely destroyed by tsunami, total function loss**
- **Ishinomaki Red Cross Hospital**
 - **New hospital : May 2006**
 - **Joint committee for disaster medicine: January 2010**
 - members from local government, core hospitals, medical associations, self-defense forces, police department**
 - **Disaster medicine coordinator: February 2011**
 - **After March 11**

In Conclusion

No such word as

“beyond expectations.”

We have a Japanese saying

“well prepared means no worries.”