



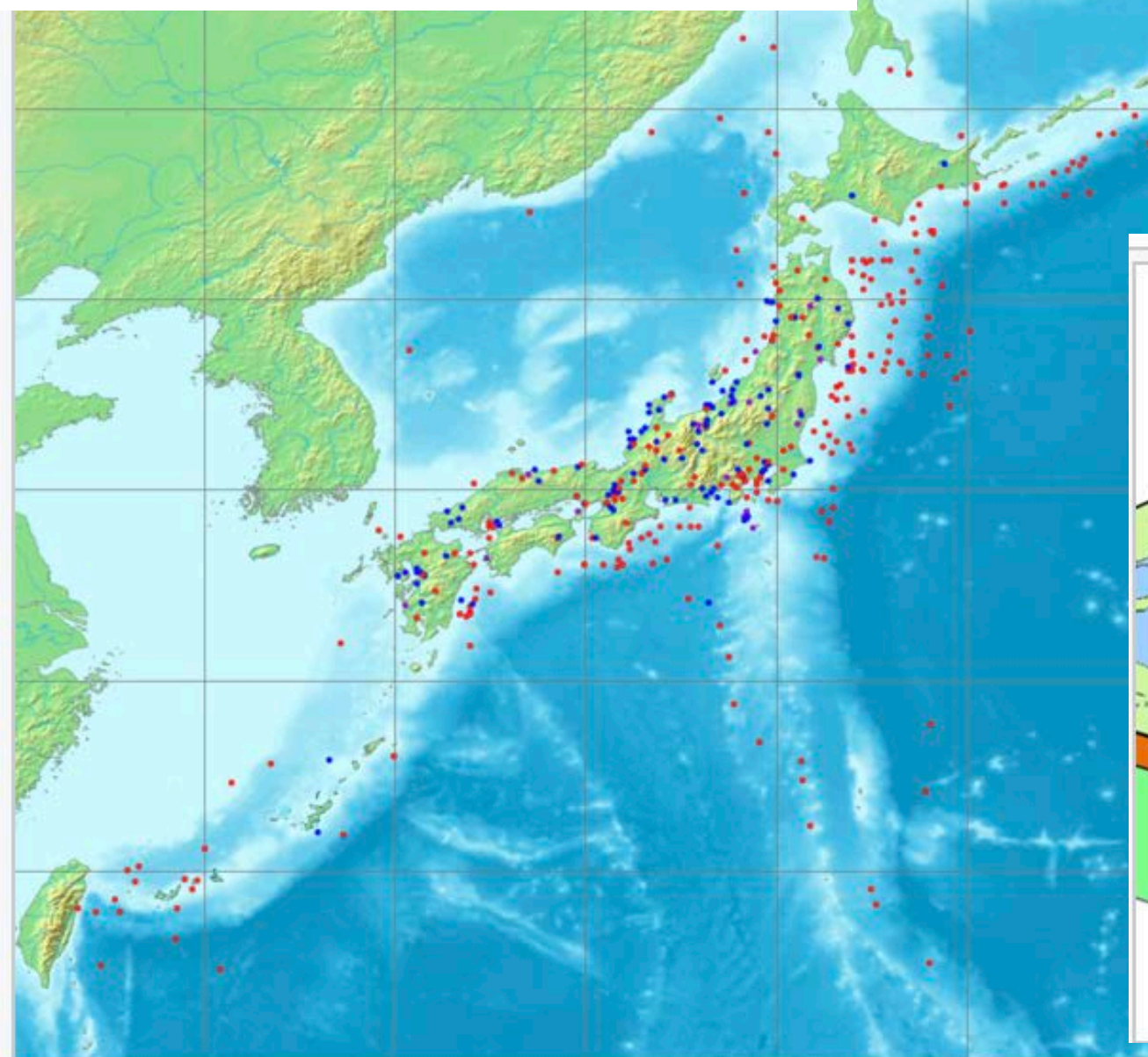
**Responses of  
the Japan Medical Association  
to the Earthquake Disasters**

**Kinya Hamaguchi  
Executive Board Member**



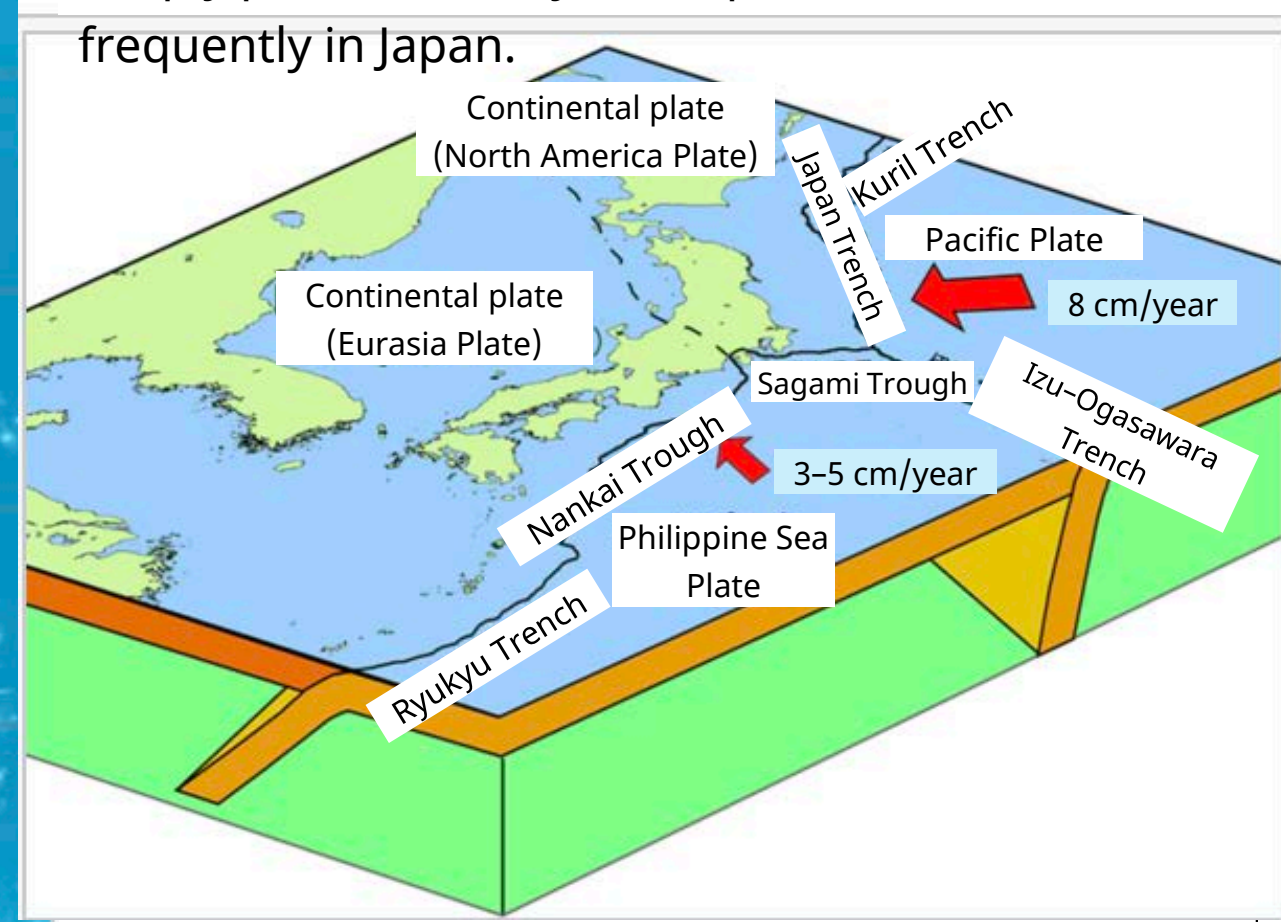
**Japan Medical Association**

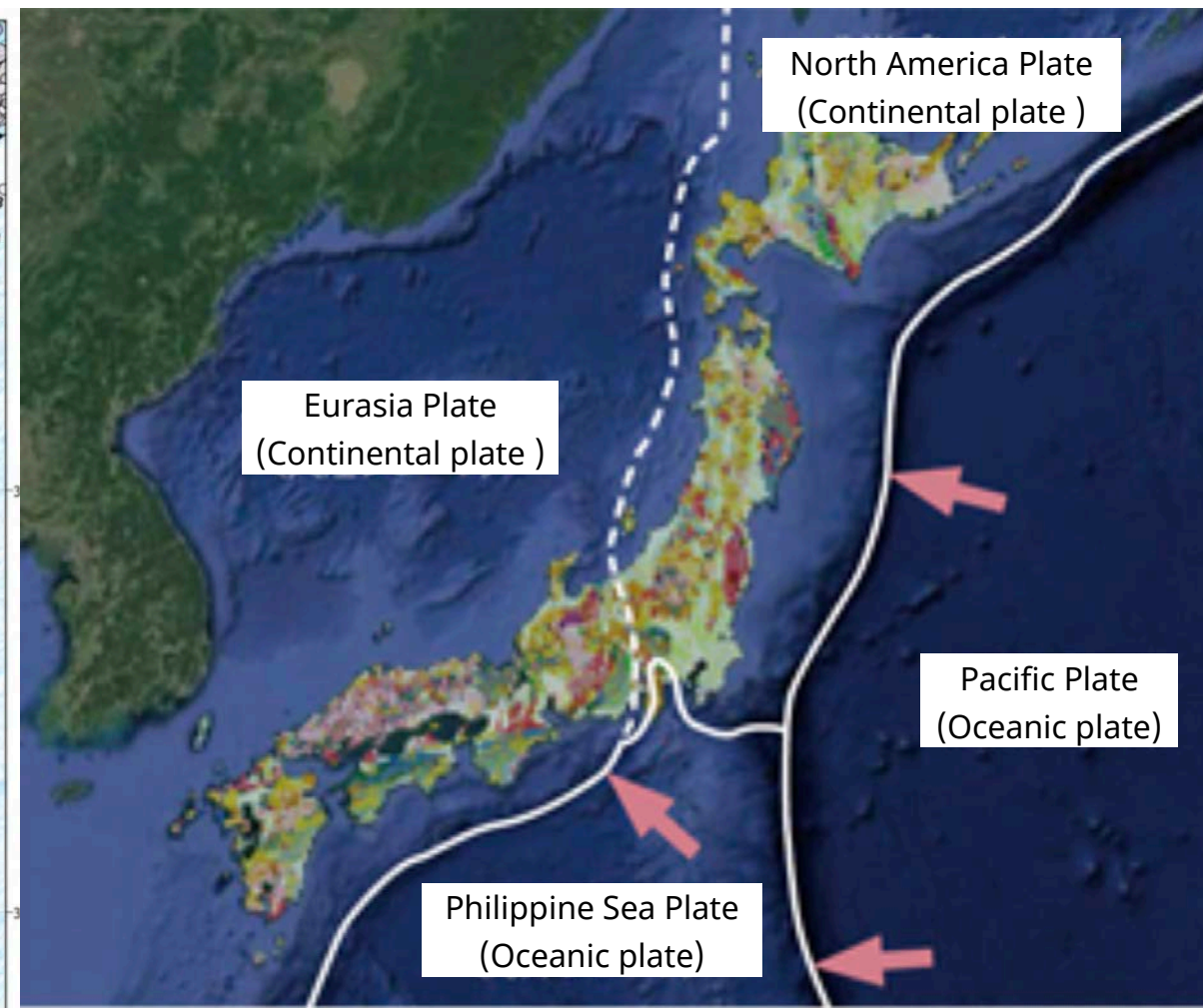
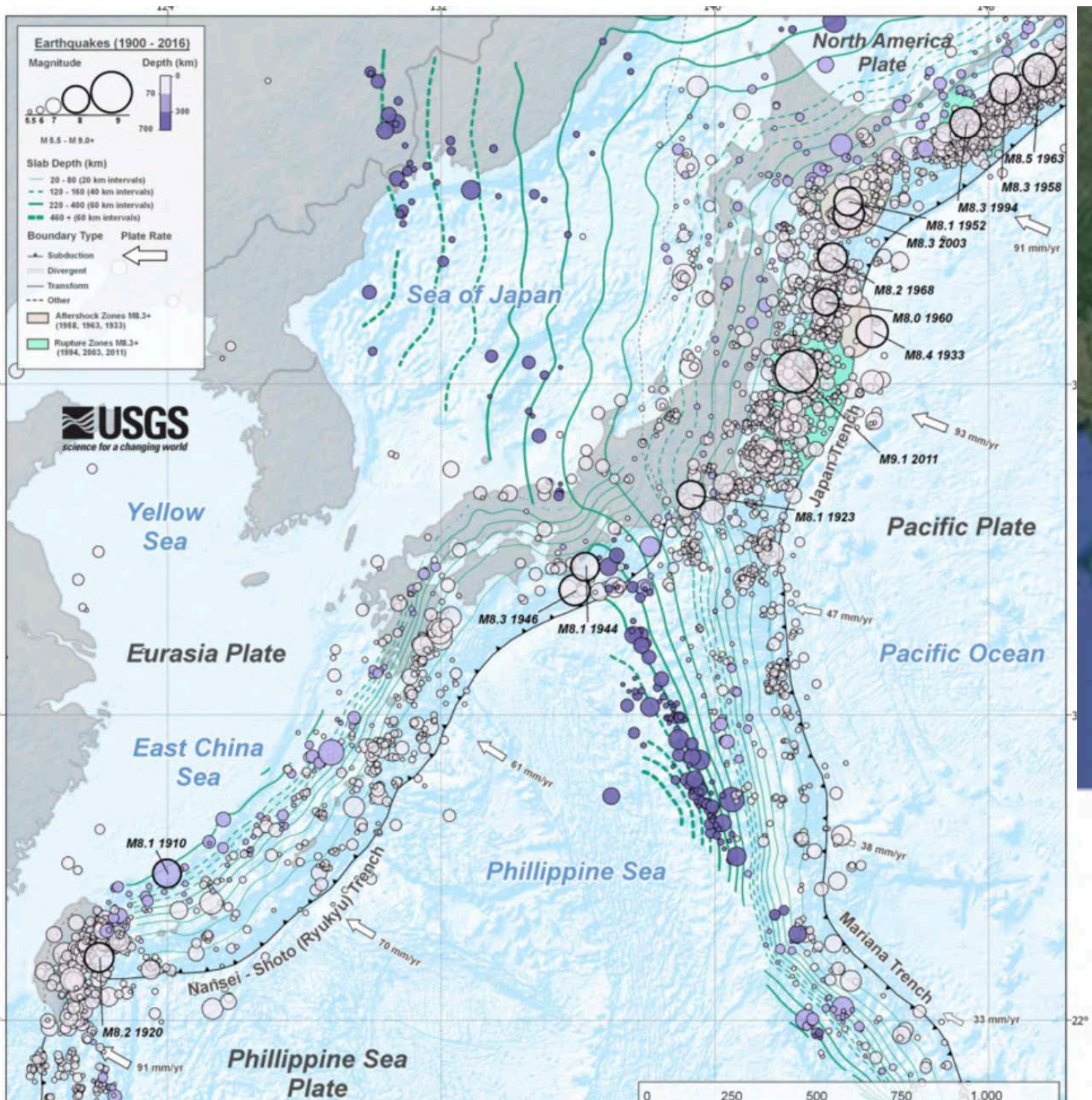
**Epicenters of major past earthquakes in Japan** Red: Magnitude 7 or larger, Blue: Other earthquakes with fatalities, Purple: Maximum seismic intensity of 6 or higher.



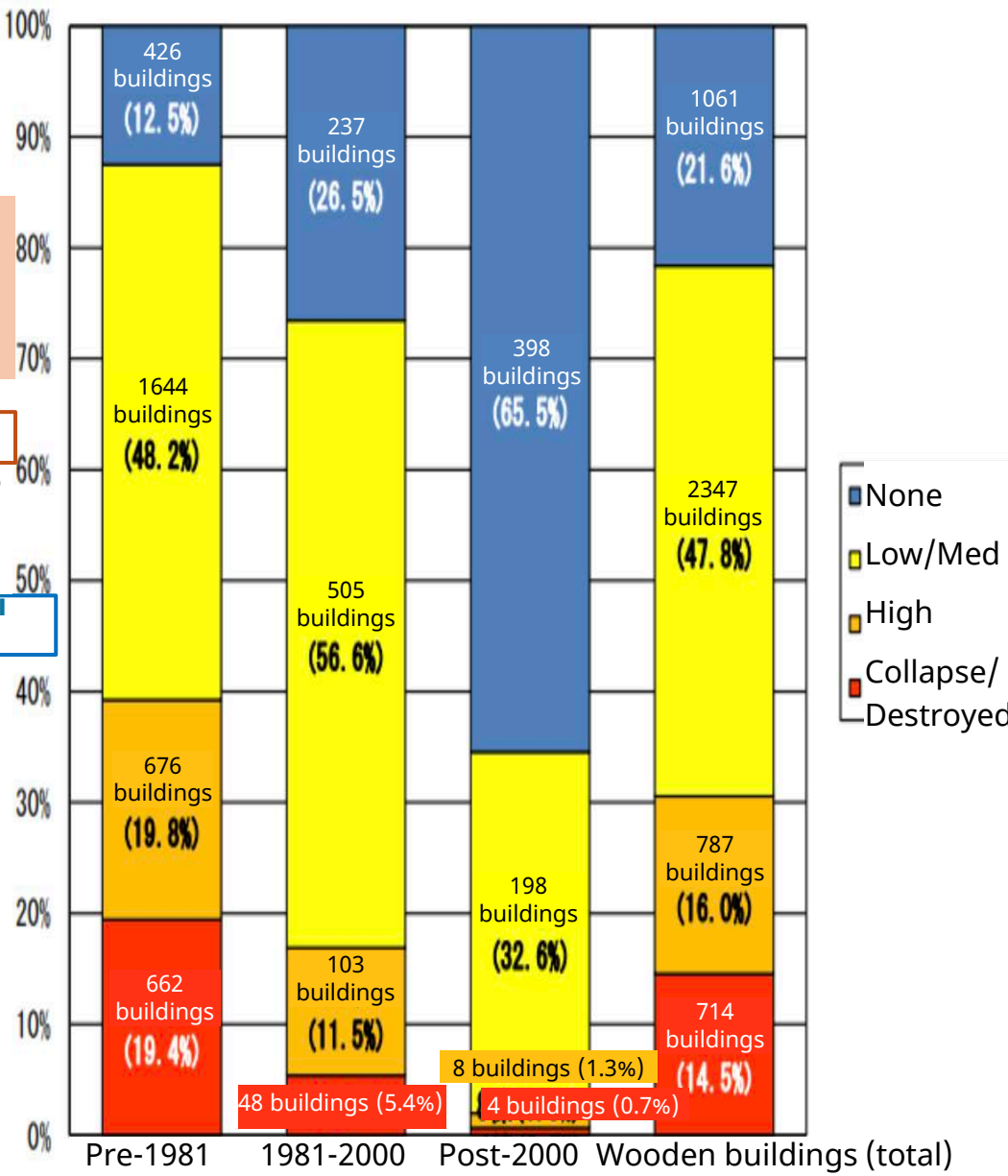
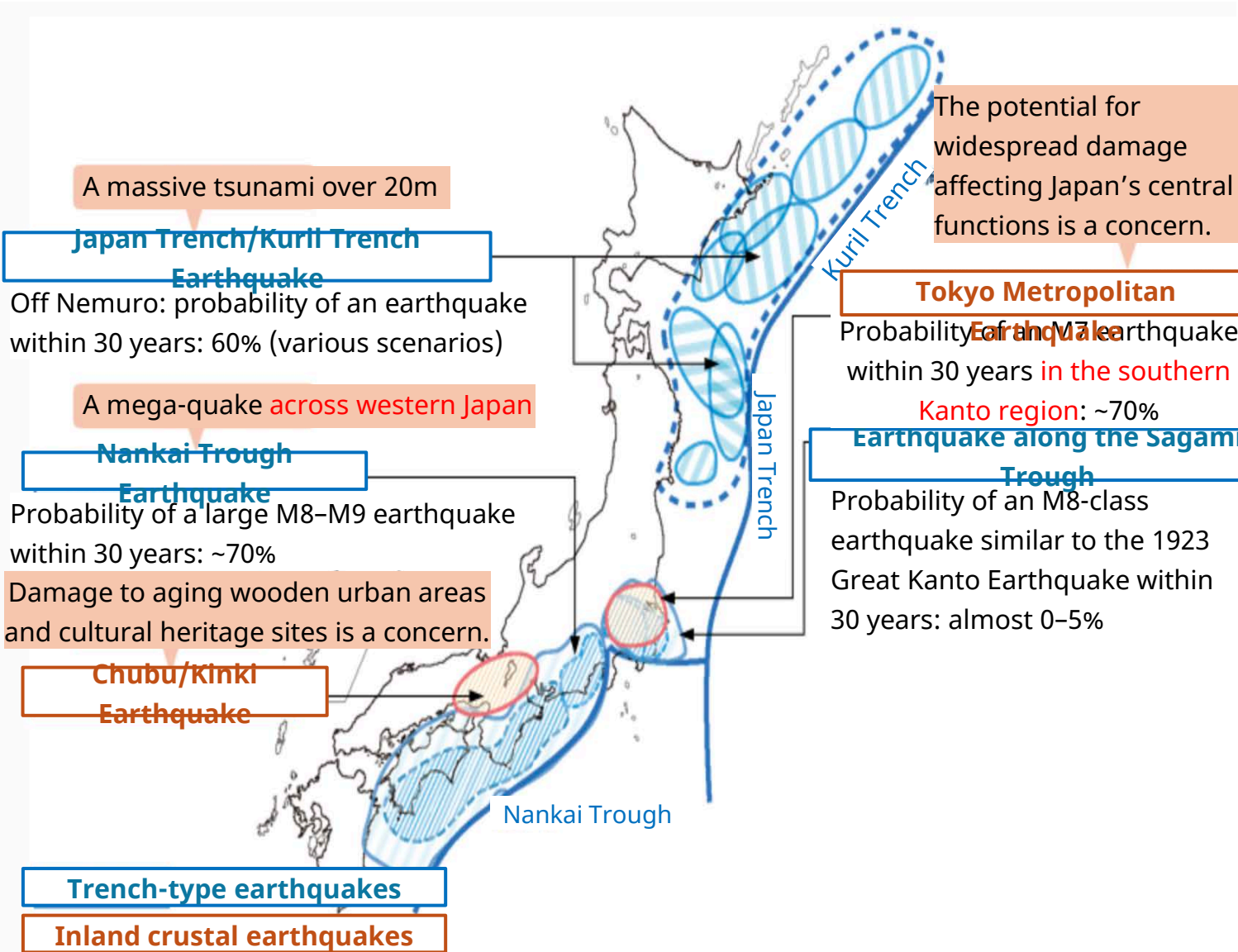
**Schematic diagram of tectonic plates around Japan** Multiple plates collide, creating a complex structure.

Simply put, this is why earthquakes occur so frequently in Japan.

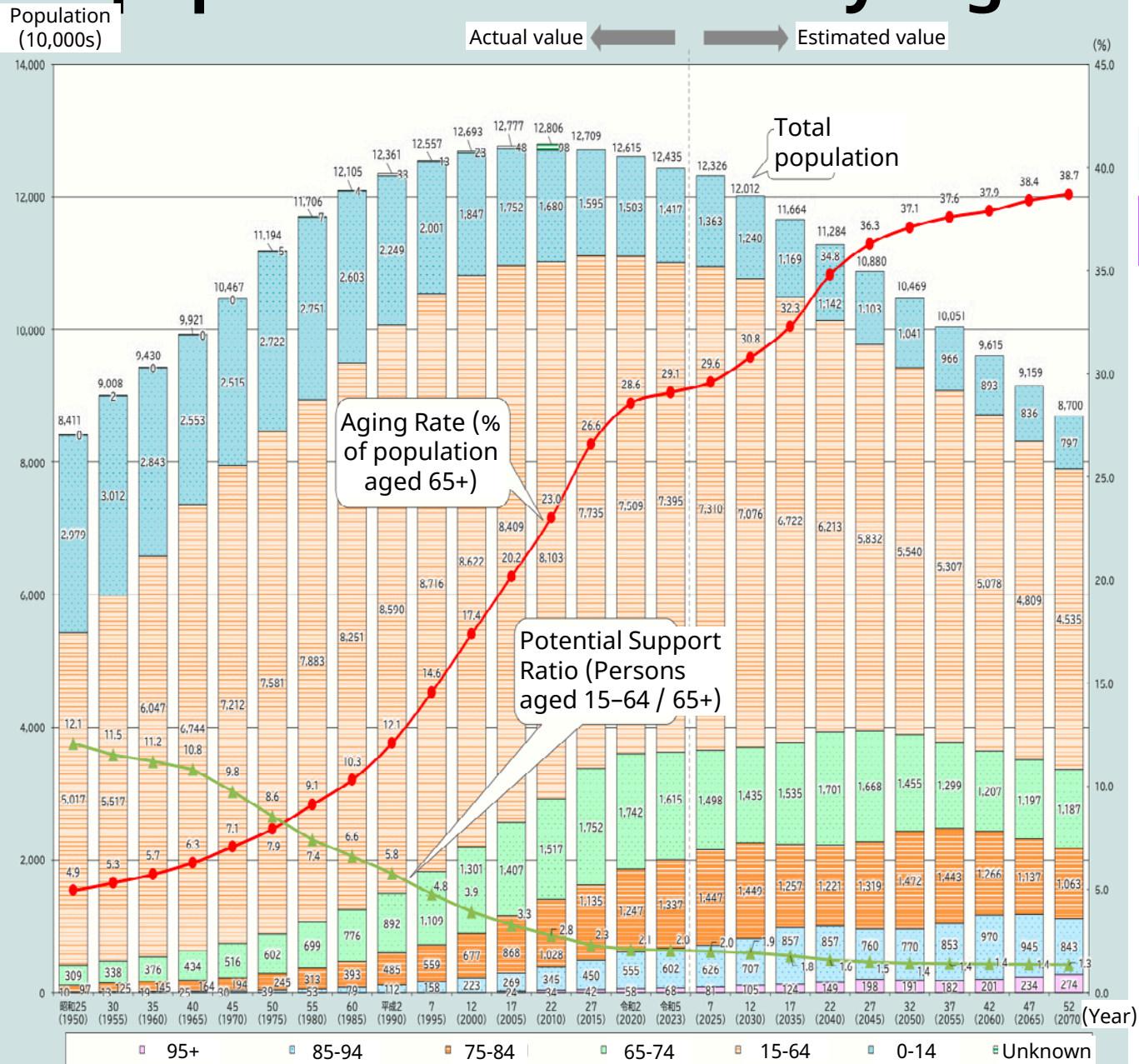




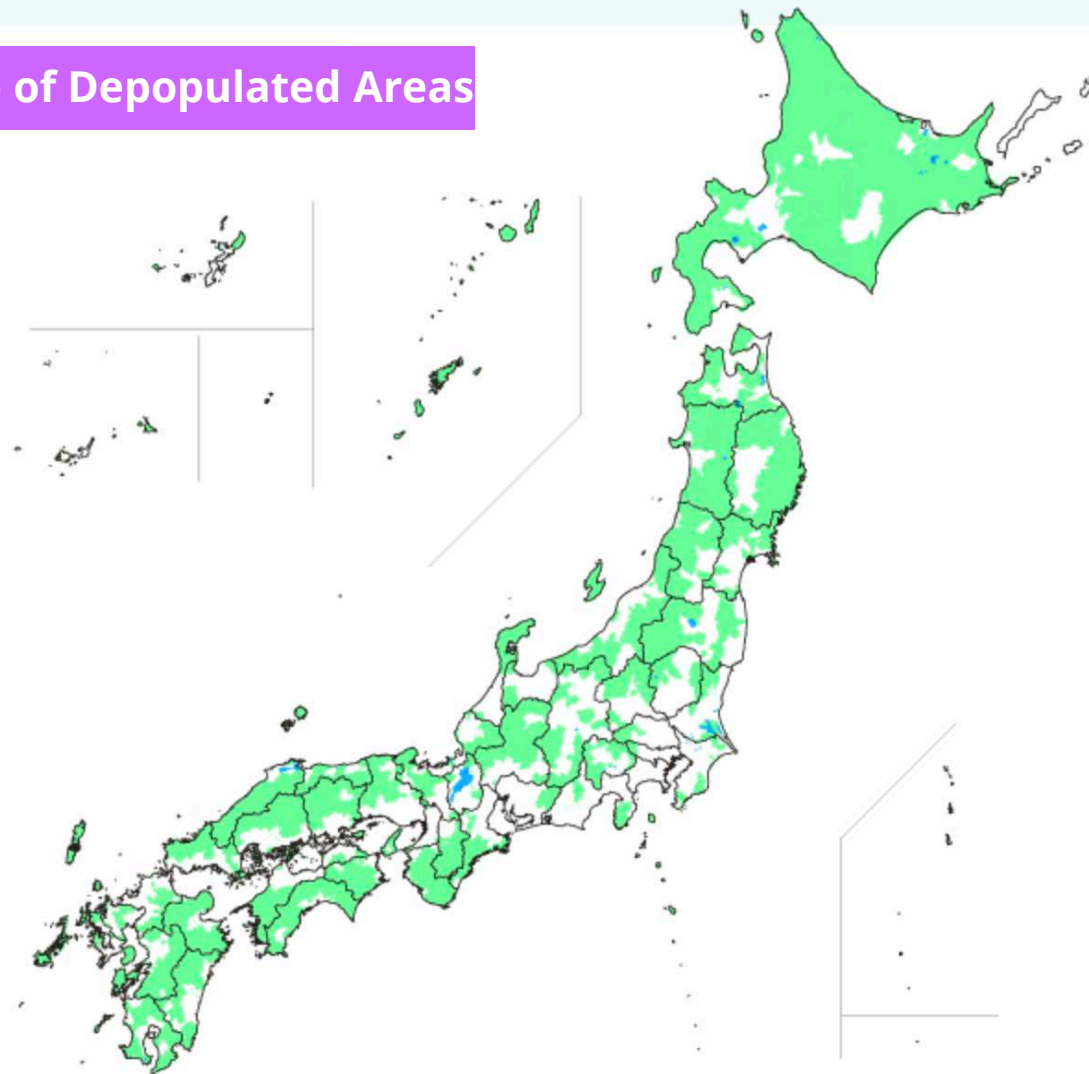
# Direct earthquake damage in Japan comes from tsunamis, building collapses and fires.



# Japan faces population decline, an aging society, and depopulation across many regions.



Map of Depopulated Areas



# Characteristics of Medical Services in Japan

- **Access to medical services is excellent.**
  - Medical services in normal times are provided by public insurance services available to all citizens.
  - Patients can use public insurance at almost all medical institutions.
  - People can easily receive medical treatment from physicians even for mild cases such as colds.
- **In light of the super-aging society, “community-based integrated care systems” have been established mainly for the elderly nationwide.**
  - The system focuses on medical and nursing care.
- **During a disaster, the provision of medical and nursing care becomes difficult.**
  - Therefore, medical support activities to cover them are required.
- **Medical associations are responsible for developing medical and nursing care systems in the community.**
  - **Three-tiered structure** consisting of municipal medical associations, prefectural medical associations, and the Japan Medical Association
  - **Medical associations are not public organizations**, and they act as associations of physicians.
  - During a disaster, a disaster medical team “JMAT” is formed and dispatched to the affected area.

# Disaster Medicine in Japan

## Patients covered by disaster medicine in Japan

- In the 1995 Great Hanshin-Awaji Earthquake, focus was placed on crush syndrome, thermal burns, etc. (confined space medicine).  
→ Establishment of the Japanese Disaster Medical Assistance Team (DMAT)
- **In the 2011 Great East Japan Earthquake, most deaths were caused by tsunami, and few people were seriously injured.** As a result, medical teams were mainly responsible for the health management and medical care of large numbers of evacuees and the prevention of disaster-related deaths.
- In a super-aged society, patients are assumed to be similar to those found in the Great East Japan Earthquake.

## Characteristics of disaster medical teams in Japan

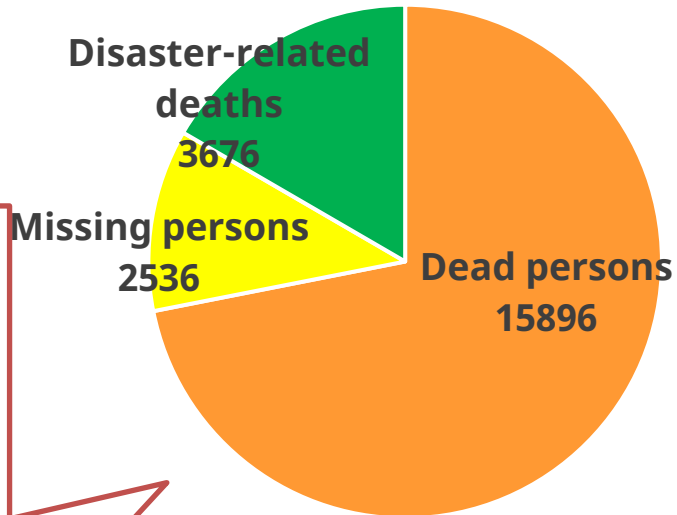
- Support activities that **integrate** health, medical care, and welfare are necessary in light of the increase in the number of elderly people
- Dispatchers of disaster medical teams are **diverse**. They are not limited to DMATs and Japanese Red Cross Society teams.
- **Coordination functions** are required.
- **Information sharing** is important.

⇒ **How should the medical associations' disaster medical teams be?**

# Disaster-related Deaths

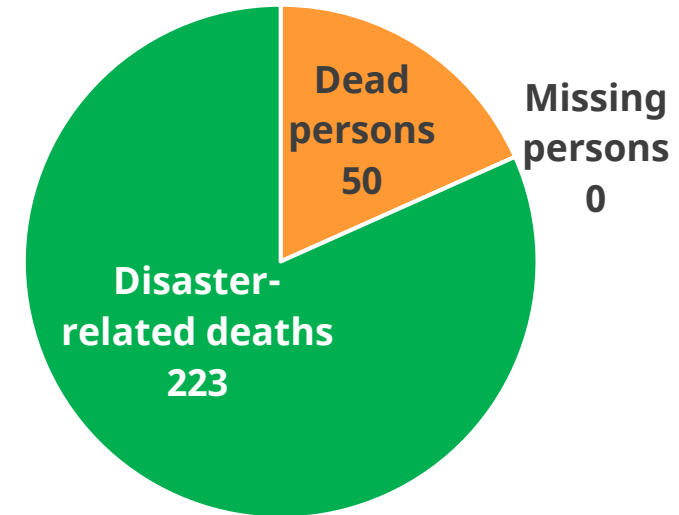
Many of them are elderly people.

## Great East Japan Earthquake (March 2011)



- Number of deaths
- Number of missing persons
- Disaster-related deaths

## The 2016 Kumamoto Earthquake (April 2016)



- Number of deaths
- Number of missing persons
- Disaster-related deaths

Most of the deaths were caused by tsunami. The medical team was unlikely to save lives. Most of those who survived were not injured, and it became important to take care of their health during long-term evacuation.

# Disaster-related Deaths (Great East Japan Earthquake)

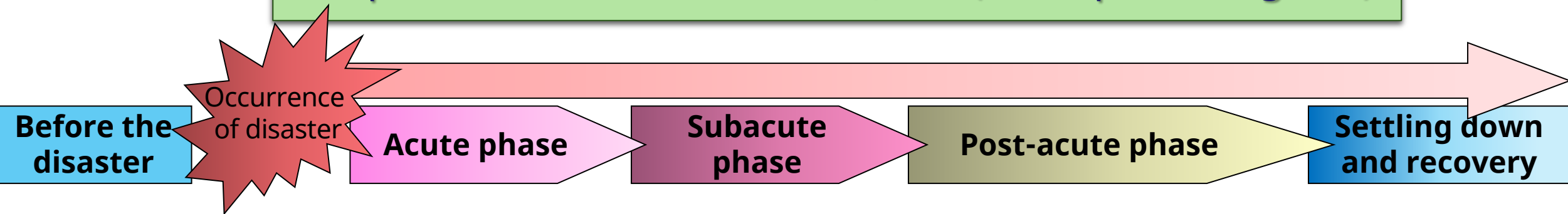
<b>Delay in initial treatment due to the suspension of hospital functions</b>	<b>5%</b>
<b>Exacerbation of previous diseases due to the suspension of hospital functions (including transfer)</b>	<b>15%</b>
<b>Delay in initial treatment due to traffic conditions</b>	<b>1%</b>
<b>Physical and mental fatigue during transportation to evacuation centers</b>	<b>21%</b>
<b>Physical and mental fatigue during life in evacuation centers</b>	<b>33%</b>
<b>Physical and mental fatigue due to earthquake and tsunami stress</b>	<b>8%</b>
<b>Physical and mental fatigue due to the nuclear accident</b>	<b>2%</b>
<b>Exhaustive work such as rescue and relief operations, etc.</b>	<b>0.1%</b>
<b>Other</b> (discontinuation of treatment due to transfers, patients with cognitive impairment who left a nursing home went out, inability to undergo dialysis at the nursing home, inability to aspirate sputum due to power failure, difficulty in obtaining medication at an outpatient clinic, decrease in calories due to the unavailability of nutrients for tube feeding, etc.)	<b>11%</b>

# Disaster response is not limited to the acute phase immediately after a disaster

It covers all phases up to the settled phase after the disaster acute phase. It is also important to provide long-term support until the restoration of community healthcare.

It is important to **be close to, support, and connect** victims at each stage after the occurrence of the disaster.

Response in disaster medicine, etc. (conceptual diagram)



Medical Associations' response to disasters spans a long period of time from disaster preparedness to the settled and recovery phases.

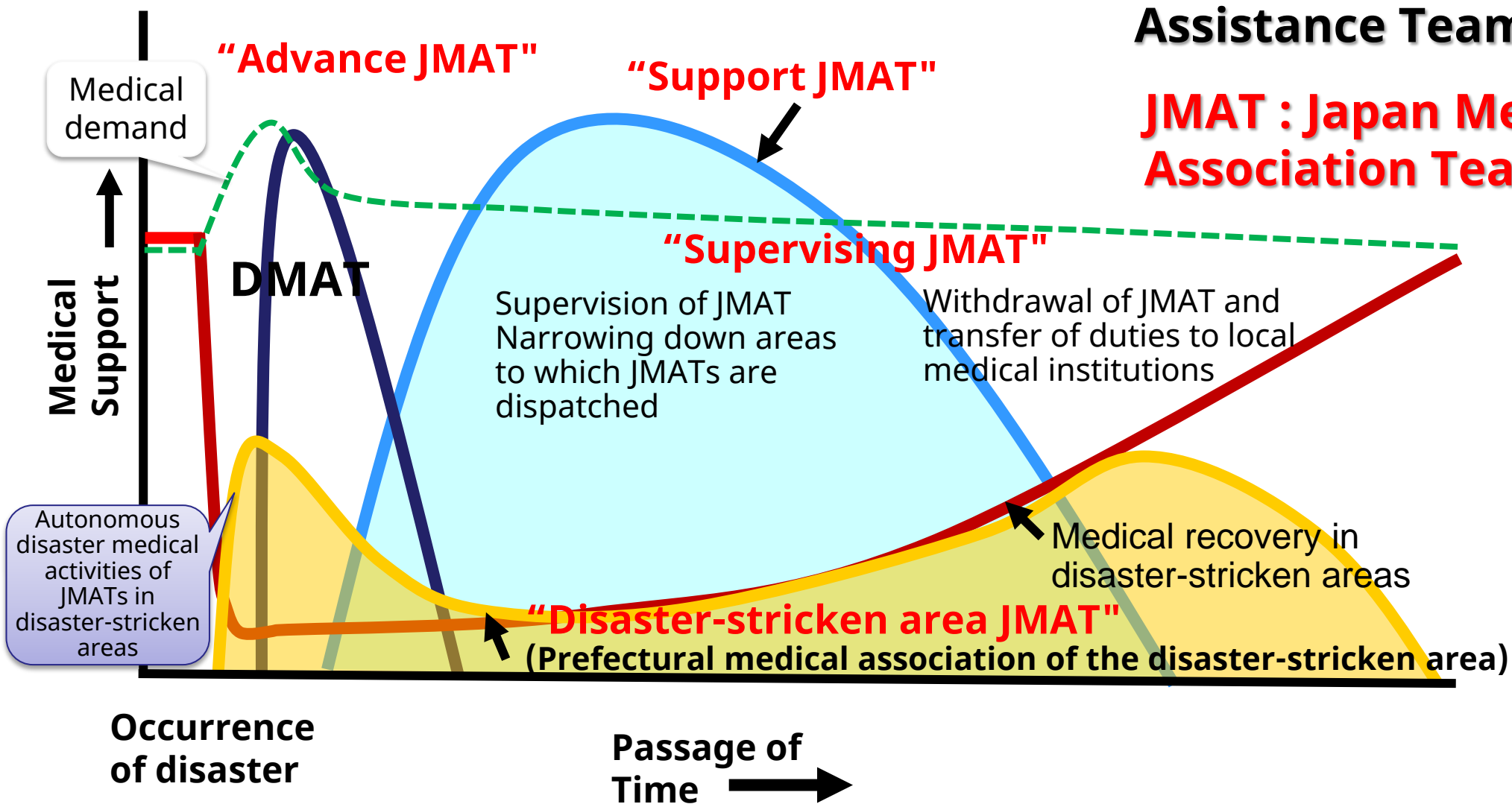


# Conceptual Diagram of JMAT Activities

(When a massive disaster occurs)

**DMAT : Disaster Medical Assistance Team**

**JMAT : Japan Medical Association Team**



This diagram has been created by modifying the document "Cooperation between DMAT and JMAT" prepared by Kunio Kobayashi, the then chairperson of the Japan Medical Association's Committee on Emergency Disaster Medical Measures, for JMA's Training Meeting for JMAT Disaster Medicine (March 10, 2012).



# Roles of JMAT

Mainly medical care and health management after the acute phase of a disaster (continuation of medical care from before the disaster)

- (1) Medical support and health management (including support for medical institutions and facilities for the elderly)
- (2) Public health support
- (3) Support for medical associations in disaster-stricken areas
- (4) Administrative support in disaster-stricken areas
- (5) Support for postmortem examinations (if possible)
- (6) Collection and analysis of local information and communication with dispatching prefectural medical associations, etc.
- (7) Other support tailored to the needs of disaster-stricken areas



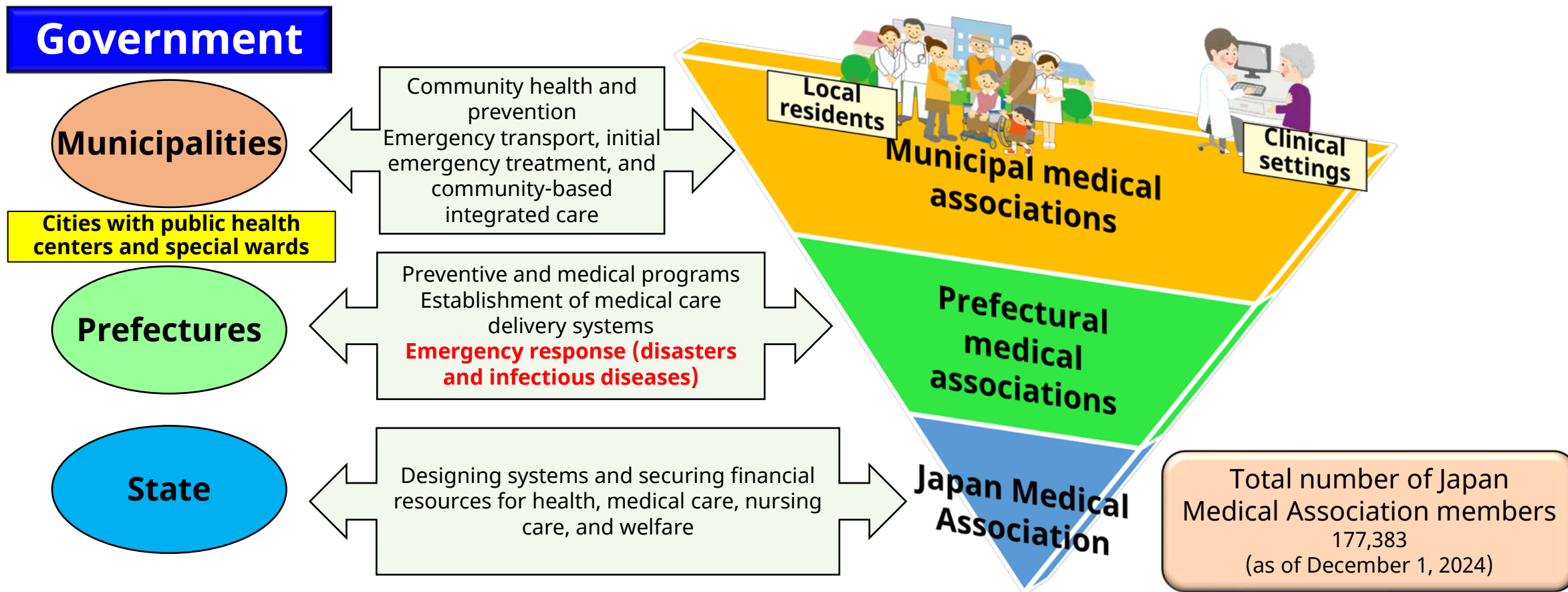
# Major Patients Groups Covered by JMAT (Japan Medical Association Team)

- **People who have needed medical care or nursing care since before the disaster**
  - Many of them are elderly (in facilities and at home).
  - People with disabilities and children who need medical care
- **Residents evacuated to evacuation centers**
  - Health management and medical care for residents living in long-term evacuation
  - Prevention of spread of infectious diseases
  - Changes in eating habits, lack of exercise, stress, and injuries from recovery work
- **Residents of disaster-stricken medical institutions, social welfare facilities, and facilities for the elderly**

→ **Prevention of disaster-related deaths is important.**

# Medical Associations in Japan

Medical associations are established throughout the country and work in cooperation with governments at the municipal, prefectural, and national levels.



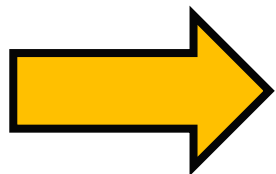
In times of disasters and pandemics of infectious diseases, prefectural governments play a central role, but in some cases the national government is responsible for overall coordination.

# Medical Associations' Disaster Medical Measures

- With the organizational strength and network of medical associations, we are able to provide support, including **the dispatch of many JMATs**.
- We provide support from the pre-disaster stage (disaster preparedness), immediately after the disaster, to **the restoration of community healthcare**.
- When a disaster occurs, the prefectural medical association in the disaster-stricken area **grasps the damage, cooperates with relevant administrative agencies, and determines the need for JMAT dispatch**.

Recovery cannot be hoped for if medical care providers disappear from the disaster-stricken area.

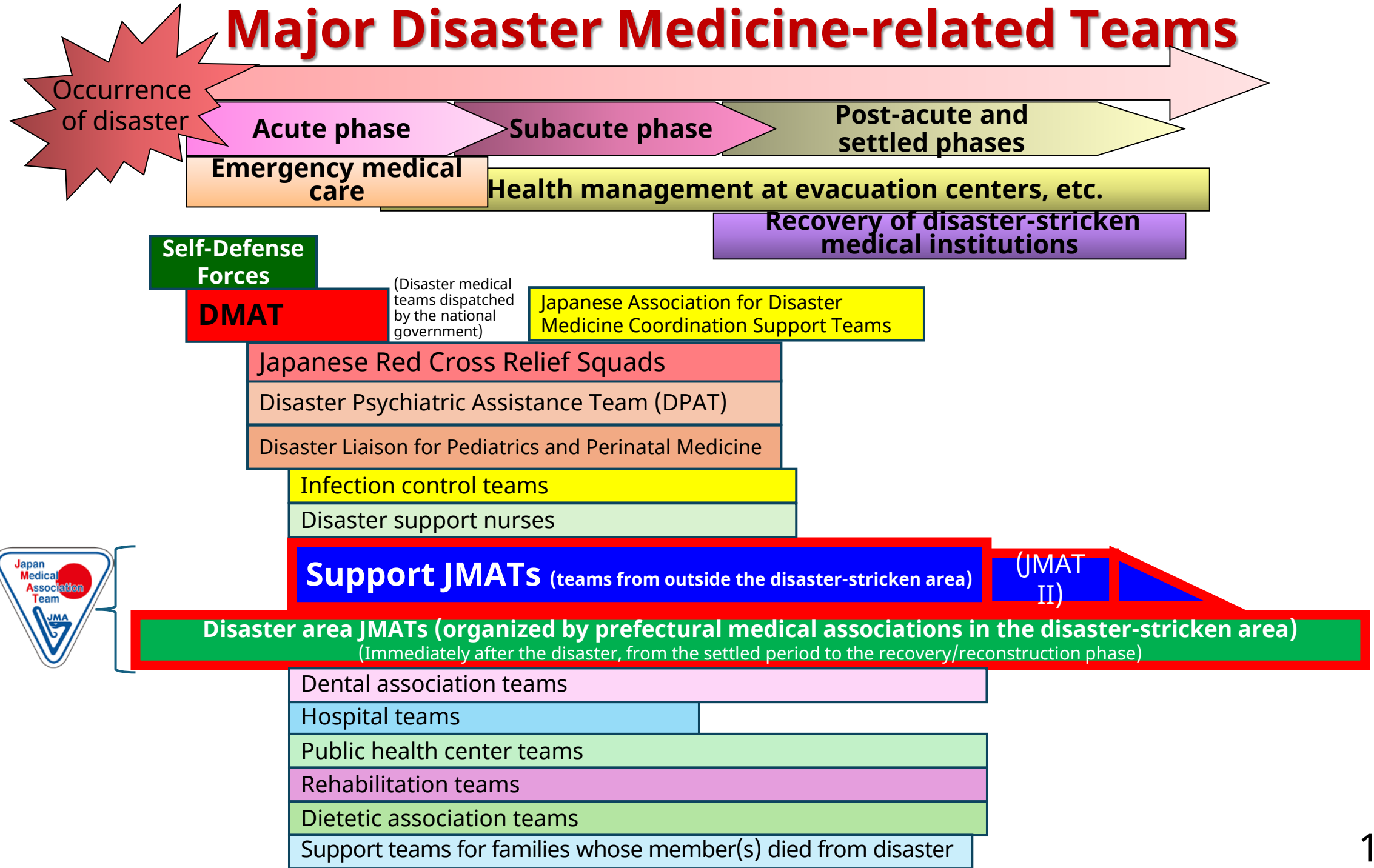
## Ultimate Goal of Medical Associations' Disaster Assistance



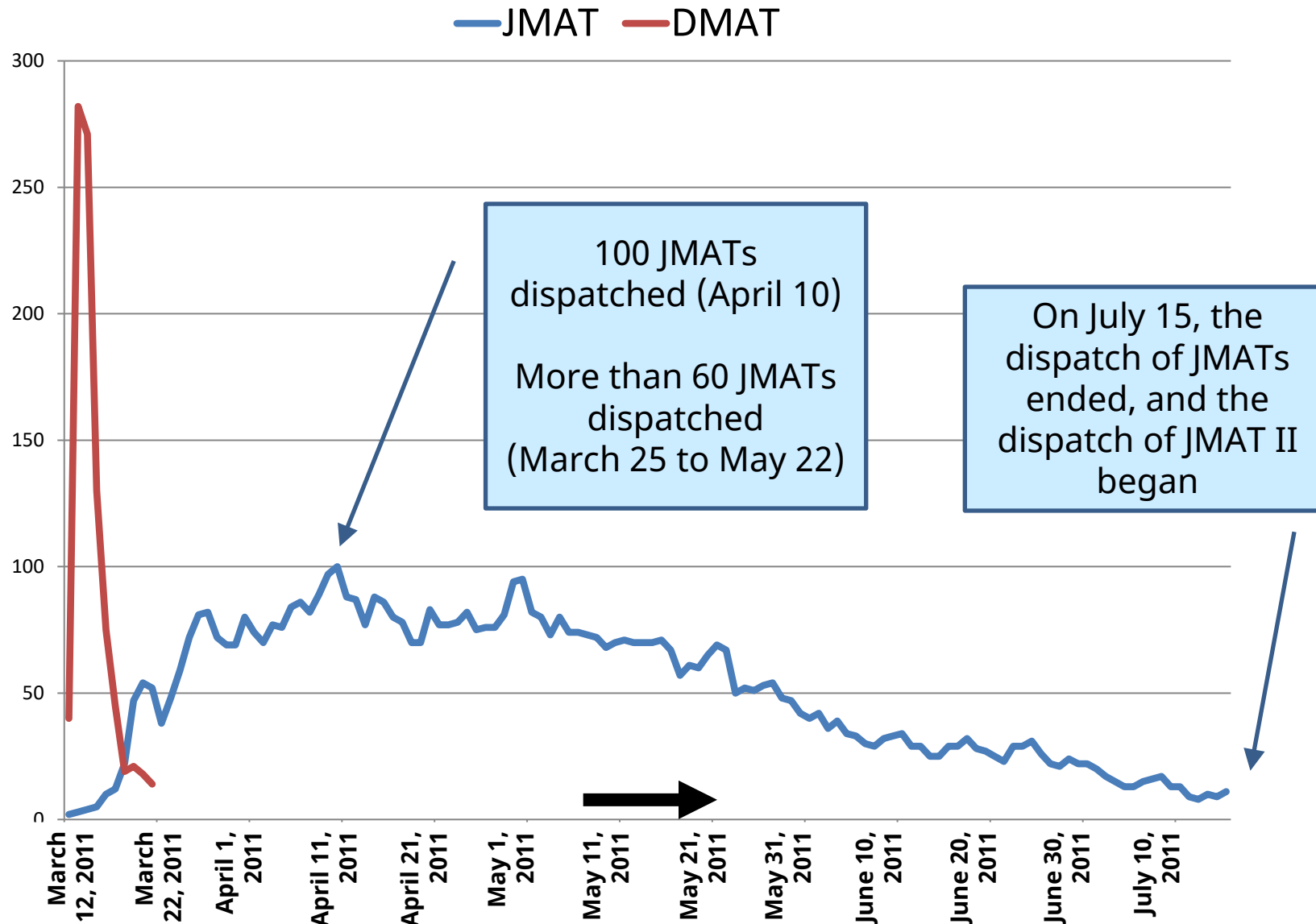
**Restore community healthcare in disaster-stricken areas**

# Major Disaster Medicine-related Teams

The flow and the dispatch period of each team are generally assumed ones. They vary according to the disaster that actually occurs.



# Number of JMATs and DMATs Dispatched after the Great East Japan Earthquake (Until July 15, 2011)

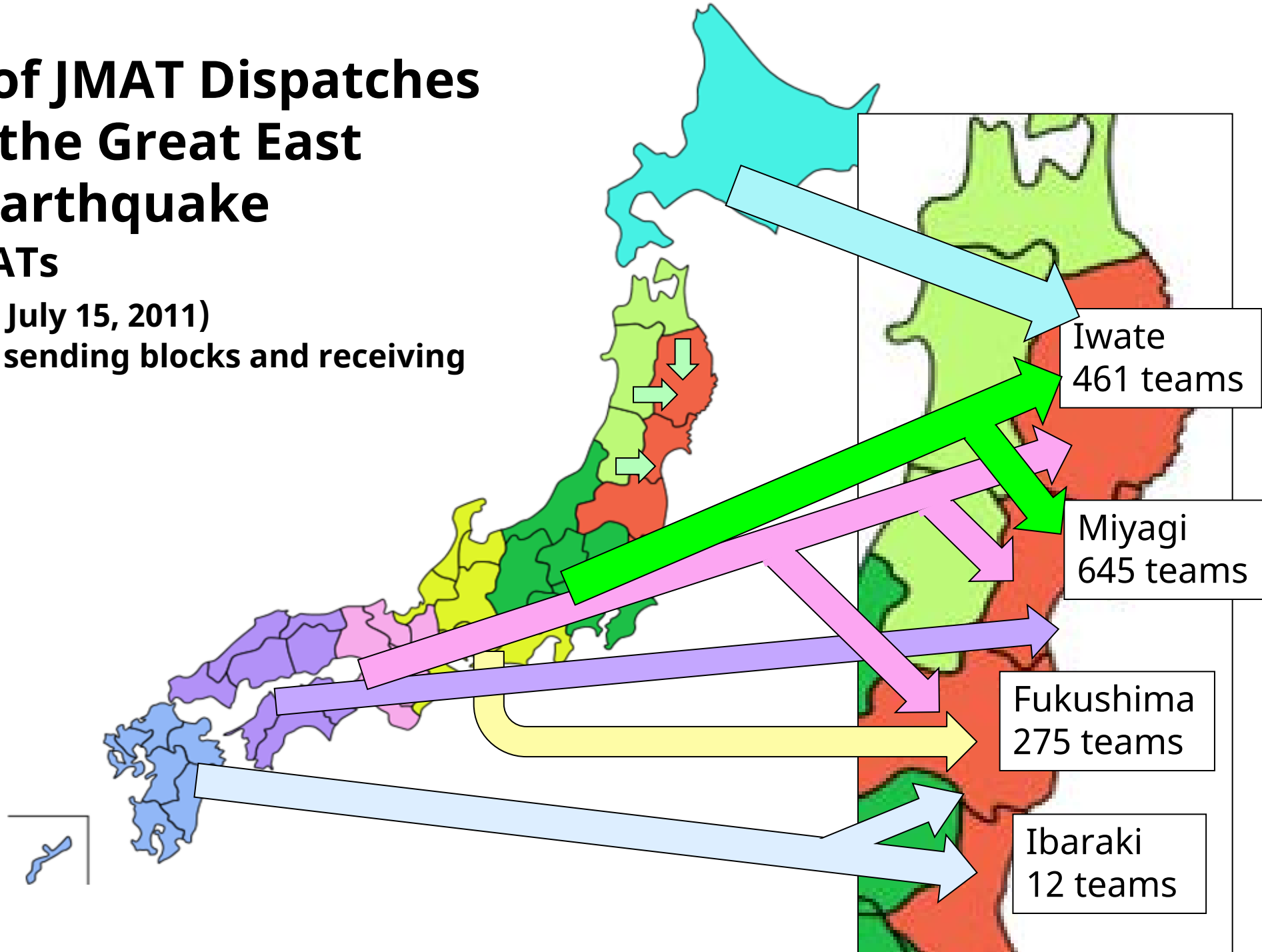


# Status of JMAT Dispatches during the Great East Japan Earthquake

1,398 JMATs

(March 15 - July 15, 2011)

Grouped by sending blocks and receiving prefectures



Number of participants in JMAT during  
the Great East Japan Earthquake  
(March 15, 2011 – July 15, 2011)

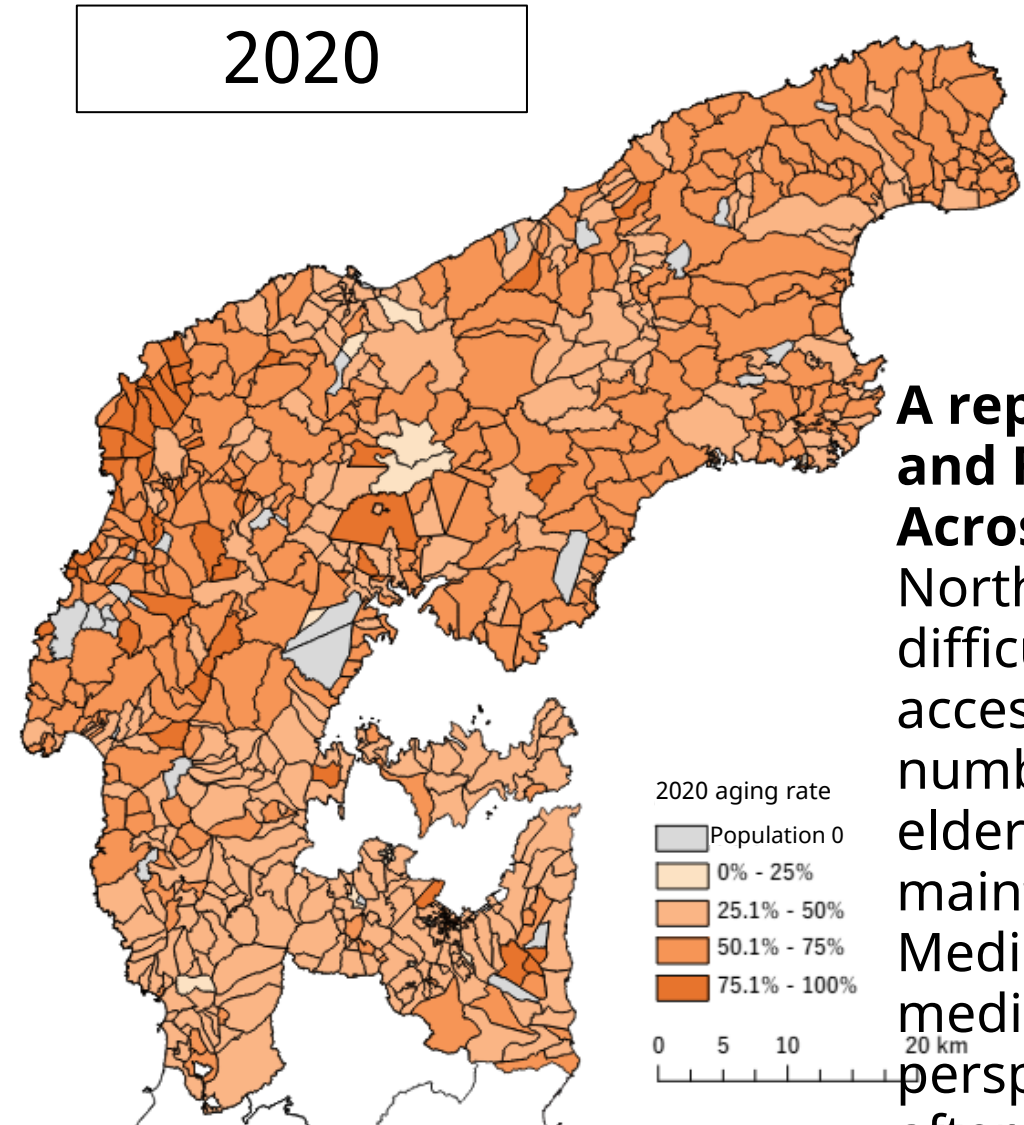
Number of teams		1,398
Number of registrants	Physician	2,145
	Nurse	1,775
	Pharmacist	461
	Administrative staff	1,139
	Clinical Laboratory Technologists and Others	534
	Total	6,054

# Improvements from the Great East Japan Earthquake (2011)

- In 2014, the Japan Medical Association was designated as a designated public corporation under the Basic Act on Disaster Management. JMAT was included in the national disaster management plan as well.
- JMAT training began in 2018. The JMAT training produced a large number of trainees.
- Advance JMAT and supervising JMAT
- JMAT coordination headquarters and branches
- Logistics teams
- Daily Web meetings with the JMAT coordination headquarters and branches in affected areas
- Establishment of a “heavily equipped JMAT,” which consists of DMAT members, to support hard-to-reach areas
- JMAT dedicated website
- JMAT information sharing tools
- Agreement with the Japanese Association for Disaster Medicine ( □ Japanese DMAT) and the Japan Society for Infection Prevention and Control ( □ Disaster Infection control team)
- Securing JMAT accommodations (agreement with hotel groups)
- Introduction of multilingual disaster interpretation services (telephone and applications)
- List of drugs and materials/equipment to be carried
- Publication of a guidebook for medicines to be taken in the event of a nuclear disaster (in order to enable physicians and medical associations mainly to distribute stable iodine tablets promptly)

# Population Aging Rate in the Northern Noto Region

The Main Area Affected by the 2024 Noto Peninsula Earthquake (Pre-Earthquake Estimates)



## A representation of the Present and Future of Provincial Areas Across Japan

Northern Noto is an area that is difficult for medical teams to access, but there are a certain number of people, many of them elderly, who seek health care and maintenance. Medical support needs a medium- to long-term perspective, not just immediately after a disaster occurs.



# Characteristics of the 2024 Noto Peninsula Earthquake

(occurred on January 1)

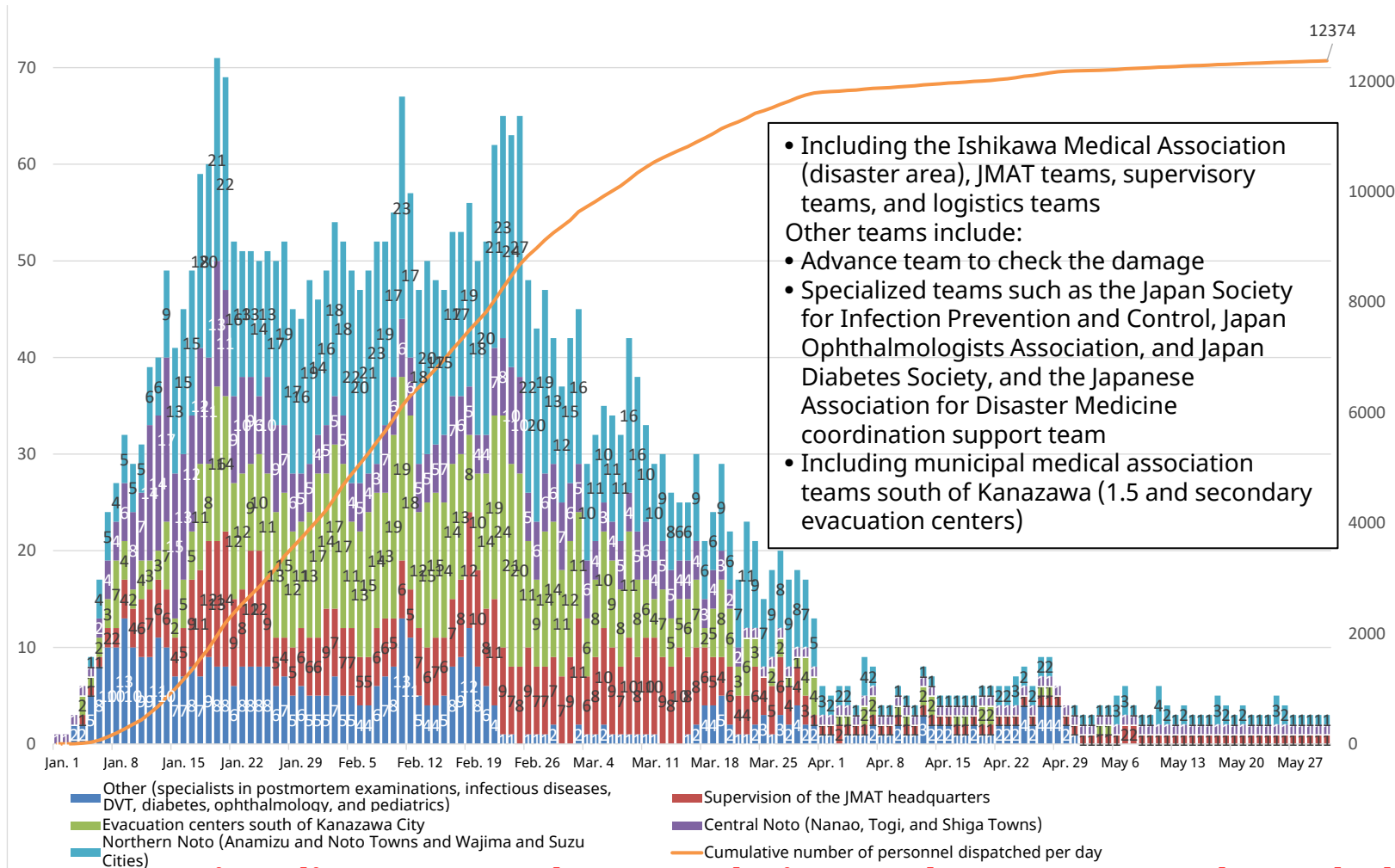
- ✓ The major affected area was northern Noto, where **more than 50% of the population was elderly.**
- ✓ In the peninsular area, there were depressions and cracks in roads, power and water outages, and telephone and Internet interruptions (unable to emergency contact). **Inaccessibility for many medical teams** continued.
- ✓ **It took time to grasp medical support needs** such as evacuation centers set up at various places.
- ✓ **Core public hospitals were also hit.** Hospitalized patients were transported to various areas in the prefecture and in neighboring prefectures.
- ✓ **Local clinics and private hospitals were also affected** by the disaster, resulting in staff shortages.
- ✓ **Many residents and patients were transported long distances** from facilities for the elderly in northern Noto to areas with relatively more medical resources.

The dispatch of JMATs began on January 3. Coordination headquarters and three branches were established. Even after the withdrawal of the DMAT, Japanese Red Cross, and other teams, **JMA continued its activities** until the end of May **in response to the needs of the affected areas.**

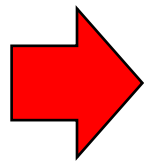
# Number of JMATs Dispatched for the 2024 Noto Peninsula Earthquake (as of May 31, 2024)

Cumulative number of teams per day: 3,849  
 Total number of teams: 1,097

Cumulative number of personnel dispatched per day: 12,374  
 Total number of personnel dispatched: 3,583

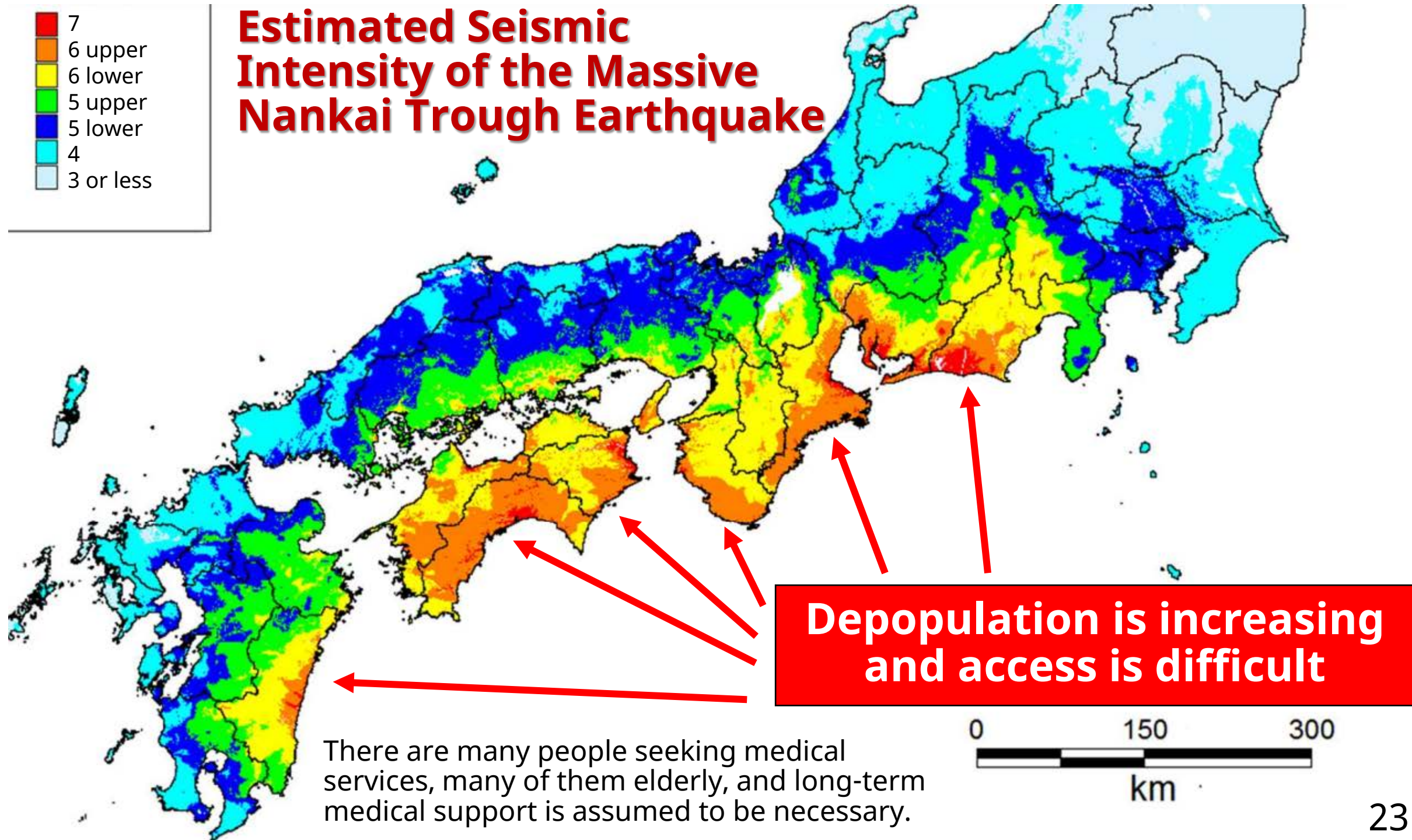
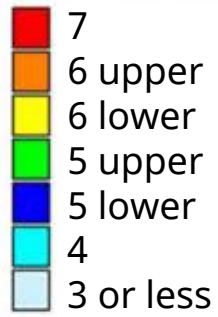


- Including the Ishikawa Medical Association (disaster area), JMAT teams, supervisory teams, and logistics teams
- Other teams include:
  - Advance team to check the damage
  - Specialized teams such as the Japan Society for Infection Prevention and Control, Japan Ophthalmologists Association, and Japan Diabetes Society, and the Japanese Association for Disaster Medicine coordination support team
  - Including municipal medical association teams south of Kanazawa (1.5 and secondary evacuation centers)



**In the next massive disasters such as Nankai Trough, Japan Trench, and Chishima Trench earthquakes, or an earthquake directly beneath the Tokyo metropolitan area, a larger number of teams than shown above must be dispatched.**

# Estimated Seismic Intensity of the Massive Nankai Trough Earthquake



**Depopulation is increasing and access is difficult**

There are many people seeking medical services, many of them elderly, and long-term medical support is assumed to be necessary.

Next-gen

# Disaster Medicine



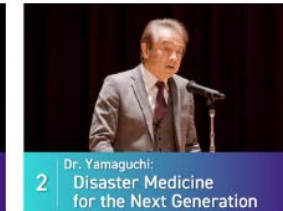
<https://www.med.or.jp/people/jisedai-saigai/article-e/index.html>

National discussion on how Japan deals with disaster medicine should be from a broad perspective to include originality and ingenuity, focusing on how to invest financial and other social resources promoting innovation and start-ups in medical disaster prevention to bring peace of mind to the public.



1 Symposium Background

In June 2024, the Japan Medical Association (JMA) held a symposium in Tokyo titled "Disaster Medicine for the Next Generation." ...



2 Dr. Yamaguchi: Disaster Medicine for the Next Generation

Dr. Yoshihiro Yamaguchi, symposium organizer and director of the JMA Emergency and Disaster Medicine Management Committee, ...



3 One of the Heaviest Rainstorms on Record Lessons from Aoyama Hospital Flood Damage

On June 2, 2023, Toyokawa City in Aichi Prefecture experienced 423.3 mm of precipitation, the heaviest rainfall on record for a single day. ...



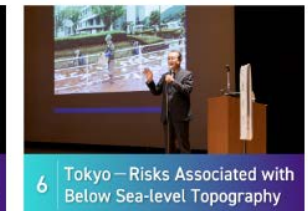
4 Japan Meteorological Agency's Bulletin Predicts Torrential Rain

Speaking on behalf of the Japan Meteorological Agency, Noriko Kamaya underscored the importance of leveraging disaster-prevention weather information.....



5 Hazard Maps: Tools for Assessing Local Risk

Hideyuki Ashiya from Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT) advocated for the usefulness of predictive tools and hazard maps,...



6 Tokyo – Risks Associated with Below Sea-level Topography

Nobuyuki Tsuchiya, who holds a PhD in engineering from the Japan Riverfront Center, is an expert in flood countermeasures and well versed in urban development and...



7 2050-Our Future as Global Warming Advances

Professor Takashi Sekiyama, a Kyoto University expert on climate security, addressed future risks: "I must emphasize that climate change may further exacerbate the severity and..."



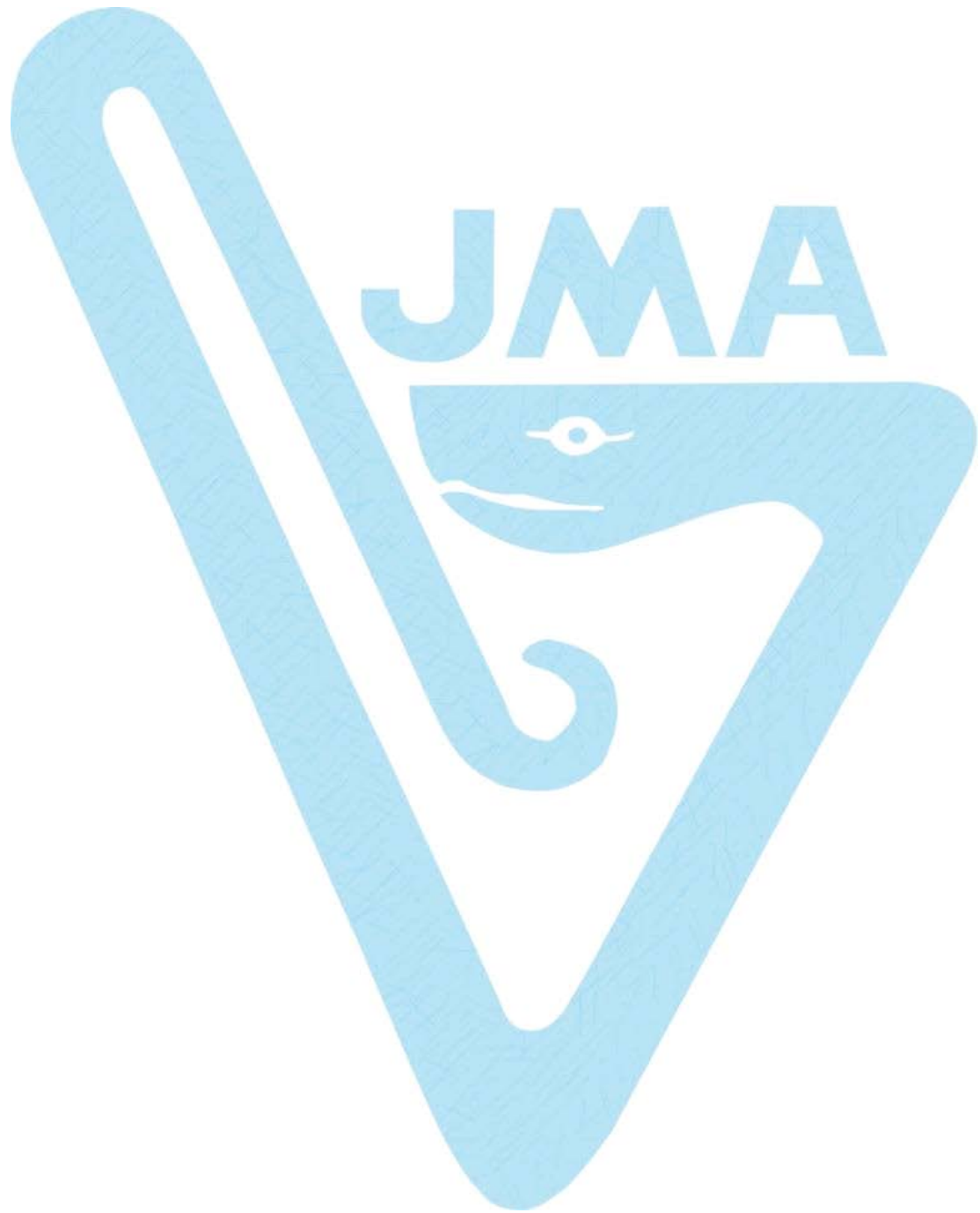
8 Incorporating Medical Safety into Urban Development

Professor Takaaki Kato of the University of Tokyo is an urban planning expert and a leading authority on community planning for disaster prevention....



9 A Lifesaving Society Enabled by Cross-industry Collaboration

Finally, Yoshiki Hiruma of the Development Bank of Japan Inc. explored possibilities for "Structuring and Designing a Lifesaving Society".



**Thank you for  
your attention.**