

Postmortem Examination in Disaster

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Introduction

In the last 30 years, I have examined approximately 4,000 bodies since I opened my orthopedic clinic with inpatient beds in Fukuoka City (Fukuoka Prefecture). Additionally, I had the opportunity to participate in the postmortem examination of 88 bodies after the Great East Japan Earthquake in March 2011, and today, I would like to share my opinions and suggestions with the audience.

Putting Terminology in Order

We often hear words such as *autopsy*, *postmortem inspection*, or *postmortem examination* conducted by a judicial police officer, coroner, police surgeon, or medical examiner. Various terms are used for the examination of a body that died or possibly died of unnatural causes, and the law uses the following terms accordingly.

Postmortem inspection, as it appears in the Code of Criminal Procedure*2

Article 229: *When a person who died an unnatural death or the body of a person who is suspected to have died an unnatural death has been found, a public prosecutor of a district or local public prosecutor office, which has jurisdiction over the place where the body was found, shall perform a **postmortem inspection**.*

Item 2: *A public prosecutor may have a public prosecutor's assistant officer or a judicial police officer execute the disposition set forth*

in the preceding paragraph.

[Note: It is normally conducted by a judicial police officer and is often referred to as a *substitute postmortem inspection*.]

Postmortem examination, as it appears in the Medical Practitioners Act

Article 19, Item 2: *A physician who conducted a medical examination or postmortem examination, or a physician who attended childbirth, shall not refuse the submission of a medical certificate, **postmortem certificate**, or certificate of stillbirth, unless there is reasonable cause.*

Article 20: *A physician shall not treat a patient or issue a medical certificate or prescription without examining the patient, issue a certificate of birth or stillbirth without attending childbirth, nor issue a **postmortem certificate** without personally conducting the **postmortem examination**. However, these conditions shall not apply to a death certificate issued for a patient who took treatment, but died within 24h after a medical examination.*

Article 21: *When a physician conducted a **postmortem examination** of a dead or stillborn baby of a gestational age of 4 months or older and found an abnormality, they must report to a competent police station within 24 hours.*

Postmortem examination, as it appears in the Penal Code*2 (Article 192)

*A person who, without a **postmortem examination**, buries a person who died an unnatural death shall be punished by a fine of not more*

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*2 English translation is available from the Law Translation Database System maintained by the Ministry of Justice, Japan [http://www.japanese-lawtranslation.go.jp/?re=02].

This article is based on the lecture presented at Disaster Medicine Training Course on JMAT Activities held on March 10, 2012.

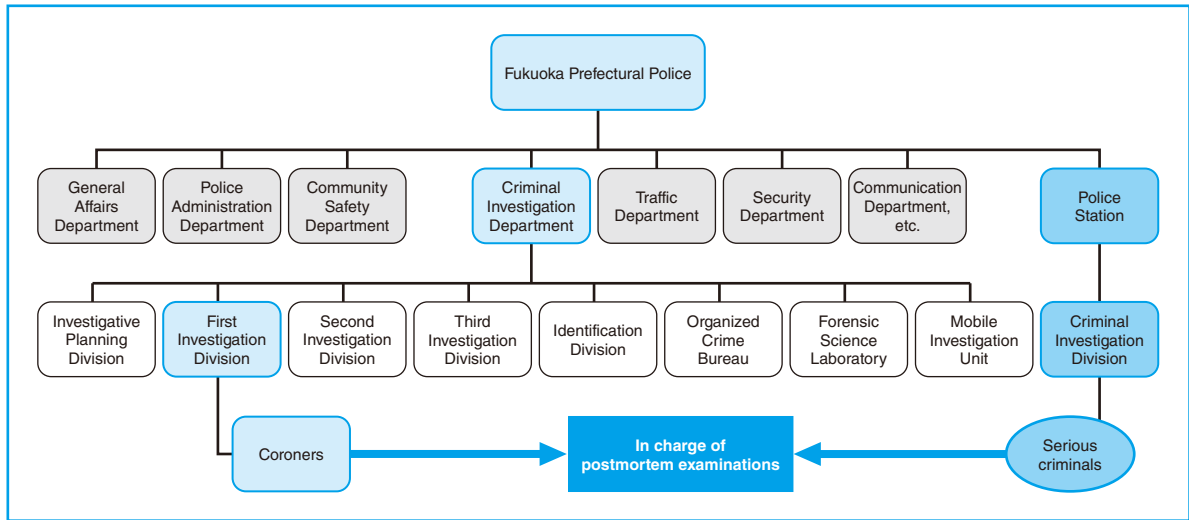


Fig. 1 Organizational chart of postmortem inspection task within the Fukuoka Prefectural Police

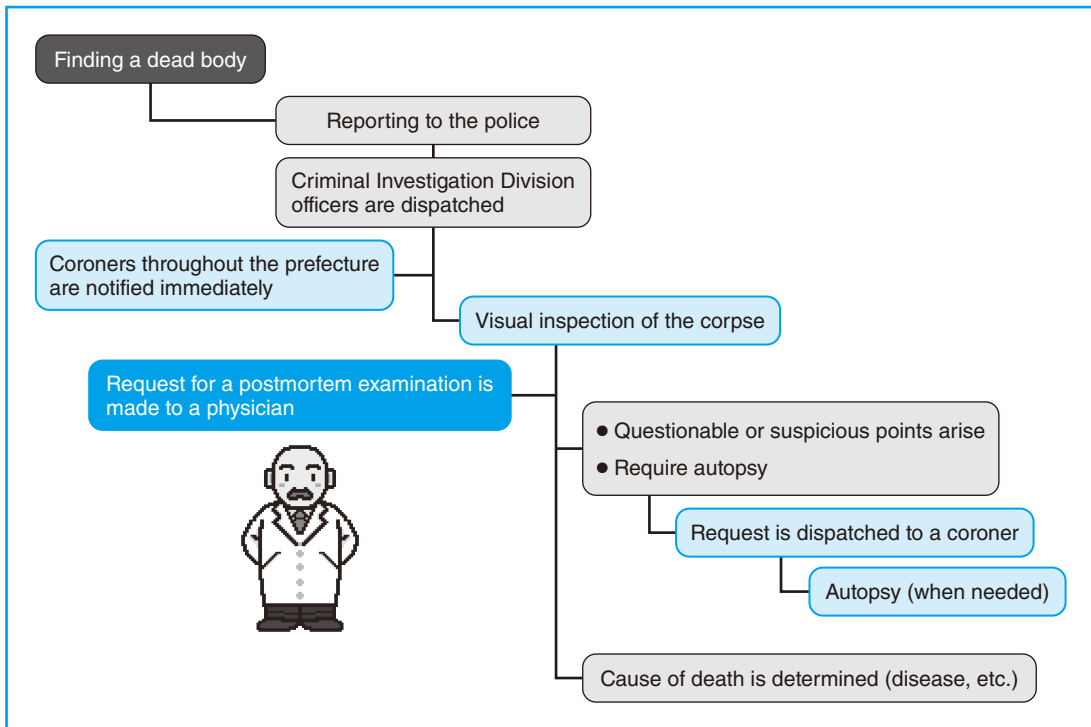


Fig. 2 Flow of postmortem inspections by the police

than 100,000 yen*3 (1,000 USD) or a petty fine.

Simply said, the inspection of a dead body by coroners (including judicial police officers) can

be referred to as a *postmortem inspection*, and the examination conducted by physicians (i.e., police surgeons and medical examiners) is called a *postmortem examination*. Legally speaking, the

*3 US dollar/JPY exchange rate: US\$1=100 yen.

Table 1 Purposes of a postmortem examination

<ol style="list-style-type: none"> 1. To confirm death 2. To infer the cause of death 3. To infer the type of death 4. To infer the time of death 5. To prepare and issue a postmortem certificate 6. To advise an inspection by a judicial police officer <p>Determination of whether criminality is involved in an unnatural death is a task for the police.</p>
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Table 2 Strengthening the system to investigate the cause of death

<ul style="list-style-type: none"> • Increase the number of staff and provide necessary facilities and equipment • Make active use of autopsy imaging • Improve awareness and skills for postmortem examinations among physicians • Enrich facilities and physicians specialized in autopsy • Promote collaboration with university laboratories in forensic medicine • Make further use of the medical examiner system

Table 3 Suggestions by the National Police Agency submitted by the study group on the approach toward the investigation of the cause of death to prevent overlooking a death due to crime (April 2011)

Problems	Suggestions
<ul style="list-style-type: none"> • Autopsy <ul style="list-style-type: none"> - Autopsy rate is low due to the lack of physicians specialized in autopsy - There is no established system to conduct an autopsy when it is unclear if criminality is involved - Tests for illegal/toxic substances are not performed routinely 	<ul style="list-style-type: none"> • Establishment of a (tentatively called) judicial autopsy system • Establishment of (tentatively called) forensic medicine research centers • Introduction of forensic tests • Strengthening of the autopsy system • Enrichment of tests for illegal/toxic substances • Upgrading postmortem examinations • Upgrading postmortem inspections and visual inspections • Upgrading the identification of bodies • Improvement of the initial investigation capacity in a case that involves death
<ul style="list-style-type: none"> • Postmortem examination <ul style="list-style-type: none"> - A physician who is not sufficiently familiar with forensic medicine determines the cause of death based on a superficial examination of a body and advises the police whether an autopsy should be performed • Postmortem inspection and body inspection <ul style="list-style-type: none"> - Judicial police officers do not possess sufficient understanding of forensic medicine 	

process of preparing and issuing a death certificate or postmortem certificate is considered as a separate process.

In the regions where medical examiner system works (namely, 23 cities in Tokyo and 5 cities of Osaka, Nagoya, Yokohama, and Kobe), “medical examiners,” who are the physicians authorized to perform a judicial autopsy, are in charge of the postmortem examinations. In the other regions of Japan, it is handled by the staff in charge at local police stations or police headquarters, as shown in **Figs. 1 and 2**. In the latter, a physician is asked to attend the procedure, inspect a body in the presence of a police officer, and prepare and issue a postmortem certificate (**Fig. 2**). **Table 1** summarizes the pur-

Table 4 Reasons why physicians in active practice are reluctant to be involved in postmortem inspections

<ol style="list-style-type: none"> 1. Insufficient knowledge, experience, and/or skills 2. Leaves less time for their practice or free time 3. Do not want to get involved in a crime or problems 4. The reward is small 5. Do not want to get involved in police matters or with police officers 6. Feel afraid or sick of a corpse
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poses of a postmortem examination from a physician’s perspective. For the police, however, the most important purpose is to ascertain and determine if criminality is associated with the

Table 5 Heavy casualty incidents in the past

- 1) 1923: Great Kanto earthquake (approx. 100,000 died)
- 2) 1954: Aomori-Hakodate ferry "Toya-maru" sinking (1,155 died)
- 3) 1959: Ise Bay typhoon (also called Typhoon Vera) (5,000 died or missing)
- 4) 1962: Mikawashima Train collision (160 died)
- 5) 1966: All Nippon Airways crash (133 died)
- 6) 1971: Mid-air collision of an All Nippon Airways aircraft and a Japan Self-Defense Force fighter (162 died)
- 7) 1985: Japan Air Line crash at Mt. Osutaka (520 died)
- 8) 1994: China Airlines crash at the Nagoya airport (264 died)
- 9) 1995: Hanshin-Awaji Earthquake (approx. 6,400 died)
- 10) 2011: Great East Japan Earthquake (15,850 died, 3,287 went missing)

Table 6 Overview of the proposals made by the Japanese Society of Legal Medicine (JSLM)

- A postmortem examination should be conducted by a physician capable of responding to the various problems associated with forensic medicine, and should be supported by a group of assisting staff.
- A physician involved in a postmortem examination must actively participate in the training of others, even during normal times, including instructing general clinicians toward such a profession and preparing manuals for postmortem examinations.
- The disaster management headquarters at a disaster site should be held responsible to standardize the items to be listed on the postmortem inspection/examination form, such as the estimated time of death, assessment criteria, standardization for determining the cause of death, and additional information for a body that died from an external cause.
- Proper advice should be provided for moving, preserving, or laying a body in a coffin based on the postmortem inspection manual for handling a mass disaster/accident prepared by the jurisdictional prefectural police.
- The postmortem examination support system suggested by the JSLM should be incorporated as a part of the national disaster medicine and emergency medicine systems in times of a mass disaster and accidents.

cause of death.

Any physician can conduct a postmortem inspection with police as long as they have an active license. Some believed that this flexibility could invite erroneous postmortem inspections; however, the postmortem inspection system has been strengthened and improved in recent years (**Tables 2 and 3**). Many physicians are reluctant to take part in postmortem inspections by the police (**Table 4**); however, it is generally believed that physicians should help the police as much as possible when their expertise can contribute to investigating the true cause of death. To fulfill such a role, physicians are advised to take postmortem inspection training conducted by the Ministry of Health, Labour and Welfare (MHLW)

or to become certified physicians of the Japanese Society of Legal Medicine (JSLM) for postmortem inspection.

Postmortem Inspection/Examination System in Large-Scale Disasters or Accidents

Regardless of the scale or cause of a disaster or accident, the police play the leading role in conducting postmortem inspections or examinations (either visually or with autopsy). Examples of disasters or accidents with heavy casualties are shown in **Table 5**. The Iwate Prefectural Police made some very useful points with regard to another aircraft incident in 1996, which we can

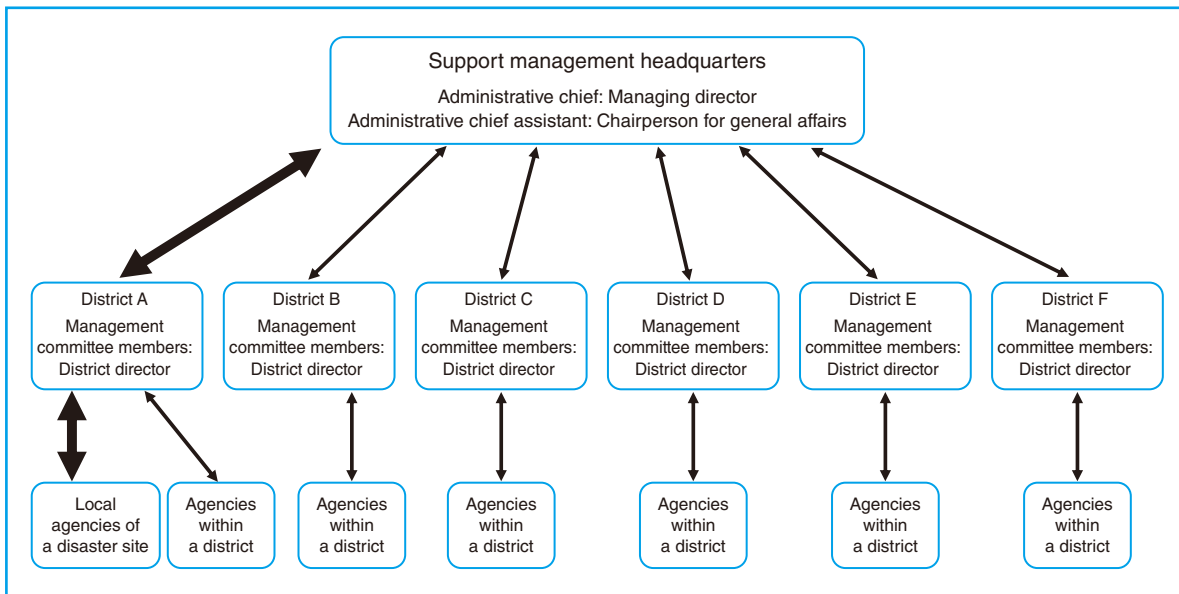


Fig. 3 The postmortem examination support system in disaster, suggested by the Japanese Society of Legal Medicine (JSLM): Part 1

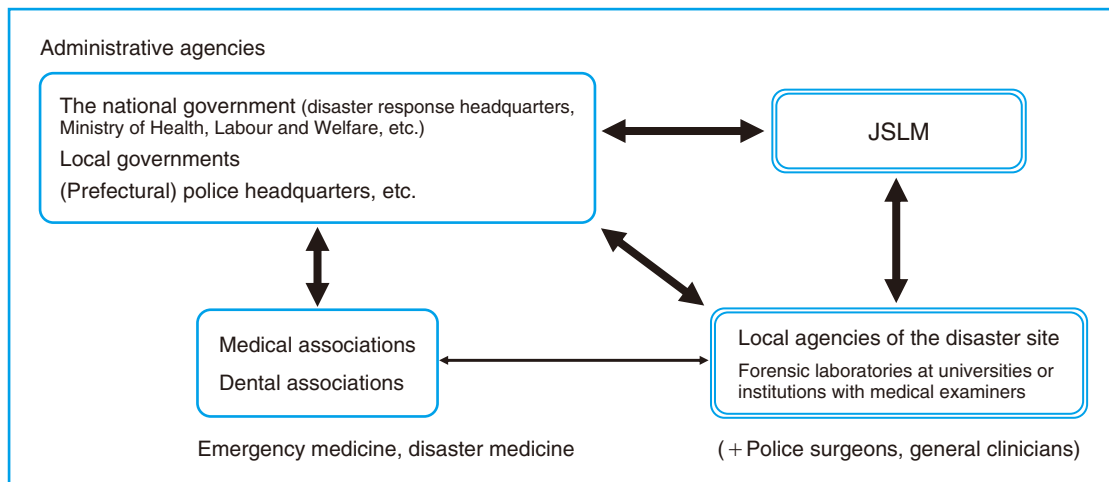


Fig. 4 The postmortem examination support system in disaster, suggested by the Japanese Society of Legal Medicine (JSLM): Part 2

all benefit from.

- 1) Postmortem inspections should be attended by a dentist.
- 2) Fingerprints should be collected from all deceased.
- 3) Physicians specialized in postmortem inspections/examinations should participate in the process.
- 4) Wide-open areas with a water supply should

be secured as inspection areas.

- 5) Inspections should be performed on laboratory tables at the appropriate height (not on the floor).
 - 6) Blood tests should be conducted on dissected bodies.
 - 7) Inspection sites and morgues should be separated.
- JSLM also stated that “A postmortem special-

Table 7 Chronological events involved in the postmortem examinations conducted in response to the Great East Japan Earthquake

Fri, March 11	14:46	The earthquake strikes
	18:30	NPA* First Investigation Division contacted with JSLM*
Sat, March 12		JSLM notified relevant parties about establishing a support system within its organization
		NPA First Investigation Division requested assistance from JSLM for their postmortem examinations
	17:00	Chief of Iwate Prefectural Police Headquarters requested that JSLM dispatch physicians and dentists
	22:00	3 physicians and 3 dentists departed for Iwate in a police vehicle
Sun, March 13		Chief of Miyagi Prefectural Police Headquarters requested the dispatch of physicians and dentists
	19:00	10 physicians and 6 dentists departed for Miyagi
Mon, March 14		Chief of Fukushima Prefectural Police Headquarters requested the dispatch of physicians and dentists
Tue, March 15		10 physicians departed for Fukushima
		JSLM, JMA, and JDA exchanged opinions with NPA at the NPA building
Thu, March 24		JSLM held the 1st briefing session, and started a 6-day a week work shift

* List of abbreviations: NPA, National Police Agency; JSLM, Japanese Society of Legal Medicine; JMA, Japan Medical Association; JDA, Japan Dental Association.

Table 8 Personal identification of unidentified bodies

1) Collect fingerprints and palm prints
2) Obtain dental charts
3) Collect DNA samples

Table 9 Purposes of a postmortem examination in a large-scale disaster

1) Personal identification
2) Determination of the cause of death
3) Estimation of the time of death

ist should have basic knowledge about forensic medicine specialist; and at least where a postmortem examination is concerned, they should be assisted by a postmortem examination support headquarters, and a local disaster management agency should assume the position of leadership” in its document *Proposals regarding large-scale disasters and accidents*.¹ Following this statement, JSLM also announced the details of its proposals and suggested support systems, as shown in **Table 6** and **Figs. 3 and 4**.

When the Great East Japan Earthquake struck on March 11, 2011, JSLM was contacted by the First Investigation Division of the National Police Agency on the same day, and conducted postmortem examinations as requested (**Table 7**). A total of 122 physicians (with a cumulative

count of 1,090) and 31 dentists worked from March 13 through June 30, and then the local medical associations and university laboratories of forensic medicine took over the duty.

In large-scale disasters and incidents, the nature of the disaster or incidents typify the cause of death in many cases; therefore, the purpose of a postmortem examination lies in the personal identification of the bodies (**Tables 8 and 9**). For postmortem inspections by the police under such circumstances, there is a simplified form called “Inspection Reports for Multiple Corpses, Supplementary Style 8” in the *Rules for Handling Corpses, Article 11 (for handling many corpses)*.

In the Great East Japan Earthquake, most of the victims supposed to be dead by drowning

Table 10 Notification document from government agencies 1

Notification document from the NPA* Criminal Investigation Bureau

March 15, 2011: Addressed to JMA†
Requested cooperation to secure physicians needed for the large number of body inspections required in the Great East Japan Earthquake

Notification document from the MHLW‡ Health Policy Bureau Medical Professions Division

March 17, 2011
Only minimum information may be entered on a post-mortem certificate, such as “when a person died,” “where a person died,” “direct cause of death,” and “type of cause of death.”

* National Police Agency; † Japan Medial Association; ‡ Ministry of Health, Labour and Welfare.

Table 11 Notification document from government agencies 2

Notification document from the Health Policy Bureau Medical Professions Division and Vital and Health Statistics Division of MHLW*

April 18, 2011: Addressed to the sections in charge of medical care in Iwate, Miyagi, and Fukushima Prefectures.

When collecting samples for DNA identification, minimally invasive procedures such as puncturing or making an incision of a body will not be considered to constitute an act of dissection, and will be interpreted as *justifiable acts* as specified in the Penal Code Article 35.

The mark “si [meaning death in Japanese] (in circle)” should be entered in the space for the name of the deceased.

* Ministry of Health, Labour and Welfare.

Table 12 Mission statement of the Police Surgeon Association Japan

The goal of this organization is to strengthen collaboration and amity with each prefectural police surgeon association and other equivalent organizations, discuss various problems that arise in fulfilling a duty, promote the exchange of skills and knowledge involved in fulfilling a duty that each member possesses, and contribute to the improvement in forensic knowledge and the smooth operation of managing the health of police officers and detainees.

Table 13 The Police Surgeon Association Japan Bylaws, Article 4

- 1) Issues related to surveys, research, and publication related to the development and improvement of forensic medicine and industrial health and medicine.
- 2) Issues related to practical training, study groups, and seminars related to the work of forensic medicine and postmortem examination.
- 3) Issues related to correspondence, coordination, and conference with the National Police Agency, prefectural police, forensic medicine societies, and medical associations.
- 4) Issues related to the amity and fellowship among members as well as the publication of periodicals.
- 5) Other issues related to essential matters in achieving our mission statement.

considering the following factors:

1. **Massive water (seawater) swallowing → death by drowning (massive seawater moving at a speed of 20–30 km/h).**
2. **Massive debris and rubble in the mouth → death by injury (traumatic shock by hitting debris or other objects).**
3. **Cold temperature → death from cold (day-time outdoor temperature of 10°C or less, and below freezing point at night).**
4. **Burn → death by fire (due to house fires in some areas).**

In any affected prefecture, the utmost priority of postmortem inspections is for the personal identification of bodies as promptly as possible so that they can be handed over to their families, as stated in the announcement from the authorities (**Tables 10 and 11**).

As the scale of a disaster or accident grows, the importance of corporation with the other

professions increases—not only with police officers but also with the Japan Self-Defense Forces or Coast Guard. It is evident that post-mortem examinations in this recent disaster would not have been successful without such collaborations.

About the Police Surgeon Association Japan

Established in 1995, the Police Surgeon Association Japan (PSAJ) has 480 members in 24 prefectures in Japan including Tokyo, and hosts an annual meeting and academic seminars every year. Its mission statement is shown in **Table 12**, and its activities are described in **Table 13**. Almost



Fig. 5



(The Hakata bay at night)

Fig. 6

members are also members of the Japan Medical Association (JMA), and, like myself, practice medicine daily and are involved in postmortem inspections as requested by prefectural police.

With our historical aspect, we plan to build a close collaboration with JMA for more enriched activities with PSAJ. I hope many JMA members will join PSAJ so that we can discuss and solve various problems that the police require assistance with physicians, and improve the skills and knowledge involved in postmortem examinations.

Conclusion

In principle, postmortem inspection is a task for the police. However, in a large-scale disaster or

incident, the police are required to secure many more physicians than they usually have contact with in order to assist them in the task. The recent disaster showed that the most rational approach for NPA when such situation arises is to request that JMA recruits the necessary number of physicians from prefectural medical associations, just like JMA did with its JMAT (Japan Medical Association Team) program.

Lastly, I would like to share the picture of a girl standing in the rubble of the Great East Japan Disaster that the media broadcasted, and the picture of a boy who stands on the burned ground of Hiroshima after the atomic bomb was dropped (Fig. 5). I call upon all citizens of Japan to unite and strive to restore disaster areas, by using all means necessary (Fig. 6).

Reference

1. Japanese Society of Legal Medicine. Proposals regarding large-scale disasters and accidents. Japanese Journal of Legal

Medicine.1995;51.