

Infectious Disease Emergency Specialist (IDES) Training Program in Japan: an innovative governmental challenge to respond to global public health emergencies

Hiroki Saito^{1,2,*}, Takanori Funaki^{1,3}, Kazuhiro Kamata^{1,4}, Kazuhiko Ide¹, Sachiko Nakamura^{1,5}, Yasunori Ichimura^{1,6}, Kazuaki Jindai^{1,7}, Takeshi Nishijima^{1,8}, Rieko Takahashi McLellan¹, Chiori Kodama^{1,6,9}, Jun Sugihara^{1,10}, Shinya Tsuzuki^{1,9}, Mugen Ujiie^{1,9}, Hiroyuki Noda^{1,11}, Kazunari Asanuma¹

¹ Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Tokyo, Japan;

² Department of Emergency and Critical Care Medicine, University of St. Marianna School of Medicine Yokohama City Seibu Hospital, Yokohama, Japan;

³ Department of Infectious Diseases, National Center for Child Health and Development, Tokyo, Japan;

⁴ Emerging and Re-Emerging Infectious Diseases Unit, National Institute for Infectious Diseases Lazzaro Spallanzani, Rome, Italy;

⁵ Department of Internal Medicine, Japanese Red Cross Kumamoto Hospital, Kumamoto, Japan;

⁶ Bureau of International Health Cooperation, National Center for Global Health and Medicine, Tokyo, Japan;

⁷ Department of Healthcare Epidemiology, University of Kyoto School of Medicine, Kyoto, Japan;

⁸ AIDS Clinical Center, National Center for Global Health and Medicine, Tokyo, Japan;

⁹ Disease Control and Prevention Center, National Center for Global Health and Medicine, Tokyo, Japan;

¹⁰ Health Science Division, Minister's Secretariat, Ministry of Health, Labour and Welfare, Tokyo, Japan;

¹¹ Coordination Office of Measures on Emerging Infectious Diseases, Cabinet Secretariat, Tokyo, Japan.

Abstract: In 2015, Japan created a unique governmental program to train experts in health emergencies called Infectious Disease Emergency Specialist (IDES). This is a concept paper to set out the goal and structure of the program, and to describe the achievement and the way forward to further contribute to global health security. The IDES program background, mission, structure, achievement, and future directions were reviewed and discussed by the IDES trainees, graduates, and program coordinators/supervisors. Since 2015, thirteen Japanese medical doctors have graduated from the program while five are currently in training. The IDES core competencies were identified in the context of a wide range of skillsets required for health emergencies. A large national and global network has been created through the training. Coordinated work with surge capacity of experts is of paramount importance to prepare for and respond to public health emergencies. The IDES program can be a good model to many other governments, and contribute to global health security.

Keywords: health emergencies, emergency preparedness, outbreak response, public health, global health, health security

Introduction

Health emergencies not only pose public health threat to a country, but also jeopardize human health security at the international level. The 2014 Ebola virus disease outbreak in West Africa revealed how epidemic-prone infectious diseases can endanger global health security (1). The Government of Japan deployed a total of twenty Japanese experts to the affected countries through the World Health Organization (WHO) in response to the outbreak (2). However, the government of Japan was unable to dispatch a sufficient number of specialists familiar with public health emergency due to such infectious diseases, in a coordinated manner

with global partners. A question was raised: how can the government accumulate and utilize individual experience and expertise as a national asset in the setting of health emergencies?

In order to further strengthen Japan's response to future outbreaks, Japan's Ministry of Health, Labour and Welfare (MHLW) launched a unique training program called Infectious Disease Emergency Specialist (IDES) training program in October 2015 (3). It is unique in that the program is governmental, organized by MHLW, involving various national institutes with different expertise in health emergencies. As of October 2019, thirteen Japanese medical doctors completed the program, and five are currently in the training.

The aim of this article is to present the IDES training program and to explore the possibility of Japan's further contribution to global health security as a global partner.

Core competencies and program structure

The mission of the IDES training program is to enhance Japan's contribution to global health security through capacity development of Japanese medical experts in health emergencies. Upon completion of the training, the graduates are expected to be able to respond to health emergencies at both national and international levels in collaboration with global partners. Thus, medical doctors with diverse backgrounds, who are not only infectious disease specialists, but also pediatricians, general internists, obstetricians, and public health practitioners, have been selected as IDES trainees. The training program gives a unique opportunity to participate in various on-the-job trainings both domestically and internationally, while pre-existing programs, such as Field Epidemiology Training Program (FETP) in Japan, provide training mainly in

Japan and focus on a particular aspect of public health such as epidemiology (4).

The core competencies the IDES trainees should acquire through the program are listed in Table 1. The two-year program is composed of mainly two parts: the domestic public health training in the first year and the overseas training in the second year (Figure 1). During the first year, IDES trainees are involved in four major components: national health policy management at the Infectious Diseases Control Division of MHLW; clinical implication of national health policy at the National Center for Global Health and Medicine (NCGM), which is a national hub to respond to infectious diseases designated by the Infectious Disease Control Law; field epidemiological work such as outbreak response and disaster response with mutual interactions with the FETP program at the National Institute of Infectious Diseases (NIID); and quarantine activities at major international airports and seaports, aiming to better understand International Health Regulations (IHR) (Figure 1). IDES trainees can also receive elective training, such as basic laboratory training and/or biorisk management at the biosafety level (BSL) 4 facility

Table 1. Core competencies to be acquired by Infectious Disease Emergency Specialist (IDES) training program in Japan

Core competencies	
i)	Understanding and practical application of infectious diseases and epidemiology
ii)	Collection, analysis, interpretation and dissemination of information on epidemic-prone infectious diseases
iii)	Strong work ethics and self-discipline to work under difficult circumstances
iv)	Leadership
v)	Team building and management
vi)	Coordination and communication skills

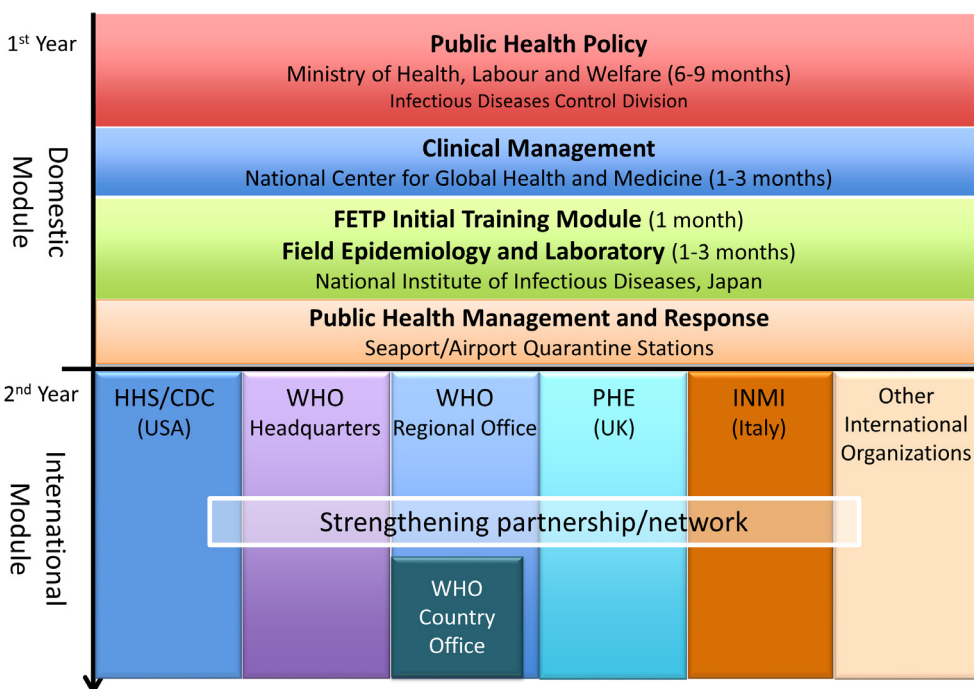


Figure 1. A model curriculum of Infectious Disease Emergency Specialist (IDES) training program in Japan.

at the NIID, or research training related to health emergency and preparedness at the National Institute of Public Health (NIPH). The first-year training is designed flexibly so that the trainees further strengthen their expertise and develop competencies, and they start to formulate their roles in health emergency response in Japan and the world.

The second-year oversea training gives further opportunities to strengthen the above knowledge and skill sets to become a well-balanced and competent expert in more global settings, leading to expand network and collaboration with other major global partners. As of October 2019, the trainees have been dispatched to the following international and national organizations abroad: WHO headquarters (Switzerland); WHO Western Pacific Regional Office (WPRO) (the Philippines); Global Alliance for Vaccines and Immunizations (Gavi) (Switzerland); Department of Health and Human Services (HHS) (United States of America (USA)); Centers for Disease Control and Prevention (CDC) (USA); Public Health England (United Kingdom) and National Institute for Infectious Diseases "Lazzaro Spallanzani" (Italy). The secondment is determined by individual expertise and interest, and his/her future contribution to Japan. The strategic planning to maximize capacity development for the Government is also considered. For example, some trainees delve into operational management and/or preparedness for chemical, biological, radiological, nuclear, and explosive (CBRNE) threats and natural disasters, based on "all-hazard preparedness and response approach" at a national level (5). Meanwhile, others receive more clinically-oriented training, including patient management of infectious diseases rarely seen in Japan, and infection prevention and control at the health facility level.

Responsibilities and contribution after training

After the training, IDES graduates have a wide range of career paths. They further develop their own expertise in their own affiliated organization. Some work in the area of research such as epidemiology while others work as a clinician to prepare for and respond to epidemic-prone infectious diseases. They also have a chance to work at governmental offices such as MHLW and quarantine stations.

MHLW constantly shares relevant information with IDES graduates. In case of health emergencies that require timely and upscale response, MHLW asks them for technical support. Where appropriate, MHLW dispatches IDES graduates to the affected area. The scope of future work at MHLW also includes further integration of IDES into other existing health emergency schemes at the national level such as Japan Disaster Relief (JDR) Infectious Diseases Response Team, a health emergency team organized by Japan

International Cooperation Agency (JICA) and Ministry of Foreign Affairs (6), and collaboration with global response schemes such as Global Outbreak Alert and Response Network (GOARN) coordinated by WHO (7). In July 2018 and August 2019, four IDES graduates in total were actually dispatched to Bangladesh for a diphtheria outbreak in Cox's Bazar, and to Democratic Republic of the Congo for the on-going Ebola outbreak, respectively. The former dispatch was closely coordinated with the GOARN. Additionally, IDES will be involved in preparedness for and management of mass-gathering events, especially the Olympic and Paralympic Games in Tokyo in 2020.

Future of IDES

The IDES training program provides unique opportunities with flexibility. One of the strengths of this program is that the trainees get a lot of opportunities to work at global public health agencies: building a network with a wide range of global partners will greatly contribute to subsequent activities the government gets involved with, even in peacetime. The trainees also have a chance to strengthen their own skill set to contribute at a national and international level, while the program helps the Government of Japan improve response capacity for health emergencies. IDES trainees and graduates with diverse backgrounds and competencies can develop a close network to discuss health emergencies constantly and to further engage in operational management and field activities during health emergency events.

However, opportunities for improvement exist. First, a more precise answer would be required to determine to what extent and what type of expertise is particularly required to fill the gaps in outbreak response and preparedness at the national level through the IDES training program. In addition, opportunities for continuous education should be ensured to update knowledge and skills, leading to maintain their motivation and expertise for future response. Lastly, financial resources for IDES trainees and graduates to fulfill such changing demands at a national and international level need to be secured.

Conclusion

Global public health threats due to infectious diseases can occur anytime, anywhere in the world. Epidemic-prone infectious diseases spread more rapidly and widely, given the mobility of humans, urbanization, the climate change and the associated change in animal and environmental ecology (8). Also, poverty, conflict, and natural or man-made disasters make certain populations vulnerable to such infectious diseases. Thus, appropriate preparedness for and response to infectious diseases are the cornerstone for current global health security (9), and such capacities and capabilities should be built

at the national, regional and global level (10). While United Nations (UN) sets universal health coverage (UHC) as a goal of Sustainable Development Goal (SDG) 3, Japan has been a strong advocate for UHC (11). Work on health emergencies and UHC are two sides of the same coin: strengthening capacity for health emergencies leads to achieve UHC. In order to achieve such effective and sustainable capacity development, properly trained personnel with knowledge and skills is as important as having medical stockpiles. MHLW continues to refine the IDES training program, and further commits to global health security, collaborating with global partners.

Statement The views expressed in the manuscript are the authors' own and not an official position of the institutions.

References

- Heymann DL, Chen L, Takemi K, *et al.* Global health security: the wider lessons from the west African Ebola virus disease epidemic. *Lancet*. 2015; 385:1884-1901.
- Ministry of Foreign Affairs of Japan. Dispatch of Experts in Response to the Ebola Virus Disease Outbreak in West African Countries. https://www.mofa.go.jp/press/release/press4e_000752.html (accessed July 30, 2019)
- Ministry of Health, Labour and Welfare of Japan. Infectious Disease Emergency Specialist Training Program. https://www.mhlw.go.jp/seisakunitsuite/bunya/kenkou_iryuu/kenkou/ides/index.html (accessed July 30, 2019)
- Griffith MM, Ochirpurev A, Yamagishi T, Nishiki S, Jantsansengee B, Matsui T, Oishi K. An approach to building Field Epidemiology Training Programme (FETP) trainees' capacities as educators. *Western Pac Surveill Response J*. 2018; 9:1-3.
- Gibson PJ, Theadore F, Jellison JB. The common ground preparedness framework: a comprehensive description of public health emergency preparedness. *Am J Public Health*. 2012; 102:633-642.
- Wada K, Sugiura Y, Akashi H, Nakasa T. Emergency government response team for global infectious disease outbreaks – a Japanese challenge. *Trop Med Health*. 2016; 44:35.
- Mackenzie JS, Drury P, Arthur RR, Ryan MJ, GreinT, Slattery R, Suri S, Domingo C, Bejtullahu A. The global outbreak alert and response network. *Glob Public Health*. 2014; 9:1023-1039.
- McCloskey B, Dar O, Zumla A, Heymann DL. Emerging infectious diseases and pandemic potential: status quo and reducing risk of global spread. *Lancet Infect Dis*. 2014; 14:1001-1010.
- Osterholm MT. Global health security – an unfinished journey. *Emerging Infectious Diseases*. 2017; 23(13). doi:10.3201/eid2313.171528
- Stoto MA, Nelson C, Savoia E, Ljungqvist I, Ciotti M. A public health preparedness logic model: assessing preparedness for cross-border threats in the European region. *Health Secur*. 2017; 15:473-482.
- Abe S. Japan's vision for a peaceful and healthier world. *Lancet*. 2015; 386:2367-2369.

Received November 5, 2019; Revised January 17, 2020; Accepted January 20, 2020.

Released online in J-STAGE as advance publication January 27, 2020.

**Address correspondence to:*

Hiroki Saito, Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, 1-2-2 Kasumigaseki, Chiyoda-ku 100-8916, Tokyo, Japan.
E-mail: hiroki.saito@etu.unige.ch