

Annual Report

2019

**NCGM-BMH
Medical Collaboration Center**

**August 2020
Tokyo, Japan-Hanoi, Viet Nam**



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Preface

The year 2019 was the tenth year of our intimate collaboration between Bach Mai Hospital (BMH) and the National Center for Global Health and Medicine (NCGM). We, BMH and NCGM, are conducting many activities and these collaborative activities become the basis to overcome the hardship of COVID-19 in next year, 2020.

This annual report is published to share these results with related authorities and organizations.

Finally, we hope that more fruitful results will be achieved in the next year as well, and we wish that BMH and NCGM can contribute to the health of the people of all over the world, as well as the people of both countries.

Let's continue our collaboration!

August, 2020

Hidechika Akashi, MD, PhD, MPH, DTMH

Director,
Medical Collaboration Center, in Bach Mai Hospital
National Center for Global Health and
Medicine (NCGM), Japan



Abbreviations

BMH	Bach Mai Hospital
NCGM	National Center for Global Health and Medicine
IMCJ	International Medical Center of Japan
MCC	NCGM - BMH Medical Collaboration Center
MOH	Ministry of Health, Viet Nam
AMED	Japan Agency for Medical Research and Development
MEXT	Ministry of Education, Culture, Sport, Science and Technology, Japan
J-GRID	Japan Initiative for Global Research Network on Infectious Diseases
MHLW	Ministry of Health, Labor and Welfare, Japan
JICA	Japan International Cooperation Agency
MOU	Memorandum of Understanding
HCMC	Ho Chi Minh City
NIHE	National Institute of Hygiene and Epidemiology
NHP	National Hospital of Pediatrics
NLH	National Lung Hospital
HLH	Hanoi Lung Hospital
RIT-JATA	Research Institute of Tuberculosis-Japan Anti-Tuberculosis Association
WHO	World Health Organization
JFPIMRC	Japan Foundation for the Promotion of International Medical Research Cooperation
SARS	Severe Acute Respiratory Syndrome
DCC	Disease Control and Prevention Center of NCGM



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I. General information on NCGM-BMH Medical Collaboration Center (MCC)

1. Background

Since the beginning of 1990's, National Center for Global Health and Medicine (NCGM) (former IMCJ) has been carrying out important roles in collaboration with health sector in Vietnam for the purpose of the improvement of medical situation in the country. Particularly, collaboration with Bach Mai Hospital (BMH) has been implemented most actively and effectively. In the grant-aid and the

technical cooperation projects in BMH, which was supported by Japan International Cooperation Agency (JICA), NCGM contributed to the successful implementation by dispatching experts and providing technical guidance.

Through the history of the past collaboration, NCGM has established close and reliable relationship with BMH and other leading medical institutions in Vietnam. Using these bases, a new collaboration, which was conducted distinctly from ODA projects and focusing on research and human resource development, was designed.

In order to implement the new collaborative activities, the NCGM-BMH Medical Collaboration Center (MCC) was planned.

2. Establishment of MCC

In view of the successful outcome of BMH project (phase 1) and the efficient collaboration during the SARS outbreak in 2003, a plan to establish a medical collaboration center between NCGM and BMH, which functions separately from JICA projects, grew up in NCGM. The idea was put into practice when the research program on emerging and reemerging infectious diseases was proposed by the Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT).

In recent years, emerging and reemerging infectious diseases have been threatening the world. In view of the rising fear of these diseases, the MEXT launched a new project in world-wide scale to cope with emerging and reemerging infectious diseases efficiently by setting up medical collaboration centers and conducting close collaboration there. The proposal of the MEXT project facilitated the realization of MCC in Vietnam. After several preliminary studies, NCGM and BMH decided to establish MCC within BMH based on the friendly and reliable relationship, which had been developed since the beginning of 1990's between the two medical institutions.



The Memorandum of Understanding (MOU) regarding the initiation of the project was signed by the Director of BMH and the President of NCGM in August 2005 followed by the official approval of the Ministry of Health, Vietnam. In April 2010, NCGM changed its name (from International Medical Center of Japan; IMCJ to National Center for Global Health and Medicine; NCGM) due to its organizational reform (Independent Administrative Legal Entity). In view of this situation, both sides agreed to revise the MOU along with continuation of the current cooperative activities. After discussions between NCGM and BMH the revised MOU was drafted. In the new MOU, activities in MCC are clarified as research, training, medical case conferences, technical cooperation, international conferences/ meetings/ seminars, personal exchange programs, and others, although in the current version description of activity is concentrated on researches. The new MOU, after getting approval of MOH, was signed by the representatives of BMH (Dr. Nguyen Quoc Anh) and NCGM (Dr. Takaaki Kirino) in June 2, 2010.



Signing ceremony of the Memorandum of Understanding between NCGM and BMH in 2010

MCC office was established in the new building of BMH, which was constructed by Japan's grant-aid in 2000, as the managing center of various collaborative activities including the MEXT project and others. Based on the MCC, various activities were started in collaboration with BMH along with related medical institutions.



3. Objective of MCC

The objective of setting up MCC in Vietnam is to implement various collaboration on medical science and medical care, such as researches, human resource development & technical exchange, information sharing, clinical case conference, etc. smoothly and effectively. The activities in MCC are conducted in close collaboration between BMH and NCGM, and related medical institutions and such collaborative activities are expected to benefit both Vietnam and Japan. The contents of activities can include some advanced and sophisticated techniques, which had been difficult to conduct within the framework of JICA projects.



NCGM President, Dr. Norihiro Kokudo visited BMH on Jun 25, 2018

4. Related medical institutions

MCC is mainly collaborating with BMH, however based on the agreement described in MOU; some related medical institutions have been setting up under the approval of BMH.

Currently, five institutions in Hanoi and three institutions in Ho Chi Minh City are functioning as the main related medical institutions. In the future, more medical institutions might be added if necessary and efficient network building among them of are expected.

Table 1: Main medical institutions under collaboration (As of December 2018)

No.	Medical institution	Location	Collaborative study
1	National Institute of Tropical and Infectious Diseases	Hanoi	HIV/AIDS
2	National Lung Hospital (the former National Hospital of Tuberculosis and Lung Diseases)	Hanoi	Tuberculosis
3	Hanoi Lung Hospital (the former Hanoi Hospital of Tuberculosis and Lung Diseases)	Hanoi	Tuberculosis
4	Cho Ray hospital	HCMC	Healthcare associated infections in Vietnam
5	Ho Chi Minh Medical and Pharmaceutical University	HCMC	Tropical Medicine
6	Ho Chi Minh City Hospital of Tropical Medicine	HCMC	Tropical Medicine Medical education
7	National Institute of Nutrition	Hanoi	Diabetes and life style related disease

5. MEXT's program

The Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT) is implementing the MEXT “Program of Founding Research Centers for Emerging and Reemerging Infectious Diseases” in Asian and African countries. The objective of these activities is to contribute to the emerging infectious diseases and other disease control from the world-wide viewpoint. As of December 2008, this program has been implemented in 11 research centers in 8 countries (Vietnam, China, India, Thailand, Indonesia, Zambia, Ghana, Philippines). MCC is functioning as one of the important research centers for this program in Vietnam. The period of this program is 5 years from April 2005 to March 2010. The next step started from April 2010 to March 2015, and now the third step has been started from April 2015.

Activities of the MEXT projects in Vietnam include scientific researches (both basic and clinical researches), human resource development, etc. Equipment necessary for conducting these activities has also been provided to BMH and relevant medical institutions.

MEXT's program in Vietnam consists of the following three research groups (Dr. Shinichi Oka is the leader of these researches). These groups are implementing activities on emerging and reemerging infectious disease control based on the concept of MEXT project. The following three researches are three leading research subjects in MCC and under these research themes, sub-researches have been carried out.

- 1) Dr. Shinichi Oka's group: HIV/AIDS
- 2) Dr. Norio Ohmagari's group: Bacterial infections
- 3) Dr. Naoto Keicho's group: Tuberculosis

6. The program for international promotion of Japan's healthcare technologies and services

The program has been started from 2015, organized by the Bureau of International Medical Cooperation and relevant departments of NCGM and funded by the Ministry of Health, Labour and Welfare, Japan. This program is in relation to the Memorandum of Cooperation in the field of healthcare between the Ministry of



The NCGM expert teams working with BMH in Jun 2019

Health, Labour and Welfare of Japan and the Ministry of Health of Vietnam signed on 18 March 2014 by both Ministers. This program aims at carrying out the major objectives of promotion, including sharing the experiences in Japan's public health insurance system and the transfer of cutting-edge medical technologies. Through this program, public health standards in the counterpart countries will be improved.

Under this program, in the year 2019, 29 staff members of BMH were invited to NCGM for training in different fields, such as stroke care including neurosurgery, rehabilitation, nutrition, neurology and pharmacy; peri-operative care including intensive care and anesthesiology; medical equipment management including that in hemodialysis, and bronchoscopy. Besides that, staff members from other hospitals in Vietnam were also invited to NCGM for training in hospital quality management and patient safety. Experts from NCGM also came to BMH for investigating the needs, discussing the contents of training and collaborative activities, as well as following-up the implementation in BMH after training courses and assessing the outcome. This program is highly evaluated by BMH, contributing to provide better healthcare services to more people in Vietnam.

The seminar on medical equipment management and the seminar on nutrition and rehabilitation for stroke care patients were held in Jan 2019. Medical staff including those from BMH and provincial hospitals and experts from NCGM joined these seminars. MCC worked closely with the Bureau of International Medical Cooperation and other departments of NCGM and BMH for organizing these seminars.

This Program has been extended to Cho Ray hospital and initial steps for preparation have been done in the year 2018. It is expected that more people in the south of Vietnam can be beneficiary from this Program, through the enhancement of healthcare service in Cho Ray hospital.

7. Other projects

In addition to the above, the Ministry of Health, Labor and Welfare of Japan (MHLW) is also supporting research projects on various fields. As an oversea base of NCGM, MCC is functioning as a body to support NCGM research teams or individuals who want to implement a collaborative project in Vietnam.

Within this scope, life-style related diseases such as diabetes and pediatric health issues are projects which have been implemented in collaboration with BMH and other medical institutions of Vietnam so far. A



community-based survey on diabetes and obesity, followed by an intervention program has been implementing in Hanoi area and a lot of meaningful data have been obtained with the support from MCC.

In 2019, the cooperation between Nephro-Urology Department, BMH and Nephrology Department, NCGM, was extended from the previous Sister Renal Center Program. Under this collaboration, Japanese groups including NCGM nephrologists and medical engineers came to BMH for training courses on kidney diseases and quality management of water for hemodialysis. Two staff of BMH were sent to NCGM for training. Together with the Bureau of International Medical Cooperation of NCGM, MCC participated in supporting the implementation of this program.

8. Current MCC

MCC received many groups of researchers and specialists coming from NCGM and related institutions in Japan. MCC staff participated in discussions on related activities held between the two sides. Together with Vietnamese counterparts, MCC staff took part in conducting, supervising and monitoring on-site implementation of researches, as well as collecting and reporting data. In addition to that, MCC has provided logistic support to these groups, such as on-site coordination including making appointments with Vietnamese counterparts, reservation of accommodation, arrangement of transportation vehicles etc.

MCC worked closely with the Bureau of International Medical Cooperation and other departments of NCGM to support the implementation of The program for international promotion of Japan's healthcare technologies and services in Vietnam. MCC supported administrative procedures for Vietnamese counterparts, who were invited to Japan for training. In 2019, 29 counterpart members have completed necessary procedures and successfully received training in Japan. Through this activity, MCC also acts as a bridge to link domestic health personnel and institutions, which is necessary for sustainable improvement.

MCC also participated in arrangement of the training visits for NCGM trainees. Trainee groups including doctors, nurses, technicians, and pharmacists came to BMH and other hospitals and healthcare centers in Hoa Binh province for the training on global health and medicine.

II. Activities

1. Research

List of collaborative researches in MCC, Viet Nam

Table 2 : Collaborative researches in MCC, Viet Nam

No.	Main Researchers	Affiliation in Viet Nam	Subject	Source of fund	Reference
1	Shinichi Oka (NCGM)	National Hospital for Tropical Diseases (NHTD) Bach Mai Hospital (BMH)	The cohort study of HIV-1-infected individuals in Northern Viet Nam	J-GRID AMED	Article 1 p.72 Article 2 p.73
2	Hiroshi Kajio (NCGM) Pham Minh Thong (BMH) Nguyen Khoa Dieu Van (BMH)	Bach Mai Hospital (BMH)	Research on social medical problems of lifestyle-related diseases in Vietnam	NCGM MHLW	Article 3 p.74
3	Norio Ohmagari (NCGM) Nguyen Quoc Anh (BMH) Pham Thi Ngoc Thao (CRH)	Bach Mai Hospital (BMH) Cho Ray Hospital (CRH)	2019 Annual Report on Collaboration in Vietnam Base	J-GRID AMED	-
4	Tohru Miyoshi-Akiyama (NCGM)	Bach Mai Hospital (BMH)	Japan Initiative for Global Research Network on Infectious Diseases (J-GRID)	J-GRID AMED	Article 4 p.75 Article 5 p.76
5	Naoto Keicho (NCGM/JATA) Pham Huu Thuong (HLH)	Hanoi Lung Hospital (HLH) National Lung Hospital (NLH)	Drug resistance conferring mutations, and transmission of Mycobacterium tuberculosis in Hanoi, Vietnam	J-GRID AMED	Article 6 p.77 Article 7 p.78
6	Hiroyuki Shichino (NCGM)	National Hue Central Hospital (Hue) Ho Chi Minh Children Hospital 1 (HCM city) Ho Chi Minh Children Hospital 2 (HCM city) Ho Chi Minh Children Hospital 3 (HCM city) National Hospital of Pediatrics (Hanoi) National Cancer Hospital (Hanoi)	Support for Strengthening Medical Treatment Ability of Childhood Cancer in Vietnam	NCGM MHLW	-

i. Research No.1

The cohort study of HIV-1-infected individuals in Northern Viet Nam

National Hospital of Tropical Diseases (NHTD), Bach Mai Hospital (BMH)
Shinichi Oka, AIDS Clinical Center (ACC), National Center for Global Health and Medicine

Junko Tanuma (ACC), Daisuke Mizushima (ACC), Hiroyuki Gatanaga (ACC), Shoko Matsumoto (ACC), Mika Sata (ACC), Moeko Nagai (ACC), Ei Kinai (Tokyo Medical University), Masafumi Takiguchi (Kumamoto University), Nguyen Thi Huyen (ACC), Nguyen Hoai Dung (NHTD), Tran Van Giang (NHTD), Nguyen Van Kinh (NHTD), Pham Ngoc Thach (NHTD), Truong Thai Phuong (BMH), Do Duy Cuong (BMH), Le Minh Giang (Hanoi Medical University)

ベトナム拠点年報2019

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Started a new project (SATREPS) based on findings from J-GRID

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Phase 1				Phase 2				Phase 3										
J-GRID (AMED)																		
														SATREPS (AMED + JICA)				



National hospital for Tropical Diseases (NHTD)



Bach Mai Hospital (BMH)



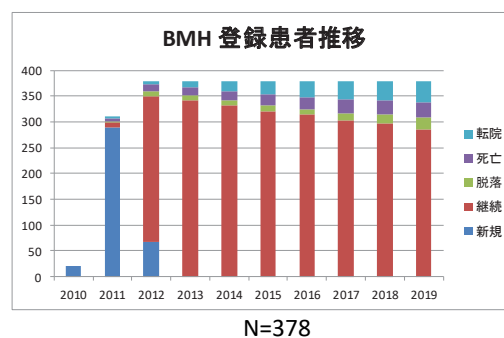
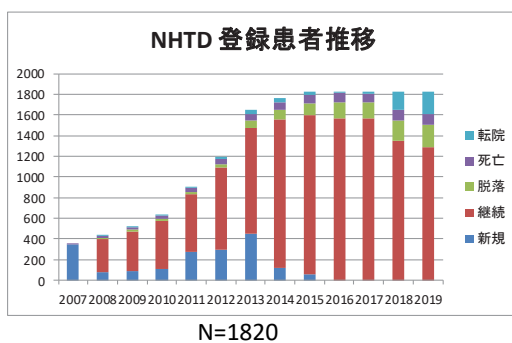
2019. Nov Kick-off ceremony for SATREPS

J-GRID: Hanoi Cohort

Background: Number of patients on cART is expanding rapidly.
cART is implemented based on WHO guideline.

What to follow;

1. Success rate of cART in Vietnam
2. Side effects due to cART in Vietnamese



Social Health Insurance

U.S. and Vietnam Celebrate First Patients Receiving Antiretrovirals Covered by Social Health Insurance

Home | News & Events | U.S. and Vietnam Celebrate First Patients Receiving Antiretrovirals Covered by Social Health Insurance



U.S. and Vietnam Celebrate First Patients Receiving Antiretrovirals Covered by Social Health Insurance

Hanoi, March 8, 2019 – Today, the Vietnam Authority for HIV/AIDS Control (VAAC) – Ministry of Health and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) hosted four simultaneous events across the country in Hanoi, Nghe An, Ho Chi Minh City, and Hai Phong to celebrate the first patients receiving antiretroviral (ARV) drugs covered by social health insurance (SHI). These events mark an important milestone in securing domestic sustainable financing for the HIV response in Vietnam and ensuring that people living with HIV



Ambassador Daniel A. Kribben Celebrates the First Patients Receiving Antiretroviral Drugs Covered by Social Health Insurance

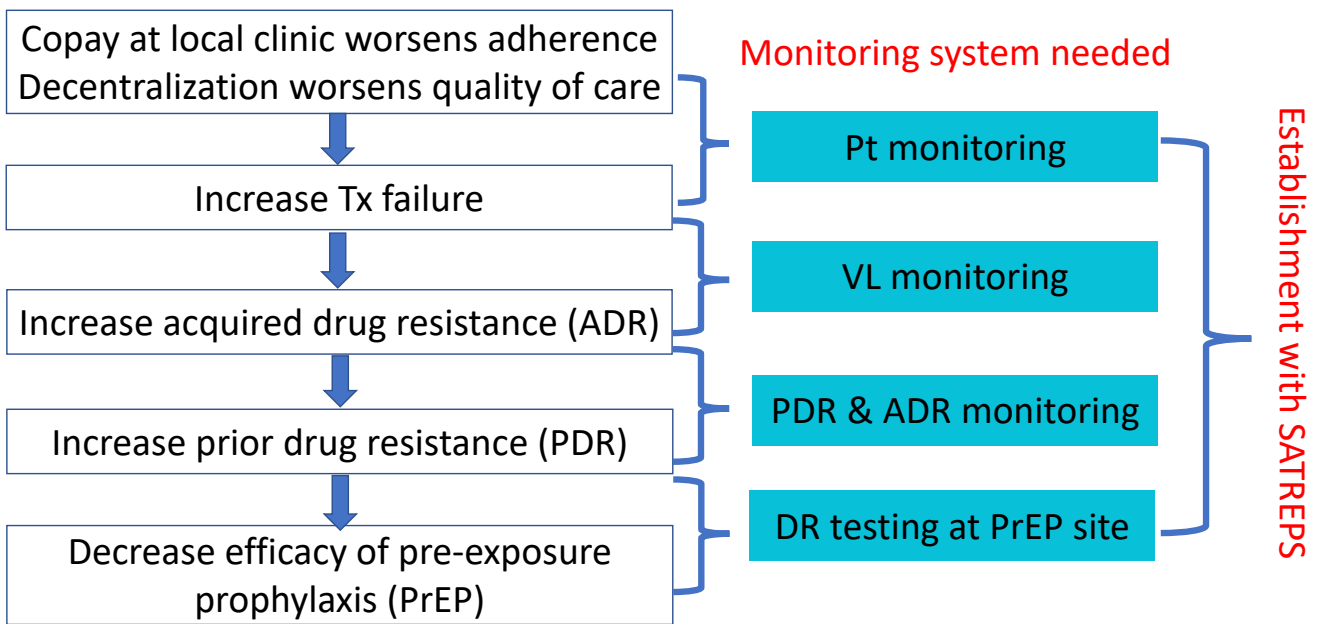
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Ambassadors
American Society
Art & Culture

- Historically, ARVs were provided free-of-charge for HIV patients in Vietnam through international donors.
- Vietnam is now shifting toward integrating HIV services into the public health system using social health insurance (SHI).

Homepage of U.S. Embassy and Consulate in Vietnam
https://vn.usembassy.gov/20190308_first-patients-receiving-antiretrovirals-covered-by-social-health-insurance/

Increased concerns about drug resistance



Overall goal

- The recommendation made by the Project is reflected in Vietnamese policies or guidelines

Project purpose

- The ART monitoring system is established in targeted areas
- Effectiveness of PrEP is verified
- Policy recommendation is developed

Output 1

- An effective **ART monitoring system** is established at target health facilities in Northern Vietnam

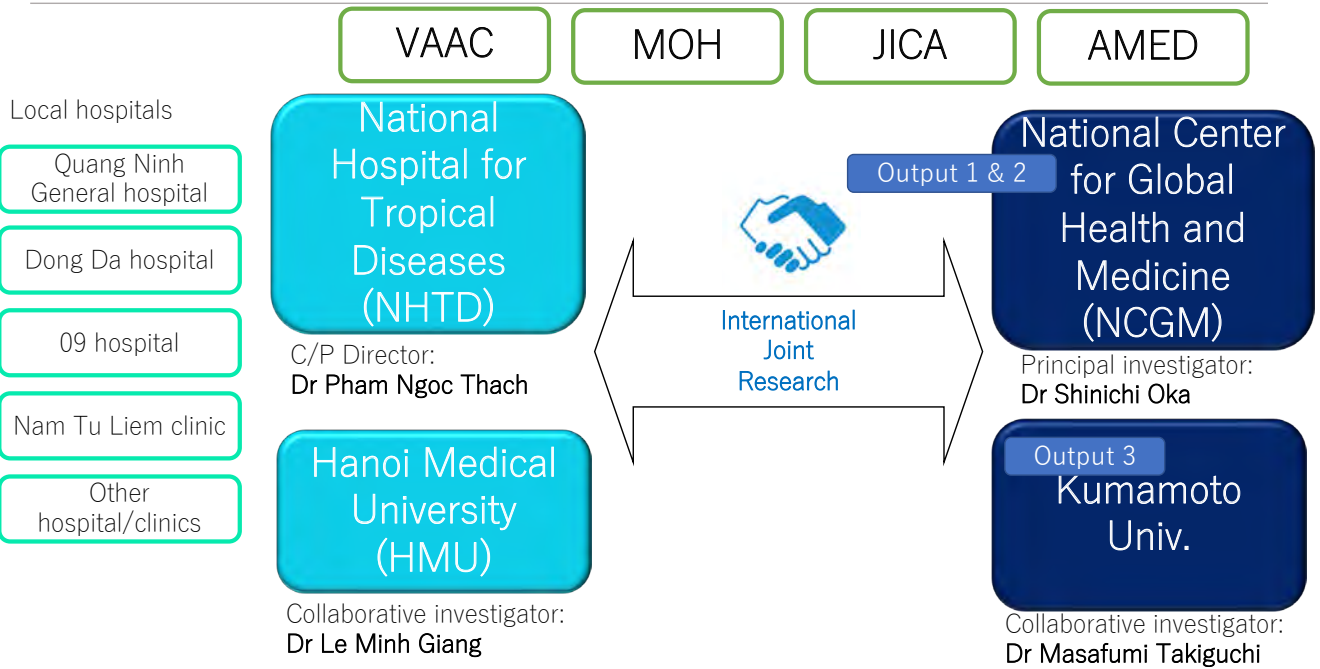
Output 2

- **Causes of PrEP failure** are analyzed

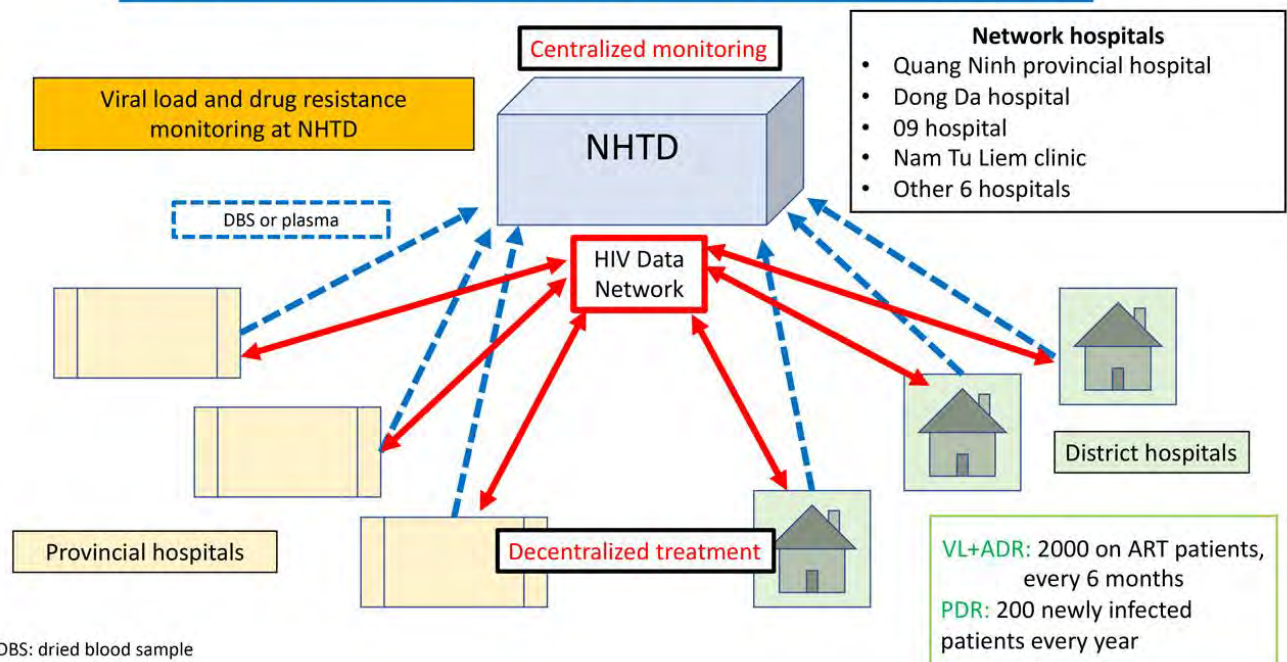
Output 3

- **HIV-1 protective immune responses** are analyzed in individuals who exposed to HIV but not infected with the viruses

International Joint Research



Output 1: Establishment of VL and DR monitoring system



Progress

On ART	Data collection period	Start of data collection	Number of recruitment		Number of VL test	Number of VL>1000 (Number of DR test)	Confirmed DR result
			Planned	Actual			
09 hospital	Dec-June	2nd Dec 2019	100	91	75	1	0
Dong Da hospital	Dec-June	5th Dec 2019	100	98	42	0	0
Quang Ninh	Jan-July	(Plan) 2nd Jan 2020	100	0			
Nam Tu Liem	Mar-Sep	(Plan) 1st Mar 2020	100	0			
NHTD	Apr/May-Oct/Nov	(Plan) 1st Apr 2020	1300	0			

Naïve	Data collection period	Start of data collection	Number of recruitment		Number of VL test	Number of VL>1000 (Number of DR test)	Confirmed DR result
			Planned	Actual			
09 hospital	Throughout year	2nd Dec 2019	50	2	2	2	0
Dong Da hospital	Throughout year	5th Dec 2019	50	5	1	1	0
Quang Ninh	Throughout year	(Plan) 2nd Jan 2020	50	0			
Nam Tu Liem	Throughout year	(Plan) 1st Mar 2020	50	0			

As of 28, Dec 2019

Output 2. Evaluation of impact of DR on HIV seroconversion among PrEP users



1. Evaluation of impact of **drug resistance** on PrEP failure
2. Evaluation of **adherence** among PrEP users by measuring drug concentration using DBS

Plans for 2020

- **Maintaining Hanoi Cohort and continuing following studies**
 - The study for **side effects of tenofovir** in children born from HIV infected mothers in Vietnam --- complete data collection and data analyses in 2020
 - Study on **Quality of Life** of HIV-infected Individuals in Vietnam --- data analyses in 2020
 - Impact of integrating HIV services into social health insurance scheme on treatment outcome and **psychosocial well-being** among HIV patients in Vietnam: Prospective observational study --- data collection and data analyses in 2020
 - Treatment outcome and **drug resistance mutations** among patients on LPVr-containing second-line antiretroviral therapy in Vietnam --- data analyses in 2020
- **Continuing data & sample collection in SATREPS; Scale up of hospital networks**

ii. Research No.2

Research on social medical problems of lifestyle-related diseases in Vietnam

- 1) Central Hospital, National Center for Global Health and Medicine, Tokyo, Japan
Hiroshi Kajio
- 2) NCGM-Bach Mai Hospital Medical Collaboration Center, Hanoi, Vietnam
Thuy Thi Phuong Pham
- 3) Center for Clinical Sciences, National Center for Global Health and Medicine, Tokyo, Japan
Yumi Matsushita
- 4) Bach Mai Hospital, Hanoi, Vietnam.
Thanh Van Do, Quyen Huyen Dao, Thanh Thi The Nguyen, Lien Thi Kim Dinh, Anh Quoc Nguyen

ベトナム拠点年報2019

1

Introduction

The prevalence of overweight and obesity (OW/OB) has increased rapidly in Vietnam. This study aimed to investigate social medical problems of lifestyle-related diseases in Vietnam by elucidation of the factors influencing OW/OB and Metabolic syndrome (MetSyn) in secondary school children.

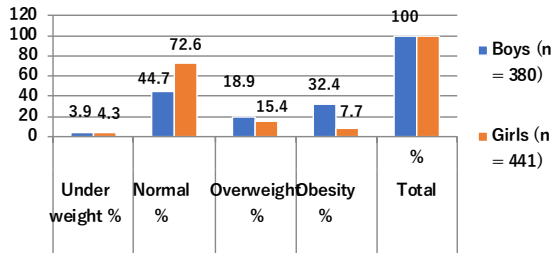
Methods

A cross-sectional survey was conducted in January 2014. Using a stratified sampling method, two districts were randomly selected from four urban districts in Hanoi, 821 students of grade six (11–12 years) were randomly selected from 4 schools. Health check was done by physician. The information on their physical activities and nutrition was collected with questionnaires. Parental anthropometric measurements and family history were provided by the parents via the questionnaires. Blood tests were conducted following the guidelines of the International Organization for Standardization.

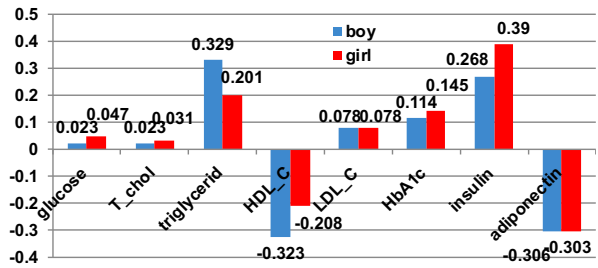
ベトナム拠点年報2019

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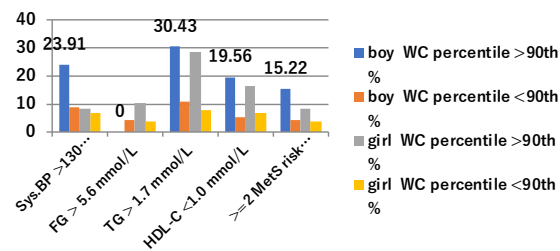
BMI distribution in boys and girls



Correlation between BMI of children and Biochemical factors



MetS distribution in boys and girls

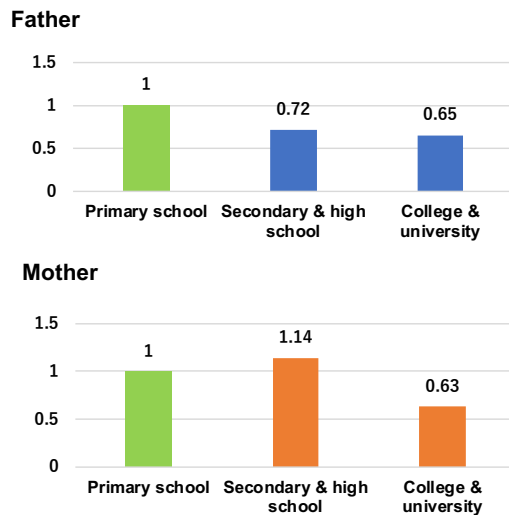


Risk of MetSyn among school students

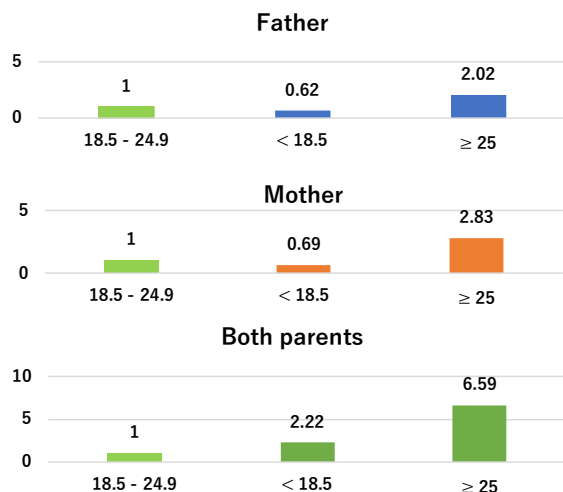
Risk factors	MetS (N=11)	No MetS (N=810)	p-value
Waist circumference (≥90th percentile)	87.00 ± 6.43	68.13 ± 8.69	<0.001
Systolic BP >130 mmHg	113.18 ± 10.55	109.87 ± 11.52	0.343
Dyastolic BP > 85 mmHg	70.82 ± 12.16	70.66 ± 9.41	0.956
TG > 1.7 mM	2.29 ± 0.98	1.06 ± 0.55	0.002
HDL-C <40 mg/dL	0.92 ± 0.13	1.5 ± 0.39	<0.001
Glucose > 5.6 mM	4.88 ± 0.47	4.81 ± 0.53	0.675

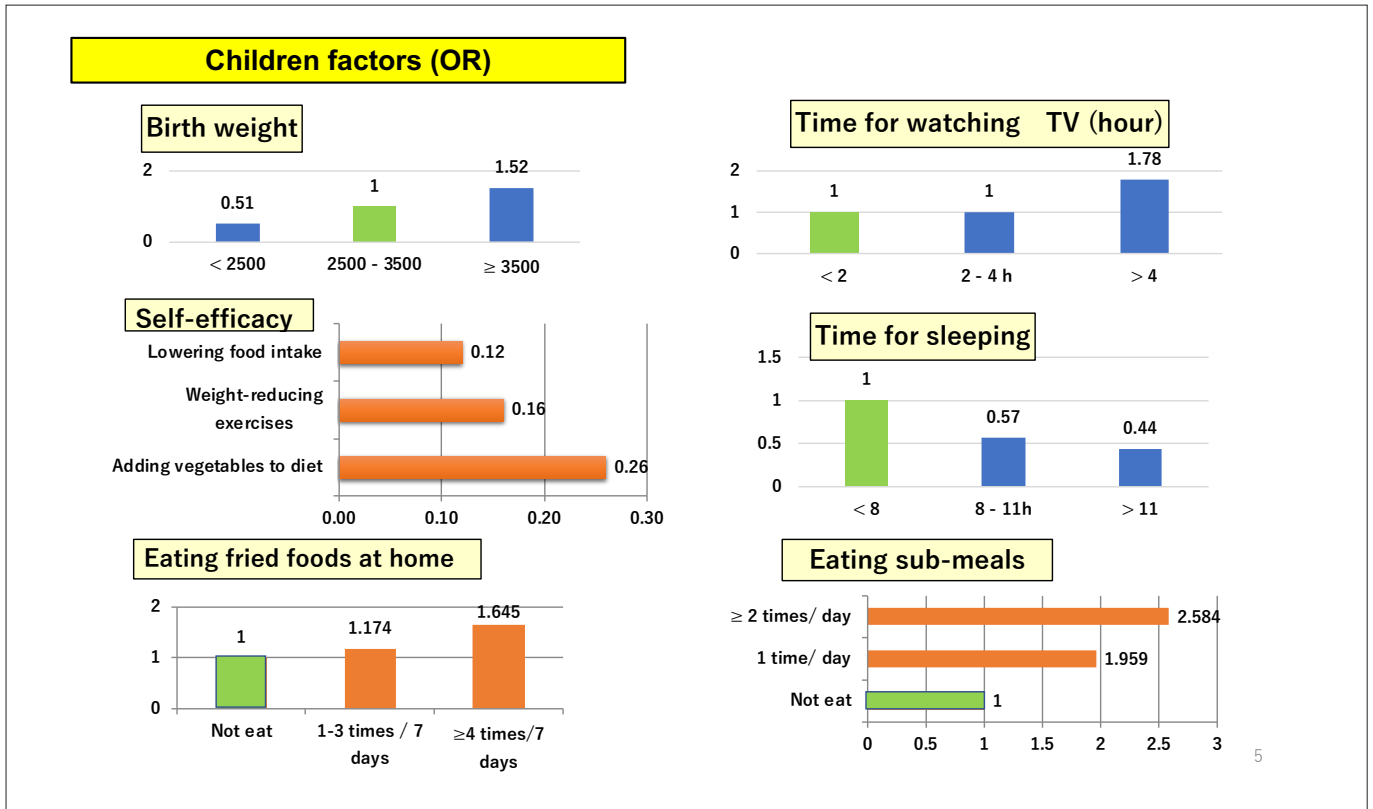
Family factors (OR)

Educational background



Obesity Father /mother/both parents (OR)





Results

1. Overall, 4.1% of children were underweight, 59.7% were normal weight, 17.1% were overweight, and 19.1% were obese.
2. MetSyn appeared in 15.2% of the boys and 8.2% of the girls, who had a waist circumference of 90 percentile and above.
3. The odds of OW/OB were lowest among children whose parents had college/university degrees [father (OR =0.65); mother (OR =0.63)].
4. The odds of OW/OB were highest among children with parents with OW/OB [father (OR =2.022); mother (OR =2.83)].
5. The odds of OW/OB were highest among children with both parents having OW/OB [both parents (OR =6.59)].
6. High-birth-weight children [BW≥3500 g (OR =1.52)] had greater odds than did normal-birth-weight children.
7. Children with specific positive lifestyle behaviours had lower risk of OW/OB: exercise for weight reduction (OR =0.16), lowered food intake (OR = 0.12), and added vegetables to their diet (OR= 0.26).
8. Children eating more fried foods (OR 2.5) or more sub-meals (OR 2.6) had higher risks for OW/OB, respectively.

Conclusion

- 1) We revealed the high prevalence of OW/OB and metabolic syndrome among Hanoi students compare other studies in Hanoi and Ho Chi Minh city in Vietnam.
- 2) We found that family factors well as behavior factors, including specific positive behavior for better diet and exercise, are associated with OW/OB.
- 3) Our data suggested that the promotion for the children in these factors could be effective for the intervention against OW/OB and metabolic syndrome.

Plan for 2020 FY

- 1) The aims are to clarify the significance of obesity for lifestyle-related diseases in Vietnam and to establish appropriate measures against obesity through lifestyle interventions such as eating habits, in collaboration with Bach Mai Hospital in Hanoi City.
- 2) By analyzing the results of surveys on lifestyle-related diseases and obesity conducted in Bach Mai Hospital for patients with diabetes and without diabetes, we will investigate the relationship of obesity to diabetes and other lifestyle-related diseases such as cardiovascular disease.
- 3) By analyzing the data before and after the lifestyle intervention program for obesity, which was conducted for middle school students in Hanoi, we will clarify the factors closely related to obesity intervention.
- 4) We will examine the measures against obesity through lifestyle interventions such as eating habits.

Publication

Pham TTP, Matsushita Y, Dinh LTK, Do TV, Nguyen TTT, Bui AT, Nguyen AQ, Kajio H.: Prevalence and associated factors of overweight and obesity among schoolchildren in Hanoi, Vietnam. *BMC Public Health*. 2019 Nov 8;19(1):1478. doi: 10.1186/s12889-019-7823-9.

Meetings

Hiroshi Kajio, The lesson from the study on the related factors of overweight and obesity among Hanoi students. National Conference on Clinical Nutrition, Vietnam, Nov 8, 2019

Thuy Thi Phuong Pham, Yumi Matsushita, Thanh Van Do, Quyen Huyen Dao, Thanh Thi The Nguyen, Lien Thi Kim Dinh, Anh Quoc Nguyen, Hiroshi Kajio, Overweight, obesity and metabolic syndrome among Hanoi students: Prevalence, associated factors and their significance. IDF (International Diabetes Federation) Congress 2019, Busan, Korea, Dec 3-6, 2019

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BMC Public Health

RESEARCH ARTICLE

Open Access

Prevalence and associated factors of overweight and obesity among schoolchildren in Hanoi, Vietnam



Thuy Thi Phuong Pham¹, Yumi Matsushita^{2*}, Lien Thi Kim Dinh³, Thanh Van Do⁴, Thanh Thi The Nguyen³, Anh Tuan Bui⁵, Anh Quoc Nguyen⁶ and Hiroshi Kajio⁷

Abstract

Background: The prevalence of overweight and obesity (OW/OB) has increased rapidly in Vietnam. This study aimed to elucidate the factors influencing OW/OB among secondary schoolchildren.

Method: A survey was conducted in January 2014 in four randomly selected state schools in two Hanoi urban districts, and 821 students in grade six (11–12 years old) participated. Definitions of OW/OB followed the World Health Organization standard cut-offs.

Results: Overall, 4.1% of children were underweight, 59.7% were normal weight, 17.1% were overweight, and 19.1% were obese. The odds of OW/OB were lowest among children whose parents had college/university degrees [father (aOR = 0.65, 95% CI: 0.42–1.00); mother (aOR = 0.63, 95% CI: 0.41–0.97)] compared with those whose parents had only a primary education. Children with an OW/OB family history had an increased risk of OW/OB. Other associated factors include parental OW/OB and birth weight (BW). The odds of OW/OB were highest among children with parents with OW/OB [father (aOR = 2.022, 95% CI: 1.34–3.04); mother (aOR = 2.83, 95% CI: 1.51–5.30)] compared with those with normal-weight parents. Children with both parents having OW/OB [both parents (aOR = 6.59, 95% CI: 1.28–33.87)] had the highest risk, followed by one parent (aOR = 2.22, 95% CI: 1.50–3.27) and then neither parent having OW/OB. Moreover, high-birth-weight children [BW ≥ 3500 g (aOR = 1.52, 95% CI: 1.07–2.15)] had greater odds than did normal-birth-weight children.

Children who slept 11 h per day (8–11 h (aOR = 0.57, 95% CI: 0.40–0.81) or more (aOR = 0.44, 95% CI: 0.22–0.87)) had lower OW/OB odds than those who slept 8 h or less. Children with specific positive lifestyle behaviours had lower risk of OW/OB than those who did not engage in positive lifestyle behaviours. The odds were lower among children who exercised for weight reduction (OR = 0.16, 95% CI: 0.11–0.23), lowered food intake (aOR = 0.12, 95% CI: 0.09–0.17), and added vegetables to their diet (aOR = 0.26, 95% CI: 0.19–0.35).

Conclusion: The results suggest that parents and children with OW/OB parents or a high BW should be educated to prevent OW/OB at an early stage. Positive lifestyle behaviours should be adopted by the students.

Keywords: Overweight, Obesity, Children, Prevalence, Vietnam

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2019 Annual Report on Collaboration in Vietnam Base

National Center for Global Health and Medicine, Disease Control
and Prevention Center (DCC)

Norio Ohmagari, Satoshi Kutsuna, Shinichiro Morioka,
Masahiro Ishikane, Syo Saito, Yuki Moriyama, Sangnim Lee

Collaborators: Yutaka Maruoka, Yasuyuki Shimada, Maya Hakata,
Hiroyuki Kiyohara

History of Collaboration with Vietnam

The DCC team has been conducting researches, development of methodology, etc. in collaboration with Vietnamese research teams since 2013.

1. Research projects

Surveillance at Bach Mai Hospital (2013 - 2016):

- Surveillance was conducted on Ventilator-Associated Pneumonia (VAP) and bloodstream infections among patients in Intensive Care Units (ICU) to analyze the current state of Antimicrobial Resistance (AMR) infections in Vietnam.
- As results, the team elucidated the high mortality rate of bloodstream infections with a high percentage of causation of *Candida* and very high disease burden due to VAP (56.5 /1000 ICU admissions) with carbapenem-resistant *Acinetobacter baumannii* accounting (47% of the causative organisms).
- The study emphasized the necessity of taking measure to reduce ventilator-associated pneumonia.

Cont.

2. Antimicrobial stewardship

The efficacy and nephrotoxicity associated with colistin use in an ICU

- A personalized dosing protocol of colistin was effective, with low nephrotoxicity, among critically ill Vietnamese patients with low body weight.

3. Development of affordable and effective method

Oral care research study at Cho Ray Hospital (2017 - 2018)

- Oral care interventions reduced ventilator-associated pneumonia.
- In recognition of the importance of oral care, the oral care methods used in the study were published in the Nursing Manual of the hospital to expand oral care efforts to other units in the hospital.
- At present, an expansion to nearby hospitals is also under consideration.



Nursing Manual

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**Project currently running:
VAP/HAP Caused by Carbapenem-Resistant Acinetobacter Baumanni:
A Prospective Observational Study in Vietnam
(Acinetobacter HAP/VAP study)**

- Objectives:
 - To analyze AMR strains collected among the cohort of the target hospitals with molecular epidemiology methods
 - To reveal the disease burden caused by AMR infectious diseases
- Period:

2020-2024 (2019: Preparation period)
- Target facilities:

Cho-Ray Hospital and Bach Mai Hospital

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Cont.

- Method:
 - Collect and analyze clinical data and strains of VAP due to AMR among ICU patients with molecular epidemiology
- Funding source:
 - Japan Initiative for Global Research Network on Infectious Diseases (J-GRID)

Project currently running: Pilot Study on Oral Flora among ICU Patients (Oral microbiota study)

- Objectives:
 - To elucidate the influence and relevant mechanism of qualitative and quantitative controls of oral bacteria on the risk reduction of postoperative infection and pneumonia
- Period:
 - 2020-2021(TBC)
- Target facilities:
 - Cho Ray Hospital

Cont.

- Method:
 - Evaluate clinical indices and collection of microbial samples from the saliva and mucosa at the initial clinic visit, on the next day of surgery, and 7 days after surgery. Then, analyze the total number of oral bacteria and bacterial flora.
- Sample size:
 - A total of 10 patients (Group with oral hygiene care: 5 patients, Without oral hygiene care: 5 patients)
- Funding source:
 - Japan Initiative for Global Research Network on Infectious Diseases (J-GRID)

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Activities in 2019: Preparation for the Two New Research Projects

- Designing the studies and creating funding proposals → Obtained funds from J-GRID and expect to obtain from Sunstar Inc.
- Meetings within Japanese-side
 - Acinetobacter HAP/VAP study
 - Discussed the study design and proposals several times within the team (Apr 2019 - Mar 2020)
 - Oral microbiota study
 - Discussed the details of the study design within the NCGM team (June 2019)
 - Exchanged opinions over the results of the previous two meetings and the schedule of visit in Vietnam with Sunstar Inc. (July 2019)
 - Discussed the implementation of the study with Sunstar Inc. and National Institute of Infectious Diseases, Japan (October and November 2019)

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Cont.

- Meetings with Vietnamese counterparts

- The team visited Vietnam from 17 to 18 September 2020 to discuss the two new research projects with counterparts of Cho Rai Hospital.
- Had meetings with staff from ICU, D-ICU, and Microbiology laboratory department.
- Vietnam counterparts shared the current status of VAP/HAP and oral care in each department with the team. We discussed the inclusion and exclusion criteria of cohort selections, the method of strain collection, etc., and the wayforward.



Cho Ray Hospital



In front of ICU



Meeting on 17 Sep.

JICA project

Antimicrobial Stewardship in Cho-Ray Hospital

- Dr. Kutsuna worked as a short-term JICA expert twice a year for about two weeks each, starting in 2017.
 - Organizing Perioperative Antimicrobials
 - Coordinate, advise and schedule the development of guidelines in hospitals
 - In 2019, he visited twice, from March 11-18 and December 2-5.



Project Plan 2020

Acinetobacter HAP/VAP study

- Cho-Ray Hospital:
 - Sample a cohort for a cohort study on VAP due to AMR among ICU patients
 - Start collecting clinical data and strains of VAP due to AMR
- Bach Mai Hospital:
 - Develop an antimicrobial stewardship programme
 - Collect three-drug resistant strains

Oral microbiota study

- Cho-Ray Hospital:
 - Finalize the study plan
 - Select subjects

Japan Initiative for Global Research Network on Infectious Diseases (J-GRID)

National Center for Global Health and
Medicine, Research Institute
Tohru Miyoshi-Akiyama, Kayo Shimada,
Research Institute

Nguyen Thi Huong Giang Nguyen Quang Huy
Ngo Phuong Nhung Nguyen Thi Yen Bui Thi
Hanh (Bach Mai Hospital)

1. Epidemiology of CRE (*Enterobacter cloacae*) in Vietnam
2. Database for whole genome sequences of CRE (AMED CRE Consortium)

Tohru Miyoshi-Akiyama

National Center for Global Health and Medicine

Purpose and methods

- To clarify the epidemiology of multi-drug resistance (MDR) Gram-negative bacteria in Vietnam and develop effective intervention to control MDR Gram-negative bacteria.
- Collecting bacteria showing resistance against quinolones, beta-lactams and aminoglycosides.
- Comparison of the collected *Enterobacter cloacae* (VN strains) with *E. cloacae* isolates carrying plasmids and positive for metallo-beta-lactamase or carbapenemase in the database (db strains, 17 isolates).

The isolates during 2014-2017

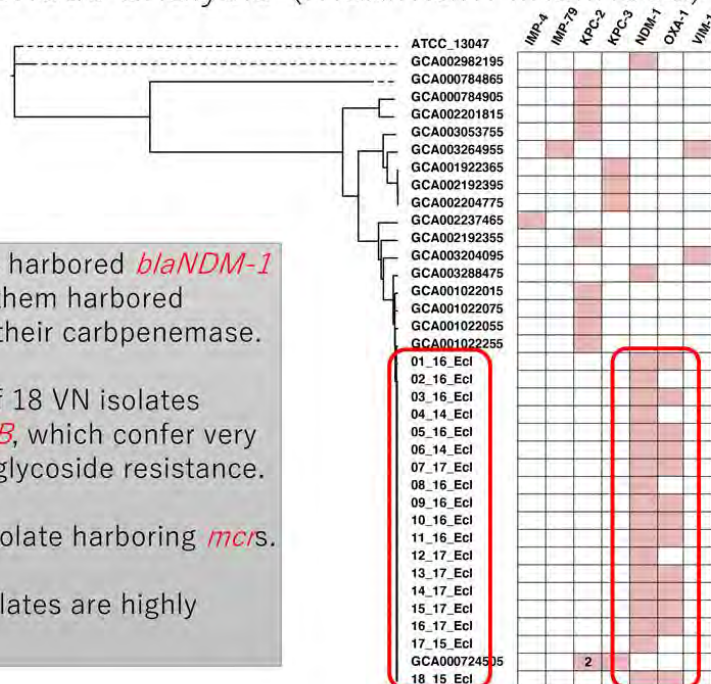
- 18 of *Enterobacter cloacae* (Today's topics)
 - 30 of *Escherichia coli*
 - 193 of *Klebsiella pneumoniae*
 - 89 of *Pseudomonas aeruginosa*
 - 705 of *Acinetobacter baumannii*
- > Some of CRE showed colistin resistance !

Distribution of the virulence factors

Classification	The db strains		The VN strains	
	Number	Percentage	Number	Percentage
Flageller, pili	404	27.6	379	29.4
Metal uptake	356	24.4	289	22.4
Selection system	191	13.1	138	10.7
Capsule	186	12.7	179	13.9
Curli fiber	108	7.4	95	7.4
others	77	5.3	40	3.1
LPS	73	5.0	70	5.4
Pump	33	2.3	69	5.4
Toxin	17	1.2	12	0.9
HSP	17	1.2	17	1.3
Total	1462	100.0	1288	100.0

There is no significant difference on the distribution of the virulence factors.

Phylogenetic analysis (Maximum likelihood)



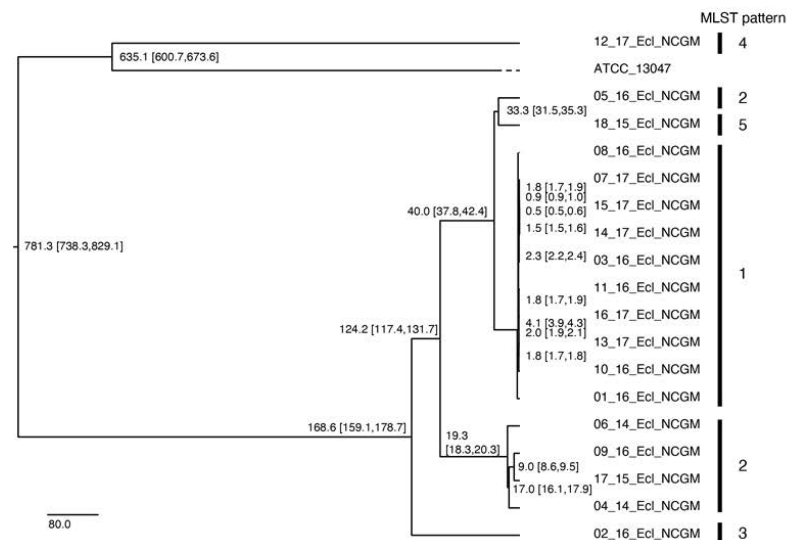
All VN strains harbored *blaNDM-1* and many of them harbored *blaOXA-1* as their carbapenemase.

Notably, 15 of 18 VN isolates harbored *rmtB*, which confer very strong aminoglycoside resistance.

There is no isolate harboring *mcrS*.

->The VN isolates are highly clonal.

Phylogenetic analysis (Bayesian)



- By employing Bayesian phylogeny, we can infer date of speciation of the isolates.
- Many VN isolates speciated during recent few years.

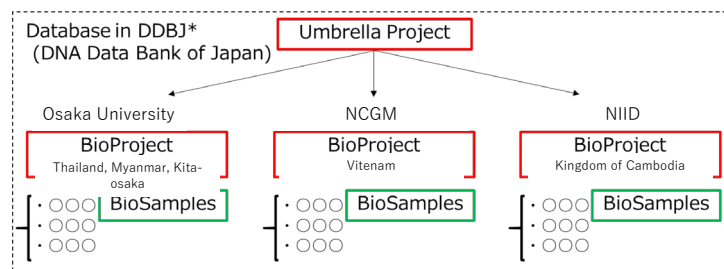
Conclusion

- These results suggested that several prevalent clones of carbapenem resistant *E. cloacae* are circulating among the hospital over the years.
- Thus, adequate measure against them should be implemented because carbapenem resistant *E. cloacae* sometimes shows higher in-hospital mortality.

Construction of genome database for CRE

Project name :

AMED CRE Consortium: Carbapenem-resistant Enterobacteriaceae in Asia



Current status of registration	Published	unpublished	Total
Osaka University	195	842	1037
NCGM	51	198	249
NIID	45	101	146
Total	291	1141	1432

By Sep. 2018

- We will continue to analyze the whole genome sequences of CRE in Vietnam
- The results will be feedbacked to the hospital to improve the clinical situation

v. Research No.5

「ハノイ市にまん延する結核菌の薬剤耐性と伝播力と関わる病原体因子の探索」

Drug resistance conferring mutations, and transmission of *Mycobacterium tuberculosis* in Hanoi, Vietnam

Naoto Keicho

The Research Institute of Tuberculosis JATA, Tokyo, Japan
National Center for Global Health and Medicine, Tokyo, Japan



MCE



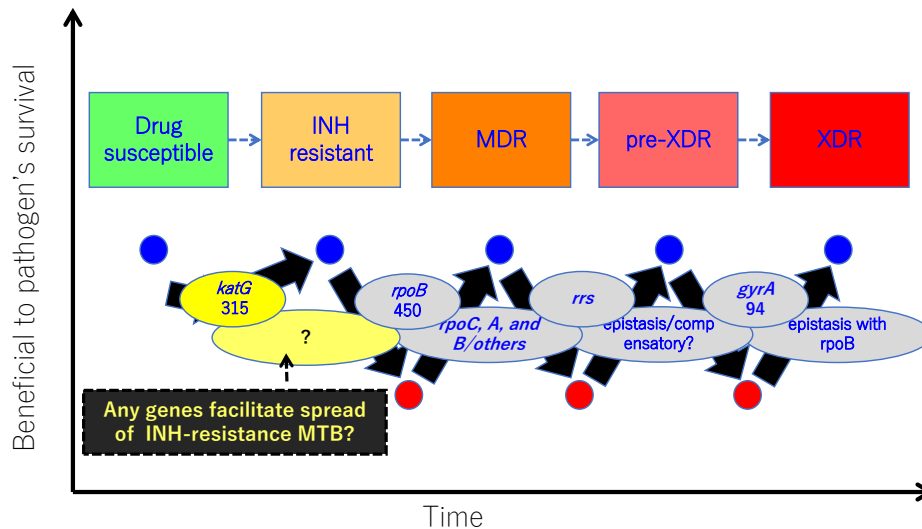
1

Introduction

- Vietnam is one of the 30 high tuberculosis (TB) burden countries with an estimate of incidence rate, 129 [106-155] /100,000 in 2017.
- According to the national drug resistance survey in 2011, the proportion of isoniazid (INH)-resistant TB reached 18.9%
- The spread of INH resistance serves as a reservoir of more combined drug resistance.
- *katG*-S315T was a predominant resistance conferring mutation.

2

Spread of MTB strains with drug-resistance mutations



A modified scheme in Müller B et al. *Trends Genet.* 2013;29(3):160-9

3

Objectives

- To investigate pathogen factors associated with genetically clustered MTB strains harboring a major INH-resistance, *katG*-S315T mutation.

Materials

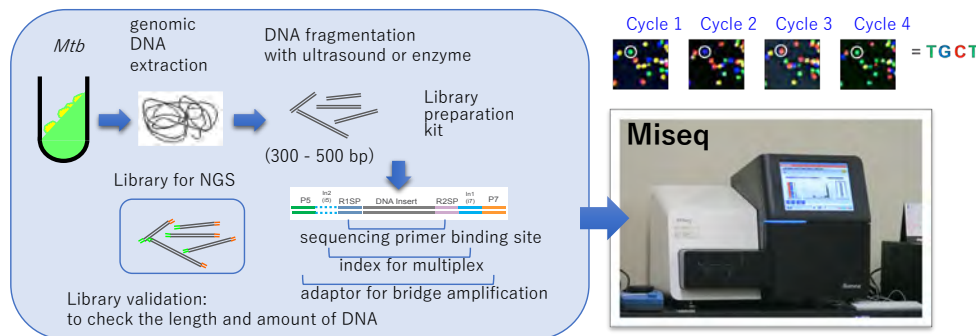
- Bacterial isolates were collected from sputum smear-positive new TB patients from 2007 to 2009.

4

Methods

• Whole genome sequencing:

- ✓ Library preparation: Illumina TruSeq DNA PCR-Free, TruSeq Nano DNA kit, and Qiagen QIAseq FX DNA kit.
- ✓ Sequencing conditions: Illumina HiSeq (150 bp x2) or MiSeq (250 bp x2).



5

Frequencies of mutations* conferring primary resistance to first-line drugs

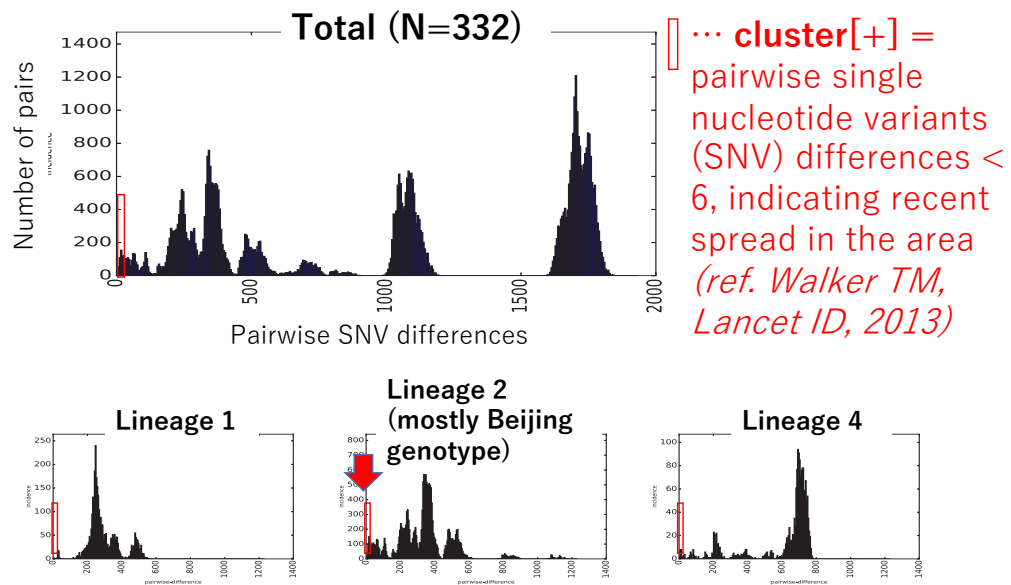
N = 332

	Freq. (%)		Freq. (%)
INH	N=332	SM	N=332
No	233 (70.2)	No	259 (78.0)
katG (S315T)	87 (26.2)	<i>rpsL</i> (K43R)	44 (13.3)
<i>Rv1482c-fabG1</i> (C-15T)	7 (2.1)	<i>rrs</i> (A514C)	14 (4.2)
<i>Rv1482c-fabG1</i> (C-15T), <i>inhA</i> (S94A)	1 (0.3)	<i>rpsL</i> (K88R)	6 (1.8)
<i>Rv1482c-fabG1</i> (C-15T), <i>katG</i> (S315N)	1 (0.3)	<i>gid</i> (L16R), <i>rrs</i> (A514C)	1 (0.3)
<i>katG</i> (G234R)	1 (0.3)	<i>rpsL</i> (K43R), <i>rrs</i> (A1401G)	1 (0.3)
<i>katG</i> (S315G)	1 (0.3)	<i>rrs</i> (A907T)	1 (0.3)
<i>katG</i> (W191R)	1 (0.3)	<i>rrs</i> (C517T)	2 (0.6)
RMP	N=332	<i>rrs</i> (T1239C)	1 (0.3)
No	313 (94.3)	<i>rpsL</i> (K88T)	1 (0.3)
<i>rpoB</i> (S450L)	9 (2.7)	<i>gid</i> (L16R)	2 (0.6)
<i>rpoB</i> (H445D)	4 (1.2)	PZA	N=332
<i>rpoB</i> (H445L)	2 (0.6)	No	319 (96.1)
<i>rpoB</i> (K446Q)	1 (0.3)	<i>pncA</i> (Q141P)	3 (0.9)
<i>rpoB</i> (Q432K)	1 (0.3)	<i>pncA</i> (L159R)	1 (0.3)
<i>rpoB</i> (L452P)	1 (0.3)	<i>pncA</i> (S59P)	1 (0.3)
<i>rposB</i> (S450L), <i>rpoB</i> (E761D)	1 (0.3)	<i>pncA-Rv2044c</i> (T-11C)	3 (0.9)
<i>rpoB</i> (L430P)		<i>pncA</i> (A46V)	1 (0.3)
EMB	N=332	<i>pncA</i> (I31S)	1 (0.3)
No	303 (91.3)	<i>pncA</i> (Q10P)	1 (0.3)
<i>embB</i> (M306V)	6 (1.8)	<i>pncA</i> (Q10R)	1 (0.3)
<i>embB</i> (L370R)	13 (3.9)	<i>pncA</i> (S104R)	1 (0.3)
<i>embC-embA</i> (C-12T)	1 (0.3)		
<i>embB</i> (D354A)	1 (0.3)		
<i>embB</i> (G406A)	2 (0.6)		
<i>embB</i> (G406D)	1 (0.3)		
<i>embB</i> (M306I)	4 (1.2)		
<i>embB</i> (Q497R)	1 (0.3)		

* registered in the TBProfiler's mutation list
(Coll F et al., Genome Med. 2015)

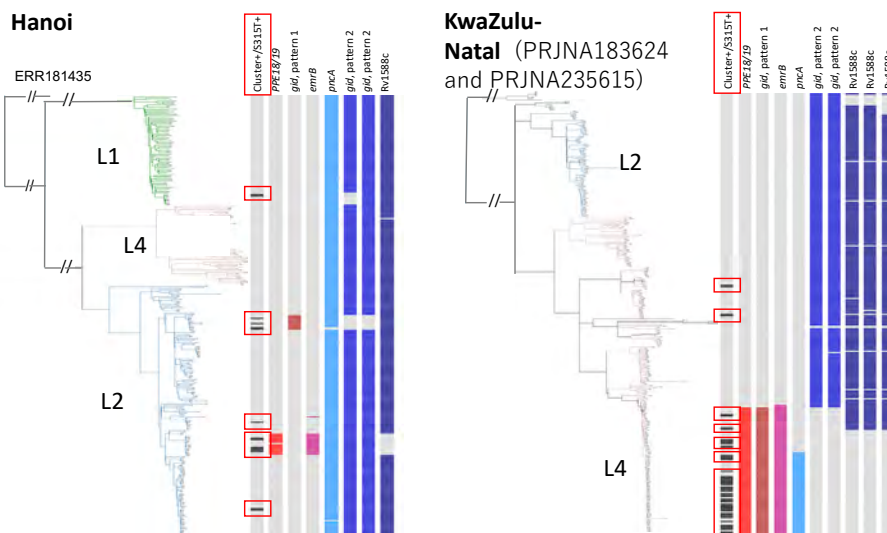
6

Genetic similarities of Hanoi strains assessed by the pairwise SNV distances



7

Bacterial genome wide association analysis showed positive or negative associations with clustered strains with *katG*-S315T



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Genes that showed positive or negative associations with clustered strains carrying *katG*-S315T

- **PPE18/19** (36 k-mers, the best *P* value = 1.840E-09; E99A and A101T):
Regulating proinflammatory response
Antigen diversity
Vaccine candidates
- **gid** (33 k-mers, the best *P* value = 5.213E-08; E173Stop):
Affecting translation fidelity
Encoding methyltransferase
- **emrB** (31 k-mers, the best *P* value = 8.579E-08; F508S):
MFS efflux pump
- **pncA** (31 k-mers, the best *P* value = 4.437E-07; Q141P):
Pyrazinamide resistance
- based on LMM after Bonferroni correction
- **PPE46/47** (chimeric gene; FDR <0.00001):
Antigen diversity?
Other functions?
-based on phyOverlap, phylogenetic convergence test

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Summary

In Hanoi, Vietnam:

- Three MTB lineages, lineage 1 (Indo-Oceanic), lineage 2 (East-Asian), and lineage 4 (Euro-American) are spreading.
- Candidate genes that may facilitate the spreading of isoniazid-resistant strains with *katG*-S315T were identified.

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Present and future plans

NGS analysis (N > 850) with new in-house tools with complete genome sequences of representative Hanoi strains

Bacterial GWAS (based on LMM, and phylogenetic convergence test)

Clusters with drug resistance

Younger patients with early onset

Recurrence

Host biomarker studies (RNAseq)

Transition of predominant strains and lineages

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Collaborators

NCGM-BMH Medical Collaboration Center, Hanoi, Vietnam

Nguyen Thi Le Hang

The Research Institute of Tuberculosis JATA, Tokyo, Japan

Minako Hijikata

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Hanoi Lung Hospital, Hanoi, Vietnam

Pham Huu Thuong

Hoang Van Huan

Nguyen Phuong Hoang

Hanoi Department of Health, Hanoi, Vietnam

Vu Cao Cuong

National Lung Hospital, Hanoi, Vietnam

Nguyen Van Hung

Dà Nẵng, 2012

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Annual Report 2019



Support for Strengthening Medical Treatment Ability of Childhood Cancer in Vietnam

Hiroyuki Shichino, Junko Yamanaka, Yuri Yoshimoto; National Center for Global Health and Medicine(NCGM), Pediatrics, Tokyo Japan

Akihiro Yoneda; OsakaCity General Hospital, Pediatric Surgery, Osaka Japan

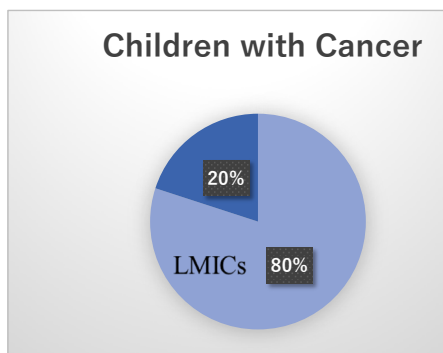
Kimikazu Matsumoto; National Center for Child Health and Development, Childhood Cnccr Center, Tokyo Japan

Tomoro Hishiki; Chiba University Pediatric Surgery, Chiba Japan

Shinji Mochizuki; Hiroshima University, Pediatrics ベトナム拠点年報2019

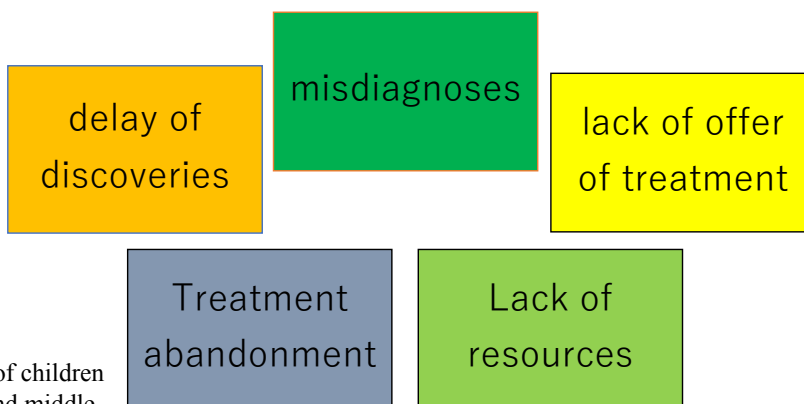
Background

The childhood cancer is still difficult disease to cure in the developing countries.



In high-income countries more than 80% of children with cancer are cured, but in many low- and middle-income countries (LMICs) only about

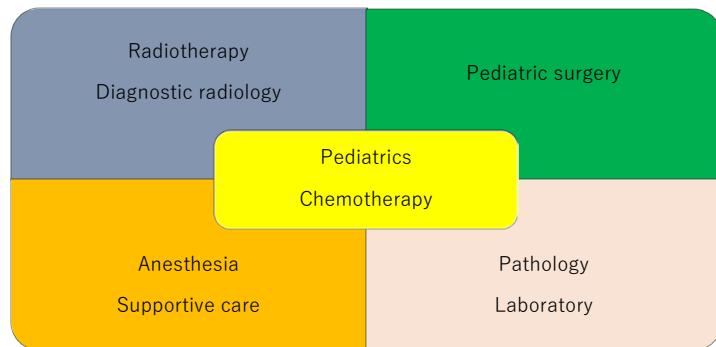
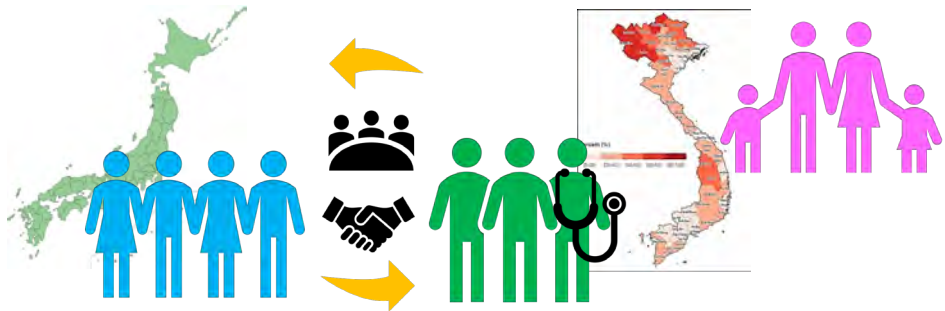
20% are cured.



- Eighty percent of childhood cancer patients are children in the developing countries. There are many problems such as delay of discoveries, misdiagnoses, lack of offer of treatment and treatment abandonment by family of patient. The childhood cancer is still difficult disease to cure in the developing countries.

Objectives

- To **support** for strengthening **medical treatment ability of the childhood cancer** in pediatrics, pediatric surgery, radiotherapy, diagnostic radiology, pathology, anesthesia, nursing care, and supportive care of leading hospitals about pediatric cancer treatment in Vietnam.



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Methods

sent some Japanese specialists to Vietnam

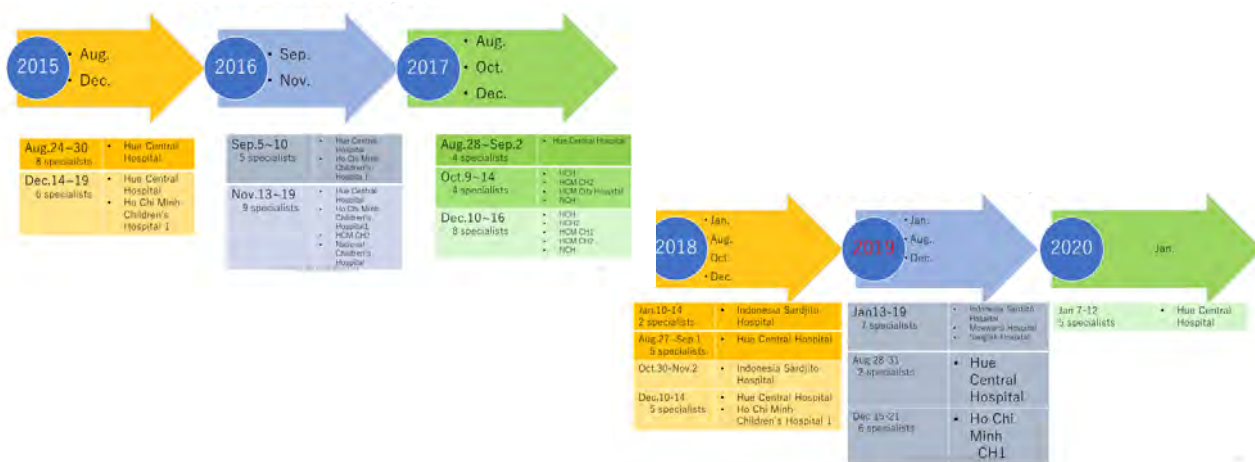
accepted some trainees from Vietnam

precise consultation of patients based on the fully information of images and medical matters

• To achieve the purpose, we sent some Japanese , we accepted some trainees, make a special consulting system

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Sending experts well-versed in childhood cancer from Japan



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National Hue Central Hospital

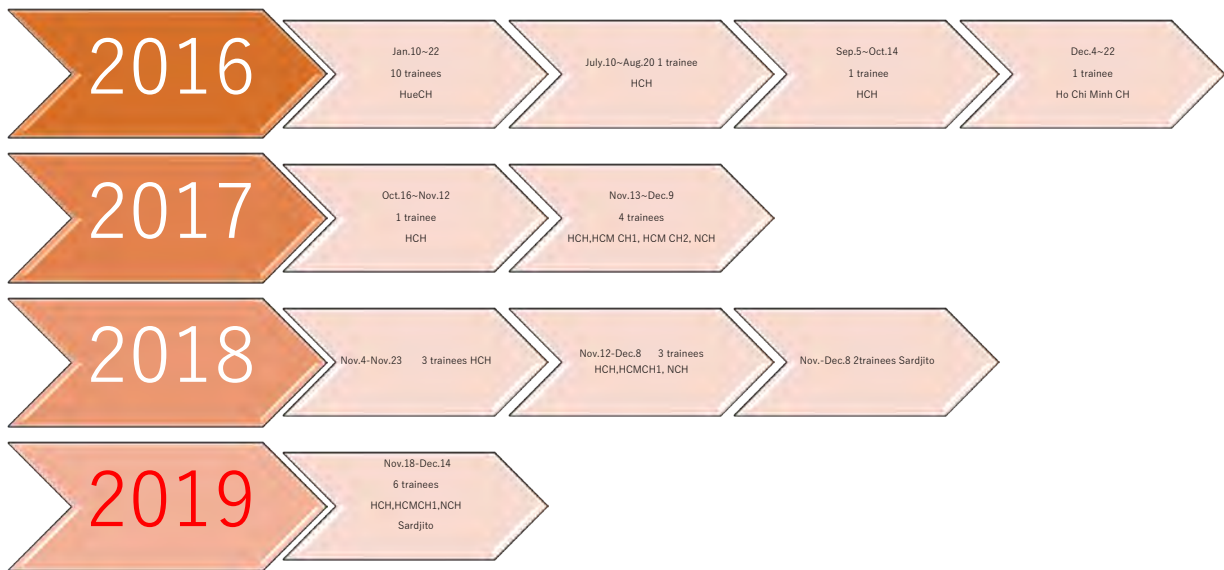


Ho Chi Minh Children's Hospital 1



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Accepting healthcare providers to Japan



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Hue central Hospital

2016.09.06
Mr. Ohno presented features of eSite System.

2016.11.15
Mr. Asatsuma was installed eSite System.

Sample : e-learning contents

This Web Site have

- ① medical information,
- ② 3824 DICOM images(CT images),
- ③ Result of Consultation.

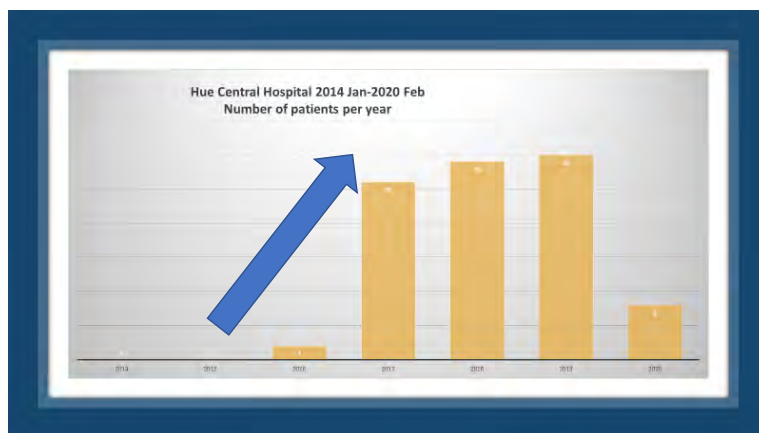
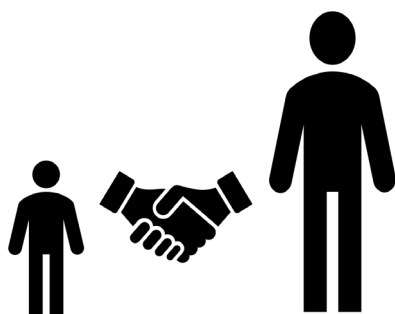
Now, e-learning sample is only English.
In the future, English, Vietnamese, and Japanese contents want to be made.
These contents will be very useful contents.

Sample : e-learning contents

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Conclusion



- Because the increase in the number of cancer patients receiving treatments in hospitals after the trainees have received training, this project was appropriate for this purpose.
- We would like to extend this project to the other areas or nations.

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Next year's plan ; 2020

- Continue to support for strengthening medical treatment ability of the childhood cancer, especially in pediatrics in Hue central hospital and in pediatric surgery in Ho Chi Minh children's hospital 1.

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2. Other activities, topics

i. International Nursing Practicum II

International Nursing Practicum II

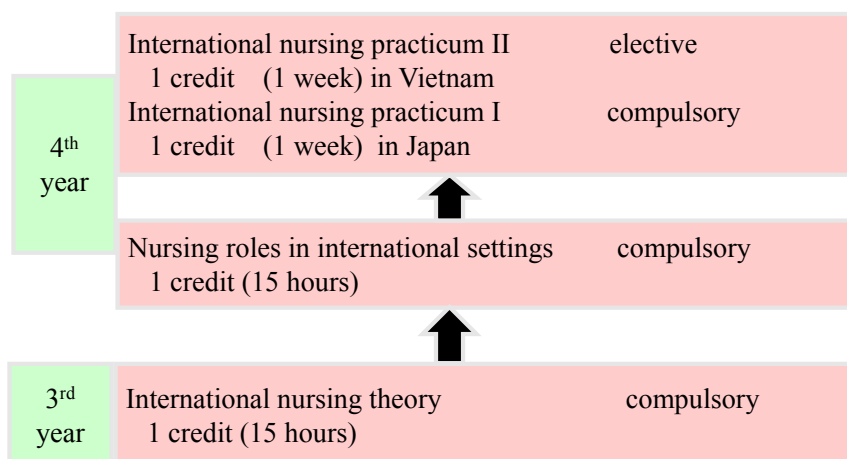
National College of Nursing, Japan
Machiko HIGUCHI

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1

Structure of international nursing subjects

Premised on the acquisition of international nursing theory and nursing roles in international settings



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Purpose of international nursing practicum

This course is designed to enhance students' abilities to understand the current situation of nursing and health care practices in developing countries so that they will be able to develop nursing theory with international perspectives for international health cooperation in nursing.

Practicum goals (overseas training)

1. Understand the effects of uniqueness and diversity in terms of politics, economy, culture, community and national environment to people's health conditions in the host country.
2. Understand and appreciate the current situations of nursing and health care practices in the host country.
3. Understand the uniqueness and diversity in nursing practice based on people's health needs in the host country.

Details of the international nursing practicum in Vietnam

- Schedule: 28, July (Sun.) ~ 3, August (Sat.) 2019
- Venue: Hai Duong Province and Hanoi, Vietnam
- Host university: Hai Duong Medical Technical University (HMTU), Faculty of Nursing
- Contents: Tours to health and medical institutions, welfare facilities, and commune health centers (including home visits); pre-study and presentations reflecting on the practicum results; cultural exchange
- Participants: Students: 50 fourth year undergraduate students
Faculty members (NCNJ): International Nursing, 1 Professor
from other fields, 2 professors, 1 assistant
4 Tour operators

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Future tasks (1)

- Students' travel experience and interests in developing countries differ depending on their academic year. Instructors should help students identify the differences among countries and conduct follow-up on the students from an early stage.
- The number of students with mental and physical problems increases yearly.
- More attention should be given to health management and safety measures.
- Measures should be prepared for adapting to rapid changes in situations in the context of global climate change and emerging infectious diseases. Prior learning should be strengthened to enhance student readiness.

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Future tasks (2)

- An organizational system to support students with poor physical condition after returning to Japan should be established.
- All travel expenses are at the student's own expense. Support for students who hesitate to participate in practicum owing to the financial difficulties is a pressing issue.
- Collaborative faculty from other fields (overseas only) have been nominated by executives as a matter of business, but we have now come to “seek voluntary cooperation.” Therefore, securing the required number of teachers has become a challenging task. Some participating teachers do not have the experience in traveling to overseas or in teaching nursing practicum modules. As the number of faculty members in the field of international nursing has been reduced to one, resulting in only one participating staff, continued investigation on the practicum that ensures student safety is further required.

ベトナム拠点年報2019

7

Activities in 2020

- Preparing the program of the international nursing practicum II for the year 2020 with considering the Covid-19 situation accordingly.

ベトナム拠点年報2019

8

ii. Surveillance study of in vitro antibiotic susceptibility test of various Gram-negative bacteria isolated in Vietnam

Surveillance study of in vitro antibiotic susceptibility test of various Gram-negative bacteria isolated in Vietnam

National Center for Global Health and Medicine
Center for Clinical Sciences
Department of International Trials
Tam Nguyen, Regional Manager

Department of International Trials, CCS, NCGM

Innovation for global health

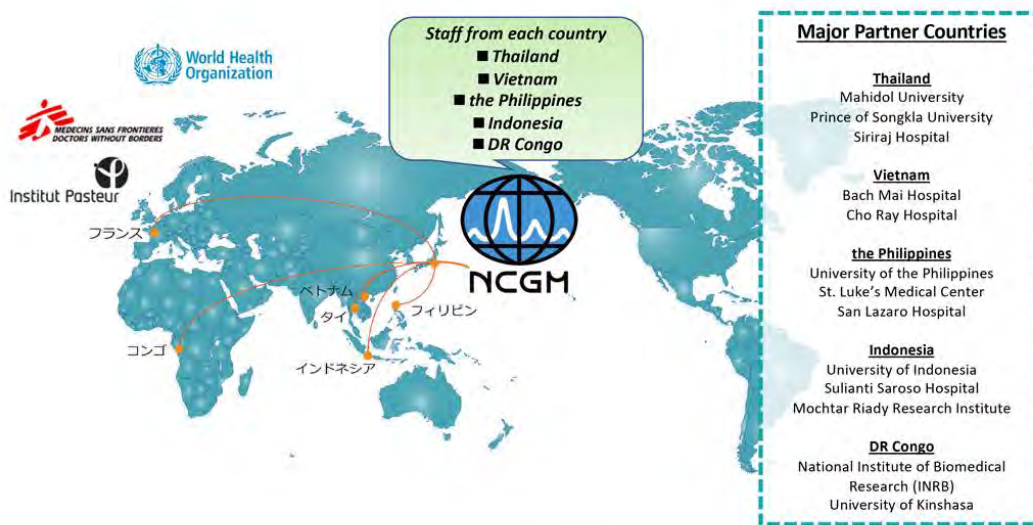


Department of International Trials DIT

DIT promotes international clinical research in cooperation with the Bureau of International Health Cooperation, which has a 30-year history of international medical cooperation activities, and alongside laboratories with researchers working at the forefront of research on malaria, AIDS, and hepatitis.

Expertise

Implement research under international standards while fulfilling the appropriate regulatory requirements

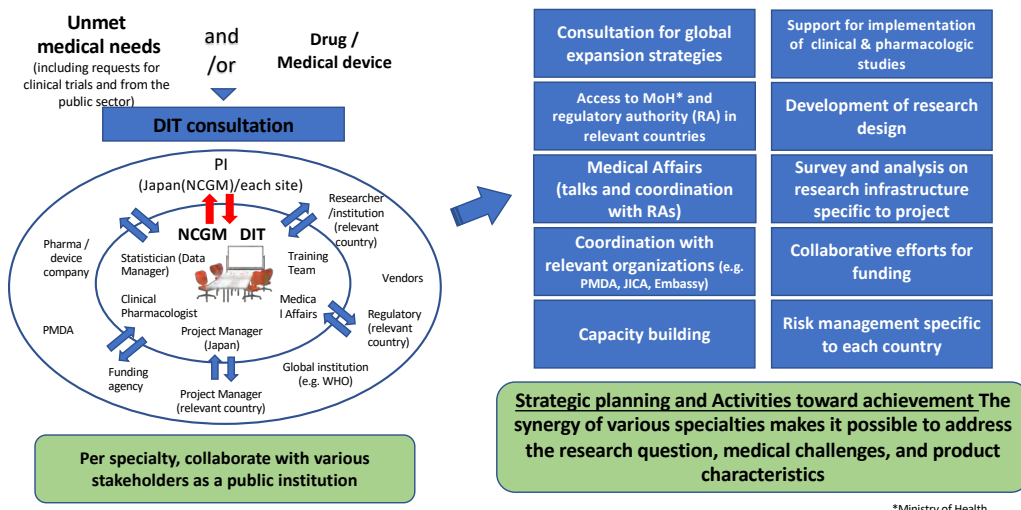


ベトナム拠点年報2019

3

Expertise

Provide opportunities to engage in collaborative research with PIs* in specific therapeutic areas

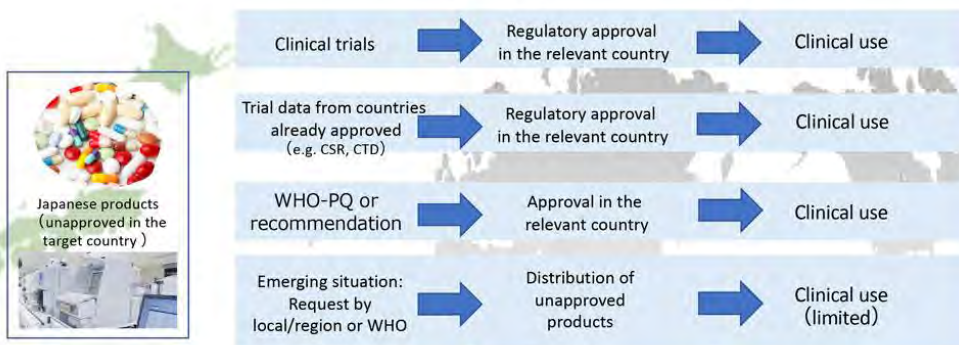


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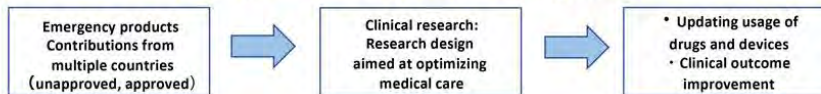
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Regulatory Affairs

Smooth access to regulatory authorities; Activities and funding based on public interest > profitability



e.g. : Clinical trials for the proper use of unapproved and/or approved drugs in each country (EBM)



ベトナム拠点年報2019

5



MPMVNS1 Project Management

ベトナム拠点年報2019

6



MPMVNS1 Project Charter

Dept. of International Trials May 2019

Background

- AMR (Anti-Microbial Resistance) is a serious threat (advocacy in ASEAN 2017) and carbapenem resistant is particularly prevalent in Viet Nam
- Studies to gain understanding of AMR in Viet Nam will help more effective and appropriate treatment for infectious disease.
- NCGM has built a robust foothold in Viet Nam through extensive collaborations with key National Hospitals.

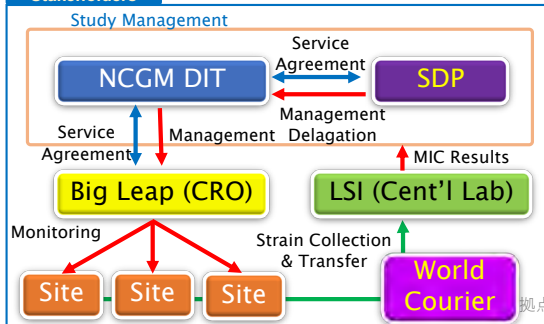
Study Overview

- Surveillance study of in vitro antibiotic susceptibility of gram-negative bacteria isolated in Vietnam
- Clinical Sites 3 Hospitals in Hanoi / 7 Hospitals in HCMC
- Strains: *E.coli*, *K.pneumoniae*, *P.aeruginosa*, and *A.baumannii* (128 isolates/site)
- End-Point: MIC* of 5 antibiotics (Meropenem / Imipenem / Doripenem / Tigecycline / Colistin)
- Chief Investigator: Dr. Pham Hung Van, PhD., MD.**

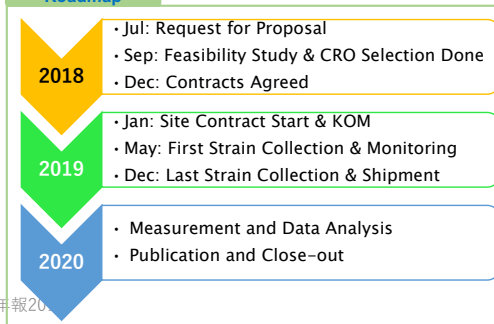


* MIC: Minimum Inhibitory Concentration ** Chair, High Technology Microbiology Department, Nguyen Tri Phuong Hospital

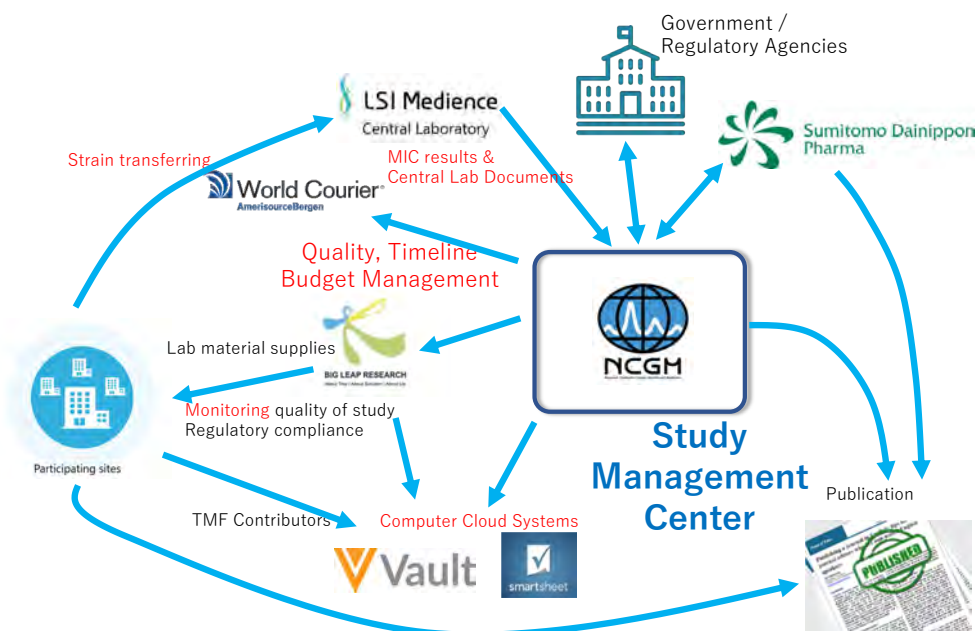
Stakeholders



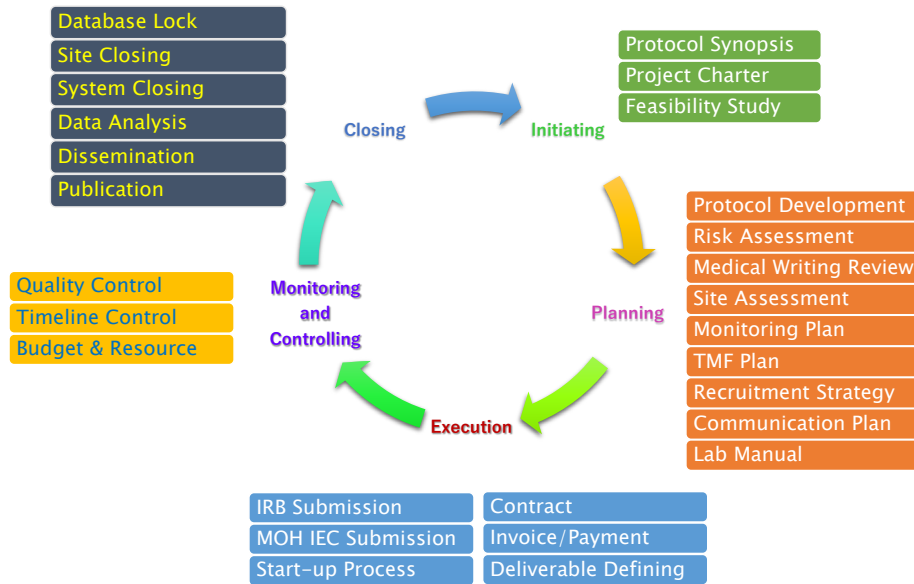
Roadmap



NCGM – Study Management Center



MPMVNS1 Strategic Project Management



ベトナム拠点年報2019

9

MPMVNS1 Study Timelines

Co-operations to create better study outcomes



ベトナム拠点年報2019

10

III. The program for international promotion of Japan's healthcare technologies and services 2019

1. Project of Surgical Team Approach to Health and Medicine Based on Bach Mai Hospital

Project of Surgical Team Approach to Health and Medicine Based on Bach Mai Hospital --Perioperative Care 2018, 2019--

NCGM Center Hospital

Anesthesiology : Yasuhiro Maehara

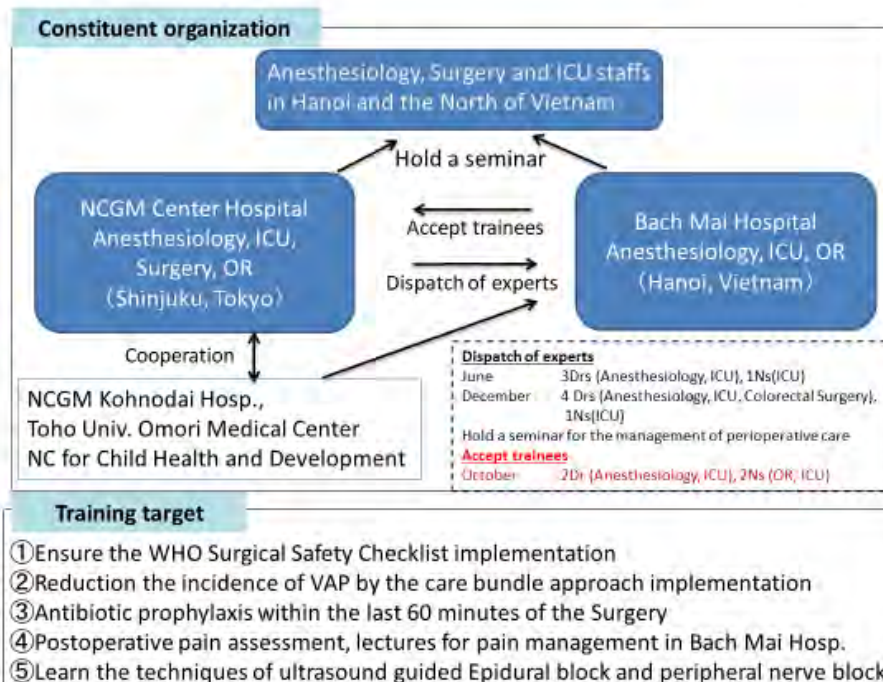
Intensive Care Unit : Tatsuya Okamoto, Yuki Yonehiro

Colorectal Surgery : Katsuya Deguchi

Operating Room : Yukari Yara

NCGM Kohnodai Hospital

Anesthesiology : Toshiharu Azma



ベトナム拠点年報2019

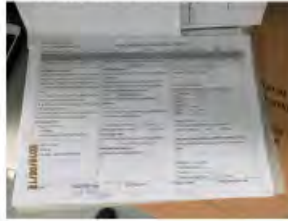
2

Improvements of this project in Anesthesiology and OR

Confirmation of the patient
by wristband



WHO Surgical Safety Checklist
implementation



Epidural anesthesia



Ultrasound guided
peripheral nerve block



ベトナム拠点年報2019

3

Activity, Output and Outcome 2018, 2019 (Anesthesiology, OR, Colorectal Surgery)

1) Training in Japan

NCGM Anesthesiology, OR

- Study by observation of perioperative safety management, WHO Surgical Safety Checklist implementation
- Technical guidance of postsurgical pain management and ultrasound guided Epidural block and peripheral nerve blocks
- Lecture for the prevention of postsurgical infectious complications (esp. SSI)

Test results of the prevention of SSI: Accuracy rate pretest 77.5% → posttest 95%

Toho Univ. Omori Medical Center, NC for Child Health and Development

- Understanding of the importance of multi-disciplinary perioperative support team

Trainees in Japan

- Anesthesiology and OR: 1 Dr, 1 Ns, • ICU: 1 Dr, 1 Ns (/year) × 2

2) Activities in Vietnam

- Technical guidance of postsurgical pain management and Ultrasound guided Epidural block and peripheral nerve blocks

Trainees : Anesthesiologists 15, OR nurses 10

- Comprehension oral test: Accuracy rate 80%

3) Activities by the trainees in Bach Mai Hospital(BMH)

- Lecture of pain management for Anesthesiologists, OR nurses, Surgical ward nurses → 60 participants

- Producing the simple manuals of 3 kinds of ultrasound-guided peripheral nerve blocks

- Lecture and practical guidance of these 3 ultrasound-guided peripheral nerve blocks for the anesthesiologists in BMH

- Perform these 3 procedures for >10 cases in BMH and evaluate pain status of the postsurgical patients

4) Hold a Seminar for perioperative management for anesthesiologists, surgeons and ICU staffs in BMH, Hanoi and the North of Vietnam

206 participants (2018), 215 participants (2019): Level of satisfaction 94%

ベトナム拠点年報2019

4

Seminars for perioperative and VAP management

Anesthesiology, Surgery and ICU staffs in Hanoi and the North of Vietnam (2018, 2019)



206 participants (2018)



215 participants (2019)



ベトナム拠点年報2019

5

Pictures of the trainees at cooperating facilities in Japan



Central material department of NCGM



NC for Child Health and Development



NCGM Kohnodai Hospital



Toho Univ. Omori Medical Center

ベトナム拠点年報2019

6

Future tasks in anesthesiology and OR

- ① Some departments still do not reliably administer preoperative antibiotics, so the implementation rates need to be further improved in all surgical departments.
- ② Postoperative infectious complication rates need to be monitored continuously. We would like to work with the Infection Control Department to measure the rates.
- ③ Because there is a growing need for postsurgical pain management in BMH, we should promote the spread and education of pain management.
- ④ Due to the large number of operations, further improvements in surgical patient management and equipment management are needed.

ベトナム拠点年報2019

7



The effect of Ventilator-associated pneumonia (VAP) care bundle program in the General ICU

Tatsuya Okamoto, Yuki Yonehiro, Chieko Matsubara, Masahiko Doi
Toshiharu Azma, Yasuhiro Maehara

Background: Ventilator-associated pneumonia (VAP) is a frequent hospital acquired infections among intensive care unit patients. The US Institute for Healthcare Improvement (IHI) and the Japanese Society of Intensive Care Medicine have each proposed a “care bundle” approach for VAP prevention. Many other methods have been reported to be effective in preventing VAP. We made a unique bundle of 10-elements covering these contents and analyzed the VAP prevention effects as a retrospective observational study.

Methods: All mechanically ventilated patients admitted to the general intensive care unit, Bach Mai Hospital between 2018/9 and 2019/6 were retrospectively followed for VAP development according to the CDC ventilator associated events (VAE) criteria. In September 2018, a 10-element VAP care bundle was implemented. The bundle compliance of each element and VAP incidence were then followed.

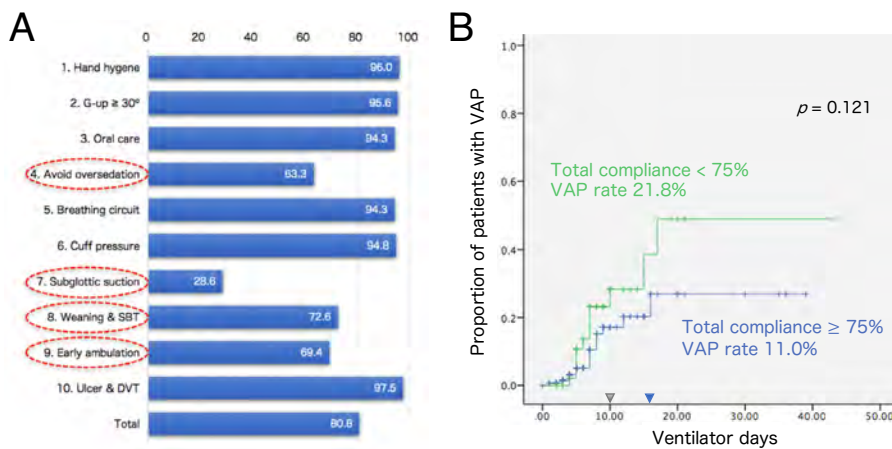
2019ベトナム拠点年報



1) hand hygiene, 2) head-of-bed elevation 30-45°, 3) oral care with chlorhexidine, 4) avoid oversedation, 5) proper breathing circuit management, 6) appropriate maintenance of endotracheal tube cuff pressure, 7) closed system and subglottic suctioning, 8) daily assessment for extubation, 9) early ambulation and rehabilitation and 10) peptic ulcer and deep vein thrombosis prophylaxis.

2019ベトナム拠点年報

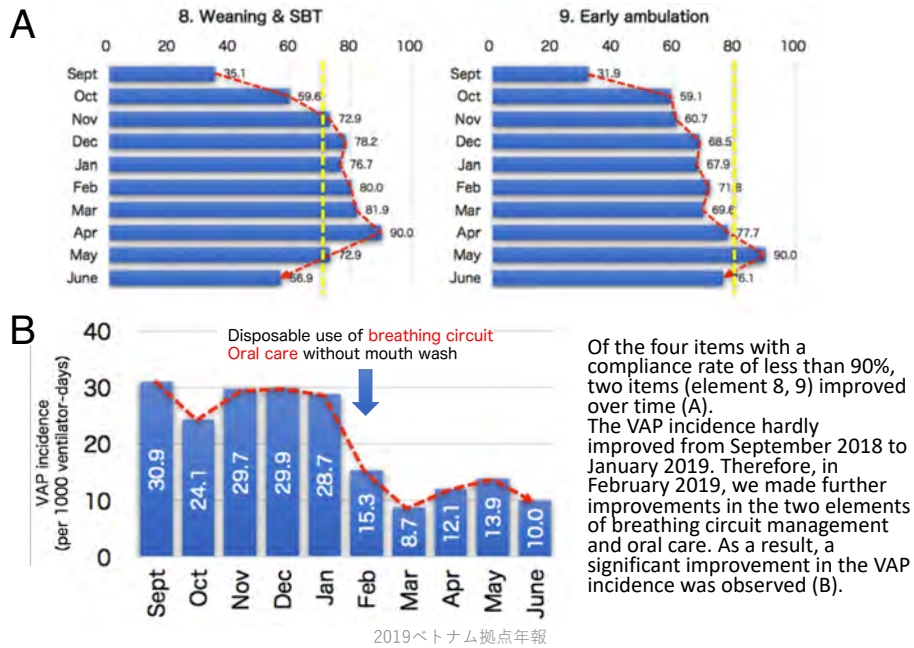
VAP bundle compliance and its prevention effects



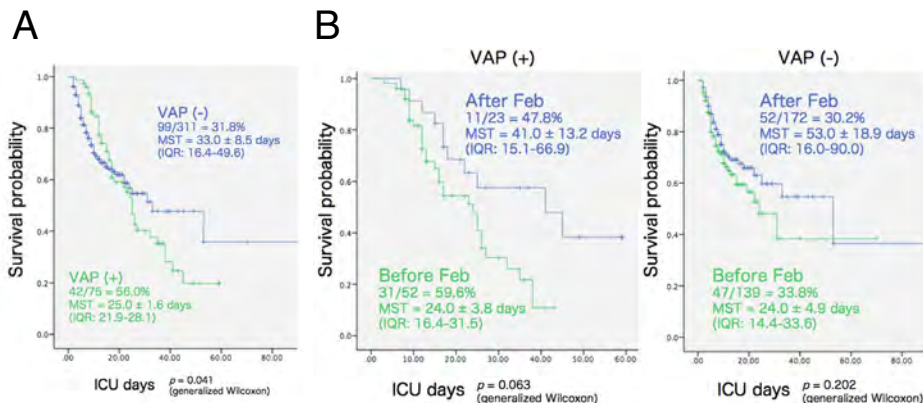
The total bundle compliance rate was 80.8%. There were four elements with poor compliance rates (element 4, 7, 8, 9) and the compliance rates were 63.3%, 28.6%, 72.6%, and 69.4%, respectively. The other six elements had a compliance rate of over 90% (A). The VAP incidence in the group with high total bundle compliance ($\geq 75\%$) was 11.0%, which was lower than in the group with low total bundle compliance ($<75\%$, 21.8%) (B).

2019ベトナム拠点年報

Improved VAP compliance and reduced VAP incidence

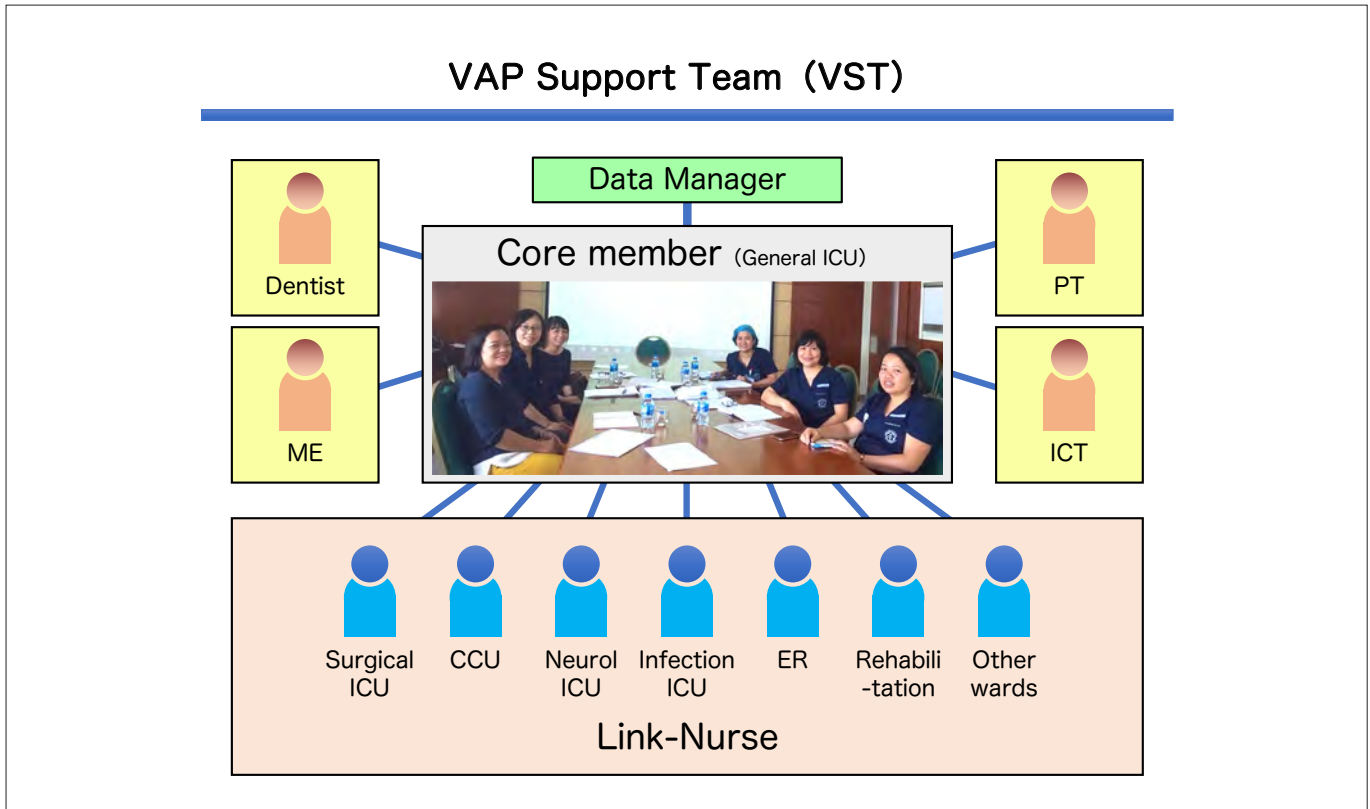


Presence of VAP and patient mortality



The group with VAP had a significantly worse prognosis than the group without VAP (A). In the patients with VAP, the survival rate was improved after February compared to before January, suggesting that oral care without mouth wash and disposable use of breathing circuit may contribute to the improvement of prognosis. A similar trend was observed in the patients without VAP (B).

Conclusions: This study suggests that care bundle approach can reduce the incidence of VAP. To further improve the VAP incidence, it is necessary to improve the quality of each element in the bundle. In order for the bundle to be widely used, special additions to medical fees related to the implementation of the bundle by the government are also required.



- ### Future Plan in FY 2020
- The VAP-bundle activities will be extended from the **General ICU** to other ICUs in BMH.
 - The **Post-operative ICU** will start the VAP-bundle activities supported by the General ICU.
 - The **VAP Support Team (VST)** will be organized by the BMH.
 - A new interventions will be started at the General ICU.
 - Scientific results from the VAP-bundle activities will be published.
 - A retrospective study (2018-2019).
 - **A prospective study (2020-)**.

2. Bach Mai Hospital (BMH, Hanoi City), Socialist Republic of Vietnam

Bach Mai Hospital (BMH, Hanoi City), Socialist Republic of Vietnam

National Center for International Medical Research (NCGM)

【Members】

Dr Hara (Neurosurgery)

Dr Fujimoto, Mr Tsukinaga, Ms Fukuda, Ms Nishimoto (Department of Rehabilitation)

Mr Ohashi (Pharmaceutical Department)

Mr Egashira, Ms Takahashi, Ms Tanahashi (Nutrition Management Office)

ベトナム拠点年報2019

1

Nutrition Department

2019.6 Visit to BuckMai Hospital

As the current state of the nutrition center, we have created a new swallowing diet from last year, and although the goal of continuing to provide to patients with difficulty swallowing has been achieved, there have been reports that there is a shortage of nutrition staff who have acquired knowledge of swallowing food.



During the visit, we observed the cooking practice of the nutrition education course conducted by the BuckMai Hospital Nutrition Center. We also provide guidance on swallowing food to staff from other ministries.

2019 Japan Training (October 6-19)



Practice of meal assistance and tasting party of swallowing food jointly with The Riha department

2019.10 Japanese Training

This year, one nutrition nurse who has the role of "nutrition observer" participated in the training.

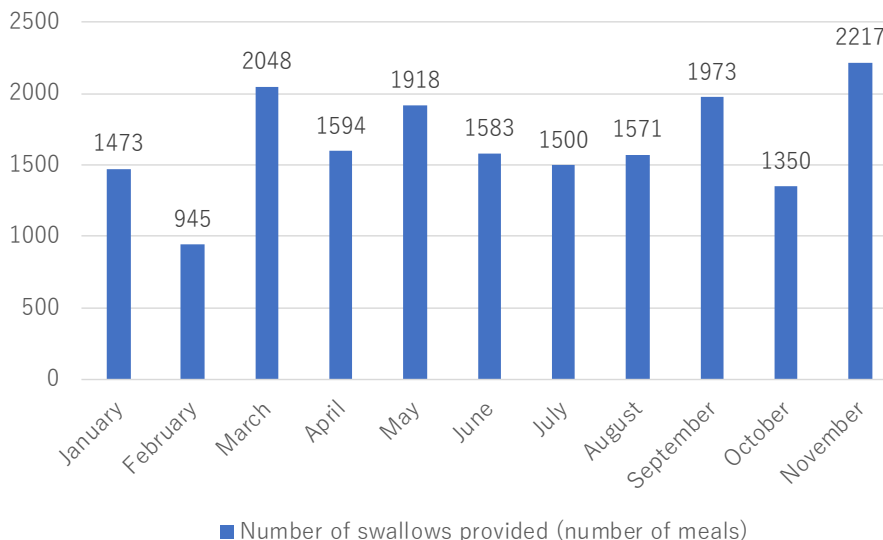
*The role of the nutritional observer is to observe the safety of the diet before serving (including not only quality control such as hygiene, but also the management of the appropriate physical properties of swallowing food). Cooking practice and lectures were conducted for the purpose of learning the physical properties of the appropriate swallowing diet.



Visit the NST Conference

2019 Nutrition Category Results (1)

Number of swallowing meals provided (number of meals)



We offer **a total of 18,172** swallowing foods over one year (excluding December). The monthly average of about 50 patients with difficulty swallowing, it provides swallowing food of around 1600 meals. Nutritional guidance is always provided to patients and their families who provide swallowing food.

2019 Nutrition Category Results (2)

● Results after training in Japan

- (1) Conducted three communication courses, once in neurosurgery and two times in neurology.
 - Participants are 40 neurosurgery staff and 86 neurology staff.
 - A course was conducted on the characteristics of swallowing food at each stage provided at BuckMai Hospital.
- (2) Review of existing swallowing foods provided at Buck My Hospital
 - Based on ST's opinion, we reviewed the provision of seasonally sticky ingredients, etc., and changed them to safer ingredients.

● Annual results

- (3) Continuation of swallowing food provision
- (4) Providing nutritional guidance to patients and families with difficulty swallowing
- (5) Share information on stroke patients at a TV conference with satellite hospitals
- (6) Training students from other ministries on swallowing disorders and swallowing foods, and conducting questionnaires to evaluate their level of understanding
- (7) Create a procedure for swallowing (in cooperation with the Riha family)

● Future development

We will continue to provide swallowing foods, aiming to provide appropriate swallowing foods to stroke patients and to manage nutrition.

The goal is to provide them to wards that are not currently fully provided and to conduct communication courses to staff.

2020 Activity Schedule

- Conducted a video conference from June to September
(grasp the status of the following five points and make proposals)
 - (1) Status of providing swallowing food by current ward (resumption of reporting on the number of meals by e-mail)
 - (2) Why can't we provide wards that can't be provided?
 - (3) Understanding of swallowing food by ward staff who are not able to provide
 - (4) Is there a problem with the provision of swallowing food now?
 - (5) About the contents of the training in Japan
(Is there anything you would like to do other than the current contents of the training?)
- Conducted interim report in September

Activities	June	July	Aug	September
Conduct video conferencing	→			
Interim report				→

**3. Project of Team Medicine in Surgery and Related Departments Based on Bach Mai Hospital :
Technical Support for Medical Equipment Management**

**Project of Team Medicine in Surgery and Related Departments
Based on Bach Mai Hospital :
Technical Support for Medical Equipment Management**

Department of Clinical Engineering, National Center for Global Health and Medicine
Tatsunori Ogawa, Shigeru Hosaka, MD., PhD.

Collaborators

Yuiko Kawakami, Kouta Ishizuka, Takafumi Fukaya
(Department of Clinical Engineering, National Center for Global Health and Medicine)

Masahiko Doi, Chieko Matsubara, Yui Itou, Mari Nagai, MD.
(Bureau of International Health Cooperation, National Center for Global Health and Medicine)

Yoshitaka Kawasaki, Yuko Nakamura, Satoshi Watanabe
(Department of Medical Engineering, Teikyo University Hospital)

Risa Kameda, Hideaki Nakauchi (Nihon Stery CO., LTD.)

Kei Hashimoto, Hironori Tomono, Kazuma Tobita (Nipro Corporation)

**Project of Team Medicine in neurosurgery and related departments based on Bac Mai Hospital :
Technical support for medical Equipment Management**

Implementation structure

Japanese side : Department of Clinical Engineering of Center Hospital of NCGM,
Bureau of International Health Cooperation of the NCGM

Counterpart side : Bach Mai Hospital (BMH) in Socialist Republic of Vietnam

Background

In recent advanced medical care, medical devices are extremely important for diagnosis and therapy.

We have been supporting Bach Mai Hospital (BMH) in the field of medical device management since 2017. It was revealed that the following issues were barriers to improving.

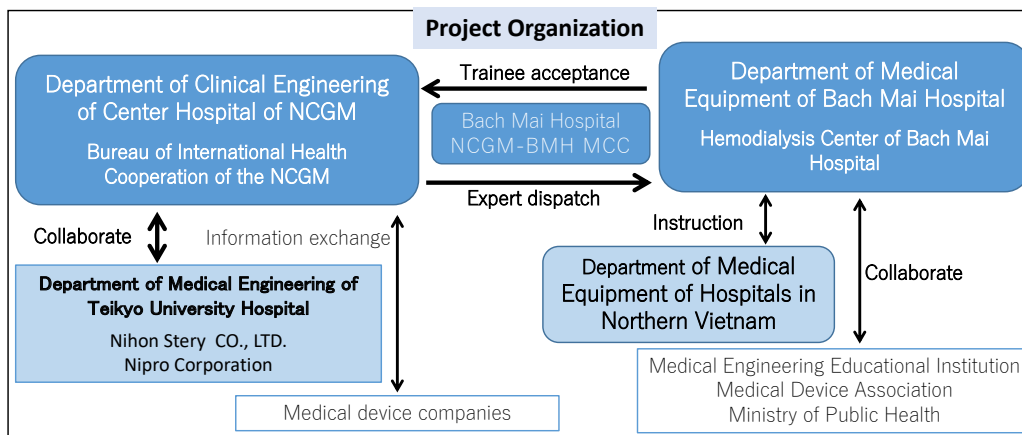
- Maintenance management such as periodic inspection and post-use inspection of medical equipment is not performed.
- Standards of quality control have not been established.
- There is no guideline and no legal system to evaluate the safety of medical devices.

It is urgently necessary to break away from these current situation, and it is extremely difficult to do work with BMH alone. In addition, through discussion with the Ministry of Health, we have been requested to assist to the other institutes in central and southern Vietnam.

Objective

The aim is to improve the quality of medical care in Vietnam in terms of medical device management.

- 1) Technical support for medical device management and safety
- 2) Support for institutionalization of medical device management and safety, etc.
- 3) Support for market development in the field of medical equipment
- 4) Establishing the social status of Bio-Medical Engineer (BME) by establishment of academic meetings and associations in clinical engineering.



Annual schedule	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.
Dispatch of Japanese experts		↔						↔		
		Number of expert : 4 Duration : Jun. 5 – Jun. 9						Number of expert : 4 Duration : Dec. 4 – Dec. 11		
Accepting Vietnamese trainees						↔				
		Number of trainee : 3 (2 BME and 1 Dr)						Duration : Oct. 1 – Oct. 9		
Training content						1) Medical device management 2) Dialysis treatment 3) Infection control				

First Visit to Vietnam (June 2019)

- 1) Visit to hospital : Bach Mai Hospital, Hoa Binh Provincial Hospital, Hoa Binh City Hospital
- 2) 3rd Vietnam-Japan Seminar on Medical Equipment Management (Management of ventilator, extracorporeal membranous oxygenation system and syringe pump)
- 3) Visit to Ministry of Health, Medical Device Research Institute and Medical Device Association



First Visit to Vietnam (June 2019)



Appropriate medical device management is beginning to be implemented at Bach Mai Hospital ICU



Appropriate management of water for dialysis was implemented at Hoa Binh Provincial Hospital

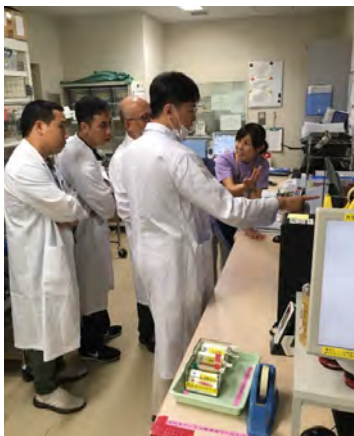
Training in Japan (October 2019)

Training facility

- 1) Medical device management room and Hemodialysis department of NCGM, Tokyo
- 2) Hemodialysis center and ME department of Teikyo University Hospital, Tokyo
- 3) NIPRO institute for **M**edical **P**ractice “ i-MEP ” , Kyoto



Dialysis machine maintenance training with a device used clinically in Vietnam at NIPRO training facility



Inspection of medical device management software at ME department of Teikyo University Hospital



Learn how to clean a syringe pump from staff of Nihon Steris CO., LTD. at NCGM

Second Visit to Vietnam (December 2019)



Follow-up inspection at Bach Mai Hospital



Participation in " MEDI-Pharm EXPO "



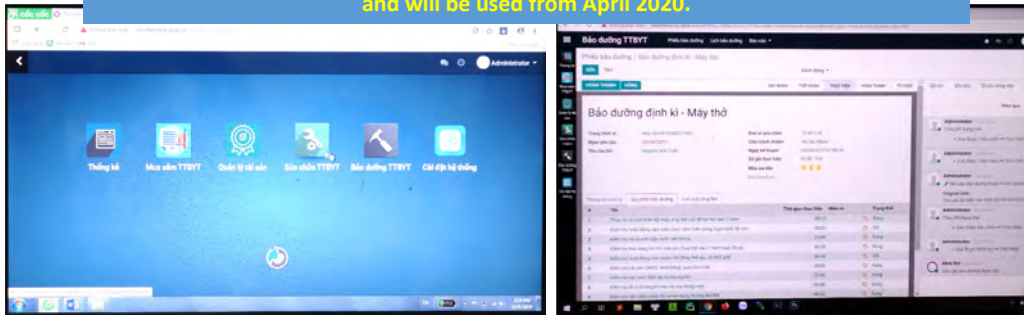
Visit to Hue Central Hospital



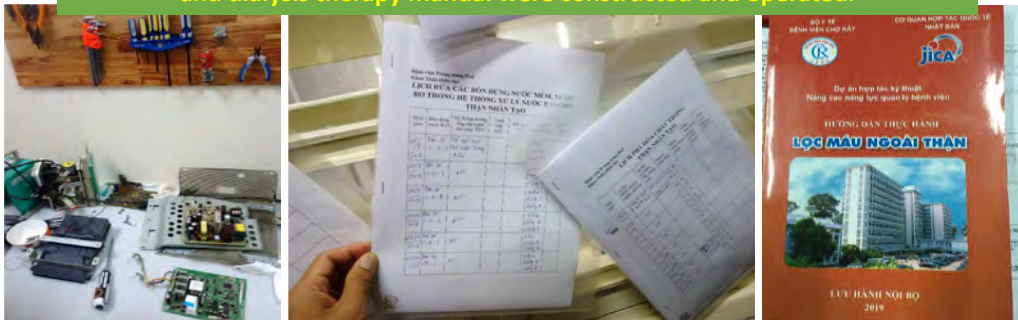
Visit to Cho Rai Hospital

Second Visit to Vietnam (December 2019)

Medical equipment management software has been developed at Bach Mai Hospital and will be used from April 2020.



At Hue Central Hospital and Cho Ray Hospital, 5S efforts, inspection record book and dialysis therapy manual were constructed and operated.



Second Visit to Vietnam (December 2019)

4th Vietnam-Japan Seminar on Medical Equipment Management (2019. 12. 6)

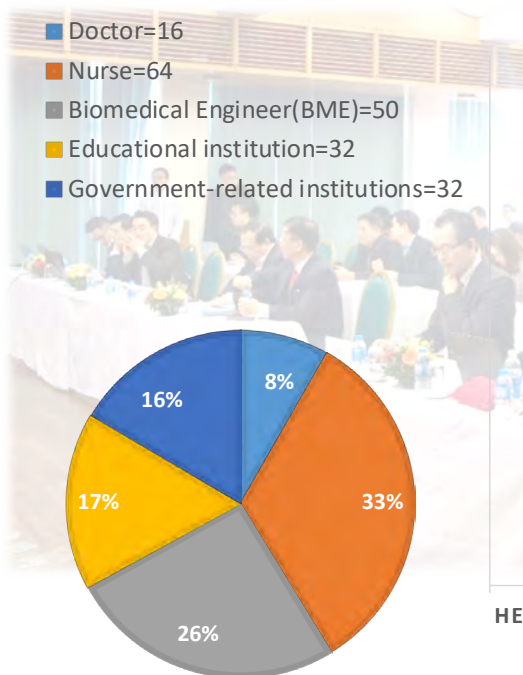
- 1) Medical device management in Japanese hospital function evaluation (Hosaka, MD)
- 2) Current status of medical device management in Japan (Ogawa, CE)
- 3) Management of dialysis machine in Japan (Ishizuka, CE)
- 4) Water quality management method for dialysis in Vietnam
- 5) Development of medical device management software (BME trained in Japan)
- 6) Medical device management software as a departmental system
- 7) Experience sharing report on medical device management and safety in dialysis in Japan (BME trained in Japan)
- 8) Discussion



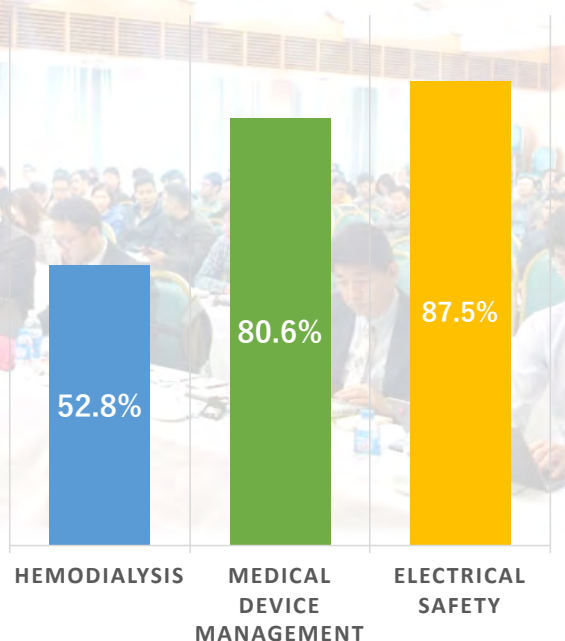
4th Vietnam-Japan Seminar on Medical Equipment Management

Participants = 194

- Doctor=16
- Nurse=64
- Biomedical Engineer(BME)=50
- Educational institution=32
- Government-related institutions=32



E-learning correct answer rate at the end of the seminar



Results of This Year

- 1) Checking the development of the BMH medical device management network :** With the cooperation of the Information Management Department of BMH, the traceable medical device software that we have been working on since the previous year has been completed, and it is scheduled to start operation from this spring 2020.
- 2) Confirmation the progress of the medical device management plan of the BMH Medical Equipment Department :** Although the number of manuals created for each model has increased from the previous year, information sharing with related wards and departments is still insufficient and the demerits of decentralized management have not been resolved.
- 3) Vietnam-Japan Seminar on Medical Equipment Management :** We were able to hold two seminars in June and December. Especially, at the 4th seminar held in December, a total of 194 people participated not only from the medical device managers of the peripheral medical institutions but also from the Ministry of Health, vocational school teachers, medical and engineering related organizations, etc. Then, we received cooperation from a private company in the form of a lecture by one local corporation related to a Japanese company and a device exhibition at the venue by another company. Two Japanese trainees also gave a lecture, which led to the practice of DOHA.
- 4) Visit to related organizations such as Ministry of Health, Medical Device Association, and educational facilities :** We made proposals for the development of laws regarding medical device management, incorporation into Vietnam hospital quality standards, and the Japanese clinical engineer system. Then, the people involved in administration and education were told that they would like to participate in the training in Japan, and discussed the business guidelines for the next fiscal year and beyond.
- 5) Visit to medical institutions other than BMH :** We visited Hoa Binh Province Hospital where a dialysis-related medical accident occurred two years ago, and had the opportunity to observe the model case set up for the formulation of guidelines in Vietnam based on the lessons learned from the experience.

Consideration from the current circumstances in Vietnam

Current situation analysis through the past two years of business ;

- 1) Maintenance management such as periodical inspection and post-use inspection of medical equipment is not enough done.
- 2) The standards for compliance such as quality control are not established sufficiently.
- 3) The institutional system and legal system for medical devices are not fully established.



Equipment provided by JICA projects

Future Business Plan for Establishing Medical Technology Transfer

1) Maintain and improve medical device management technology level

Continuing to support BMH : Through further guidance and support to BMH, more skilled engineers will be cultivated, and through the practice of DOHA centered on BMH, the technology will also be improved in hospitals in the northern region of Vietnam.

2) Advice on legalization related to medical devices

Cooperation with Ministry of Health, Institute of Medical Engineering, Institute of Medical Engineering : By proposing various numerical values for the quality control of medical equipment and enacting them into a legal system, the quality and safety of medical care can be ensured more reliably. Incorporating this compliance into Vietnam hospital quality standards will promote its spread throughout Vietnam.

3) Recommendations for educational curriculum

Collaboration with medical engineers training institutions: We would like to propose a curriculum that complies with new standards, support more practical engineer training, and support the establishment of qualifications such as the Japanese clinical engineer system, and contribute to improving the social status of medical engineers.

4) Effect spread throughout Vietnam

Expanding business to core hospitals in the southern and central regions using the experience at BMH as a model case : This will accelerate the dissemination and improvement of medical device management technology throughout Vietnam.

IV. Reference

1. Article

i. Reference Article 1 [Research No.1 (p.13-18)]

Title (in English)	The patient voice: a survey of worries and anxieties during health system transition in HIV services in Vietnam
Main researchers	Shoko Matsumoto, Hoai Dung Thi Nguyen, Dung Thi Nguyen, Giang Van Tran, Junko Tanuma, Daisuke Mizushima, Kinh Van Nguyen & Shinichi Oka
Abstract	<p>Background</p> <p>Vietnam is shifting toward integrating HIV services into the public health system using social health insurance (SHI), and the HIV service delivery system is becoming decentralized. The study aim was to investigate current SHI coverage and patients' perspectives on this transition.</p> <p>Methods</p> <p>A survey of 1348 HIV-positive patients on antiretroviral therapy (aged ≥ 18 years) was conducted at an HIV outpatient clinic at a central-level hospital in Hanoi, Vietnam, in October and November 2018. Insurance coverage, reasons for not having a SHI card, perceived concerns about receiving HIV services in SHI-registered local health facilities, and willingness to continue regularly visiting the current hospital were self-reported. Logistic regression analyses were performed to analyze factors associated with not having a SHI card and having concerns about receiving HIV services in SHI-registered hospitals/clinics.</p> <p>Results</p> <p>SHI coverage was 78.0%. The most frequently reported reason for not having a SHI card was that obtaining one was burdensome, followed by lack of information on how to obtain a card, and financial problems. Most patients (86.6%) had concerns about receiving HIV services at SHI-registered local health facilities, and disclosure of HIV status to neighbors and low quality of HIV services were the main concerns reported. Participants aged < 40 years old and unmarried were more likely to report lack of SHI cards, and women and those aged ≥ 40 years were more likely to have concerns. However, 91.4% of patients showed willingness to continue regular visits to the current hospital.</p> <p>Conclusions</p> <p>Although SHI coverage has been rapidly improving among HIV patients, most participants had concerns about the current system transition in Vietnam. In response to their voiced concerns, strengthening the link between higher-level and lower-level facilities may help to ensure good quality HIV services at all levels while mitigating patients' worries and anxieties.</p>
Publication	BMC International Health and Human Rights volume 20, Article number: 1 (2020)
URL	https://bmcinthealthhumrights.biomedcentral.com/articles/10.1186/s12914-019-0221-7

ii. Research Article 2 [Research No.1 (p.13-18)]

Title (in English)	Dyslipidemia and cardiovascular disease in Vietnamese people with HIV on antiretroviral therapy
Main researchers	Daisuke Mizushima, Hoai Dung Thi Nguyen, Dung Thi Nguyen, Shoko Matsumoto, Junko Tanuma, Hiroyuki Gatanaga, Trung Vu Nguyen, Kinh Van Nguyen & Shinichi Oka
Abstract	<p>With expanding antiretroviral therapy (ART) in Vietnam, the use of second-line ART with ritonavir-boosted lopinavir (LPV/r) is increasing. However, little is known regarding the effect of LPV/r on dyslipidemia (DL) and cardiovascular disease (CVD) in people with HIV in Vietnam. A cross-sectional study was performed in a cohort of HIV-infected Vietnamese patients on ART at the National Hospital for Tropical Diseases in Hanoi, Vietnam. In addition to DL, we included hypertension (HT) and hyperglycemia (HG) as non-communicable diseases. Blood pressure, casual blood sugar levels, and the lipid profile were evaluated cross-sectionally in October and November 2016. The incidence of CVD was calculated in the cohort. We determined factors associated with diseases by univariate and multivariate analyses. A total of 1,346 subjects were evaluated for their non-communicable diseases. The subjects' mean age was 39.2 years and 41.8% were women. A total of 10.5% of the subjects had exposure to LPV/r. DL, HT, and HG was diagnosed in 53.5%, 24.4%, and 0.8% of the subjects, respectively. In multivariate analysis, age (OR = 1.040; 95% CI, 1.025-1.055), female sex (OR = 0.335; 95% CI, 0.264-0.424), and LPV/r exposure (OR = 3.251; 95% CI, 2.030-5.207) were significantly associated with DL. The incidence rate of CVD was 1.87/1,000 person-years (15 incidental cases in 8,013 person-years). LPV/r exposure was not a risk factor for the incidence of CVD. Although a causative relation with LPV/r and CVD was not identified in this study, attention should be paid to CVD for patients on LPV/r in the future.</p>
Publication	Global Health & Medicine 2020;2(1):39-43.
URL	https://globalhealthmedicine.com/site/article.html?id=28

iii. Research Article 3 [Research No.2 (p.19-23)]

Title (in English)	Prevalence and associated factors of overweight and obesity among schoolchildren in Hanoi, Vietnam
Main researchers	Thuy Thi Phuong Pham, Yumi Matsushita, Lien Thi Kim Dinh, Thanh Van Do, Thanh Thi The Nguyen, Anh Tuan Bui, Anh Quoc Nguyen & Hiroshi Kajio
Abstract	<p>Background</p> <p>The prevalence of overweight and obesity (OW/OB) has increased rapidly in Vietnam. This study aimed to elucidate the factors influencing OW/OB among secondary schoolchildren.</p> <p>Method</p> <p>A survey was conducted in January 2014 in four randomly selected state schools in two Hanoi urban districts, and 821 students in grade six (11–12 years old) participated. Definitions of OW/OB followed the World Health Organization standard cut-offs.</p> <p>Results</p> <p>Overall, 4.1% of children were underweight, 59.7% were normal weight, 17.1% were overweight, and 19.1% were obese. The odds of OW/OB were lowest among children whose parents had college/university degrees [father (aOR =0.65, 95% CI: 0.42–1.00); mother (aOR =0.63, 95% CI: 0.41–0.97)] compared with those whose parents had only a primary education. Children with an OW/OB family history had an increased risk of OW/OB. Other associated factors include parental OW/OB and birth weight (BW). The odds of OW/OB were highest among children with parents with OW/OB [father (aOR =2.022, 95% CI: 1.34–3.04); mother (aOR =2.83, 95% CI: 1.51–5.30)] compared with those with normal-weight parents. Children with both parents having OW/OB [both parents (aOR =6.59, 95% CI: 1.28–33.87)] had the highest risk, followed by one parent (aOR =2.22, 95% CI: 1.50–3.27) and then neither parent having OW/OB. Moreover, high-birth-weight children [BW ≥ 3500 g (aOR =1.52, 95% CI: 1.07–2.15)] had greater odds than did normal-birth-weight children.</p> <p>Children who slept 11 h per day [8–11 h (aOR =0.57, 95% CI: 0.40–0.81) or more (aOR =0.44, 95% CI: 0.22–0.87)] had lower OW/OB odds than those who slept 8 h or less. Children with specific positive lifestyle behaviours had lower risk of OW/OB than those who did not engage in positive lifestyle behaviours. The odds were lower among children who exercised for weight reduction (OR = 0.16, 95% CI: 0.11–0.23), lowered food intake (aOR = 0.12, 95% CI: 0.09–0.17), and added vegetables to their diet (aOR = 0.26, 95% CI: 0.19–0.35).</p> <p>Conclusion</p> <p>The results suggest that parents and children with OW/OB parents or a high BW should be educated to prevent OW/OB at an early stage. Positive lifestyle behaviours should be adopted by the students.</p>
Publication	BMC Public Health volume 19, Article number: 1478 (2019)
URL	https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-019-7823-9

iv. Research Article 4 [Research No.4 (p.30-34)]

Title (in English)	Epidemiology of <i>Enterobacter cloacae</i> strains producing a carbapenemase or metallo-beta-lactamase in Vietnamese clinical settings in 2014-2017
Main researchers	Tohru Miyoshi-Akiyama, Norio Ohmagari, Truong Thai Phuong, Nguyen Quang Huy, Nguyen Quoc Anh, Do Van Thanh, Pham Thi Phuong Thuy, Teruo Kirikae, Pham Hong Nhung, Norihiko Takemoto
Abstract	<p>Introduction</p> <p>Little is known about the epidemiology of <i>Enterobacter cloacae</i> strains producing a carbapenemase or metallo-beta-lactamase in Vietnamese hospitals.</p> <p>Aim</p> <p>This study analysed <i>E. cloacae</i> strains resistant to imipenem or meropenem that had been isolated from patients admitted to one of the largest hospitals in Vietnam in 2014-2017.</p> <p>Methodology</p> <p>Eighteen Vietnamese (VN) strains were subjected to whole-genome sequencing and their sequences compared with those of 17 <i>E. cloacae</i> strains carrying a carbapenemase or metallo-beta-lactamase in the database (db strains).</p> <p>Results</p> <p>Although the distribution of virulence factors did not differ significantly between VN and db strains, all 18 VN isolates harboured <i>blaNDM-1</i>, phylogenetic analysis revealed a high clonality of the VN strains. Bayesian phylogenetic analysis suggested that the VN strains speciated relatively recently.</p> <p>Conclusions</p> <p>Several prevalent clones of carbapenem-resistant <i>E. cloacae</i> have circulated within Vietnamese hospitals. Adequate measures are needed to prevent their further spread.</p>
Publication	J Med Microbiol. 2020 Apr;69(4):530-536. doi: 10.1099/jmm.0.001175.
URL	https://pubmed.ncbi.nlm.nih.gov/32216869/

v. Research Article 5 [Research No.4 (p.30-34)]

Title (in English)	Comparison between IMP carbapenemase-producing Enterobacteriaceae and non-carbapenemase-producing Enterobacteriaceae: a multicentre prospective study of the clinical and molecular epidemiology of carbapenem-resistant Enterobacteriaceae
Main researchers	Kayoko Hayakawa, Ryuichi Nakano, Ryota Hase, Michitsugu Shimatani, Hideaki Kato, Jumpei Hasumi, Asako Doi, Noritaka Sekiya, Takahito Nei, Keiji Okinaka, Kei Kasahara, Hanako Kurai, Maki Nagashima, Tohru Miyoshi-Akiyama, Risako Kakuta, Hisakazu Yano, Norio Ohmagari
Abstract	<p>Background Carbapenem-resistant Enterobacteriaceae (CRE) are classified as carbapenemase-producing Enterobacteriaceae (CPE) and non-CPE; the majority of CPE in Japan produce IMP carbapenemase.</p> <p>Objectives We evaluated the clinico-epidemiological and microbiological information and effects of IMP-type carbapenemase production in CRE.</p> <p>Methods Patients with isolations of CRE (MICs of meropenem ≥ 2 mg/L, imipenem ≥ 2 mg/L or cefmetazole ≥ 64 mg/L) from August 2016 to March 2018 were included. Microbiological analyses and WGS were conducted and clinical parameters were compared between groups. Independent predictors for the isolation of CPE from patients were identified by logistic regression. For comparing clinical outcomes, a stabilized inverse probability weighting method was used to conduct propensity score-adjusted analysis.</p> <p>Results Ninety isolates (27 CPE and 63 non-CPE) were collected from 88 patients (25 CPE and 63 non-CPE). All CPE tested positive for IMP carbapenemase. Antibiotic resistance (and the presence of resistance genes) was more frequent in the CPE group than in the non-CPE group. Independent predictors for CPE isolation were residence in a nursing home or long-term care facility, longer prior length of hospital stay (LOS), use of a urinary catheter and/or nasogastric tube, dependent functional status and exposure to carbapenem. Although in-hospital and 30 day mortality rates were similar between the two groups, LOS after CRE isolation was longer in the CPE group.</p> <p>Conclusions IMP-CPE were associated with prolonged hospital stays and had different clinical and microbiological characteristics compared with non-CPE. Tailored approaches are necessary for the investigational and public health reporting, and clinical and infection prevention perspectives for IMP-CPE and non-CPE.</p>
Publication	J Antimicrob Chemother. 2020 Mar 1;75(3):697-708. doi: 10.1093/jac/dkz501.
URL	https://pubmed.ncbi.nlm.nih.gov/31789374/

vi. Research Article 6 [Research No.5 (p.35-40)]

Title (in English)	Whole genome sequencing, analyses of drug resistance-conferring mutations, and correlation with transmission of <i>Mycobacterium tuberculosis</i> carrying <i>katG</i> -S315T in Hanoi, Vietnam
Main researchers	Nguyen Thi Le Hang, Minako Hijikata, Shinji Maeda, Pham Huu Thuong, Jun Ohashi, Hoang Van Huan, Nguyen Phuong Hoang, Akiko Miyabayashi, Vu Cao Cuong, Shintaro Seto, Nguyen Van Hung & Naoto Keicho
Abstract	Drug-resistant tuberculosis (TB) is a serious global problem, and pathogen factors involved in the transmission of isoniazid (INH)-resistant TB have not been fully investigated. We performed whole genome sequencing of 332 clinical <i>Mycobacterium tuberculosis</i> (<i>Mtb</i>) isolates collected from patients newly diagnosed with smear-positive pulmonary TB in Hanoi, Vietnam. Using a bacterial genome-wide approach based on linear mixed models, we investigated the associations between 31-bp k-mers and clustered strains harboring <i>katG</i> -S315T, a major INH-resistance mutation in the present cohort and in the second panel previously published in South Africa. Five statistically significant genes, namely, <i>PPE18/19</i> , <i>gid</i> , <i>emrB</i> , <i>Rv1588c</i> , and <i>pncA</i> , were shared by the two panels. We further identified variants of the genes responsible for these k-mers, which are relevant to the spread of INH-resistant strains. Phylogenetic convergence test showed that variants relevant to <i>PPE46/47</i> -like chimeric genes were significantly associated with the same phenotype in Hanoi. The associations were further confirmed after adjustment for the confounders. These findings suggest that genomic variations of the pathogen facilitate the expansion of INH-resistance TB, at least in part, and our study provides a new insight into the mechanisms by which drug-resistant <i>Mtb</i> maintains fitness and spreads in Asia and Africa.
Publication	<i>Scientific Reports</i> volume 9, Article number: 15354 (2019)
URL	https://www.nature.com/articles/s41598-019-51812-7

vii. Research Article 7 [Research No.5 (p.35-40)]

Title (in English)	Genotyping of <i>Mycobacterium tuberculosis</i> spreading in Hanoi, Vietnam using conventional and whole genome sequencing methods
Main researchers	Shinji Maeda, Minako Hijikata, Nguyen Thi Le Hang, Pham Huu Thuong, Hoang Van Huan, Nguyen Phuong Hoang, Nguyen Van Hung, Vu Cao Cuong, Akiko Miyabayashi, Shintaro Seto, Naoto Keicho
Abstract	<p>Hanoi is the capital of Vietnam, one of the 30 countries with a high tuberculosis (TB) burden. Fundamental data on the molecular epidemiology of the disease is required for future TB management.</p> <p>To identify lineages and genotypes of <i>Mycobacterium tuberculosis</i> (<i>Mtb</i>), conventional genotyping data from clinical isolates of the Hanoi area was compared with whole genome sequencing (WGS) analysis from 332 of 470 samples. It was obtained from lineage-specific single nucleotide variants (SNVs), large sequence polymorphisms, spoligotyping, and variable number of tandem repeats (VNTR) analysis using mycobacterial interspersed repetitive unit (MIRU) and Japan anti-tuberculosis association (JATA) locus sets. This information was directly compared with results obtained from WGS. Mini-satellite repeat unit variants were identified using BLAST search against concatenated short read sequences, the RepUnitTyping tool.</p> <p>WGS analysis revealed that the <i>Mtb</i> strains tested are diverse and classified into lineage (L) 1, 2 and 4 (24.7, 57.2 and 18.1% respectively). The majority of the L2 strains were further divided into ancient and modern Beijing genotypes, and most of the L1 group were EAI4_VNM strains. Although conventional PCR-based genotyping results were mostly consistent with information obtained through WGS analysis, in-depth analysis identified aberrant deletions and spacers that may cause discordance. JATA-VNTR sets, including hypervariable loci, separated large Beijing genotypic clusters generated by MIRU15 into smaller groups. The distribution of repeat unit variants observed within 33 VNTR loci showed clear variation depending on the three lineages. WGS-based pairwise-SNV differences within VNTR-defined genotypic clusters were greater in L1 than in L2 and L4 ($P = .001$).</p> <p>Direct comparisons between results of PCR-based genotyping and <i>in silico</i> analysis of WGS data would bridge a gap between classical and modern technologies during this transition period, and provide further information on <i>Mtb</i> genotypes in specific geographical areas.</p>
Publication	<i>Infection, Genetics and Evolution</i> Volume 78, March 2020, 104107
URL	https://www.sciencedirect.com/science/article/abs/pii/S1567134819303338?via%3Dihub

V. Appendix

1. List of Participants from Bach Mai Hospital Attending NCGM Training Courses

No	Name	Position	Department	Training course	Duration (days)	Date
1	Chu Thi Hanh	Doctor		Development and spreading of the respiratory endoscopy in Vietnam	4	3/7-6/7
2	Doan Thi Phuong Lan	Doctor				
3	Nguyễn Vũ Hoàng Việt	Doctor			18	6/8-23/8
4	Nguyễn Văn Ngân	Nurse				
5	Chu Thị Quý	Nurse				
6	Nguyen Thi Tuyet	Doctor	Respiratory Center			
7	Do Thi Phuong Chi	Nurse	Respiratory Center			
8	Dao Ngoc Duc	Doctor			10/12-27/12	
9	Phan Thu Phuong	Doctor				
10	Nguyen Thanh Thuy	Doctor				
11	Duong Thi Nguyet Van	Doctor				
12	Nguyen The Hao	Doctor	Neurosurgery	The Capacity Building Project for Team-based Surgical care in Bach Mai Hospital	7	6/10-12/10
13	Nguyen Trang Linh	Doctor	Rehabilitation Centre			
14	Le Thi Phuong Dung	Doctor	Rehabilitation Centre			
15	Nguyen Phu Sy	Occupational Therapist	Rehabilitation Centre		14	6/10-19/10
16	Tran Gia Tuyen	Physical Therapist	Rehabilitation Centre			
17	Pham Duc Toi	Nurse	Neurosurgery			
18	Nguyen Duc Que	Nurse	Neurosurgery			
19	Nguyen Thi Thu Hien	Nurse	Neurosurgery	13	23/9-5/10	
20	Nguyen Thi Kim Anh	Nurse	Clinical Nutrition Center			
21	Do Thi Hong Gam	Pharmacist	Pharmacy			
22	Pham The Thach	Doctor	Intensive care	The Capacity Building Project for Team-based Surgical care in Bach Mai Hospital	9	1/10-9/10
23	Dinh Xuan Lap	Nurse	Intensive care			
24	Nguyen Toan Thang	Doctor	anesthesiology	The Capacity Building Project for Team-based Surgical care in Bach Mai Hospital	9	1/10-9/10
25	Vu Thi Kieu Ly	Nurse	anesthesiology			
26	Nguyen Anh Duy	Clinical engineer		The Capacity Building Project for Team-based Surgical care in Bach Mai Hospital	9	1/10-9/10
27	Tran Kim Cuong	Doctor				
28	Vu Duc Anh	Clinical engineer				
29	Hoang Vu	Doctor	Thoracic and vascular surgeon	Perioperative management support including technical cooperation in surgery for 4 major hospitals in Vietnam with a view to hospital cooperation	9	13/1-21/1

2. List of Participants from Other Hospitals Attending NCGM Training Courses

No	Name	Position	Department, Hospital	Training course	Duration (days)	Date
1	Pham Kieu Loc	Doctor	Pediatric Intensive Care and Neonatal Department, Hue Central Hospital	Support for Strengthening Medical Treatment Ability of Childhood Cancer in Developing Country	28	17/11-14/12
2	Tran Nghiem Trung	Doctor	Pediatric and Abdominal Emergency Surgery, Hue Central Hospital			
3	Tran Duc Tam	Doctor	General Surgery, Vietnam National Children's Hospital			
4	Tran Ngoc Kim Anh	Doctor	Hematology, Ho Chi Minh Children's Hospital 1			
5	Do Duy Cuong	Doctor	Vinh Phuc General Provincial Hospital	Strengthening Management Capability of Nurses for Quality and Safety in Healthcare to accelerate hospital-wide cooperation in Vietnamese hospitals	14	21/7-3/8
6	Dam Thi Hong Hanh	Doctor	Viet Tiep Friendship Hospital			
7	Phí Thị Thu Hà	Nurse	Quang Ninh Obstetric and Pediatrics Hospital			
8	Phùng Ngọc Đức	Master of Public health	Vinh City General Hospital			
9	Ngo Viet Loc	Doctor	Hue University Hospital			
10	Phùng Thanh Phong	Nurse	Cho Ray Hospital			
11	Tran Thi Thanh Thuy	Doctor	Hung Vuong Hospital	Development and spreading of the respiratory endoscopy in Vietnam	4	3/7-6/7
12	Nguyen Le Nhat Minh	Doctor	Vietnam National Lung Hospital			
13	Dau Nguyen Anh Thu	Doctor	Cho Ray Hospital		18	10/9-27/9
14	Nguyen Thi Y Nhi	Doctor	Hue University of Medicine and Pharmacy			8/10-25/10
15	Bui Xuan Thinh	Nurse	Da Nang Cancer Hospital			19/11-6/12
16	Dinh Vu Quoc Dung	Doctor	Cho Ray Hospital			7/1/-24/1
17	Nguyen Quang Doi	Doctor	Hai Duong Hospital			
18	Vu Khac Dai	Doctor	National Lung Hospital			
19	Phan Quang Hieu	Doctor	University of Medicine and Pharmacy at Ho Chi Minh City			
20	Ngo Anh Trung	Doctor	Phan Ngoc Thach Hospital			

No	Name	Position	Department, Hospital	Training course	Duration (days)	Date
21	Le Minh Tan	Doctor	Cardiothoracic Surgery Department, Military Hospital 175	Perioperative management support including technical cooperation in surgery for 4 major hospitals in Vietnam with a view to hospital cooperation	9	13/1-21/1
22	Nguyen Van Manh	Doctor	Abdominal Surgery Department, Military Hospital 175			
23	Nguyen Hoang Gia	Doctor				
24	Nguyen Trung Tien	Doctor	Digestive Surgery Department, Central Military Hospital 108			
25	Dang Trung Dung	Doctor	Thoracic Surgery Department, Central Military Hospital 108			

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