



# **【On-line】 Knowledge Co-Creation Program (Group & Region Focus)**

**General information on**

**Clinical Laboratory Technology; Clinical Microbiology  
for the Diagnosis of Infectious Diseases Including  
Emerging and Re-emerging Infections**

**課題別研修「臨床検査技術－新興・再興感染症にも対応できる  
臨床微生物学－」**

**JFY 2022**

**Course No.: 202107770J001**

**Online Program Period: From October 25, 2022 to December 1, 2022**

This information pertains to one of the JICA Knowledge Co-Creation Programs (Group & Region Focus) of the Japan International Cooperation Agency (JICA) implemented as part of the Official Development Assistance of the Government of Japan based on bilateral agreement between both Governments.

JICA Knowledge Co-Creation Program (KCCP)

The Japanese Cabinet released the Development Cooperation Charter in February 2015, which stated, *“In its development cooperation, Japan has maintained the spirit of jointly creating things that suit partner countries while respecting ownership, intentions and intrinsic characteristics of the country concerned based on a field-oriented approach through dialogue and collaboration. It has also maintained the approach of building reciprocal relationships with developing countries in which both sides learn from each other and grow and develop together.”* JICA believes that this ‘Knowledge Co-Creation Program’ will serve as a foundation of mutual learning process.

# I. Concept

## **Background**

In order to achieve universal health coverage (UHC) which is in line with Sustainable Development Goals (SDGs) 3; Ensure healthy lives and promote well-being for all at all ages, JICA places higher priority on strengthening health systems of developing countries. In addition, JICA continues to tackle the issues related to maternal and child health, and infectious and non-communicable diseases. Among them, control of infectious diseases is urgently required after experiencing pandemic of Ebola, Zika and SARS-CoV-2 viruses.

In TICAD VI Nairobi declaration, G7 Ise-Shima Vision for Global Health in the 2016 G7 Summit and Basic Guidelines for Strengthening Measures on Emerging Infectious Diseases, the government of Japan has expressed its involvement in strengthening the responsiveness to public health crises. Antimicrobial resistance (AMR) and enhancing of laboratory networks are the specific areas that Japan has prioritized for commitment.

In addition, knowledge and skills are also needed to combat emerging pathogens and infections. Under the COVID-19 global pandemic in 2020, enhancement of these knowledge and skills are necessary for the development of Global Human Security. JICA has disseminated the message for fight against COVID-19 and contributing to develop better health system that is essential core of Human Security in the world (<https://www.jica.go.jp/COVID-19/en/index.html>).

In this situation, capacity development of the clinical laboratory examination is essential for proper diagnosis, treatment and control of infectious diseases.

## **For what?**

This program aims to improve the quality of clinical laboratory examination mainly on microbiological testing, for proper diagnosis of infectious diseases, and management skills for laboratory works. The course content is revised as online program and has been added to the lectures of the latest knowledge and global trend of AMR and COVID-19.

## **For whom?**

This program is designed for clinical laboratory technologist (or medical doctor/ pharmacist/nurse) who are currently engaged in microbiology examination and responsible for the management of laboratory works at national/ local core hospitals or laboratories.

## **How?**

The program will be conducted as a remote distance course and a practical training in Japan will not be provided, due to the COVID-19 epidemic.

The program comprises lectures and discussions. This program is mainly conducted with clinical microbiology in accordance with international standards

(e.g., CLSI, EUCAST, and ISO 15189) and does not contain parasitology, TB examination, food examination nor water quality examination. Please refer to the expected contents at page 3 in Japan among others into their on-going activities.

## II. Description

### 1. Title (Course No.)

Clinical Laboratory Technology; Clinical Microbiology for the Diagnosis of Infectious Diseases Including Emerging and Re-emerging Infections **(202107770J001)**

### 2. Online Program Period

October 25, 2022 to December 1, 2022

### 3. Target Regions or Countries

Argentina, Gabon, Indonesia, Kenya, Nigeria, Panama, Sierra Leone, Sri Lanka, Timor-Leste, Viet Nam, Zambia

### 4. Eligible / Target Organization

National/local core hospitals or core laboratories, which conduct clinical microbiology examination and collaborate with the diagnosis/ treatment section

### 5. Capacity (Upper Limit of Participants)

11 participants

### 6. Language

English

### 7. Objective(s)

Participants are expected to acquire and be able to explain the knowledge and skills of standard and accurate microbiological testing and laboratory management and operation necessary for proper diagnosis and treatment of infectious diseases, based on the role of clinical laboratory testing in the national health system in each country.

### 8. Overall Goal

Infectious diseases are properly diagnosed by accurate examination, and laboratory network is strengthened in participating countries.

### 9. Output and Contents

This program consists of the following components. Details on each component are given below:

★Precautions regarding training contents

\*The course content will be mixed with 10 online lectures, 2 online exercises, 4 video training and 15 on-demand lectures. Online lectures, online exercises and video training will be held during the time for online program and on-demand learning will be 15 titles. The detailed schedule of the program will be

provided with the acceptance notice.

\*The following components will be contained to facilitate overall understandings; 'Job report presentation', 'Review meeting and Final report presentation'.

Through the job report presentation, each participant can allow us to recognize issues in routine microbiology, which helps you select the subjects for the final report.

Review meeting are an opportunity to ask questions about the content of lectures and exercises.

The final report will ensure the activities after this training course by presenting the contents that have the most impact on solving challenges.

\* Course completion requirements: The participants are required to participate in the all programs. In addition to the above job report and final report, the participants will be required to answer the comprehension tests of the on-demand self-training materials and submit a self-assessment sheet. The participants will be provided the consultation on those matters at the start of the course.

\*After the program, participants are expected to share the knowledge and skills with their supervisors and colleagues and discuss how to make use of the results within their activities.

\*While the follow-up training targets ex-participants who have completed this training course, participants of 2022 are expected to share their experience and challenges.

★Expected training contents:

Expected Modules Output	Expected Subjects	Expected Contents
1. To acquire and be able to explain how to manage microbiology laboratory.	(1) Microbiology laboratory biosafety (2) Quality control of examination and laboratory management (3) Staff education	<b>Lectures: (*include online exercises)</b> -Biosafety and biosecurity in microbiology laboratory -Design of microbiology laboratory facilities and safety -Standard operating procedure -Washing and sterilization in Hospitals -Quality control in the microbiology laboratory and education of staff members

<p>2. To acquire and be able to explain knowledge and techniques of microbiological tests which including PCR test and immunological identification tests necessary for infection control of emerging and re-emerging infections such as AMR and COVID-19.</p>	<p>(1) Direct smear examination for patient specimens  (2) Standardized procedures for clinical microbiology technology: Testing method by biological material and Identification method  (3) PCR test and immunological Identification tests  (4) Antimicrobial susceptibility tests and detection of major drug-resistant organisms</p>	<p><b>Lectures: (*include online exercises)</b></p> <ol style="list-style-type: none"> <li>① Direct smear examination for diagnosis of infectious diseases*</li> <li>② Identification of microorganisms by MALDI-TOF MS mass spectrometry</li> <li>③ Laboratory procedures for blood and cerebrospinal fluid</li> <li>④ Laboratory procedures for respiratory tract specimen</li> <li>⑤ Laboratory procedures for stool</li> <li>⑥ Laboratory procedures for urine</li> <li>⑦ Methods for antimicrobial susceptibility testing and detection of antimicrobial resistance</li> <li>⑧ Virology related <ul style="list-style-type: none"> <li>• Basis of nucleic acid amplification tests for detection infectious agents</li> <li>• Drug and vaccine development for the treatment and prevention of COVID-19</li> </ul> </li> </ol> <p><b>Video training:</b></p> <ul style="list-style-type: none"> <li>-Basic techniques and tests for routine microbiology (Aseptic techniques, proper use of biological safety cabinet, isolation and inoculation techniques, Gram stain, catalase test, and oxidase test)</li> <li>-Identification of microorganisms by MALDI-TOF MS mass spectrometry</li> <li>-Basic techniques of molecular diagnostic tests and detection of SARS-CoV-2 from clinical specimens by nucleic acid amplification tests</li> <li>-Molecular diagnostic tests for SARS-CoV-2</li> <li>-Anaerobic bacteriology</li> </ul> <p><b>Explanation of corporate products by global companies</b></p> <ul style="list-style-type: none"> <li>• Reagents and equipment of genetic testing of SARS-CoV-2</li> <li>• Reagents and equipment of SARS-CoV-2 antigen and antibody testing</li> </ul>
<p>3. To acquire and be able to explain how to utilize the effective use of microbiological</p>	<p>(1) Selecting test based on epidemiology of infectious disease  (2) Role of microbiology laboratory for infection control (including</p>	<p><b>Lectures:</b></p> <ul style="list-style-type: none"> <li>-Role of microbiology laboratory for infection control</li> </ul> <p><b>On-demand self-training &amp; Lectures:</b></p>

tests necessary for diagnosing infectious diseases.	nosocomial infections)	-Etiologic agents of major infectious diseases and selection of microbiology tests
4. To be able to understand the role of microbiological tests in the health system of participants' own country and apply the learnings to daily work.	(1) Role of clinical laboratory in the health system and laboratory-network (2) Epidemiology, collection and evaluation of information for grasping prevalence of infectious diseases (infectious diseases surveillance) (3) Trend of international countermeasures against infectious diseases	<b>Lectures:</b> -JICA's cooperation in health sector (infectious diseases) -Roles of clinical laboratory in health system -Laboratory network: Collaboration between national/local core hospitals (laboratories) -Global trend in infectious diseases (AMR and COVID-19) -Role of microbiology laboratory for infection control
		<b>Discussion:</b> -Job report presentation -Review meeting -Final report presentation <b>Follow-up training for ex-JICA participants:</b> Purpose • To understand how the experience gained from this training course was utilized for microbiology testing and/or the management of a microbiology laboratory. • To understand current issues which have ex-participants and to find improvement measures through discussions. • To help improve this training course in the future.

## 10. Place and Time to attend:

### (1) Place

The place to take the program (On Demand/Online) should be determined by the internet environment. Please inform JICA which place you would like to take part in the program (e.g. home, office) by filling in the learning place on the Annex 2. If you cannot find the proper place to take the program, please consult with JICA Office.

### (2) Time for Online program (live stream)

Time for Online program is between 16:00 and 18:00 (Japan time) as standard.  
The time as standard in each participating country is as follows.

Country	Expected meeting time	Online program	Expected dismissal time
<Africa>			
Gabon	7:30 am	8:00 am – 10:00 am	10:30 am
Kenya	9:30 am	10:00 am – 12:00 pm	12:30 pm
Nigeria	7:30 am	8:00 am – 10:00 am	10:30 am
Sierra Leone	6:30 am	7:00 am – 9:00 am	9:30 am
Zambia	8:30 am	9:00 am – 11:00 am	11:30 am
<Asia>			
Indonesia	13:30 pm	14:00 pm – 16:00 pm	16:30 pm
Sri Lanka	12:00 pm	12:30 pm – 14:30 pm	15:00 pm
Timor-Leste	15:30 pm	16:00 pm – 18:00 pm	18:30 pm
Viet Nam	13:30 pm	14:00 pm – 16:00 pm	16:30 pm
<North America>			
Panama	1:30 am	2:00 am – 4:00 am	4:30 am
<Latin America>			
Argentina	3:30 am	4:00 am – 6:00 pm	6:30 pm

## 11. Circumstance for Internet Connection

The program is conducted through a platform “Zoom Webinar and/or Meeting”. It’s necessary to ensure a stable and secure internet connection to access the platform. Internet speeds of downloading and uploading are recommended approximately 3 to 5 Mbps. (0.5 to 1.5 Mbps at least).

Please refer to this URL for how to measure internet speed.

<https://www.speedtest.net/>

Mobile phones are not recommended due to screen size and functions. Every participant needs to make Final Presentation with his/her own device.

【Note】If you are not able to arrange internet connection or necessary devices, please consult with JICA office in your country.

## 12. Attendance requirement

Participation in the all online programs is an essential requirement for the completion of the course. Partial attendance is not allowed.

## III. Eligibility and Procedures

### 1. Expectations to the Applying Organizations

- (1) This course is designed primarily for organizations that intend to address specific issues or problems identified in their operation. Applying organizations are expected to use the program for those specific purposes.
- (2) This course is enriched with contents and facilitation schemes specially developed in collaboration with relevant prominent organizations in Japan. These special features enable the course to meet specific requirements of applying organizations and effectively facilitate them toward solutions for the issues and problems.

### 2. Nominee Qualifications

Applying organizations are expected to select nominees who meet the following qualifications.

#### (1) Essential Qualifications:

- 1) **Current Duties:** be a clinical laboratory technologist (or medical doctor/ pharmacist/nurse) who are engaged in clinical microbiology examination, and be responsible for the management of laboratory works at national/local core hospitals, or core laboratories which collaborate with the diagnosis/treatment section  
\*Note: Work experience and knowledge in clinical bacteriological examination are required.
- 2) **Language:** have a competent command of spoken and written English
- 3) **Computer Skills:** have basic computer skills, including ability to use Microsoft office software (Word, Excel, PowerPoint)
- 4) **Health:** must be in good health, both physically and mentally, to participate in the program.
- 5) **Internet Connection:** have to meet the condition of II. Description(11. Circumstance for Internet Connection) on page 6.
- 6) **Attendance:** have to attend all the online program.

### 3. Required Documents for Application

- (1) **Application Form:** The Application Form is available at **the JICA overseas office (or the Embassy of Japan)**
- (2) **Questionnaire on Laboratory Works (ANNEX-1):** to be submitted with the application form. Please fill in the **ANNEX-1** of this General Information.
- (3) **Photocopy of Passport:** to be submitted with the application form, if you possess your passport. If not, you are requested to submit alternative official identification.

\*The following information should be included in the photocopy:



Name, Date of Birth, Nationality, Sex, Passport Number and Expiry Date

**(4) English Score Sheet:** to be submitted with the application form, if the nominees have any official English examination scores. (e.g., TOEFL, TOEIC, IELTS)

**(5) Questionnaire (ANNEX 2):** to be submitted with the application form.

#### **4. Procedures for Application and Selection**

##### **(1) Submission of the Application Documents:**

Closing date for applications: **Please inquire to the JICA office (or the Embassy of Japan).**

(After receiving applications, the JICA office (or the Embassy of Japan) will send them to **the JICA Center in JAPAN by August 29, 2022**)

Note: 1) Please confirm the closing date set by the respective country's JICA office or the Embassy of Japan of your country to meet the final date in Japan.  
2) Please inform JICA office of your preferred place to take part in the program.

##### **(2) Selection**

Primary screening is conducted at the JICA overseas office (or the embassy of Japan) after receiving official documents from your government. JICA Center will consult with concerned organizations in Japan in the process of final selection. Applying organizations with the best intentions to utilize the opportunity will be highly valued.

The Government of Japan will examine applicants who belong to the military or other military-related organizations and/or who are enlisted in the military, taking into consideration of their duties, positions in the organization and other relevant information in a comprehensive manner to be consistent with the Development Cooperation Charter of Japan.

##### **(3) Notice of Acceptance**

Notification of results will be made by the JICA office (or the Embassy of Japan) **not later than September 26, 2022.**

#### **5. Additional Document(s) to Be Submitted by Accepted Candidates**

Accepted candidates are requested to send the Job Report for Presentation by e-mail to JICA Tokyo ([ticthdop@jica.go.jp](mailto:ticthdop@jica.go.jp)) and the implementing partner, Japan International Medical Technology Foundation (JIMTEF) ([fujino@jimtef.or.jp](mailto:fujino@jimtef.or.jp)) **by October 14, 2022.**

##### **Job Report for Presentation (ANNEX-3):**

Participants are required to make presentation using PowerPoint slides, according to the guidelines.

## **6. Conditions for Participation**

The participants of KCCP are required

- (1)** to strictly observe the course schedule,
- (2)** not to change the program topics.
- (3)** In principle, a completion certificate will be given to participants who have achieved certain results by participating in all programs.
- (4)** To respect copyright and portrait rights. To refrain from recording and sharing the video material, audio material, text, images, graphics and other content available during the program except for cases with specific permission.

## IV. Administrative Arrangements

### 1. Organizer (JICA Center in Japan):

- (1) **Center:** JICA Tokyo Center (JICA TOKYO),  
Human Development and Operational Coordination Division
- (2) **Program Officer:** Mr. Tsutomu NAKANO and Mr. Yuji INOUE  
([ticthdop@jica.go.jp](mailto:ticthdop@jica.go.jp))
- (3) **URL:** <https://www.jica.go.jp/tokyo/english/office/index.html>
- (4) **YouTube:** Knowledge Co-Creation Program and Life in Japan  
<https://www.youtube.com/watch?v=SLurfKugrEw>

### 2. Implementing Partner:

- (1) **Name:** Japan International Medical Technology Foundation (JIMTEF)
- (2) **Contact:** Mr. Masatoshi FUJINO ([fujino@jimtef.or.jp](mailto:fujino@jimtef.or.jp))
- (3) **URL:** <https://www.jimtef.or.jp/> (\*available in Japanese only)

### 3. Expenses:

The following expenses will be provided for the participants by JICA:

- (1) Expenses for program implementation, including materials
- (2) Necessary expense for the participation. For the details, please kindly ask at JICA office.

### 4. Others:

In the context of the COVID-19 pandemic, please note that there is still a possibility the course period will be changed, shortened, or the course itself will be cancelled.

## V. ANNEX

**For All Candidates: to be submitted together with the Application Form**

### **ANNEX-1 Questionnaire on the Present State of Microbiological Test Techniques and the Laboratory**

**Clinical Laboratory Technology: Clinical Microbiology for the Diagnosis of Infectious Diseases Including Emerging and Re-emerging Infections (202107770J001)**

**All participants are requested to fill in this questionnaire and submit it with Application Form. It is used as reference for screening of applicants and arrangement of the program.**

This questionnaire mainly aims at knowing how much experience the applicants might have with regard to the microbial tests (mainly bacteriological field), grasping the current situation and problems of the laboratory and consequently clarifying the issues and the way to solve them. Based on your replies, the persons in charge will confirm the objectives of the training at the start of the course. Please describe the full details of your test experience and the situation of the laboratory together with the problems regarding laboratory jobs with consideration.

#### Points to consider in filling-in Questionnaire

- 1) The digital file (Word) is preferable for convenience as it is easily read and speedily processed (printing, translation in Japanese, etc.). Submit the digital file to the JICA office or the Embassy of Japan.
- 2) Try to describe briefly to avoid excessive burden on translation as well as for Japanese lecturers to read and understand.

#### **I. Basic Information**

- Q1 Your name:
- Q2 Your country:
- Q3 Your organization and department / division:
- Q4 Location of your organization (in capital or in region, name of the city) mailing address, telephone No., Fax No., e-mail address (Your personal and official address)

#### **II. Your professional experience of microbial tests**

- Q5 Name of the college / institution where you acquired qualification of clinical laboratory technologist and the year of graduation:
- Q6 How long have you been engaged in bacteriological test as a certified technologist?

1) Less than 3 years  2) 3 to 5 years  3) 5 to 10 years  4) 10 years or more

Q7 Your position in your organization

Q8 What is the license you have?

1) Microbiologist  2) Medical Technologist (Biomedical Laboratory Scientist: BLS)

3) Clinical Laboratory Scientist  4) Medical Technician

5) Other ( )

Q9 Do you perform Gram staining?

1) Currently performing  2) performed in the past but not now

3) No experience

Q10 Do you prepare culture media yourself?

1) Currently preparing

2) Not preparing (purchase commercially prepared media)

3) Not preparing myself (made by culture medium specialist)

4) No experience

Q11 Do you culture and isolate bacteria from specimen obtained from the patient?

1) Currently culturing and isolating

2) Cultured and isolated in the past but not now

3) No experience

Q12 Do you have any experience in identification of bacterial isolate?

1) Currently identifying

2) Identified in the past but not now

3) No experience

Q13 Do you have any experience in the isolation and identification of the following bacterial and fungal species in routine work? Tick (✓) the items for which you have experience in isolation and identification. (Tick all that apply.)

1) *Staphylococcus aureus*

2) *Streptococcus pyogenes*

3) *Streptococcus agalactiae*

4) *Streptococcus pneumoniae*

5) *Enterococcus faecalis*

6) *Corynebacterium diphtheriae*

7) *Bacillus anthracis*

8) *Listeria monocytogenes*

9) *Erysipelothrix rhusiopathiae*

10) *Neisseria gonorrhoeae*

11) *Neisseria meningitidis*

12) *Moraxella catarrhalis*

13) *Brucella* spp.

14) *Bordetella pertussis*

15) *Haemophilus influenzae*

16) *Pasteurella multocida*

17) *Escherichia coli*

18) *E. coli* O157

19) *Shigella* spp.

20) *Salmonella* Typhi

21) *Salmonella* Paratyphi A

22) *Salmonella* Typhimurium

23) *Salmonella* Enteritidis

24) Other *Salmonella* spp.

- |   |   |
|---|---|
| <input type="checkbox"/> 25) <i>Citrobacter freundii</i>      | <input type="checkbox"/> 26) <i>Proteus mirabilis</i>             |
| <input type="checkbox"/> 27) <i>Proteus vulgaris</i>          | <input type="checkbox"/> 28) <i>Morganella morganii</i>           |
| <input type="checkbox"/> 29) <i>Providencia</i> spp.          | <input type="checkbox"/> 30) <i>Klebsiella pneumoniae</i>         |
| <input type="checkbox"/> 31) <i>Serratia marcescens</i>       | <input type="checkbox"/> 32) <i>Enterobacter</i> spp.             |
| <input type="checkbox"/> 33) <i>Yersinia enterocolitica</i>   | <input type="checkbox"/> 34) <i>Yersinia pseudotuberculosis</i>   |
| <input type="checkbox"/> 35) <i>Yersinia pestis</i>           | <input type="checkbox"/> 36) <i>Plesiomonas shigelloides</i>      |
| <input type="checkbox"/> 37) <i>Aeromonas</i> spp.            | <input type="checkbox"/> 38) <i>Vibrio cholerae</i> O1            |
| <input type="checkbox"/> 39) <i>Vibrio cholerae</i> Non-O1    | <input type="checkbox"/> 40) <i>Vibrio parahaemolyticus</i>       |
| <input type="checkbox"/> 41) <i>Campylobacter jejuni</i>      | <input type="checkbox"/> 42) <i>Pseudomonas aeruginosa</i>        |
| <input type="checkbox"/> 43) <i>Burkholderia pseudomallei</i> | <input type="checkbox"/> 44) <i>Burkholderia mallei</i>           |
| <input type="checkbox"/> 45) <i>Acinetobacter</i> spp.        | <input type="checkbox"/> 46) <i>Legionella pneumophila</i>        |
| <input type="checkbox"/> 47) <i>Nocardia</i> spp.             | <input type="checkbox"/> 48) <i>Mycobacterium tuberculosis</i>    |
| <input type="checkbox"/> 49) <i>Bacteroides fragilis</i>      | <input type="checkbox"/> 50) <i>Fusobacterium</i> spp.            |
| <input type="checkbox"/> 51) <i>Clostridium perfringens</i>   | <input type="checkbox"/> 52) <i>Clostridium tetani</i>            |
| <input type="checkbox"/> 53) <i>Candida albicans</i>          | <input type="checkbox"/> 54) <i>Cryptococcus neoformans</i>       |
| <input type="checkbox"/> 55) <i>Aspergillus</i> spp.          | <input type="checkbox"/> 56) <i>Penicillium</i> spp.              |
| <input type="checkbox"/> 57) <i>Microsporum</i> spp.          | <input type="checkbox"/> 58) <i>Trichophyton</i> spp.             |
| <input type="checkbox"/> 59) <i>Mucor</i> spp.                | <input type="checkbox"/> 60) <i>Rhizopus</i> spp.                 |
| <input type="checkbox"/> 61) <i>Blastomyces dermatitidis</i>  | <input type="checkbox"/> 62) <i>Coccidioides immitis</i>          |
| <input type="checkbox"/> 63) <i>Histoplasma capsulatum</i>    | <input type="checkbox"/> 64) <i>Paracoccidioides brasiliensis</i> |

Q14 Do you perform antimicrobial susceptibility tests (AST)?

- 1) Currently performing
- 2) Performed in the past but not now
- 3) No experience

Q15 Do you have any experience in detecting parasites below? Tick (✓) the protozoa for which you have experience in detection. (Tick all that apply.)

- 1) *Entamoeba histolytica* (*E. histolytica/dispar*)
- 2) *Giardia lamblia*
- 3) *Isospora* sp.
- 4) *Cyclospora* sp.
- 5) *Cryptosporidium* spp.
- 6) *Pneumocystis jirovecii* (formerly, *P. carinii*)
- 7) *Toxoplasma gondii*
- 8) *Plasmodium* spp.
- 9) Filarias
- 10) *Leishmania*, *Trypanosoma*

Q16 Do you have any experience in tests for viruses?

- 1) Currently performing
- 2) No experience

If performing, please describe viruses below.

( )

**III: Introduction and current situation of the clinical laboratory you are working for.**

Q17 Number of the hospital beds, if you are working for the hospital: \_\_\_\_\_ beds

Q18 Number of outpatients per day, if you are working for the hospital:  
\_\_\_\_\_ patients

Q19 Attach the organization chart of the clinical laboratory of your organization and mark  
the department / division you belong to.

Q20 Working hours of the day at the microbiology laboratory you are working for.  
Start at \_\_\_\_\_ finish at \_\_\_\_\_ actual working hours \_\_\_\_\_

Q21 Number of staff members working at your microbiology laboratory.

1) Pathologist: \_\_\_\_\_ persons

2) Microbiologist: \_\_\_\_\_ persons

3) Medical Technologist(BLS): \_\_\_\_\_ persons

4) Clinical Laboratory Scientist: \_\_\_\_\_ persons

5) Medical Technician: \_\_\_\_\_ persons

6) Assistant: \_\_\_\_\_ persons

7) Others: \_\_\_\_\_ persons

Q22 Tick (✓) the equipment and material available at your microbiology laboratory.  
(Tick all that apply.)

- 1) Test log book (records of reception of specimens)
- 2) Inventory of reagents and expendable supplies
- 3) Standard operating procedure (SOP)
- 4) Optical microscope (number of units)
- 5) Fluorescent microscope (number of units)
- 6) Burner (type: gas/electric)
- 7) Biological safety cabinet (Class I, II, or III; number of units)
- 8) Autoclave (number of units)
- 9) Dry heat sterilizer (number of units)
- 10) Distilled water maker (number of units)
- 11) Incubator (temperature, number of units)
- 12) Centrifuge
- 13) Water bath
- 14) Refrigerator (temperature, number of units)
- 15) Freezer (temperature, number of units)
- 16) Automated analyzer (for identification) (name of equipment \_\_\_\_\_)
- 17) Automated analyzer (for drug sensitivity) (name of equipment \_\_\_\_\_)
- 18) Automated analyzer (for identification and drug susceptibility)  
(name of equipment \_\_\_\_\_)
- 19) Automated analyzer (for blood culture) (name of equipment \_\_\_\_\_)
- 20) Automated analyzer (for molecular tests) (name of equipment \_\_\_\_\_)

Q23 How does your microbiology laboratory prepare culture media? (Tick all that

apply.)

- 1) not preparing, because cultivation test is not being performed
- 2) purchasing commercially prepared media
- 3) preparing from powder media

Q24 Tick (✓) the media currently used at your microbiology laboratory. (Tick all that apply.)

- 1) Nutrient agar
- 2) Blood agar

Tick (✓) the blood used for media.

- sheep
- horse
- human
- rabbit
- others

- 3) Chocolate agar
- 4) MacConkey agar
- 5) *Salmonella-Shigella* agar
- 6) TCBS agar
- 7) Thayer-Martin agar
- 8) *Campylobacter* selective agar
- 9) Sabouraud dextrose agar
- 10) Potato dextrose agar
- 11) Selenite broth
- 12) TSI medium
- 13) SIM medium
- 14) Simmons citrate medium
- 15) VP semisolid medium
- 16) Lysine decarboxylation medium
- 17) Nitrate reduction test medium
- 18) Urea medium
- 19) Mueller-Hinton medium
- 20) Blood culture bottle

Q25 Which method(s) is employed for bacterial identification at your microbiology laboratory? (Tick all that apply.)

- 1) Conventional tube media
- 2) Commercially prepared identification kits
- 3) Automatic method

Q26 Tick (✓) the bacteria tested with the use of antisera at your microbiology laboratory. (Tick all that apply.)

- 1) *Salmonella*
- 2) *Shigella*
- 3) Diarrheagenic *E. coli*
- 4) *Vibrio cholerae/V. parahaemolyticus*
- 5) others : \_\_\_\_\_

Q27 Which method is employed for antimicrobial susceptibility tests (AST) at your microbiology laboratory? (Tick all that apply.)



- 1) Disk diffusion method in accordance with CLSI Standards
  - 2) Dilution method or microdilution broth method in accordance with CLSI Standards  
\* CLSI: Clinical and Laboratory Standards Institute, USA
  - 3) Stokes method
  - 4) E test
  - 5) not performing the tests
- Q28 List five (5) top of antimicrobials (Antibiotics) used in medical treatment in your country.
- 1:  
2:  
3:  
4:  
5
- Q29 Does your microbiology laboratory perform examination for anaerobes?
- 1) performing  2) not performing
- Q30 Does your microbiology laboratory perform carbon dioxide (CO<sub>2</sub>) culture?
- 1) performing  2) not performing
- Q31 Does your microbiology laboratory perform microaerophilic culture for *Campylobacter*?
- 1) performing  2) not performing
- Q32 Does your microbiology laboratory perform examination for yeasts?
- 1) performing  2) not performing
- Q33 Does your microbiology laboratory perform examination for filamentous fungi?
- 1) performing  2) not performing
- Q34 Does your microbiology laboratory have any experience in mycobacteriology examinations?
- 1) yes  2) no
- Q35 Does your microbial laboratory perform examination for mycobacteria?  
Tick (✓) the methods employed at the laboratory. (Tick all that apply.)
- 1) Direct smear examination (Ziehl-Neelsen or fluorochrome method)
  - 2) Culture method
  - 3) Anti-tuberculous drug susceptibility tests
  - 4) Molecular diagnostic tests (Ex. PCR)
  - 5) not performing
- Q36 Does your microbiology laboratory perform examination for toxins?
- 1) performing on a daily basis
  - 2) not performing
  - 3) receiving requests for tests
  - 4) not particularly receiving request for tests

Q37 Does your microbiology laboratory perform examination for viruses?

- 1) performing  2) not performing

Q38 Does your microbiology laboratory perform molecular diagnostic tests (e.g., Polymerase Chain Reaction) tests?

- 1) performing  2) not performing

Q39 Does your microbiology laboratory conduct internal quality control?

- 1) conducting daily  2) conducting periodically  
 3) not conducting

Q40 Does your microbiology laboratory participate in external quality assessment program?

- 1) yes  2) no

Q41 Does your microbiology laboratory acquire ISO15189 certification?

- 1) yes  2) no

Q42 Write the number of specimen (except those for mycobacteriology test) per month of your microbiology laboratory.

- 1) sputum : \_\_\_\_\_ specimen  
2) urine : \_\_\_\_\_ specimen  
3) stool : \_\_\_\_\_ specimen  
4) pus : \_\_\_\_\_ specimen  
5) blood : \_\_\_\_\_ specimen  
6) cerebrospinal fluid : \_\_\_\_\_ specimen

Q43 Write the number of specimen per month for other tests at your microbiology laboratory.

- 1) acid-fast bacteria test : \_\_\_\_\_ specimen  
2) fungi test : \_\_\_\_\_ specimen  
3) others ( \_\_\_\_\_ ) : \_\_\_\_\_ specimen

Q44 List five (5) top pathogenic bacteria which are isolated at your microbiology laboratory.

Please fill in the statistics data, if you have.

No.	pathogenic bacteria
1	
2	
3	
4	
5	

Q45 Has your microbiology laboratory isolated drug-resistant bacteria?

- 1) yes                       2) no

If yes, list those species.

Q46 Discuss the current test situation with your supervisors / fellow staff of your microbiology laboratory. After discussion, select and tick (✓) the items which are considered necessary to alter or newly introduce in the laboratory jobs. Describe the causes conceivable as well. (Tick all that apply.)

- 1) The ordering system of tests from doctors to your laboratory. (insufficient or unclear patient data provided)
- 2) The timing of test orders is inappropriate. (Specimens are not submitted in the early stages after disease onset or before administration of antibiotics.)
- 3) Test orders are too many or too few. (There are too many or too few tests needed for diagnosis.)
- 4) Management of consumables such as specimen sampling containers (sufficient quantity is not supplied)
- 5) Insufficient specimen transportation and preservation (inappropriate temperature management / defective transportation system)
- 6) Insufficient number of laboratory staff members
- 7) Low motivation of laboratory staff
- 8) Insufficient ability for estimation of microbial species in smear test (a lack of technical skill or a problem of reagents and equipment, such as staining solutions and microscopes)
- 9) Insufficient culture and isolation of bacteria (a problem of reagents and techniques such as a lack of appropriate medium or the inability to obtain single colonies)
- 10) Insufficient identification tests (a problem of reagents and techniques such as a lack of appropriate culture medium or a lack of knowledge, reagents, etc. needed for identification).
- 11) Insufficient AST tests (a problem of reagents and techniques such as a lack of appropriate culture medium or a lack of knowledge, reagents, etc. needed for identification).
- 12) Test procedures among laboratory staff are not standardized (Standard Operating Procedure: SOP and test manual are not provided)
- 13) Laboratory jobs are not allotted based on skills or job titles.
- 14) Incapable of sterilizing and disposing specimen and culture media after test (no autoclave or problem in the performance)
- 15) Insufficient test reagents and consumables
- 16) No internal quality control conducted
- 17) Incapable of maintaining test equipment (incapable of purchasing parts, or no persons having knowledge on equipment available)
- 18) Little test orders due to expensive test charge for the patients
- 19) Little test orders even though the test is free of charge

20) Write items other than mentioned above

Q47 What are the techniques and knowledge your organization wants to learn from the practice in this course as a means to solve the problems in your organization? Please describe the reasons in detail, referring to the training curriculum (up to 3 items, in decreasing order of priority).

Q48 Please insert photos of the inside of your microbiology laboratory under the following conditions.

A. Take the photos including your equipment (e.g. Autoclave, Biological safety cabinet, Incubator, Centrifuge, Microscope, Automated analyzer for identification and others).

B. If your laboratory has a medium preparation room, a washing room and others), please insert the photos of each room.

\*If it is difficult to insert/share photos for any reasons, please consult with the person in charge in JICA office.

#### IV. Assessment

This training program has prepared the following Specific Behavioral Objectives for participants to acquire clinical microbiological skills and knowledge. In this connection, please assess your present skills and knowledge in each objective with the following criteria, and ask your immediate supervisor to make the assessment for you as well.

Assessment criteria

For Candidate:

5: I am able to transfer the skills / knowledge to others exactly.

4: I am able to do exactly with enough skills / knowledge.

3: I am able to do, if I have the guide of a manual / book.

2: I am able to do, if led by an instructor.

1: I am not able to do due to a lack of skills / knowledge.

ND: I don't have a work experience.

For Candidate's immediate supervisor:

A. The candidate is able to transfer the skills / knowledge to others exactly.

B. The candidate is able to do exactly.

C. The candidate needs more experience.

ND: The candidate doesn't have a work experience.

Tick each column

Specific Behavioral Objectives (SBOs)		Assessment												
		Candidate						Immediate supervisor						
		5	4	3	2	1	ND	A	B	C	ND			
1-1	To perform and explain "Biosafety and standard precaution in laboratory".													
1-2	To perform and explain "Quality control of examination and laboratory management".													

1-3	To perform and explain “staff education”.												
<b>2. To acquire and be able to explain knowledge and techniques of microbiological tests which including PCR test and immunological identification tests necessary for infection control of emerging and re-emerging infections such as AMR and COVID-19.</b>		Candidate						Immediate supervisor					
		5	4	3	2	1	ND	A	B	C	ND		
2-1	To perform and explain “Direct smear examination for patient specimens”.												
2-2	To perform and explain “Standardized Procedures for Clinical Microbiology Technology: Testing method by biological material and Identification method”.												
2-3	To perform and explain “PCR test and immunological Identification”.												
2-4	To perform and explain “Antimicrobial susceptibility tests and detection of major drug-resistant organisms”.												
<b>3. To acquire and be able to explain how to utilize the effective use of microbiological tests necessary for diagnosing infectious diseases.</b>		Candidate						Immediate supervisor					
		5	4	3	2	1	ND	A	B	C	ND		
3-1	To perform and explain “Selecting test based on infectious disease epidemiology”.												
3-2	To perform and explain “Role of clinical laboratory for infectious disease control (including nosocomial infections)”.												

Assessed by:

Candidate's Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Immediate supervisor's Name / Post: \_\_\_\_\_

Signature: \_\_\_\_\_

Assessment date:            /            /

**For All Candidates: to be submitted together with the Application Form**

## **ANNEX-2 : Questionnaire (Internet learning environment)**

Name:
Country:

Please answer the following question. If you need any assistance for preparation of the learning environment, please consult with JICA office.

### **1. Learning Place** (From where are you going to attend this online program?)

- Home
- Workplace
- Other place ( )

### **2. Device & Network** (Please describe your device and network.)

- (1)Device: ex) Personal Computer, Tablet,etc.  
( )
- (2)Operating System: ex) Windows10, MacOS X, MacOS 10.9.X,etc.  
( )
- (3)Browser: ex) Internet Explorer11+, Edge12+, Chrome 30+,etc.  
( )
- (4)Network: ex) Wi-Fi, WiredLAN,etc.  
( )

### **3. Application** (Please let us know about the application.)

- (1)You can download and sign in to “ZOOM” application.      Yes      No  
Download from <https://zoom.us/download>
- (2)You can view “YouTube” videos.      Yes      No  
Sample: [JICA-Net Library]100 years since "Safety before Everything"  
<https://www.youtube.com/watch?v=wJkyQZRmSes>

### **4. Other information**

If you have any specific online environment, please describe them in detail.

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**For Only Accepted Candidates**

### **ANNEX-3 Job Report for Presentation**

**Clinical Laboratory Technology: Clinical Microbiology for the Diagnosis of Infectious Diseases Including Emerging and Re-emerging Infections (202107770J001)**

In the beginning of the program, participants are requested to make a presentation on your job in front of other participants and course staffs as well as each of assigned training hospitals.

- The purpose of the presentation is to share issues in participant's country and prepare for further discussions and practices planned in this program.
- Each participant has 8 minutes for presentation.

**Please include the following topics in the Job report;**

- 1) Your name/Country/Organization
- 2) Your laboratory services (method, workload)
- 3) Laboratory network in whole country
- 4) External quality assurance system in whole country
- 5) Quality management in your laboratory
- 6) Training, supervision, recording and reporting, evaluation
- 7) Challenges and problems in your laboratory
- 8) Expectation to the course

#### **Instruction for Job Report for Presentation**

##### **(1) Data Format:**

It should be prepared by Power Point (15 slides at a maximum) or Word (5 pages at a maximum) for 8 minutes presentation.

##### **(2) Submission of the report:**

The report should be sent to JICA Tokyo ([ticthdop@jica.go.jp](mailto:ticthdop@jica.go.jp)) and the implementing partner, Japan International Medical Technology Foundation (JIMTEF) ([fujino@jimtef.or.jp](mailto:fujino@jimtef.or.jp)) by e-mail by **October 14, 2022**. Please include **the course title and course number (202107770J001)** in the e-mail title.



## For Your Reference

### **JICA and Capacity Development**

Technical cooperation is people-to-people cooperation that supports partner countries in enhancing their comprehensive capacities to address development challenges by their own efforts. Instead of applying Japanese technology per se to partner countries, JICA's technical cooperation provides solutions that best fit their needs by working with people living there. In the process, consideration is given to factors such as their regional characteristics, historical background, and languages. JICA does not limit its technical cooperation to human resources development; it offers multi-tiered assistance that also involves organizational strengthening, policy formulation, and institution building.

Implementation methods of JICA's technical cooperation can be divided into two approaches. One is overseas cooperation by dispatching experts and volunteers in various development sectors to partner countries; the other is domestic cooperation by inviting participants from developing countries to Japan. The latter method is the Knowledge Co-Creation Program, formerly called Training Program, and it is one of the core programs carried out in Japan. By inviting officials from partner countries and with cooperation from domestic partners, the Knowledge Co-Creation Program provides technical knowledge and practical solutions for development issues in participating countries.

The Knowledge Co-Creation Program (Group & Region Focus) has long occupied an important place in JICA operations. About 400 pre-organized courses cover a wide range of professional fields, ranging from education, health, infrastructure, energy, trade and finance, to agriculture, rural development, gender mainstreaming, and environmental protection. A variety of programs is being customized by the different target organizations to address the specific needs, such as policy-making organizations, service provision organizations, as well as research and academic institutions. Some programs are organized to target a certain group of countries with similar developmental challenges.

### **Japanese Development Experience**

Japan, as the first non-Western nation to become a developed country, built itself into a country that is free, peaceful, prosperous and democratic while preserving its tradition. Japan will serve as one of the best examples for our partner countries to follow in their own development.

From engineering technology to production management methods, most of the know-how that has enabled Japan to become what it is today has emanated from a process of adoption and adaptation, of course, has been accompanied by countless failures and errors behind the success stories.

Through Japan's progressive adaptation and application of systems, methods and technologies from the West in a way that is suited to its own circumstances, Japan has

developed a storehouse of knowledge not found elsewhere from unique systems of organization, administration and personnel management to such social systems as the livelihood improvement approach and governmental organization. It is not easy to apply such experiences to other countries where the circumstances differ, but the experiences can provide ideas and clues useful when devising measures to solve problems.

JICA, therefore, would like to invite as many leaders of partner countries as possible to come and join us, to mingle with the Japanese people, and witness the advantages as well as the disadvantages of Japanese systems, so that integration of their findings might help them reach their developmental objectives.



**Contact Information for Inquiries**

For inquiries and further information, please contact the JICA overseas office or the Embassy of Japan. Further, address correspondence to:

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**TEL: +81-3-3485-7051 FAX: +81-3-3485-7904**