

Status of Digitalization and Systemization of Infectious Disease Control in Tokyo Metropolitan Government

1 Trends in the Mechanism and Systemization of Infectious Disease Surveillance

2 Tokyo Metropolitan Infectious Disease Health Crisis Management Information Network System (K-net)

3 Digitalization of Public Health Center Operations

: Introduction of a patient response management tool for tuberculosis operations in metropolitan public health centers



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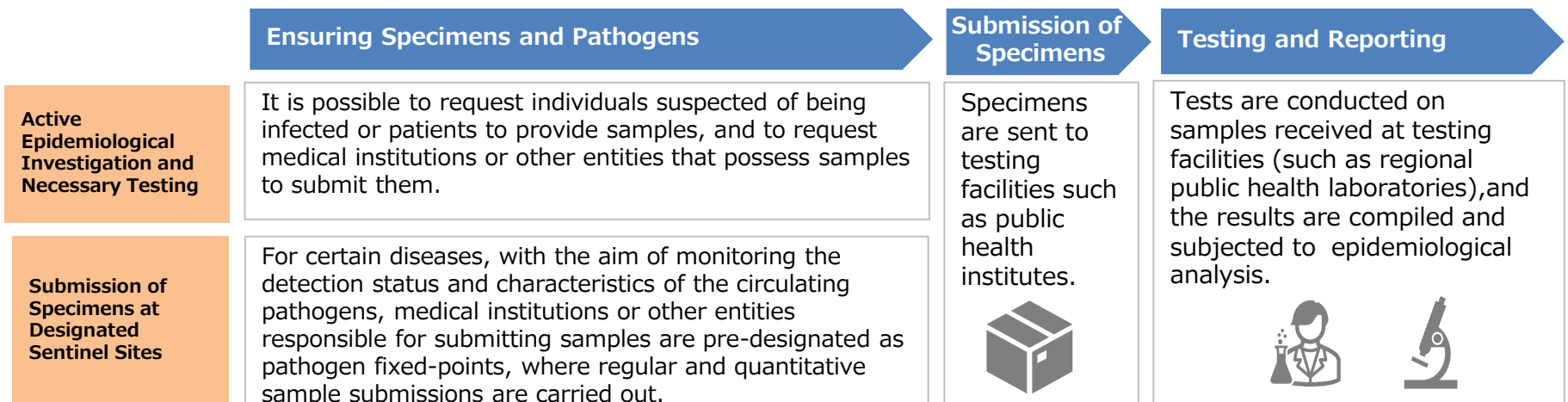
1 Trends in the Mechanism and Systemization of Infectious Disease Surveillance

(1) Patient-Based Surveillance

- The occurrence and spread of infectious diseases are monitored through reports submitted by diagnosing physicians. (This mechanism is based on national laws and is uniformly applied across Japan, not just in Tokyo.)
- There are two types of infectious disease reports:
 - **Comprehensive Notification:** All physicians submit reports.
 - **Sentinel Notification:** Reports are submitted only by designated medical institutions assigned by the governor of Tokyo.

Types of Notification	Overview	Target Diseases (Examples)
Comprehensive Notification	<ul style="list-style-type: none">● The target infections are those that require prevention measures to control the spread, and those that are rare and cannot be monitored through fixed-point systems for trend analysis.● All diagnosing physicians must report to the local public health center, which will then forward the information to the governor of the respective prefecture.	Ebola hemorrhagic fever, SARS, MERS, avian influenza, tuberculosis, bacterial dysentery, enterohemorrhagic Escherichia coli infection, smallpox, dengue fever, legionellosis, syphilis, anthrax, etc.
Sentinel Notification	<ul style="list-style-type: none">● The target infections are those where the number of patients is large, and it is not necessary to report all cases.● Only the administrators of medical institutions designated by the prefectural governors are required to report	Seasonal influenza, novel coronavirus infection, hand, foot, and mouth disease, RSV infection, etc.

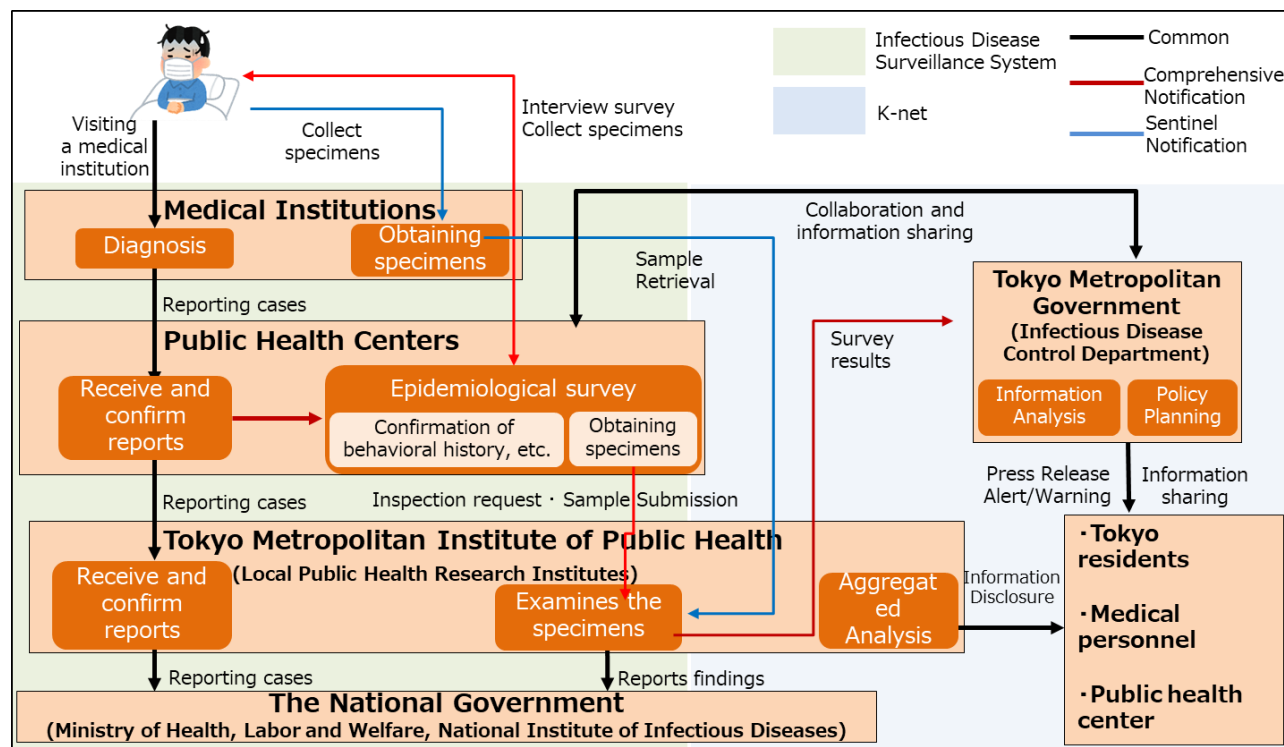
(2) Pathogen-Based Surveillance



1 Mechanism and Systematization Trends in Infectious Disease Surveillance

Roles and Workflow of Relevant Institutions in Infectious Disease Surveillance

Public Health Centers (PHC)	<p>■ Upon receiving reports of patient cases from medical institutions, the public health center carries out epidemiological investigations to collect information on the patients and implements necessary measures (such as securing samples, imposing work restrictions, and recommending hospitalization) to prevent the spread of infection.</p> <p>■ The collected information is reported and shared with the Tokyo Metropolitan Government, the Tokyo Metropolitan Institute of Public Health, and relevant public health centers.</p>
Tokyo Metropolitan Institute of Public Health (Local Public Health Research Institutes)	<p>■ As a testing facility, it receives samples from public health centers and conducts genetic analysis and other tests.</p> <p>■ It collects and analyzes patient information and pathogen data from public health centers, and provides and publishes this information to relevant organizations.</p>
Tokyo Metropolitan Government (Infectious Disease Control Division)	<p>■ In order to prevent the spread of infectious diseases throughout the city, the division collaborates with relevant organizations to gather information, issue alerts (such as press releases), examine response strategies, and develop region-wide infection control measures.</p>



Infectious Disease Surveillance System

- A national system where medical institutions report information on infectious disease occurrences, and relevant organizations share this information.
- Future system updates are expected to include additional functions such as sharing test requests and epidemiological investigation data.

K-net (Tokyo Metropolitan System)

A system for sharing infectious disease information among relevant institutions within Tokyo.

※For details, please refer to the next page.

2 Tokyo Metropolitan Infectious Disease Health Crisis Management Information Network System (K-net)

System Objective

Based on the Infectious Diseases Control Law, the system aims to quickly obtain and share information from epidemiological investigations, proactive epidemiological research, and analysis results. This facilitates the prevention of infectious disease spread by enabling prompt initial response measures (e.g., infectious disease information rapid reporting). Additionally, by sharing infection-specific information that individual institutions retain (such as tuberculosis control measures and mosquito-borne disease control) and the latest knowledge on overseas outbreaks, the system supports appropriate infectious disease countermeasures.

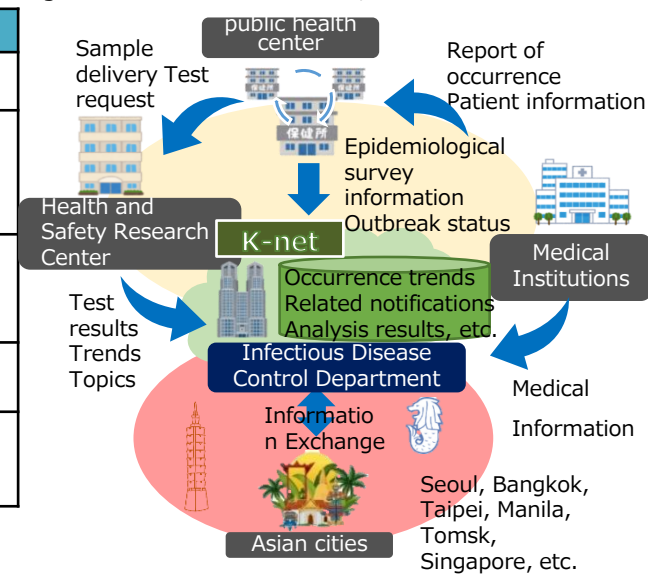
System Overview

※Planned system upgrade in Fiscal Year 2025, followed by system restructuring)

【 Main Users 】

Infectious Disease Control Division, Tokyo Metropolitan Institute of Public Health, Public Health Centers, Designated Medical Institutions, Cities in Asia

Function	System Capability
Opinion Exchange Forum	•Sharing various information, manuals, and topics related to infectious diseases
Rapid medical information capture system	•Centralized collection and sharing of patient information, including medical records •Rapid sharing of test requests and results •Share epidemiological survey information collected by public health centers among public health centers and within the prefecture
Tuberculosis Control System	•Sharing function for tuberculosis countermeasure information such as bacterial test results and information on missing persons
Mosquito-borne infectious disease control system	•Functions for preventing mosquito-borne infectious diseases in Japan, such as plotting and sharing outbreak status
Overseas Infectious Disease Information Forum	•Function to exchange infectious disease information between Asian cities with many imported cases



Current Issues and Directions for Improvement

- Current Issues**
- ① Since no major renovations have been made since the facility was built, it is necessary to respond to new needs in light of the COVID-19 pandemic.
 - ② The information handled is physically and logically distributed, making data organization and analysis a heavy burden.
 - ③ The amount of information handled in infectious disease countermeasures is increasing, and the current aging system environment is making it difficult to keep up.

- Improvement Directions**
- ① Taking into account the needs of public health centers and the perspective of BPR (Business Process Reengineering), efforts will be made to improve current functions and enhance usability.
 - ② By digitizing, centralizing, and streamlining processes, the function for collecting and analyzing infectious disease information will be strengthened.
 - ③ Establish a system infrastructure that allows flexible environment configuration, such as cloud-based solutions (capable of responding to emergencies).

2 Tokyo Metropolitan Infectious Disease Health Crisis Management Information Network System (K-net)

Overseas Infectious Disease Information Forum

As a platform for exchanging infectious disease information with cities in Asia and other regions, K-net includes an Overseas Infectious Disease Information Forum.

Function	Search New Theme Reload	
• Bulletin Board for Sharing Infectious Disease Information	Infectious Disease Report from Member Cities	
	Owner Tokyo [Infectious Disease Control Section, Tokyo] all member	2016/04/13
	Owner Metro Manila [Infectious Disease Control Section, Tokyo] all member	2013/11/28
	Member Taipei [Department of Health ,Taipei City Government] all member	2012/12/20
	Member Singapore [Ministry of Health, Singapore] all member	2006/04/10
	Member Jakarta [Jakarta Provincial Health Department] all member	2006/01/31
	Member Bangkok [Health Department,Bangkok] all member	2006/01/26
	• Archive of Meeting Materials, etc.	Member Delhi [Health Services, Govt. of NCT of Delhi] all member
Member Ha Noi [Ha Noi Department of Health] all member		2006/01/26
Member Kuala Lumpur [Health Department, City Hall Kuala Lumpur] all member		2006/01/26
Member Seoul [Division of Health Policy, Seoul] all member		2006/01/26
• Intercity Email Communication	Member Yangon [Health Department, Yangon (YCDC)] all member	2006/01/26
	Conference Material	

Reload	
Category:Inf	
New message	
Tokyo Infectious Disease Weekly Report (Apr, 2016) Tokyo Infectious Disease Weekly Report (Mar, 2016) Tokyo Infectious Disease Weekly Report (Feb, 2016) Tokyo Infectious Disease Weekly Report (Jan, 2016) Tokyo Infectious Disease Weekly Report (Dec, 2015) Tokyo Infectious Disease Weekly Report (Nov, 2015) Tokyo Infectious Disease Weekly Report (Oct, 2015) Tokyo Infectious Disease Weekly Report (Sep, 2015)	
Reply	Update&delete
E-mail	
The box doesn't update automatically	
Importance :	Normal
Date :	2007/8/1 19:30
Recorder	Infectious Disease Control Section, Tokyo
Title	Tokyo
URL	
E-MAIL	

Contact Information

For inquiries regarding account issuance and other matters, please contact:

Tokyo Metropolitan Government, Bureau of Public Health, Infectious Disease Control Division, Prevention Section

Email: S1150703@section.metro.tokyo.jp

3. Digitalization of Public Health Center Operations : The Case of Tokyo Metropolitan Public Health Centers

1. Current Operations at Tokyo Metropolitan Public Health Centers

- Of the total infectious diseases managed by public health centers (PHCs), **tuberculosis (TB)** has many patients and requires long-term management.
(Treatment: Approx. 6 months, Follow-up: Approx. 2 years)
- The doctor notifies the PHC of the jurisdiction immediately once a diagnosis of TB is given.
The PHC creates a TB Registration Form and manages it.
- PHCs currently **create a TB Registration Form for every patient in paper format.**
⇒Difficulty in sharing information among PHC staffs and transferring data between tasks

<Sample of contents and style of the TB Registration Form>

- Registration date, registration ID
- Address, name, sex, occupation, etc.
- Name and address of the doctor who notified
- Condition, results of drug sensitivity test, medical treatment status
- Administrative measures by PHCs (recommendations, determined public expenses)
- Living environment, etc.

The image displays two sample TB Registration Forms. The left form is a detailed registration form with multiple sections for patient information, medical history, and treatment. The right form is a more concise version, focusing on key details like patient name, address, and medical status.

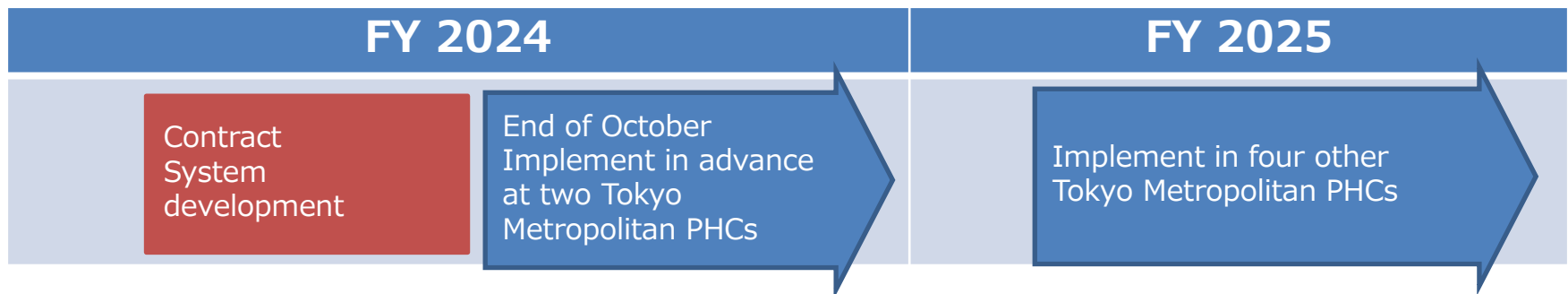
- **Multiple management sheets in Excel, etc., are created for task control.**
(e.g., patient list, register of the health examination of contacts).
⇒Takes time and effort to record the same information repeatedly

3. Digitalization of Public Health Center Operations : The Case of Tokyo Metropolitan Public Health Centers

2. Outline of Tuberculosis Case Management Tool

- Improves and develops the case management tool* implemented in Tokyo Metropolitan PHCs for COVID-19
 - *Implemented a cloud service for building no-code apps from December 2021
- Digitalizes the TB Registration Form and **builds and uses the TB patient and contact case management tool**
 - ⇒ ①Improves efficiency of information sharing and progress management, and **focuses on much more thorough patient support**
 - ②Smoother data transfer between related tasks
 - ③Standardizes TB tasks and makes mutual case transfer easier

3. Schedule



3. Digitalization of Public Health Center Operations : The Case of Tokyo Metropolitan Public Health Centers

Screen Image (for reference)

Patient Information Management App

patient list
follow-up check up patient list

patient's name registration ID

search

clear

	patient's name	registration ID	birth date	age	sex	address	. . .
<input checked="" type="checkbox"/>	新宿 太郎	0 0 1	1998-01-15	26歳	男	府中市1-1-1	
<input checked="" type="checkbox"/>	江戸 花子	0 0 2	1955-04-12	69歳	女	府中市2-2-2	
<input checked="" type="checkbox"/>	東京 一郎	0 0 3	1943-11-19	80歳	男	府中市3-3-3	

Patient Information Management App **【individual form】**

Excel出力 PDF出力

contact list output

registration I D 001 number hospital I D

patient's name 新宿太郎

registration date 2024- registration PHC 多摩府中

basic info

correspon
dence
record

initial
case
report

Epidemiolo
gical
survey

DOTS
assessment

recommen
dations,
determined
public
expenses

hospitaliza
tion/visit
status

progress of
treatment
and
medication
support

X-ray
photograph
diagram/TB
test

review
meeting

follow-up
check up

Patient Information Management App

Outline: Input and update patient information to be recorded on the TB Registration Form.

Display lists and manage PHC's patient support progress efficiently.

Record the patient's data organized by tab according to the TB work flow of PHC.

Output various sheets to file.