CMAAO

Countermeasures against COVID-19 in Japan

Japan Medical Association

Outline of COVID-19 in Japan 1/5

In Japan, the first infected person with a history of staying in Wuhan, China was announced on January 16th.

After the cruise ship Diamond Princess arrived at Yokohama Port on February 3rd, a PCR test was conducted on more than 3,700 passengers and crew members in a hurry.

At that time, the ability to carry out inspections was quite limited, and it was difficult to improve the system.

Since February, the Japan Medical Association has urged the government to "establish a system that enables prompt PCR testing of cases that physicians deem necessary."

By the beginning of June, the system was almost in place, although it was over an extended period of time.

Outline of COVID-19 in Japan 2/5

In Japan, local health centers have played a major role in preventing the spread of tuberculosis. The know-how of epidemiological surveys based on that experience has been accumulated, therefore various infectious disease surveillance systems have been established.

It is thought that these experiences are also utilized in the cluster survey for COVID-19.

Attempts to reach the first source of infection as much as possible by searching the infection route of each infected person retrospectively for the outbreak of clusters are recognized as an extremely effective method to prevent the spread of infection.

We need to continue to do so from the perspective of preventing the expansion from one cluster to a new one.

On the other hand, cluster analysis requires a lot of manpower and work load. It has also been experienced that once the number of newly infected people rapidly increases, the work becomes unfeasible.

Outline of COVID-19 in Japan 3/5

As of February this year, the number of PCR tests that can be performed in Japan was significantly limited. In Japan, various antigen rapid diagnostic kits including influenza have become widespread, and there was little demand for PCR testing to search for pathogens.

For this reason, we focused the tests on outbreaks (clusters) that were suspected to be associated with individual infections, contained the cluster as soon as possible, and focused on preventing clusters from spreading to others.

From the analysis of these clusters, the spread of infection is promoted by satisfying the conditions of the designated “three Cs”, also known as people in “Closed spaces”, “Crowded places” and “Close-contact setting”.

It was promptly established that avoiding this risk would lead to infection prevention.

Moreover, it was revealed that 80% of infected people did not develop secondary infections, nor cause widespread secondary infections like influenza.

Outline of COVID-19 in Japan 4/5

COVID-19 has a large difference in the rate of aggravation depending on age. As a matter of fact, it has been reported that the rate of aggravation increases after the age of 60.

During the period of spread of infection in March and April of this year, nosocomial infections at medical institutions and institutional infections such as facilities for the elderly could not be resolved at an early stage, resulting in severe illness for the elderly and those with underlying diseases.

The number of cases of infection has increased rapidly, and due to the scarcity of hospital beds, the danger of so-called "medical collapse", in which new patients cannot be accepted, is imminent.

On the other hand, after the state of emergency was declared from April 7th to May 25th, the number of newly infected people decreased. However, once the infection spread again, the increase in newly infected people was first seen mainly in the 20s and 30s.

Outline of COVID-19 in Japan 5/5

After that, it gradually expanded to those in their 50s. But so far we have been able to avoid a situation where the number of seriously ill people, mainly the elderly, rapidly increased due to the occurrence of large clusters of nosocomial infections and institutional infections.

Given the recent spread of infection in Europe, it is expected that the demand for a new lifestyle with the Coronavirus will continue for some time to come.

The basics of the new lifestyle are ensuring physical distance between people, disinfecting hands and fingers, wearing appropriate masks, encouraging ventilation indoors, avoiding high-risk “3Cs conditions”, as well as speaking loudly.

Prevention of Novel Coronavirus infection by Counter Cluster Measures 1/2

Features of the Novel Coronavirus

In many cases, infected people rarely infect others.
On the other hand, there were cases in which the infection was suspected to have spread from a specific person to many people, and a small patient cluster (population) occurred in some areas.

Focus of measures=Cluster measures

It is expected that the effect of sending the spread of infection in the future will be great by catching the beginning of the cluster outbreak and taking measures at an early stage.

1. Patient cluster ticketing

Early grasp of outbreaks from doctors' notifications.

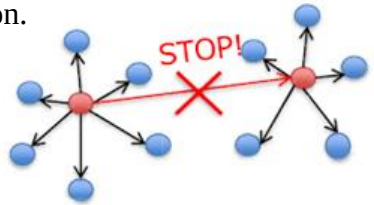
2. Search for infection sources and routes

Conducted an active epidemiological survey and identified the source of infection.

3. Implementation of infection spread prevention measures

Health observation for close contacts, request for refraining from going out, request for closure of related facilities, refraining from events, etc.

How quickly cluster outbreaks can be discovered and linked to specific countermeasures will be the difference between suppressing the spread of infection and converging the situation, or leading to large-scale spread of infection.



If the response is delayed, a chain of clusters (links) will be created, leading to the spread of large-scale infection.

Source: https://www.mhlw.go.jp/content/10906000/000599837.pdf (in Japanese)

Prevention of Novel Coronavirus infection by Counter Cluster Measures 2/2

Challenges for Cluster Measures

Local

In the future, small-scale clusters will sporadically occur, and there is a limit to the response by the local government alone.

1. Expansion of specialized knowledge

Expertise is indispensable for determining the presence or absence of outbreaks and identifying the source of infection based on epidemiological surveys.

2. Expansion of response personnel

It is necessary to invest a large number of personnel in order to carry out active epidemiological surveys, etc. in a short-term intensive manner.

3. Damage to the local economy

It is necessary to minimize the damage to the status commission economy by taking infection prevention measures.

Cooperation

Country

The government will organize cross-ministerial support measures and provide maximum support so that the target local governments can proceed with short-term intensive responses without hesitation when a cluster occurs.

Ministry of Health, Labor and Welfare

Cluster Countermeasure Team Installed on February 25

Researchers at the Institute of Infectious Diseases, Tohoku University, Hokkaido University, etc.

- Go to the area and grasp the situation.
- Cooperation in identifying clusters in the region and implementing cooperation requests
- Data aggregation
- Data analysis, response review, evaluation

Related Ministries

Support measures (example)

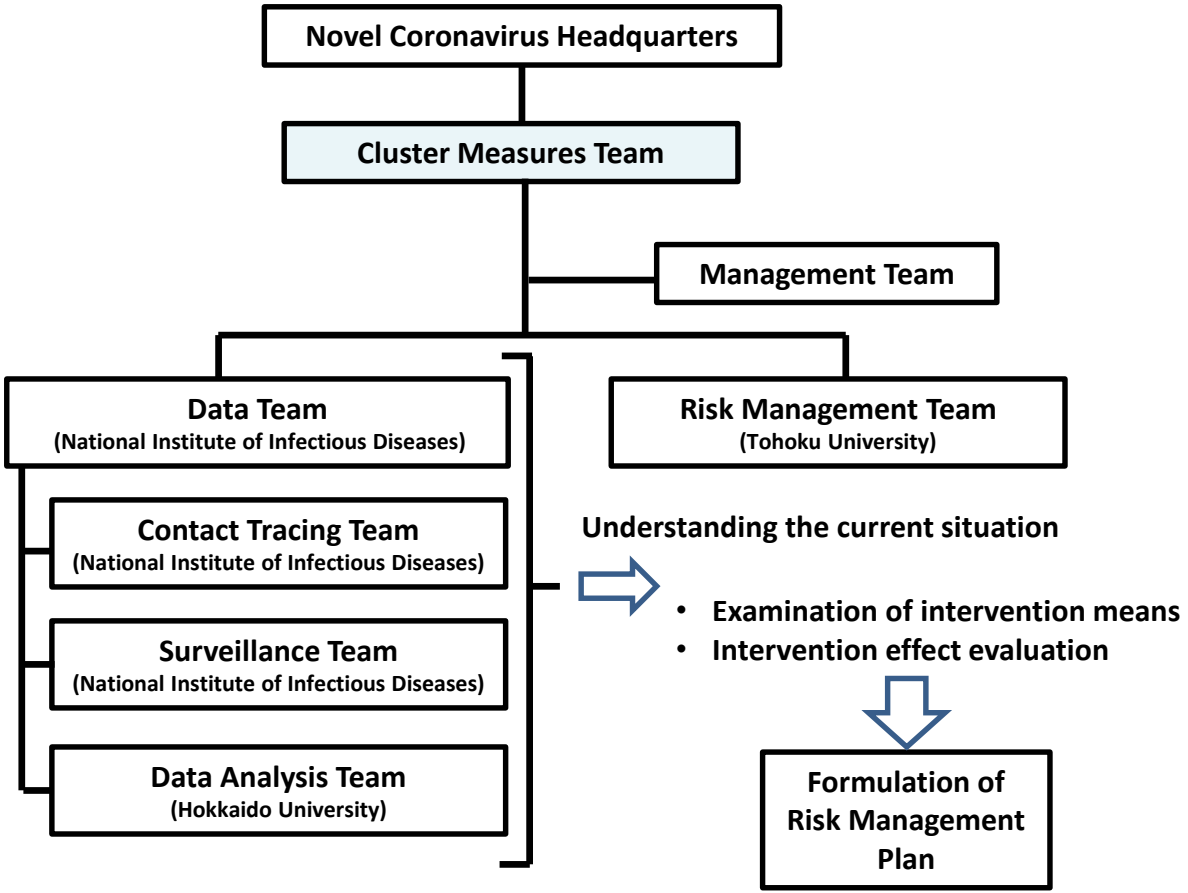
- Cooperation of researchers, etc.
- Local dispatch of national staff
- Examination of support measures for target businesses, etc.
- Promotion of telework, etc.

Future Plan

Cooperate with prefectures where clusters have already occurred and start responding promptly.
While identifying issues, connect them to results and further expand nationwide.

Source: https://www.mhlw.go.jp/content/10906000/000599837.pdf (in Japanese)

Cluster Measures Team



Source: https://www.mhlw.go.jp/content/10906000/000599837.pdf (in Japanese)

Japan's Cluster-based Approach

Counter-cluster measures concern conducting an active epidemiologic al investigation to ascertain the of the cluster of infections and to take measures promptly so that the further spread of infections can be minimized and delayed. In Japan, it is believed that effective counter-cluster measures led to the following results.

(i) **Large-scale spread of infection** caused by **a chain of clusters of patients** was prevented.

(ii) **Common sources of infection** (**the environment of 3Cs – closed spaces, crowded places, and close-contact settings**) were identified through early, proactive epidemiological investigation. By raising awareness of these sources alongside additional factors such as singing and talking loudly, we were able to **effectively deliver a message to citizens about avoiding as much as possible environments where clusters of infected patients (outbreaks) can occur.**

(iii) By tracing the links of each infected person with a focus on clusters, the **epidemic situation in each region was estimated more accurately**. In other words, an increase in the number of "sporadic cases" whose links could not be traced was considered to indicate the spread of infection in a certain region, and this approach **led to the early strengthening of regional measures**.

Source: https://www.mhlw.go.jp/content/10900000/000639224.pdf

Effective Counter-Cluster Measures 1/4

Japan succeeded in detecting new infections and clusters of patients earlier than other countries.

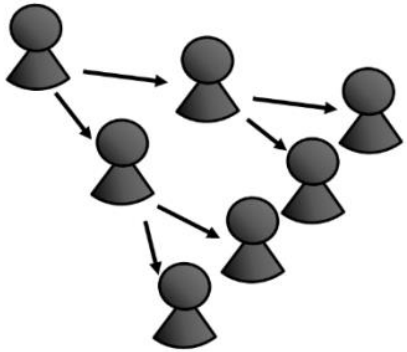
- By gathering these cases, the Expert Meeting recognized from early on that this infectious disease has the characteristic that approximately 80 percent of the people who are confirmed to be infected, regardless of illness severity, do not infect anyone else, and that the characteristics clearly differ from those of the influenza virus, which is transmitted to others by many of those infected.
- In other words, we had the perspective that this infectious disease spreads mainly by forming clusters, and that by suppressing the clusters, the spread of infection could be considerably reduced (**as far as counter-cluster measures are taken**).
- Additionally, analyses of early active epidemiological investigations enabled us to analyze the settings in which clusters are likely to occur, leading to the discovery of **the effective measures of avoiding the "3Cs,**" which other countries did not recognize.

Source: https://www.mhlw.go.jp/content/10900000/000639224.pdf

Characteristics of COVID-19 transmission

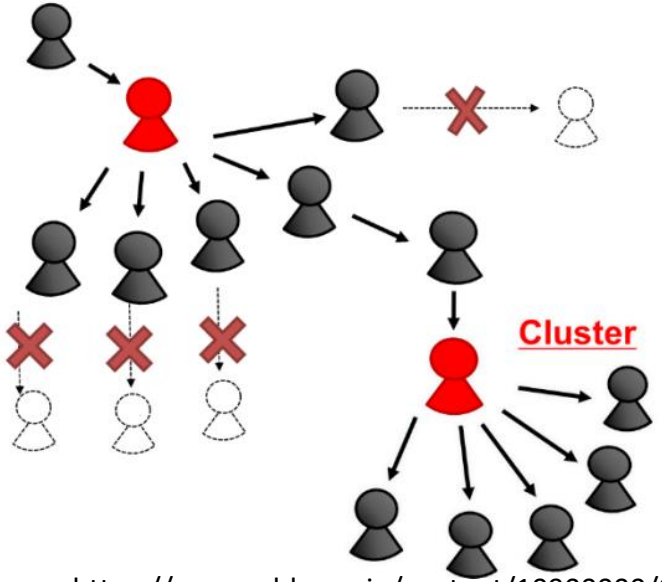
○ Influenza (H1N1 in 2009)

One infected person infects one or more people.



○ COVID-19

Regardless of illness severity, **four out of five (approx. 80%) infected people ( ) do not infect anyone else.**
The remaining one (approx. 20%) infects someone else, and an even smaller minority infects multiple people ( ), leading to the formation of clusters



Source: https://www.mhlw.go.jp/content/10900000/000639224.pdf

Effective Counter-Cluster Measures 2/4

- Contact tracing in other countries is "prospective" tracing, which begins with newly confirmed cases, identifies close contacts, and searches for future infection cases.
- Japan performed such tracing too, but in Japan, based on the characteristics of this infectious disease, especially when multiple infected people have been observed, we additionally focus on identifying common sources of infection. In other words, when infected people were discovered, common sources of infection were identified retrospectively, which led to the early discovery of the concept of the “3Cs” that were common to such sources of infection.
- Additionally, from early on, emphasis was placed on conducting proactive epidemiological investigations thoroughly for those at the common source. Such retrospective tracing was based in part on investigation methods traditionally used by public health centers for tuberculosis patients, etc.

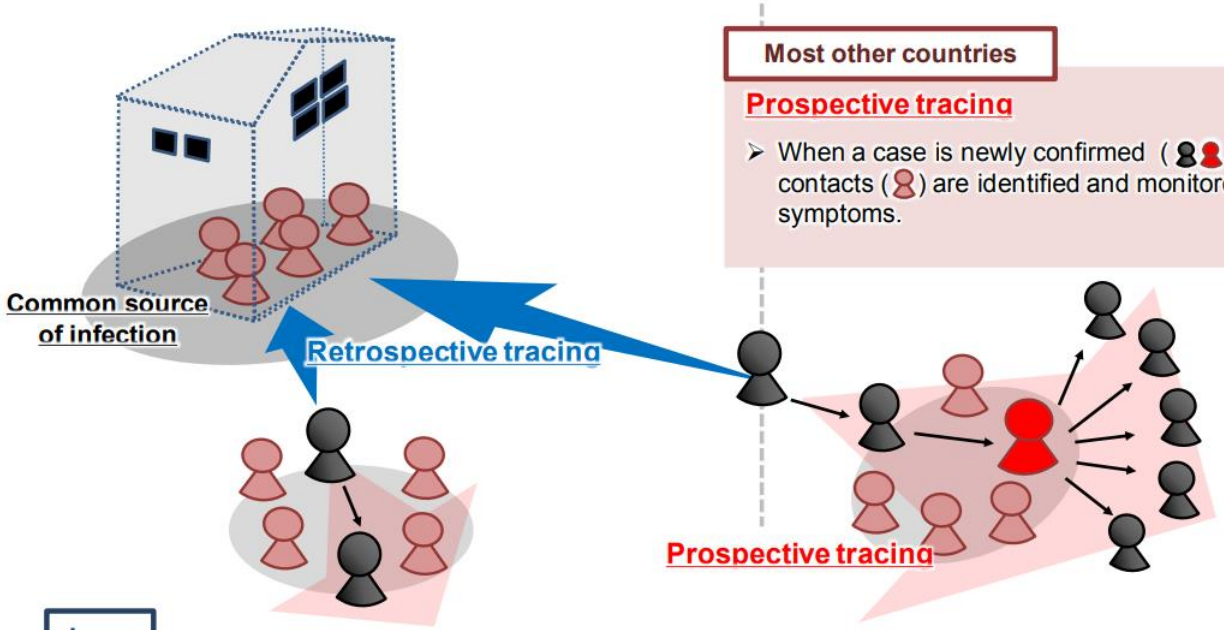
Source: https://www.mhlw.go.jp/content/10900000/000639224.pdf

Effective Counter-Cluster Measures 3/4

- In other words, Japan's measures are characterized by the aim to go back to the source of infection based on retrospective tracing so that the subsequent chains of infection are not missed. As a result, Japan focused on (i) identifying the source of infection early, (ii) identifying those associated with the source of infection early, and consequently (iii) providing medical care early, which (iv) led to making early efforts against the spread of infection.

Source: https://www.mhlw.go.jp/content/10900000/000639224.pdf

Comparison of contact tracing in Japan and in other countries



Japan

Retrospective tracing

- In addition to prospective tracing, based on the "Characteristics of COVID-19 transmission," past activities of multiple infected people ( ) are investigated in order to identify common sources of infection ( ). Close contacts associated with those sources ( ) are then monitored closely to prevent the spread of infection.

Source: https://www.mhlw.go.jp/content/10900000/000639224.pdf

Effective Counter-Cluster Measures 4/4

- In Japan, by tracing the links of each infected person with a focus on clusters, the epidemic situation in each region was estimated more accurately. In other words, an increase in the number of "sporadic cases" whose links could not be traced was considered to indicate the spread of infection in a certain region, and this approach led to the early strengthening of regional measures.

- Meanwhile, based on genetic analysis, the cases that entered from abroad are known to have largely influenced the spread of infection in Japan. Thus, as a result of cases entering from abroad at a larger scale, many sporadic cases occurred in different regions as the second wave from Europe, etc. In the surge of the number of new infections, such sporadic cases whose links could not be traced were also increased rapidly, which made a response based on the declaration of a state of emergency became unavoidable on April 7.

Source: https://www.mhlw.go.jp/content/10900000/000639224.pdf

Important Notice for preventing COVID-19 outbreaks

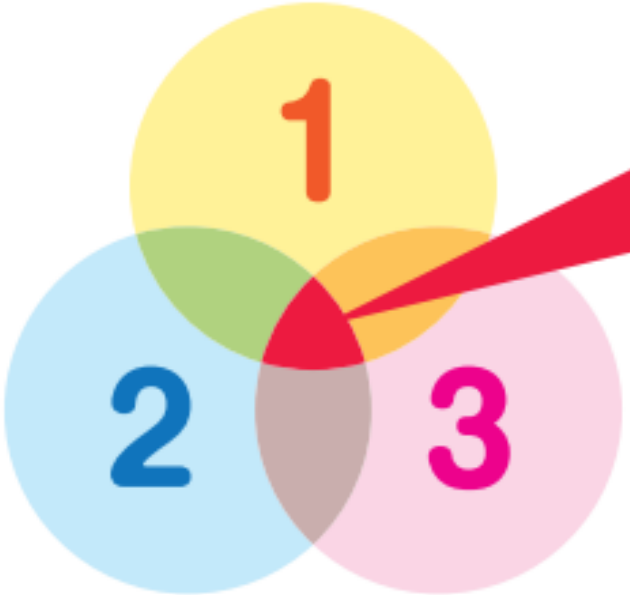
Avoid the "Three Cs"!

1. **Closed spaces** with poor ventilation.
2. **Crowded places** with many people nearby.
3. **Close-contact settings** such as close-range conversations.

Souece: https://www.mhlw.go.jp/content/10900000/000619576.pdf

One of the key measures against COVID-19 is to prevent occurrence of clusters.

Keep these "Three Cs" from overlapping in daily life.



The risk of occurrence of clusters is particularly high when the "Three Cs" overlap!

In addition to the "Three Cs," **items used by multiple people** should be cleaned with disinfectant.

Source: https://www.mhlw.go.jp/content/10900000/000619576.pdf

10 tips for reducing contact by 80%

Under the state of emergency, anyone is at risk of becoming infected or infecting others. Take a look at your everyday life again to protect yourself and people around you from the novel coronavirus.

1 Family reunion via video chat **without visiting hometown**

2 Go to supermarkets alone or **in small groups at less crowded times**

3 Enjoy **jogging** in **small group** in **less crowded parks** at **less crowded times**

4 Do non-urgent **shopping online**

5 Enjoy **drinking** with friends **online**

6 Use **remote medical services**

*regular health checkup should be rescheduled

7 **Use videos at home** for workouts, yoga, etc.

8 Use **takeout or delivery for food**

9 Work **from home**

*The medical, infrastructure and distribution sectors are exception

10 Wear a **mask** when talking

Avoid the Three Cs

1. **Closed spaces** with poor ventilation
2. **Crowded places** with many people
3. **Close-contact settings** involving close-range conversations

Washing hands, coughing etiquette, airing and health monitoring are also important

Source: https://www.mhlw.go.jp/content/en.10tips.pdf


NICHII-KUN
Thank you for your attention.