

Current Issue: COVID-19 and Dietetics**Nutrition Management in a Japanese Acute-Care Hospital during the COVID-19 Pandemic***Keiko Hirose^{1,2}, Thao Phuong Tran^{1,2*}, Shigeru Yamamoto²*¹ *Nutrition Department, Nerima Hikarigaoka Hospital, Nerima City, Tokyo, Japan*² *Jumonji University, Niiza City, Saitama, Japan***Dear Editor:**

Japan, like the rest of the world, is facing a pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Japan has postponed the 2020 Olympics and has declared a state of emergency beginning in April 2020 with about fifteen thousand infected cases, about one third of them in the Tokyo area. The number of deaths as of May 3 is about 500. Many health facilities, especially acute-care hospitals, are becoming overwhelmed. Nerima Hikarigaoka hospital is an acute-care hospital that belongs to the Japan Association for the Development of Community Medicine (JADECOM), with 342 beds located in Nerima Ward, Tokyo. In April 2020, the hospital recorded the first fifty-two coronavirus cases, including both medical staff members and inpatients. The hospital had to temporarily stop receiving outpatients and emergency patients.

Japanese hospitals' food supply system always has to follow the Hazard Analysis and Critical Control Points (HACCP) system. All staff members have to be trained to implement proper procedures. The HACCP system helps to minimize risk when supplying food; especially in the hospital environment there are many risks of disease, so compliance with the HACCP system is critical. COVID-19 is a new type of virus; there is no vaccine or medicine as yet; and it is highly infectious in the community, especially among elderly people and people with poor resistance. Nerima Hikarigaoka hospital's kitchen staff includes mainly elderly people and unfortunately, we early detected one case of a part-time kitchen cleaning staff member with coronavirus; isolation was quickly implemented. Coronavirus anxiety covered workplace is unavoidable. In this situation, the nutrition department immediately had to have a further solution to ensure maintenance of a safe food supply for patients and to prevent spread of the nosocomial infection.

Japan is used to natural disasters such as earthquakes and tsunamis, so nutrition management manuals for these cases are available. However, COVID-19 is new; there is no manual and it is a new

situation for us. Our current experience which is shared below is still being gradually improved and needs to be flexible depending on each hospital's situation. We hope this experience will be useful for other nutrition departments in hospitals in dealing with the pandemic.

1. Human resources

Health check: for dietitians and kitchen workers, besides the usual health check list, we implemented a health check list for symptoms of COVID-19 such as fever, cough, headache, muscle ache, chills, smell disturbance, vomiting in staff members and people who live with them to be followed and reported to the hospital every day. If people have any abnormal symptom, stopping work for inspection and tracking is required.

Teamwork: Dietitians were also divided into two teams to be in the hospital to work in different days, and to implement distancing when communicating. Meetings are conducted online. Kitchen staff also work in shifts and teams. Changing the food supply system will help to reduce the number of kitchen staff members as much as possible to limit possible viral transmission in the members.

2. Hygiene

Almost all viruses (except norovirus) including coronavirus will die at about 80 degrees Celsius. This means that all hygiene activities have to reach at least 80 degrees including sanitation by alcohol, drying tableware, steaming food, etc.

The food supply system in hospitals needs to guarantee the HACCP system. Hospitals must still maintain the HACCP system in this pandemic.

However, because kitchen and medical staff members may be temporarily replaced by new emergency staff who are not familiar with our procedures, we posted reminders that all staff must strictly follow procedures. Below are some examples

*Corresponding Author: tpthao95@gmail.com

Before	After
At entrance of nutrition department	
 <p>Room shoes/slipper slot</p> <p>Outside shoes slot</p> <p>Red line to distinguish safe and dangerous areas</p>	 <p>Safe area: have to change room shoes</p> <p>Red circle: memo to disinfect goods and hands before coming in nutrition department</p> <p>Green circle: Do not use your outside shoes to step into this area</p> <p>Yellow cross line: dangerous area</p>

At food material input gate	
 <p>Alcohol</p> <p>Red line to distinguish safe and dangerous areas</p> <p>Slipper change</p>	 <p>Announcement and more alcohol was set up.</p>

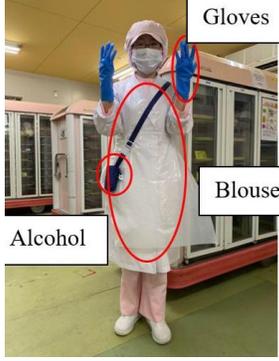
At toilet gate	
 <p>Outside</p> <p>Inside</p> <p>Washing hands</p>	 <p>Remove hat, change clothes, slippers</p> <p>Washing hand with soap and sanitize with alcohol</p>

Announcement for nurses when using hot & cold serving carts to deliver meals for patients	
	 <p>Announcement to change into simpler menus and plastic tableware for pandemic</p> <p>After patients finish meals, please throw all plastic tableware in ward</p> <p>Please disinfection the tray by alcohol and keep them at own ward.</p>

• Dietitian's clothes

When coming to kitchen to check	When supporting cleaning in kitchen
 <p>Hat, mask</p> <p>Gloves</p> <p>Alcohol</p> <p>Room shoes/slipper</p>	 <p>Hand and arm coverings</p> <p>Polythene Aprons</p>

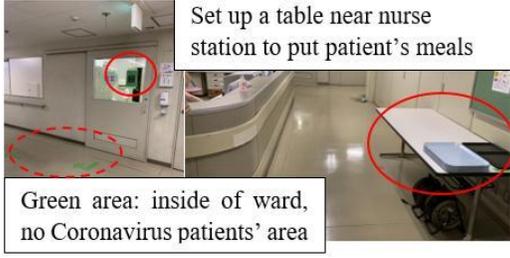
• **Kitchen staff's clothes**

Cooking	Cleaning	Using elevator to transfer meal to ward
 <p>Mask Gloves Cooking Uniform</p>	 <p>Plastic glasses Hand, arm coverings Polythene Aprons Waterproof boots</p>	 <p>Gloves Blouse Alcohol</p>

• **In hospital ward**

Divide into 3 areas: Yellow, Green and Red areas

Food serving carts cannot be in red area (Coronavirus patients' area)

 <p>Yellow area: outside of ward, preparation place to wear protective cloth before entering ward</p>	 <p>Set up a table near nurse station to put patient's meals Green area: inside of ward, no Coronavirus patients' area</p>
 <p>Red area: inside of ward, Coronavirus patient's area</p>	 <p>Deliver food: Change the tray from kitchen tray to ward tray. These ward trays are always kept and sanitized in ward by nurses.</p>

• **Hygiene in nutrition department and kitchen**



Nutrition department:

+ Exchange room air frequently, use plastic separator between work desks

+ Clean shared things such as computer keyboard, printer button, telephone, kettle, door knobs, floor...

frequently with alcohol or hot steam (at least 80 degrees)

+ Always consciously wear mask and wash your hands with the message: "1 Push 1 Action" and "1 Wash 1 Action"

Kitchen:

+ Maintain hygiene according to HACCP system

+ Set up an alcoholic mat before food elevator to transfer serving cart from kitchen to ward. This will help clean shoes of kitchen staff and wheels of serving carts



3. Food supply system

Because of coronavirus anxiety, our hospital decided to change temporarily to an outside food supply system. With this system, the kitchen staff can have more time to rest and maintain psychological stability.

- Change to outside food supply system:
 - + Commercial food stored at room temperature (Pic. 1)
 - + Frozen foods can be stored for some days (Pic. 2)
 - + Outside food center kitchen ships to hospital every day (Pic. 3)
- Change menus: need to change the menus according to outside food supplement companies which have three main meal types including

normal meal, soft meal and mixed meal. All use one-time plastic tableware. (Pic. 4)

Hospital top management had to agree and all medical staff need to know these modified menus before supplying them to patients.

- Change nutrition products for enteral nutrition from paper type to one-time bag type to reduce risk of infection for patients and nurses. (Pic. 5)
- The nutrition software including food orders, doctor orders, etc. also need to be adjusted according to new menus.
- The individual menus paper need to change content (Pic. 6)



Pic. 1



Normal meal

Soft meal

Mixed meal

Pic. 4



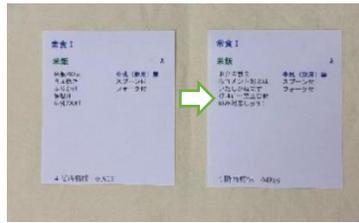
Pic. 2



Pic. 5



Pic. 3



Change from cooked food to food box and use all plastic tableware

Pic. 6

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