

Letter to the Editor**Impact of Changing Foodservice Systems on Japanese Hospital Kitchen Staff's Labor Time During COVID-19 Pandemic**Keiko Hirose^{1,2}, Thao Phuong Tran^{1,2*}, Shigeru Yamamoto²¹ *Nutrition Department, Nerima Hikarigaoka Hospital, Nerima Ward, Tokyo, Japan*² *Jumonji University, Niiza, Saitama, Japan***Dear Editor:**

In March, 2020, the World Health Organization (WHO) declared the outbreak of the coronavirus disease 2019 (COVID-19) “the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-II)”, a global pandemic. By November 1, 2020, there have been about 46 million confirmed cases of COVID-19, including about 1.2 million deaths, reported to WHO. Japan, like the rest of the world, is facing coronavirus. Japan has postponed the 2020 Olympics, and by November 2020 there have been more than 100 thousand coronavirus cases and about 1800 deaths. Many health facilities, especially acute-care hospitals, are becoming overwhelmed.

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 infectious disease, so compliance with the HACCP system is critical. COVID-19 is a new, complicated 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. The hospital's kitchen staff includes mainly elderly people and unfortunately, one case of a part-time kitchen cleaning staff member with coronavirus was detected early; isolation was quickly implemented. Coronavirus anxiety throughout the workplace was unavoidable and many kitchen staff members suddenly wanted to take time off. The traditional cook-serve system is a served soon after cooking system so it requires a stable labor resource to serve patients breakfast, lunch, and dinner on time. Therefore, a lack of labor resources became a serious problem.

In this situation, the nutrition department immediately had to implement a further solution to ensure maintenance of a safe food service for patients, to

stabilize employees psychologically and to prevent spread of the nosocomial infection. The solution of the nutrition department at that time was changing temporarily from the traditional cook-serve system to a centralized foodservice system (food boxes were transported to satellites (receiving hospital's kitchen) one time per day). The HACCP system is still being maintained during the pandemic. This was the first time for us and it is a very rare situation to change the food supply system like this in Japanese hospitals.

When the pandemic occurred, all tableware except the trays of hot & cold serving carts were changed to disposable tableware so we would like to summarize the traditional cook-serve system and the outside food supply system in figure 1. With the traditional cook-serve system, all procedures are implemented in the hospital kitchen, from inputting and checking materials to serving meal for patients. The outside food supply system which replaced cook-serve at this time is a system which uses a centralized kitchen, from inputting and checking materials to putting food in tableware (packaging). After this, a serving car/truck with suitable storage temperature is used to transport meals to the hospital's kitchen. At the kitchen, the food is reheated, placed on serving trays and served to patients.

The menus of the centralized kitchen (one-month cycle menu) were designed with high quality food materials and suitable for the chilling and reheating process to maintain food quality. Dietitians needed to test the taste and quality of the food before deciding to serve it to patients. Because the centralized kitchen's menus have normal nutrition content, dietitians needed to adjust food amounts appropriately depending on disease, allergies, etc...

Comparison of the hospital kitchen shift times of the two food service systems is indicated in figure 2. To supply about 200 patients per day, compared with the traditional cook-serve system, by using a centralized foodservice kitchen staff members and labor hours were reduced by one-third. Therefore, this can be a timely

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solution for dietitians to choose in an emergency situation, and the business contract between a foodservice company and a hospital to cover such a situation should be considered beforehand. In addition, the frequency of inputting in material can be reduced from many times per day as in the traditional system to just a few. This could help to reduce the risk of infection.

Based on this experience, changing the foodservice system in a hospital can be a worthwhile solution to deal with emergency situations such as the COVID-19 pandemic.

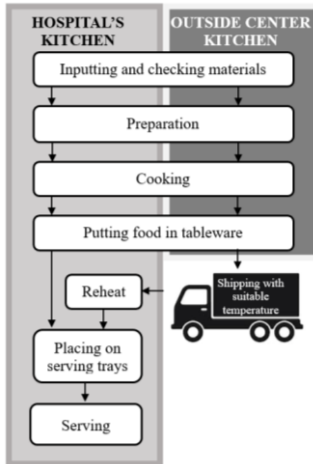


Figure 1. Food service systems

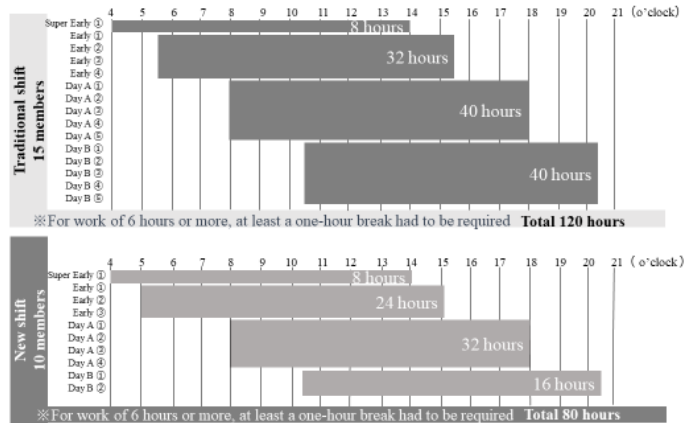


Figure 2. Comparison of the hospital kitchen shift times of the two food service systems (supply about 200 patients)

ACKNOWLEDGEMENT

The authors would like to thank other members of the nutrition department, medical staff and kitchen staff who have continued to work at Nerima Hikarigaoka Hospital during the pandemic. The corresponding author would like to express gratitude to Jumonji University, and to the Otsuka Toshimi Scholarship Foundation for financial support to study in a PhD program in Japan. Finally, we also would like to thank Andrew Durkin, Prof. Emeritus of Indiana University, for editing our English.