COVID-19 and health care system

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Background

- With the rapid increase in the number of COVID-19 cases, how to treat COVID-19 patients with limited medical resources while continuing to treat diseases other than COVID-19 was a critical issue for each country.
- Particularly, the reorganization of hospital beds in medical institutions and securing medical personnel who can engage in the treatment of COVID-19 patients were important.
- However, since the underlying healthcare delivery systems in each country differed greatly, there was no unified method for reorganizing hospital beds and allocating human resources, and each country responded in its own way.
- In this study, we will investigate and summarize such cases in each country to provide information not only for the ongoing COVID-19 response but also for preparing for future pandemics.

Method

- From June 2021 to the present, a questionnaire was used to determine how health care delivery systems were improved during the COVID-19. The survey consisted of about 40 items. The countries covered were as follows.
  - G7 (Japan, France, Germany, Italy, Canada, the United States, and the United Kingdom), South Korea, Taiwan, and Australia.
- Although the survey was conducted in June 2021, each country was asked to describe notable efforts from the beginning of 2020 to the present, focusing on the period when the epidemic had the greatest impact in their country.
- The survey is still in progress (some responses are not yet available), and the information presented here today is only as of December 2021.

Number of hospital beds

(/1,000 population)

	Year	Total	Curative care	Rehabilitative care	Long-term care	Other hospital beds	Psychiatric care
Canada	2019	2.5	2.0	0.1	0.4	0.0	0.4
France	2018	5.9	3.0	1.6	0.5	0.8	0.8
Germany	2017	8.0	6.0	2.0	0.0	0.0	1.3
Italy	2018	3.1	2.6	0.4	0.1	0.0	0.1
Japan	2018	13.0	7.8		2.6	2.6	2.6
UK	2019	2.5					0.4
USA	2017	2.9	2.5	0.1	0.2	0.1	0.3

(Source: OECD, latest available)

Number of human resources and ICU beds

	ICU bed (/100,000)	Physician (/1,000)	Nurse (/1,000)
France	11.6	3.1	10.2
Germany	29.2	4.2	12.9
Italy	12.5		
Japan	4.3	2.4	11.3
UK	6.6	2.8	7.9
USA	34.7	2.6	11.6

Source: OECD for physician and nurse(latest available year),
David et al, for the ICU beds in USA
Rhodes et al for the ICU beds in France, Germany, Italy, UK
The Japanese society of intensive care medicine for the ICU beds in Japan

Methods that have been used to reorganize hospital beds

- Reorganized general hospital beds into infectious disease beds
- Establish additional temporary hospital beds
- Transferring patients to medical institutions that treat non-infectious diseases, including an additional contract with private care facilities

Methods that were introduced to reallocate medical personnel

- Introduction of doctors from other departments/specialties
- Introduction of retired or currently on leave doctors
- Dispatch of doctors from different prefectures (states)
- Acceptance of doctors from overseas
- Introduction of medical students
- Task shifting (e.g., temporarily allowing other professions to perform medical procedures that were originally only allowed for doctors)

Support provided to enable reallocation of medical personnel

- Financial support
  - In Italy, in addition to the basic salary, an additional EUR 200 per day is paid.
- Provision of training opportunities
  - Training may be provided at individual facilities, or guidelines may be established by the Ministry of Health
- Policy/legislation change

Remaining issues regarding reallocation of human resources

- Quality assessment/Quality of care provided
- Responsibility
- Burnout (mental health)

Key lessons

- Preparation, including advance planning, is necessary. At the same time, how much can we switch to "crisis mode"? In many countries, the early cases of China were seen as a fire on the other side of the world.
- There is no uniformity even within a country.
  - Identification of vulnerable groups: In the case of COVID-19, it was elderly, but in other pandemics, the elderly are not necessarily the most vulnerable.
  - Identification of regional characteristics
- Cooperation during normal times and flexible system change during crisis
  - The central government and local government
  - Division of roles within the region (e.g., from core hospitals to clinics, and between public and private medical institutions)
- Utilization of technology
  - Technology will play an especially important role in a pandemic, including the assessment of epidemiological situation and the enhancement of online medical services (to avoid human contact).