

〔資料〕

本学学生の新型コロナウイルス感染状況：3年間の記録 — 高いワクチン接種率とクラスターの回避 —

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COVID-19 among students at a nursing college: a three-year overview: High vaccination coverage and avoidance of clusters

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要旨：2020年4月1日から2023年5月7日までの期間における本学（日本赤十字秋田看護大学・日本赤十字秋田短期大学）学生の新型コロナウイルス感染症の新規陽性者数とワクチン接種率を報告する。この期間の新規陽性者は2021年4月の初発から2023年2月まで、計105人だった。このうち、全国的な流行の第6波までの2022年6月30日以前は12人、第7波からの同年7月1日以降は93人だった。同年7月31日の時点で在籍学生のワクチン3回接種率は89.1%だった。期間を通じて、本学内を感染源とする5人以上のクラスターの発生はなかった。本学で第6波以前の感染者が少数にとどまったことと第7波以降の大流行期もクラスター発生に至らなかったことの背景に、高いワクチン接種率と感染状況に応じた最大限の感染予防策の奏効があったと考える。

キーワード：新型コロナウイルス感染症、ワクチン接種率、看護学科、介護福祉学科、クラスター

Abstract： This report describes the number of new cases of coronavirus disease 2019 (COVID-19) and the vaccination coverage among students at our college, Japanese Red Cross Akita College of Nursing and Japanese Red Cross Junior College of Akita, between April 1, 2020, and May 7, 2023. A total of 105 new cases were recorded between April 2021, when the first case was confirmed, and February 2023. Of these, 12 were confirmed before June 30, 2022, before the seventh wave of the nationwide epidemic and 93 were confirmed after July 1, 2022, after the start of the seventh wave. By July 31, 2022, 89.1% of the enrolled students had received three doses of the vaccine. Throughout the period, there were no infection clusters of five or more people whose infection source was within the college. As the number of cases at our college before the seventh wave remained small, and no clusters were detected during the entire study period, the high vaccination coverage and infection prevention measures tailored to various infection statuses appear to have been effective at preventing transmission among college students.

Keywords： COVID-19, vaccination rate, department of nursing, department of care and welfare, infection clusters

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Introduction

Coronavirus disease 2019 (COVID-19) has continued to spread since the first case was confirmed in Japan in January 2020. In April 2020, a nationwide emergency was declared, which had a marked impact on educational institutions, including our college. Although the infection is still spreading, given that the number of new cases has continued to decrease, and the need to normalize social life, which significantly deteriorated during the pandemic period, on May 8, 2023, the Ministry of Health, Labour and Welfare repealed the Infectious Disease Control Law and reclassified COVID-19 as a “Category 5 infectious disease” (Minister of Health, Labour and Welfare, 2023).

This report describes the number of newly confirmed cases of COVID-19 (new cases) and the vaccination coverage among students at our college from the start of the pandemic to May 7, 2023.

Methods

This study included the Japanese Red Cross Akita College of Nursing and the Japanese Red Cross Junior College of Akita. The subjects were students enrolled in the Japanese Red Cross Akita College of Nursing, Department of Nursing, from 2017 to 2023, or the Japanese Red Cross Junior College of Akita, Department of Care and Welfare, from 2019 to 2023, and the period of study was from April 1, 2020 to May 7, 2023.

The data collected from new cases were the date of diagnosis and the number of vaccine doses prior to infection, and no personally identifiable information, such as name, age or department of affiliation were included. The number of new cases and vaccination coverage were reported to the College Health Administration Committee. The number of new cases was based on the results of student notifications compiled by the College Crisis Response Headquarters for COVID-19 Infections, established by the President. The vaccination coverage was determined through a survey on the vaccination history of various groups and of individual vaccinations, conducted by the School Affairs section and the infirmary. Infection was confirmed by either an antigen test (qualitative or quantitative) or a nucleic acid detection test (polymerase chain reaction) performed at the medical facility or testing institution where the patients were examined (Clinical Guidance Review Committee, 2023).

Results

During the three-year period from April 1, 2020, to May 7, 2023, the first COVID-19 case among our students was detected in April 2021, and by February 2023 the cumulative number of cases reached 105 (in 104 students, including one student who was infected twice). Figure 1 shows the temporal changes in the number of students at our college and the nationwide number of new cases (Ministry of Health, Labour and Welfare, 2023). The number of college students in each academic year was 468 in 2020, 474 in 2021, 477 in 2022, and 467 in 2023, and the total number of students enrolled during the study period was 848.

Using the opportunity for healthcare workers to receive occupational vaccinations, the first and second COVID-19 vaccination campaigns for students were conducted from May to November 2021, and the third vaccination campaign was conducted from February to May 2022. Of the 477 students enrolled on July 31, 2022, 425 (89.1%) were vaccinated three times, 28 (5.9%) were vaccinated twice, and 24 (5.0%) remained unvaccinated (Table 1).

Twelve cases were reported during the first six waves of the epidemic (from April 2020 until June 30, 2022), and 93 new cases were reported since the start of the seventh wave (from July 2022 to May 2023). Regarding the vaccination status at the time that each case was detected, of the 12 students with infection reported before the end of the sixth wave, six (50%) had received three

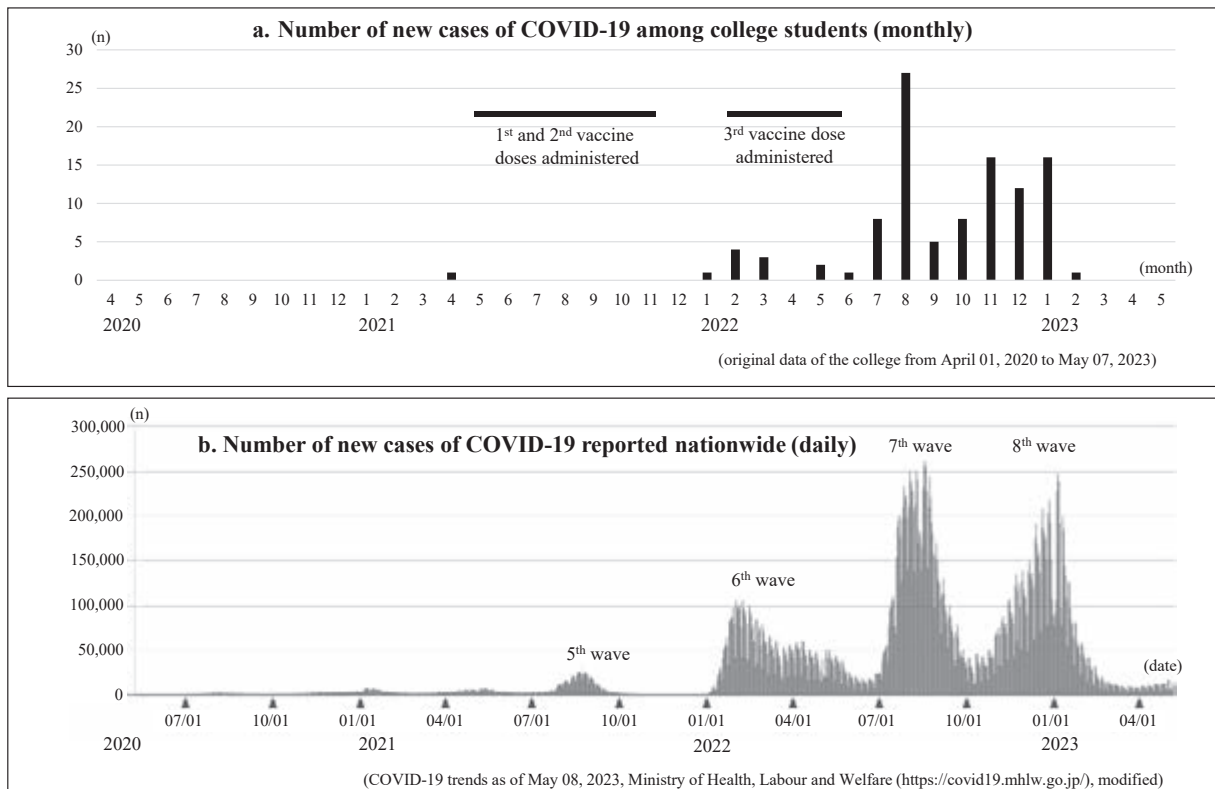


Figure 1. COVID-19 trend in the number of newly confirmed cases (a: college students. b: nationwide survey.)

Table 1. Three-dose vaccination coverage (as of July 31,2022)

area	Nationwide		Akita prefecture	The college
	12-19	20-29	20-29	All ages*
Age group (years)	12-19	20-29	20-29	All ages*
Coverage** (%)	34.3	48.0	61.3	89.1

* Age distribution of the college students: 18-19 years: 225 (47.2%), 20-29 years: 248 (52.0%), and 30 years or more: 4 (0.8%)

** The percentage of the vaccinated population was calculated using the Basic Resident Registration data or the number of college students (477).

Table 2. Number of vaccine doses received prior to infection among college students with confirmed COVID-19

Vaccine doses	3	2	1	0	Total
1 st to 6 th waves (n) (April 01, 2020-June 30, 2022)	6	4	1	1	12
7 th and 8 th waves (n) (July 01, 2022-May 07, 2023)	84	5	0	4	93

doses, four (33.3%) had received two doses, one (8.3%) had received one dose of vaccine, and one (8.3%) was unvaccinated. Of the cases reported among students since the start of the seventh wave, 84 (90.3%) had received three doses and five (5.4%) had received two doses of vaccine, and four were unvaccinated (4.3%) (Table 2).

No clusters of infection (more than five people in the same place) were reported within the college during the entire study period.

Discussion

During the three-year study period, people throughout Japan suffered greatly because of COVID-19 prevention measures. At our college, we were forced to move classes online, make major changes to practical training schedules and content, and cancel or reduce ceremonies and events. Students studying to become nurses or caregivers in the near future took thorough preventive measures against infection on a daily basis and the vast majority were vaccinated as recommended.

According to a government announcement in August 2022 (Prime Minister's Office of Japan, 2022), by July 2022, when the seventh wave started, the three-dose vaccination coverage was more than 60% of the total population; whereas, it was obviously lower in younger individuals: 34.3% in those aged 12–19 years and 48.0% in those aged 20–29 years. In contrast, the vaccination coverage of people aged 20–29 years in Akita Prefecture was 61.3%, which was the highest nationwide (Akita Sakigake Shimpo Electronic Version, 2022). Nevertheless, the three-dose vaccination coverage of our college students, who were vaccinated in vaccination campaigns targeting medical workers and professionals, far exceeded that of others in the same age group and was extremely high (89.1%) during the same period. This enabled almost all students to be fully vaccinated, except for those who discontinued vaccination for health reasons. We speculate that the extremely low incidence of COVID-19 among students at our college during the first six waves is attributable to the high vaccination coverage, starting soon after vaccines became available.

Thereafter, the seventh wave that started in July 2022 and the eighth wave that followed in October 2022 spread to a degree far surpassing that of the previous waves, and the number of new cases at our college rapidly increased. This increase occurred irrespective of the number of previous vaccinations, and most cases were among students who had been vaccinated thrice. However, although infection clusters occurred one after another at educational institutions, including universities in Akita City and within the prefecture, it is notable that no infection clusters have been reported at our college. In the face of an epidemic that could not be prevented solely by high vaccination rates, our college was able to respond appropriately by immediately changing the schedule and format of classes and training. The adaptability of the students who understood the situation but continued with their daily studies while maintaining a sense of urgency, is commendable.

COVID-19 has now entered a more persistent phase, and medical and care workers must always be on the frontlines to face the threat of other infectious diseases, including seasonal influenza, as well as unknown emerging infectious diseases. The hardships and efforts faced by the college students during the COVID-19 pandemic serves as an example and inspiration for preparing for future epidemics.

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Conflict of Interest

There are no conflicts of interest to disclose regarding this article.

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