

# Clarifying Problems with Emergency Healthcare Systems in Japanese Long-Term Care Facilities for Older People

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## Abstract

**Background:** Long-term care facilities for older people play an important role as alternatives to family care in an aging society. This study aimed to assess staffing problems linked to emergency healthcare for residents of these facilities, and to investigate the relationship between these problems and the characteristics of the facilities. **Methods:** The study surveyed managers of long-term care facilities for older people in a Japanese urban area between September and December 2014. The type of care facility, the number of staff and any problems providing or accessing emergency healthcare for the residents were evaluated. Multiple logistic regression analysis was used to explore the factors common to facilities reporting staffing problems linked to emergency healthcare of residents. **Results:** In total, 321 long-term care facilities were eligible for this study and 226 (70%) returned the questionnaire. We compared the characteristics of facilities reporting and not reporting staffing problems in emergency healthcare of residents. The type of care facility was significantly associated with staffing problems in emergency healthcare of residents both during the day ( $p < 0.01$ ) and at night ( $p = 0.04$ ). The facilities most likely to report problems were group homes for older people with dementia, because of staffing shortages. **Conclusions:** Problems in emergency healthcare systems in Japanese long-term care facilities for older people varied by type of care facility. Our data underscore the need for telemedicine and consideration of mergers between smaller facilities such as group homes for older people with dementia.

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## Keywords

Older People, Emergency Healthcare System, Japan, Long-Term Care, Staffing Problems

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## 1. Introduction

Population aging is a major concern in many industrialized countries, and Japan is the most rapidly aging country in the world [1] [2]. In most developed countries, almost one third of the population will be older than 60 years by 2050 and increased long-term care (LTC) services are needed [3]. Although the definitions of nursing home vary internationally, LTC facilities for older people are often used in place of family care in an aging society [4] [5]. The Japanese government has reported that the number of people using public LTC facilities has dramatically increased, from 520,000 in 2000 to 890,000 in 2014, an increase of 71% [6]. The government has addressed this issue by providing different types of LTC facilities, including public and private. **Table 1** shows the types of LTC facilities available in Japan. A public long-term care insurance (LTCI) system was introduced in April 2000 [7]. Care services under the LTCI program cover home services and residential services. Residential services include sanatorium-type medical facilities for older people needing LTC, intensive care homes for older people, and LTC health facilities. The national government added group homes for older people with dementia to the LTCI program in 2006. To receive LTCI services, insured older people must be certified as needing LTC. The requirement for LTC is classified into seven care-needs levels [2].

LTC residents have been found to make frequent visits to the emergency department and be more likely to be admitted to hospital [8] [9]. Studies have demonstrated that several interventions including palliative care service delivery or geriatric specialist services reduce hospital admissions from nursing homes in the United States and European countries [10]. However, hospital admission and use of emergency departments for LTC residents are likely to increase in Japan, because there are problems with emergency healthcare systems in LTC facilities for older people. First, the Japanese government does not require full-time attendance of medical staff (nurses or physicians) in most types of care facility (see **Table 2**). Care workers in Japan must therefore usually take residents to a clinic or hospital if they need emergency healthcare. Care workers cannot provide medical care, although nurses can provide a range of treatments such as oxygenation or withdrawal of urine. Second, although care facilities often have a formal collaboration arrangement with a particular hospital or clinic, hospitals are not obliged to accept admissions of residents and most clinics are closed at night and during holiday periods. Third, the concept of living wills and advance directives by the patient are generally less accepted in Japan than the United States or European countries [11].

**Table 1.** Types of long-term care facilities in Japan.

Long-term care facilities [24]	Type of facility	Characteristics	Similar foreign facility
<i>Sanatorium medical facility for older people needing long-term care</i>	Public	Medical long-term care facilities	Geriatric hospital [5]
<i>Intensive care home for older people</i>	Public	Permanent residence for older people	Care home in the United States [4]
<i>Long-term care health facilities</i>	Public	Intermediate between facilities providing mainly medical and mainly residential care; these have a varied mix of care types	Nursing home in the United States [4]
<i>Fee-based home for older people</i>	Private	A private long-term care facility for older people. The service provided varies between facilities	Private nursing home in the United Kingdom
<i>Group home for older people with dementia</i>	Public	Small-scale, homelike facilities	Group living in Sweden [25]
<i>Short-term admission facilities</i>	Both	Provide residential services for up to 30 consecutive days	
<i>Care facility for older people</i>	Public (residents do not need long-term care insurance)	Long-term care facilities; managed by municipalities	

**Table 2.** Details of staffing and residents in long-term care facilities in Japan.

Long-term care facilities	Resident	Care worker*	Nurse	Physician
<i>Sanatorium medical facility for older people needing long-term care</i>	Older people requiring substantial medical and long-term care	One per six residents	At all times, one per six residents	Where there are three or more residents; at least 48:1
<i>Intensive care home for older people</i>	Older people who are stable but require regular nursing care	One (including nurse) per three residents	One for up to 30 residents, two for 31 to 50, three for 51 to 130 residents	As required (can be part-time)
<i>Long-term care health facilities</i>	Older people who require minimal care and rehabilitation	Five per 21 residents	Nine nurses per 100 residents [26]	One or more full-time; at least 100:1
<i>Fee-based home for older people</i>	Any older people	One (including nurse) per three residents	One per about 30 residents	Not required
<i>Group home for older people with dementia</i>	Older people with mild to moderate dementia	One per three residents (more than one at night)	Not required [27]	Not required [27]
<i>Short-term admission facilities</i>	Any older people with care needs level 1 to 5	One (including nurse) per three residents	Not required	Can be part-time
<i>Care facility for older people</i>	Older people with financial difficulties	One per 15 residents	One per 100 residents	As required (can be part-time)

\*The term “care worker” does not include nurses.

The purpose of this study was to assess problems encountered in LTC facilities when residents need emergency healthcare. We also aimed to investigate environmental factors associated with staffing problems in LTC facilities linked to emergency healthcare of residents (e.g. the type of care facility, number of the residents and number of the staff). The survey location was a typical urban city in Japan, so the study may help other countries to avoid problems in LTC

facilities in the future.

## 2. Methods

### 2.1. Study Design and Participants

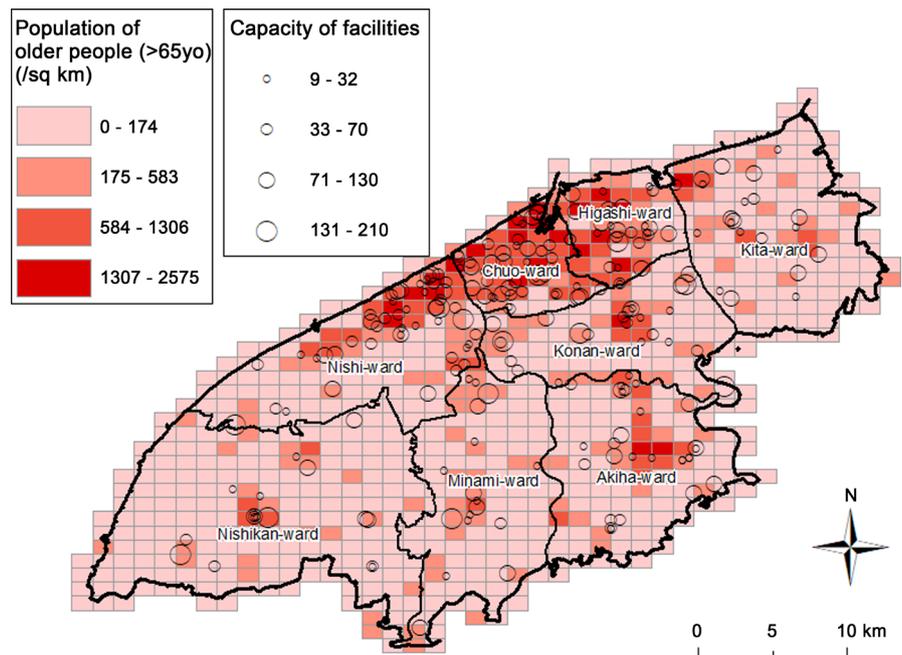
The study took place in Niigata City, on the northwest coast of Japan, which has a population of 800,000 people. The percentage of residents aged 65 years or older was 22.9% in 2012, which is similar to the rest of Japan [12].

The operational sample ( $n = 321$ ) consisted of all LTC facilities in Niigata City except sanatorium-type medical facilities for older people requiring LTC. These were excluded because they are effectively hospital-type facilities with physicians on site. **Figure 1** shows the location of LTC facilities and the density of the population of older people in Niigata City. Facilities included 74 intensive care homes for older people, 36 LTC health facilities, 45 fee-based homes for older people, 48 group homes for older people with dementia, and 118 facilities offering short-term admission facilities.

An original questionnaire was developed using information from previous surveys in Japan (a copy of the questionnaire is in the **Appendix**) [13]. It was pilot-tested on two LTC facility managers in Niigata to clarify the wording of the questions and to provide appropriate answer categories. The final version of the questionnaire was mailed to LTC facility managers, and returned by post after self-completion between September and December 2014.

### 2.2. Measures

The questions included type of care facility, number of residents, care workers,



**Figure 1.** Geographic information system maps showing the capacity of 321 long-term care facilities for older people and the population of older people in Niigata City in 2010.

nurses, and physicians. The number of residents was classified into three groups: 1 to 10, 11 to 50, and over 51. The term “care worker” did not include nurses. Problems linked to medical emergencies among residents were recorded by time of day or night. They included perceived staffing shortages among care workers and nurses, lack of cooperation with the collaborating hospital’s acute care services, absence of living wills or “do not resuscitate” orders and difficulties with decisions about referrals to acute medical care.

We compared characteristics between facilities reporting problems with emergency healthcare of residents, both during the day and at night, and those that did not do so.

### 2.3. Ethical Considerations

This study was approved by the institutional ethics review board of Niigata City General Hospital and conducted in accordance with the Declaration of Helsinki. Informed consent was obtained from all participants with the administration of the survey. Participation in this survey was voluntary, and confidentiality was maintained throughout the study.

### 2.4. Statistical Analysis

Descriptive statistics were used to summarize the data. Continuous data with skewed distributions were shown as median and interquartile range (IQR), and categorical data as proportions. The proportions among several categories of discrete variables were compared using Pearson’s chi-squared test or Fisher’s exact test.

Given the dichotomous outcome, multiple logistic regression analysis with stepwise regression was used to explore the factors significantly associated with problems linked to emergency healthcare of residents. Candidate independent variables included the type of care facility, the proportion of residents per care worker, the proportion of residents per nurse, and number of physicians. All statistical tests were two-sided. We considered a *p* value of less than 0.05 to be statistically significant. Data analysis was performed using SPSS, version 23.0 (IBM Corporation, Armonk, NY, USA).

## 3. Results

### 3.1. Characteristics of Facilities

A response rate of 70.4% was obtained, with 226 facilities returning the questionnaire. A further 95 facilities did not respond. Twelve facilities were excluded because of problems with information on the number of residents, nurses or physicians. **Table 3** shows the characteristics of the remaining 214 facilities. LTC health facilities and intensive care homes for older people had more residents than other care facilities. Full-time physicians were present in 56 facilities (26.2%). Only one group home for older people with dementia and two fee-based homes for older people had full-time physicians, compared with all LTC health facilities.

**Table 3.** Characteristics of study facilities.

Variables	Total	Type of care facility*				
		Intensive care home for older people	Long-term care health facilities	Fee-based home for older people	Group home for older people with dementia	Short-term admission facilities
	<b>n = 214</b>	<b>n = 44</b>	<b>n = 29</b>	<b>n = 35</b>	<b>n = 41</b>	<b>n = 65</b>
<b>Number of residents*</b>						
1 to 10	40 (18.7)	0 (0)	0 (0)	3 (8.6)	26 (63.4)	11 (16.9)
11 to 50	112 (52.3)	17 (38.6)	1 (3.4)	26 (74.3)	15 (36.6)	53 (81.6)
51 or more	62 (29.0)	27 (61.4)	<b>28 (96.6)</b>	6 (17.1)	0 (0)	1 (1.5)
<b>Number of physicians</b>						
None	158 (73.8)	30 (68.2)	<b>0 (0)</b>	33 (94.2)	40 (97.6)	55 (84.6)
2 or fewer	49 (22.9)	11 (25.0)	28 (96.6)	1 (2.9)	1 (2.4)	8 (12.3)
More than 2	7 (3.3)	3 (6.8)	1 (3.4)	1 (2.9)	0 (0)	2 (3.1)
<b>Number of residents per care worker during the day**</b>						
3 or fewer	57 (26.6)	8 (18.2)	0 (0)	4 (11.4)	30 (73.2)	15 (23.1)
Between 3 and 5	73 (34.1)	21 (47.7)	1 (3.4)	11 (31.4)	6 (14.6)	34 (52.3)
More than 5	84 (39.3)	15 (34.1)	28 (96.6)	20 (57.2)	5 (12.2)	16 (24.6)
<b>Number of residents per nurse during the day</b>						
None	39 (18.2)	0 (0)	0 (0)	8 (22.9)	28 (68.3)	3 (4.6)
20 or fewer	107 (50.0)	20 (45.5)	23 (79.3)	13 (37.1)	2 (4.9)	49 (75.4)
More than 20	68 (31.8)	24 (54.5)	6 (20.7)	14 (40.0)	11 (26.8)	13 (20.0)
<b>Number of residents per care worker at night**</b>						
10 or fewer	71 (33.2)	7 (15.9)	0 (0)	3 (8.6)	37 (90.3)	24 (36.9)
Between 10 and 20	84 (39.3)	24 (54.6)	4 (13.8)	15 (42.9)	3 (7.3)	38 (58.5)
More than 20	59 (27.6)	13 (29.5)	25 (86.2)	17 (48.6)	1 (2.4)	3 (4.6)
<b>Number of residents per nurse at night</b>						
None	177 (82.7)	43 (97.7)	2 (6.9)	31 (88.6)	39 (95.2)	62 (95.4)
50 or fewer	6 (2.8)	0 (0)	2 (6.9)	2 (5.7)	1 (2.4)	1 (1.5)
More than 50	31 (14.5)	1 (2.3)	<b>25 (86.2)</b>	2 (5.7)	1 (2.4)	2 (3.1)

\*Percentages may not sum because of rounding; \*\*The term 'care worker' does not include nurses.

The median number of residents per care worker was 4.5 (IQR 3.0 - 6.4) during the day and 15.2 (IQR 9.0 - 21.4) at night. Only 18.2% of LTC facilities had no nurses during the day, but 82.7% of them had none at night. In particular, 28 group homes for older people with dementia (68.3%) had no nurses during the day and 39 (95.1%) had none at night.

### 3.2. Problems with Emergency Healthcare Systems in Japanese LTC Facilities for Older People

**Table 4** shows problems with emergency healthcare systems in Japanese LTC

**Table 4.** Problems with emergency healthcare systems in Japanese long-term care facilities for older people by type of care facility.

Variables	Total	Type of care facility					
		Intensive care home for older people*	Long-term care health facilities	Fee-based home for older people	Group home for older people with dementia	Short-term admission facilities	
Total	214	44	29	35	41	65	
<u>Problems in daytime, n (%)</u>	81 (37.9)	16 (36.4)	11 (37.9)	5 (14.3)	28 (68.3)	21 (32.8)	
Shortage of care workers	23 (10.7)	4 (9.1)	1 (3.4)	2 (5.7)	6 (14.6)	10 (15.6)	
<b>Shortage of nurses<sup>†</sup></b>	46 (21.5)	8 (18.2)	1 (3.4)	4 (11.4)	<b>26 (63.4)</b>	7 (10.9)	
Lack of cooperation from collaborating hospital	25 (11.7)	8 (18.2)	7 (24.1)	2 (5.7)	2 (4.9)	6 (9.4)	
Absence of living will or “do not resuscitate” orders	9 (4.2)	2 (4.5)	0 (0)	0 (0)	3 (7.3)	4 (6.3)	
Difficulties with decisions about referral to acute medical care	10 (4.7)	2 (4.5)	1 (3.4)	0 (0)	4 (9.8)	3 (4.7)	
<u>Problems at night, n (%)</u>	186 (86.9)	41 (93.2)	24 (82.8)	25 (71.4)	36 (87.8)	60 (92.3)	
<b>Shortage of care workers</b>	97 (45.3)	<b>21 (47.7)</b>	5 (17.2)	10 (28.6)	<b>28 (68.3)</b>	<b>33 (50.8)</b>	
<b>Shortage of nurses<sup>†</sup></b>	150 (70.1)	<b>35 (79.5)</b>	<b>13 (44.8)</b>	<b>22 (62.9)</b>	<b>29 (70.7)</b>	<b>51 (78.5)</b>	
<b>Lack of cooperation from collaborating hospital</b>	75 (35.0)	<b>20 (45.5)</b>	<b>14 (48.3)</b>	9 (25.7)	10 (24.4)	22 (33.8)	
Absence of living will or “do not resuscitate” orders	25 (11.7)	6 (13.6)	3 (10.3)	1 (2.9)	5 (12.2)	10 (15.4)	
Difficulties with decisions about referral to acute medical care	47 (22.0)	10 (22.7)	4 (13.8)	1 (2.9)	15 (36.6)	17 (26.2)	

<sup>†</sup>The term “care worker” does not include nurses.

facilities for older people, by type of care facility. In total, 81 facilities (37.9%) had problems with emergency healthcare systems during the day, and 186 (86.9%) at night. Major problems with emergency healthcare systems included shortage of nurses, lack of cooperation from the collaborating hospital, and shortage of care workers. Shortage of nurses was the biggest problem both during the day and at night. Group homes for older people with dementia often had staff shortages. LTC health facilities were more likely than other facilities to have problems with medical cooperation rather than staffing shortages.

### 3.3. Risk Factors Associated with Problems for the Staff in LTC Facilities in Emergency Healthcare of Residents

Univariate analysis with a chi-squared test or Fisher’s exact test was used to identify the significant factors associated with any problems with emergency healthcare during the day or at night. This showed that type of care facility was significantly associated with problems linked to emergency healthcare of residents both during the day and at night (Table 5 and Table 6). The results of the stepwise multiple logistic regression analysis are shown in Table 7. The type of care facility was associated with staffing problems linked to emergency healthcare of residents during the day ( $p < 0.01$ ) and at night ( $p = 0.04$ ). Group homes

for older people with dementia were significantly associated with the occurrence of problems with emergency healthcare of residents during the day ( $p < 0.01$ ).

#### 4. Discussion

Our analysis showed that problems with emergency healthcare systems in Japanese LTC facilities for older people varied greatly by type of care facility. In particular, group homes for older people with dementia reported problems needing rapid resolution.

Group homes for older people with dementia are small-scale facilities for older people with mild to moderate dementia. Originally, they were developed in the belief that small-scale living facilities could both have benefits for residents and improve the working environment for staff (e.g. fewer physical restraints,

**Table 5.** Unadjusted models comparing long-term care facilities with and without staffing problems linked to emergency healthcare of residents during the day.

Variables	n	Problems (n = 81)	%	No problems (n = 133)	%	p-value
<u>Facility</u>						<0.01
Intensive care home for older people	44	16	36.4	28	63.6	
Long-term care health facilities	29	11	37.9	18	62.1	
Fee-based home for older people	35	5	14.3	30	85.7	
Group home for older people with dementia	41	28	68.3	13	31.7	
Short-term admission facilities	65	21	32.3	44	67.7	
<u>Number of residents</u>						0.21
1 to10	40	20	50	20	50	
11 to 50	112	39	34.8	73	65.2	
51 or more	62	22	35.5	40	64.5	
<u>Number of physicians</u>						0.11
None	158	62	39.2	96	60.8	
2 or fewer	49	19	38.8	30	61.2	
More than 2	7	0	0	7	100	
<u>Number of residents per care worker<sup>†</sup></u>						0.02
3 or fewer	57	30	52.6	27	47.4	
3 to 5	73	26	35.6	47	64.4	
More than 5	84	25	29.8	59	70.2	
<u>Number of residents per nurse</u>						0.07
None	39	21	53.8	18	46.2	
20 or fewer	107	36	33.6	71	66.4	
More than 20	68	24	35.3	44	64.7	

<sup>†</sup>The term “care worker” does not include nurses.

**Table 6.** Unadjusted models comparing long-term care facilities with and without staffing problems linked to emergency healthcare of residents at night.

Variables	n	Problems (n = 186)	%	No problems (n = 28)	%	p-value
<u>Facility</u>						0.04
Intensive care home for older people	44	41	93.2	3	6.8	
Long-term care health facilities	29	24	82.8	5	17.2	
Fee-based home for older people	35	25	71.4	10	28.6	
Group home for older people with dementia	41	36	87.8	5	12.2	
Short-term admission facilities	65	60	92.3	5	7.7	
<u>Number of residents</u>						0.51
1 to10	40	37	92.5	3	7.5	
11 to50	112	96	85.7	16	14.3	
51 or more	62	53	85.5	9	14.5	
<u>Number of physicians</u>						0.73
None	158	139	88.0	19	12	
2 or fewer	49	41	83.7	8	16.3	
More than 2	7	6	85.7	1	14.3	
<u>Number of residents per care worker<sup>†</sup></u>						0.06
3 or fewer	71	64	90.1	7	9.9	
3 to 5	84	76	90.5	8	9.5	
More than 5	59	46	78	13	22.0	
<u>Number of residents per nurse</u>						0.06
None	177	158	89.3	19	10.7	
20 or fewer	6	4	66.7	2	33.3	
More than 20	31	24	77.4	7	22.6	

<sup>†</sup>The term “care worker” does not include nurses.

**Table 7.** Multiple logistic regression models comparing long-term care facilities with and without problems linked to emergency healthcare of residents.

Variables	Odds ratio	(95% CI)	p-value
<u>Facility (during the day)</u>			
Intensive care home for older people*	1	(reference)	<0.01
Long-term care health facilities	1.07	(0.41 - 2.82)	0.89
Fee-based home for older people	0.29	(0.09 - 0.90)	0.03
Group home for older people with dementia	3.77	(1.53 - 9.27)	<0.01
Short-term admission facilities	0.84	(0.37 - 1.87)	0.66
<u>Facility (at night)</u>			
Intensive care home for older people*	1	(reference)	
Long-term care health facilities	0.35	(0.08 - 1.60)	0.18
Fee-based home for older people	0.18	(0.05 - 0.73)	0.02
Group home for older people with dementia	0.53	(0.12 - 2.36)	0.40
Short-term admission facilities	0.88	(0.20 - 3.88)	0.86

Calibration of model: Hosmer-Lemeshow test: p = 1.00; \*reference category.

fewer psychotropic drugs and less work pressure for staff) [14] [15]. However, our study demonstrated that more than half of these facilities had staffing shortages that affected emergency healthcare systems. Potential reasons for the observed association include residents with dementia and absence of medical staff.

People with dementia have higher rates of hospitalizations for medical illness including bacterial pneumonia, urinary tract infections and chronic heart failure [16]. Dementia can increase the risk of falling by impairing judgment, gait, visual-spatial perception, and the ability to recognize and avoid hazards. One study found that nursing home residents with dementia were nearly twice as likely to fall as those without [17]. When there are few staff on duty in group homes for older people with dementia, advice and assistance cannot easily be obtained, and this is likely to be more stressful for the staff concerned with provision of emergency healthcare.

The absence of medical staff in group homes for older people with dementia is likely to become a more acute problem. Overall, LTC facilities in Japan had lower levels of medical staffing than in the United States or Europe. An international survey found that physicians regularly visited nursing home residents in 37% of the countries surveyed [18]. In the United States, advanced practice nurses are directly supervised by physicians [19]. Most countries rely on advanced practice nurses for much of the healthcare within LTC facilities. By contrast, our data showed that just 26.2% of LTC facilities in Japan had physicians attending regularly. In particular, only 2.4% of group homes for older people with dementia had full-time physicians and 68.3% of these homes had no nurses, even during the day. Care workers in these facilities must therefore manage the residents without medical or nursing support on site.

In Japan, 4.6 million people live with dementia [20]. That figure is projected to rise to 7 million by 2025, and is likely to lead to an increase in demand for group homes for older people with dementia. Japan has the most rapidly aging population in the world. Action is therefore needed now to deal with this situation, and other countries are likely to see similar problems in the future. Our findings have important implications for government policy. Group homes for older people with dementia need urgent support because of staffing shortages and increasing numbers of older people with dementia. We suggest two strategies and measures to improve the staffing issues in these facilities.

The first measure is merging small-scale facilities. This could increase the number of staff in each care facility. In larger facilities, staff may have more flexibility to be able to help each other. These mergers would need careful consideration of location, number of older people in each facility and the scale of the facility.

The second measure is use of telemedicine. There is a limited number of nurses in Japan, although LTC facilities should also be encouraged to employ medical staff as in other developed countries [18] [21]. We therefore suggest that telemedicine, which makes real-time medical consultation available via two-way videoconferencing, may be a good alternative to face-to-face consultations in

LTC facilities [22]. This could improve access to medical care by allowing medical staff to evaluate a resident with an acute change of condition and recommend a course of treatment without being on-site. Telemedicine has been found to reduce emergency department transfer and potentially avoidable hospitalization rate from LTC facilities [22] [23]. Investment would be needed in the technology to establish the system, but telemedicine has been shown to be a cost-effective way to reduce inpatient spending in United States [22].

Our study has several limitations. First, passive surveillance introduces the potential of reporting bias. LTC facilities with problems may have been more likely to respond. However, we had a high response rate for the questionnaire. Second, we used a modified version of the original questionnaire tool. This may prevent us from comparing our findings to those resulting from the use of the original version, or other tools. Despite these limitations, our findings should help health policymakers and the managers of LTC facilities set priorities for improving staffing and work environment, and therefore support better emergency healthcare of residents of these facilities.

## 5. Conclusion

Problems with emergency healthcare systems in Japanese LTC facilities for older people varied widely by type of care facility. In particular, group homes for older people with dementia reported staffing shortages needing immediate resolution. Our study demonstrates the need to support group homes to enable them to use telemedicine. We also consider that the government should encourage mergers of small-scale care facilities where this will not have an adverse effect on residents.

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## Competing Interests

The authors declare no conflict of interest.

## Authors' Contributions

NS conceived the study. NS and YH obtained research funding. KA, YM, NI, and YH supervised the conduct of the trial and data collection. NS managed the data, including quality control. TS contributed to the geographic information system map. KA provided statistical advice on the study design and analyzed the data; NS chaired the data oversight committee. NS and KA drafted the manuscript, and all authors contributed substantially to its revision. NS takes responsibility for the paper as a whole. All authors read and approved the final manuscript.

## Availability of Data and Materials

The database set was available for all authors of the study, and will be made available to other non-commercial researchers on request.

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### List of Abbreviation

LTC: Long-term care; LTCI: Long-Term Care Insurance; IQR: Inter Quartile Range; CIs: Confidence Intervals.



Others ( )

Q.17 Are you able to consult a physician before taking residents to the hospital?

Yes (at any time)      Yes (daytime only)      No

Q.18 For what reasons do you take residents to hospitals?

Abnormal vital signs      Intuition that they are sick

Symptoms (coma or chest pain, etc.)

Others ( )

Q.19 What problems do you have when residents need emergency care during the day, night and on holidays?

Daytime None

Shortage of care workers

Shortage of nurses

Lack of cooperation with the collaborating hospital's acute care service

Absence of living will or 'do not resuscitate' orders

Difficulties with decisions about referral to acute medical care

Others ( )

Night None

Shortage of care workers

Shortage of nurses

Lack of cooperation with the collaborating hospital's acute care service

Absence of living will or 'do not resuscitate' orders

Difficulties with decisions about referral to acute medical care

Others ( )

Holiday None

Shortage of care workers

Shortage of nurses

Lack of cooperation with the collaborating hospital's acute care service

Absence of living will or do not resuscitate orders

Difficulties with decisions about referral to acute medical care

Others ( )

**Cooperation for collaborating hospital**

Q.20 What is your collaborating hospital?

Q.21 How often is your collaborating hospital able to provide emergency care for your residents?

Daytime All cases

More than half of all cases

Less than half of all cases

None

Night All cases

More than half of all cases

Less than half of all cases

None

Holiday All cases  
 More than half of all cases  
 Less than half of all cases  
 None

Q.22 What do you expect from your collaborating hospital?

Nothing  
 Home visit by a doctor  
 Support for end-of-life care  
 Provide emergency care at night  
 Provide emergency care during holidays  
 Provide emergency care in daytime  
 Others ( )

Q.23 What role do you think a tertiary care hospital has?

Provide emergency care at night and during holidays  
 Provide emergency care when the collaborating hospital is unable to do so  
 Provide emergency care for high-acuity patients  
 Provide care for any diseases or any injuries  
 Others ( )

Q.24 What do you think are the problems with emergency care for long-term care facilities for older people?



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