

〈Regular Article〉

## Effects of revisions to the health insurance system on the recovery-phase rehabilitation ward

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**ABSTRACT** In the present study, we investigated the effects of revisions to the medical fee system made in April 2006 on the recovery-phase rehabilitation ward of our hospital.

Subjects were patients admitted to the recovery-phase rehabilitation ward of our hospital between April 1, 2005 and September 30, 2006, and were discharged. Patients admitted between April 1, 2005 and March 31, 2006 were allocated to the pre-revision group and those admitted between April 1, 2006 and September 30, 2006 to the post-revision group. Their medical charts were investigated for comparison of the mean age, duration of hospitalization, and outcome.

A total of 126 patients were allocated to the pre-revision group, and 72 to the post-revision group. The number of days from onset to admission to the recovery-phase rehabilitation ward was 41.3 days in the pre-revision group and 26.1 days in the post-revision group, while the duration of hospitalization was 71.4 days in the former group and 41.9 days in the latter. The outcomes were transfer to homecare/discharge to home in 84 patients (67%) and transfer to another department in our hospital in six patients (5%) in the pre-revision group, and 43 patients (60%) and 14 patients (19%), respectively, in the post-revision group. No significant differences in FIM were found between the two groups.

The effects of the medical fee system revisions made in April 2006 on the recovery-phase rehabilitation ward of our hospital included shortening of the number of days between onset and admission, duration of hospitalization, increased transfer to other departments, and decreased rates of transfer to homecare/discharge to home. These findings indicate the importance of systemic management and team-based approaches for enabling more efficient rehabilitation.

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## INTRODUCTION

Recovery period rehabilitation (hereinafter referred to as “recovery rehab”) ward refers to the new hospital ward specified in the medical care insurance system established in 2000. The objectives of the recovery rehab ward are to save and reduce medical costs by reducing the number of beds for acute care and diminishing the length of hospital stay, and by simultaneously increasing the rate of returning home and reducing admissions to recuperation wards as much as possible. It is a system that was instituted to achieve both shortening of acute medical care and prevention of nursing care; in other words, it was established with much hype as a trump card for cutting medical care costs by providing comprehensive rehabilitation during the sub-acute phase. The recovery period ward is a unique system in Japan, and has been introduced to

Western countries as the “Kaifukuki Ward.” In 2002, the first recovery rehab ward within a Japanese university-affiliated hospital was established at the Kawasaki Medical School Hospital<sup>1)</sup>. Our hospital plays an essential role in receiving transferred patients who require rehabilitation after completing treatment at our hospital’s acute medicine ward or at a regional acute care hospital. Initially started with 37 beds, our hospital’s recovery rehab ward has expanded to 48 beds at the present time, and has been increasingly gaining importance within the hospital.

For a ward to claim to be a recovery rehab ward, specific criteria such as patient condition, rehabilitation environment, medical care environment, and ward environment must be fulfilled. An outline of the criteria as of April 1, 2014 is shown in Table 1. As of this year, 16 years

Table 1. General rules for facility criteria for hospitalization fees on the recovery rehab ward

A	≥ 80% of patients with a great need for recovery rehab are admitted, and <u>such admission</u> is conducted on a general ward or recuperation ward basis
B	The ward is equipped with the necessary building and facilities to provide recovery rehab
C	Systems are in place 1) to create appropriate implementation plans for rehabilitation in which fees for great vessels, cerebrovascular, locomotor, and respiratory diseases are <u>individually</u> calculated, and 2) to evaluate the effects and methods of such rehabilitation
D	For patients requiring recovery rehab, ≥ 2 rehabilitation units are provided per day

Table 2. Changes in medical treatment fees concerning rehabilitation

2000	Fee establishment for hospitalization on the recovery rehab ward Disuse syndrome added to list of eligible disease for rehabilitation
2002	Duration of rehabilitation established as 20 minutes per unit New establishment of ward activities of daily living (ADL) <u>fee addition</u>
2006	Establishment of rehabilitation fee and maximum calculated days for hospitalization by disease Discontinued group training Increase in maximum rehabilitation per patient from <u>6 units to 9 units</u> New establishment of stroke care unit
2007	New establishment of management fee for rehabilitation medicine by disease
2008	Discontinuation of management fee for rehabilitation medicine by disease Evaluation of 13 units (exceeds maximum calculated days for hospitalization) New establishment of <u>early rehabilitation fee addition</u> Discontinuation of ward ADL <u>fee addition</u> New establishment of group communication therapy Introduction of quality assessment of the recovery rehab ward
2010	New establishment of rehabilitation fee for cancer patients Introduction of holiday and enhancement <u>fee addition</u>
2012	New establishment of <u>early rehabilitation fee addition</u>
2014	Introduction of <u>fee addition</u> for a system to maintain and improve ADL Review of recovery rehab ward hospitalization fee 1 Review of maintenance period rehabilitation Review of disuse syndrome Introduction of oral feeding recovery promotion <u>fee addition</u> New establishment of rehabilitation fee for dementia

Table 3. Patients eligible for admission to the recovery rehab ward

Eligible patients	Onset to admission	Time limit for hospitalization
After shunt operation for cerebrovascular diseases, spinal cord injury, head trauma, or subarachnoid hemorrhage; after development/onset of or surgery for brain tumor, encephalitis, acute encephalopathy, acute myelitis, polyneuritis, multiple sclerosis, or cranial nerve plexus injury; or conditions requiring prosthesis training	Within 2 months	150 days
Severe cerebrovascular disorder with higher brain dysfunction, trauma at multiple sites including severe cervical spinal cord injury and head trauma	Within 2 months	180 days
After fractures of femur, pelvis, spine, hip, or knee, or multiple fractures of $\geq 2$ limbs; or after surgery for such fractures	Within 2 months	90 days
After surgery or after onset of disuse syndrome due to bed rest from surgical operation or from treatments for pneumonia	Within 2 months	90 days
After nerve, muscle, or ligament injury of femur, pelvis, spine, hip, or knee	Within 1 month	60 days

have passed since the establishment of the recovery rehab ward system, and several amendments have been formulated during this time. In particular, the medical treatment fee amendment established on April 1, 2006 was a major revision<sup>2,3)</sup>. The changes before and after this revision are summarized in Table 2. Examples of these changes were that the number of maximum calculated hospitalization days is now determined separately for each disease while previously, this was uniformly set at 180 days regardless of disease, and that the maximum total days of hospitalization were reduced (Table 3). Medical treatment fees are also categorized by disease (e.g., cerebrovascular, orthopedic, respiratory, and cardiovascular diseases) and this classification has in effect led to a reduction in medical treatment fees. Additional amendments were also made subsequently, and clinical practices not only at our hospital, but also other facilities have been placed under pressure to respond appropriately each time such amendments are implemented. The sole purpose of system amendments is to simply provide effective medical care and to enhance the rate of returning home while simultaneously suppressing medical and nursing care costs. Therefore, using data from our hospital, we investigated whether or not the major revision of medical treatment fees in 2006 has achieved its

originally intended purpose.

## SUBJECTS AND METHODS

In the present study, we investigated the “pre-amendment” group, which consisted of patients who were admitted to our hospital’s recovery rehab ward during a 12-month period between April 1, 2005 and March 30, 2006 and were discharged during the same period (126 patients, 62 men and 64 women, mean age  $65 \pm 27.5$  years; diseases: 70 with cerebrovascular disorders, 43 with locomotor disorders, and 13 with disuse syndrome) and the “post-amendment” group, which consisted of patients who were admitted to our hospital’s recovery rehab ward during a 6-month period between April 1, 2006 and September 30, 2006 and were discharged during the same period (72 patients, 39 men and 33 women, mean age  $64 \pm 32.4$  years; diseases: 34 with cerebrovascular disorders, 26 with locomotor disorders, and 12 with disuse syndrome).

A retrospective medical record review was conducted, and the pre-amendment and post-amendment groups were compared with regards to the following items: age, gender, disease, duration from onset to admission to the recovery rehab ward, length of stay on the recovery rehab ward (days), functional independence measure (FIM) score, and outcome destination.

SPSS Statistics20 (IBM) software was used for statistical analysis. An unpaired t-test was used for comparisons between before and after the amendment.  $P < 0.05$  was considered statistically significant.

**RESULTS**

The mean number of days from onset of eligible disease to admission to the recovery rehab ward was 71.4 days for the pre-amendment group and 43.9 days for the post-amendment group, indicating a significant reduction in the post-amendment group compared to the pre-amendment group. The mean length of stay was 41.3 days for the pre-amendment group and 26.2 days for the post-amendment group,

indicating a significant reduction in the post-amendment group compared to the pre-amendment group (Fig. 1).

For outcome destination, 67% of the pre-amendment group returned home, 17% transferred to a recovery rehab ward in another hospital, 5% transferred to a different department at our hospital, and 3% were admitted to an institution. In the post-amendment group, 64% returned home, 6% transferred to a recovery rehab ward at another hospital, 17% transferred to a different department at our hospital, and 5% were admitted to an institution. The post-amendment group had a slightly lower rate of returning home and an increased rate of transfer to other departments within our hospital (Fig. 2).

**Days**

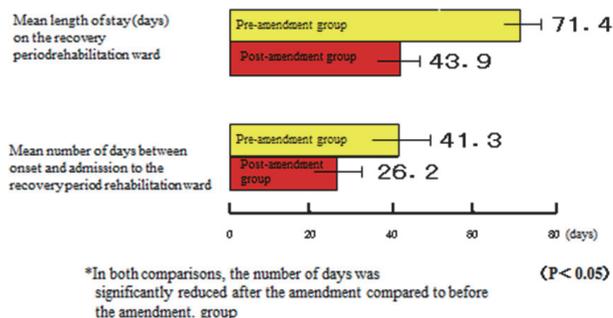
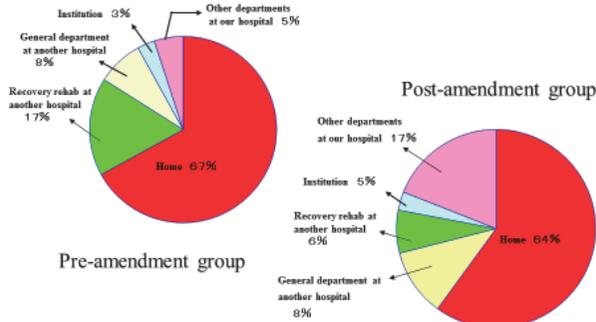


Fig. 1

**Outcome destination**



\*The percentage of transferring to other departments within our hospital significantly increased. Moreover, transfer to recovery rehab at other hospitals decreased.

Fig. 2

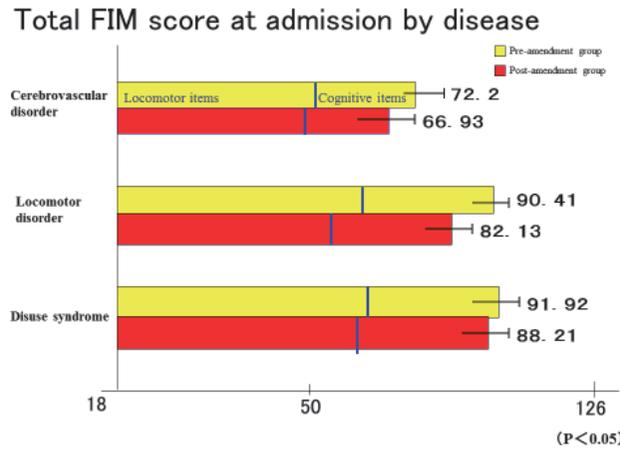


Fig. 3

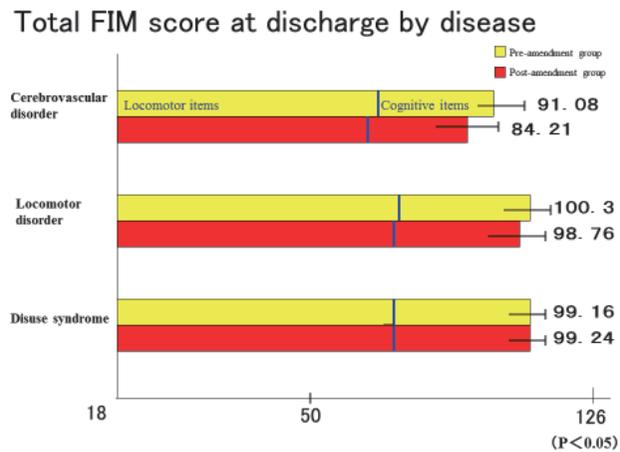


Fig. 4

Total FIM scores<sup>4)</sup> at admission by disease were (pre-amendment group vs. post-amendment group): 72.2 vs. 66.93 for cerebrovascular disorder, 90.41 vs. 82.13 for locomotor disorder, and 91.92 vs. 88.21 for disuse syndrome (Fig. 3).

Total FIM scores at discharge by disease were (pre-amendment group vs. post-amendment group): 91.08 vs. 84.21 for cerebrovascular disorder, 100.3 vs. 98.76 for locomotor disorder, and 99.16 vs. 99.24 for disuse syndrome (Fig. 4). FIM scores at admission and at discharge were not significantly different between before and after the amendment.

## DISCUSSION

In the present study, we investigated the impact of the medical treatment fee amendment established in April 2006 on our hospital's recovery rehab ward. This study showed a major reduction in the duration between onset or surgery and admission to the recovery rehab ward as well as the length of stay on the recovery rehab ward, reflecting the aims of the amendment. However, negative effects of the amendment were also revealed, including increased transfers to other departments within the hospital (such as internal medicine, surgery, and emergency medicine) due to exacerbation in general condition

and decreased rate of discharge to return home. It is certain that the decision to transfer patients to the recovery period ward within 2 months after onset and surgery as well as the establishment of a maximum length of hospital stay by disease according to the medical treatment fee revision in 2006 both largely contributed to these negative effects.

Previous reports<sup>2, 3)</sup> showed the survey results from the 754 in 1,140 hospitals (66.1%), 990 in 1,433 wards (69.1%) and 44,199 in 63,471 beds (69.6%) which affiliated with the Recovery Rehab Ward Association (“Kaifukuki Rehabilitation Ward Association”). They reported that the rate of discharge to return home after the 2006 amendment was on average about 64%, results nearly equivalent to ours. However, most of the hospitals that cooperated in this survey were probably conscientious recovery rehab wards, and similar results as our hospital were obtained presumably for that reason.

FIM scores were not significantly different between before and after the amendment; however, the length of hospital stay may have also been reduced due to intensive training as a result of early admission to the recovery rehab ward in accordance with the amendment. On the other hand, with the reduction in the time period from being in the acute care ward to admission to the recovery rehab ward, patients were forced to transfer without adequate control of their primary and comorbid diseases, and with subsequent exacerbation of these conditions, the patients were transferred to a department within the hospital (i.e., departments they transferred from previously, for example, emergency medicine, stroke and neurosurgery departments). This was thought to be the reason why there was an increase in transfers to other departments. Moreover, in addition to the aforementioned increased transfers to other departments, an issue at home was also considered to contribute to the decreased rate of discharge to

return home. Specifically, before the amendment, patients were able to return directly home after the renovation of their homes, but after the amendment, the reduced length of hospital stay in the recovery rehab ward did not provide patients with enough time to renovate their homes. Due to such time issues, there was an increase in the number of patients who first entered long-term care health facilities before being discharged to return home. This point can be improved with the rehab physician (attending physician) precisely predicting the goal of care while simultaneously transferring the patient to another department, and making requests at the time of transfer such that the patient’s family can start making preparations for home renovations or arranging the necessary services after discharge. To summarize the above, the 2006 amendment resulted in a reduced length of time until admission as well as a reduced length of stay without losing the ability to achieve specific outcomes, and this indicates that this amendment has had a certain effect on reducing the length of hospital stay at least according to our hospital’s data.

## CONCLUSIONS

At our hospital, there are always more than five rehab specialists and care is provided with a transdisciplinary team approach that includes physical therapists, occupational therapists, speech therapists, and rehab nurses, who have all received thorough education and training from a rehab specialist. We believe these circumstances, while maintaining the training effects, led to the above outcomes in achieving a reduction in the length of hospital stay. However, the placement of a highly knowledgeable rehabilitation specialist is not mandatory on recovery rehab wards, and physicians working full-time on such wards only need to receive certain training designated by the Ministry of Health, Labour and Welfare. In other words, under current guidelines, a facility can be

accredited as a “recovery rehab ward” even if rehabilitation care is provided by inexperienced therapists who are given inappropriate instructions by inexperienced physicians who may have been working in a field completely unrelated to rehab up until the day before<sup>1)</sup>. It is not possible to provide effective rehabilitation at such recovery rehab hospitals<sup>5)</sup>. We therefore believe that the establishment of a system to maintain the quality of rehabilitation medicine also for the purpose of reducing unfortunate situations for patients is urgently needed. At the present time (January 2013), there are 1,486 recovery period rehab wards with 65,570 beds in Japan. By a simple calculation, even if one specialist were to be responsible for 30 patients on the recovery rehab ward, 2,185 specialists would be necessary. However, there are only 1,959 rehabilitation medicine specialists in Japan at the present time, and even if all were attending physicians on recovery rehab wards, the number would still be insufficient. This number of specialists (n=1,959) is the lowest alongside emergency medicine specialists when physicians counted by different medical fields. The importance of rehab medicine, including recovery rehab, will further increase by 2025 when baby-boomers

start reaching the age of 75<sup>6)</sup>. In order to provide effective rehabilitation that is led by specialists, it is necessary to increase the number of rehab physicians by assessing strategies as university faculty members and university hospital physicians in the forefront of rehab education.

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