Introduction
The number of chronic respiratory failure patients with Home Oxygen Therapy (HOT) in Japan is approximately 130 thousand and the patient is increasing since health insurance covered for HOT in 1985. Moreover the patient’s HOT period becoming more longer and recent their mean age becoming more higher in Japan.

It is important for HOT patients to prevent acute respiratory exacerbations and provide preventive nursing care as maintain and keep patients’ quality of life (QOL). However their self monitoring for keep physical and mental conditions sometimes belated and passed the early signs of respiratory exacerbations.

Self-monitoring- based life management telenursing system for HOT patients (LMS-HOT) was developed to provide a directive care for HOT patients from long distance telenursing center, and the system consists of four component systems administered by the nursing monitoring center in our college.

LMS-HOT consists;
(1) internet terminals in the patient’s home
(2) telmonitoring with literature and symptom-based algorithm that trigger individualized response data
(3) the data server supporting the interactions and telenursing system
(4) educational systems to guide patient compliance.

Purpose
This research showed the triage and effectiveness of LMS-HOT in preventing hospital readmissions caused by acute exacerbations of respiratory failure.

Methods
Convenience sample of twelve HOT patients from eleven hospitals participated to this study. Nine males and three females with mean age 73.2 (SD 9.2) employed LMS-HOT and mean HOT period was 20.4 (SD 11.9) month.

Each subject employed LMS-HOT between 4 days to 499 days. Subjects submitted daily health and mental status reports to the monitor center via an internet in the morning. Telenurse triggered the patients immediately and provide telenursing according to individual nursing protocol.

Results

Characteristics of the patients

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Pulmonary emphysema</th>
<th>Others (Asthma, Sarcoliosis)</th>
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</thead>
<tbody>
<tr>
<td>Sex</td>
<td>9 Male and 3 Females</td>
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<tr>
<td>Age</td>
<td>Mean 73.2 (range 55-86) y.o</td>
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<tr>
<td>HOT period</td>
<td>Mean 20.3 (range 14-119) month</td>
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<tr>
<td>Telenursing period</td>
<td>Mean 310.8 (range 4-499) days</td>
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<tr>
<td>Received data a</td>
<td>Mean 290.6 (range 4-464) times</td>
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<tr>
<td>Triggered data b</td>
<td>Mean 214.7 (range 0.4-242) times</td>
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<tr>
<td>Triggered point</td>
<td>Spumon vol. up, Bloody sputum, Lower peak flow, Cough, Body pain, Leg edema, Palpitation, Fatigue</td>
<td></td>
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<tr>
<td>Triggered ratio c</td>
<td>66.3%</td>
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</table>

Degree of triggered points were significantly lower for SpO2, peak flow, Borg scale 10 of perceived dyspnea score and daily total points.

HOT patients finished the participation to this research, patient responses to the Health-Related QOL (SF-36™ in Japanese), and interviewed patients’ statements about using LMS-HOT, and whether to admit to the hospital provided the data for analyses.

Discussions
As for the using this telenursing system, patient understand the psychical and mental conditions by themselves and had a confidence to pulmonary rehabilitation. For the case of implement for more than six months, they never readmitted to the hospital. It was thought that the sense of security was able to be brought to the patients, to prevent the re-hospitalization, and to expect the improvement of QOL related to health of long-term practice.

Strength and limitations
It will be necessary to have an intervention for much cases continuously and innovate telenursing system in the future.

Conclusion
These results suggested that exacerbation episodes identified when one or more parameters triggered the emergency alarm yielded an over-all incidence rate of 81.0% (95/1174). However, there were no occurrences of patients’ hospital readmissions during the LMS-HOT period except one case and it alleviated anxieties in daily life and resolved problems at an early stage.