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Applying multiple strategies to reduce the reintubation rate of planned extubation in ICU

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INTRODUCTION

Use ventilation occupy the second largest medical expenses for major illnesses in Taiwan.

In Q1 2023, our unit reintubation rate of 7.41%, was higher and double more than average rate of medical centers in the Taiwan Clinical Performance Indicator(TCPI).

The escalating reintubation rate has led to increased hospitalization days, mortality rates, and healthcare costs. Prolonged ventilation used also increases the risk of delirium, and most of them also have muscle wasting due to bed rest, making it more difficult to weaning.

AIM

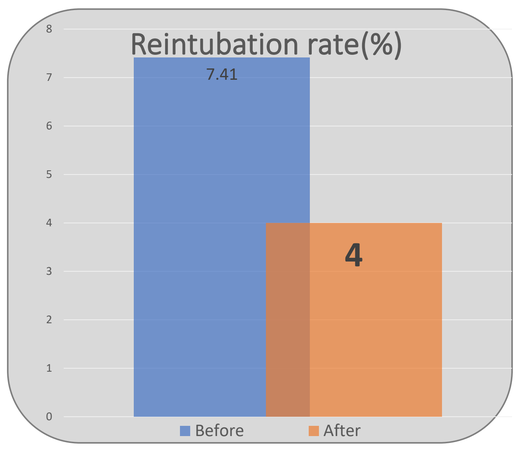
The reintubation rate within 72 hours is one of the quality indicator in critical care units.

We aim to improve the success rate of planned extubation by applying multiple strategies, including the PDAIS combined with the A to F bundle care, Using visual and somatosensory interactive games for pulmonary rehabilitation(PR), and the implementation from HTRM of intervening critically ill patients with issues such as pain, agitation, delirium, immobility, and sleep.

RESULTS

After multiple Strategies implementation :

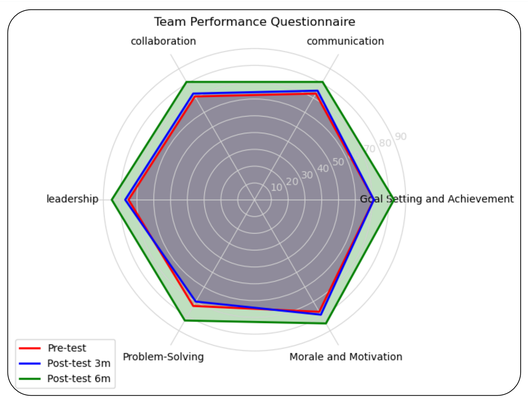
Reintubation rate decreased from 7.41% to 4%.



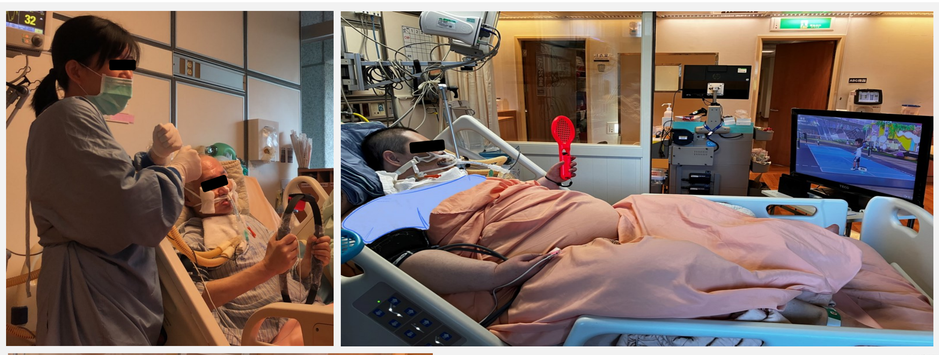
PR rate also increased from 60.2% to 90.8%.

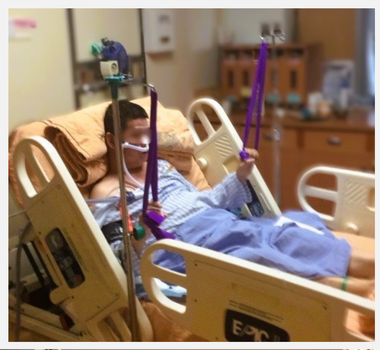
Delirium decreased from 10% to 2%.

Physical restraint rate decreased from 6.76% to 2.04%.



The Team Performance Questionnaire and patient safety culture survey also showed a significant improvement.





Sports

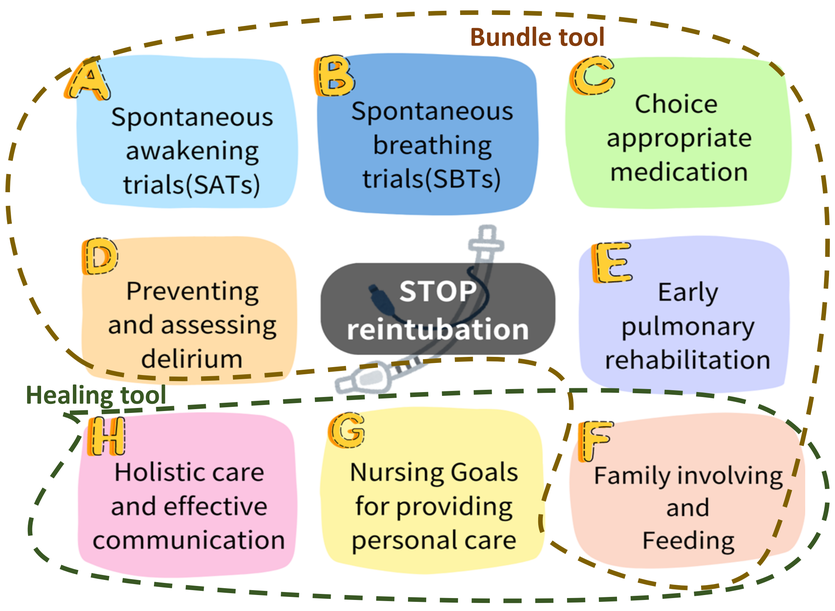
Ring Fit

Just Dance

METHOD

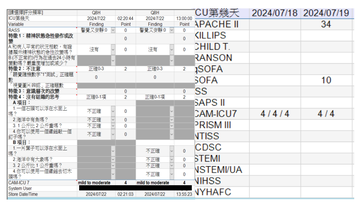
A hospital MICU in northern Taiwan, collect 100 patients have had endotracheal tubes in place for more than 24 hours, excluding severe coma and DNR patients. Add Goals and Holistic care approach for modifying the A to F bundle care protocol for extubation which under the PADIS guidelines.

A~H Bundle care



Early PR before consultation Physiatry (Switch Ring Fit)

CAM-ICU 7 integrated into the CIS system



Sleep quality assessments into the HIS-5 system

Using HFNC after extubation

(high-risk cases)

TRM to enhance team collaboration.

CONCLUSIONS

Finaly we combite multiple strategies and HTRM to shorten hospital stays, reduce restraint incidents, enhance teamwork, and create a positive work environment. According evidence-base, using HFNC after extubation in high-risk cases to prevent respiratory failure. Interactive games, including Just dance and Sports, were also added to rehabilitation exercises, receiving positive feedback from patients and their families.

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