Enhancement Program on Prevention of Facial Pressure Sore for Patients Receiving Non Invasive Ventilation

Introduction
Non Invasive Ventilation (NIV) has been widely used as a ventilation method for patients with respiratory failure. The use of NIV decreases the length of hospital stay and the risk of intubation for patients. In 2014, a total of 980 patients received Bipap in PMH medical wards. In the acute phase, it is required to use facial mask as the interface to Bipap, then applies positive pressure to push air from the mouth and nose into the lungs, which improves gas exchange and reduces the effort of breathing. However, facemask may exert a substantial compression pressure on patient's facial area, leading to patient's discomfort, and may complicate with the development of facial pressure ulcer considerably.

Objectives
To reduce the prevalence of facial pressure sores for patients on NIV by providing in-service training for nurses and setting up of NIV unit

Methodology
Updated guidelines on nursing care for patients receiving NIV were provided. Nursing staff training A hospital wide in-service training program for nurses was conducted from May 2010 till now. Nursing staff training focused on performing regular facial area assessment for patients, the importance of proper mask selection, sizing and application; to avoid prolonged pressure, friction or shearing force on the pressure points, we use the pressure relieving dressing to reduce the chance of develop pressure sore on the bridge of nose area; maintain the hygiene of patient's facial area and the mask, keep patients' skin clean and dry; refer dietitian to provide adequate nutritional support and maintain hydration status for patients. Easy access of NIV accessory Every NIV unit is attached with sizing gauze which facilitates nurses on proper mask size selection and fitting, a tool is provided for patient facial measurement and guide nurses in choosing the appropriate mask size. Also, a supply
and replacement system is established in wards in order to allow nurses to gain easy access of NIV accessories (e.g. various sizes of masks, chin strips to fit individual patient) that facilitates the delivery of quality care to patients who receive NIV. Information and teaching material Video about mask fitting and PowerPoint presentation on NIV care had been uploaded to the hospital web for staff easy reference. Opening of NIV unit With the opening of pilot project NIV unit in PMH in 2013, this is run by a team of health care professional with appropriate experience and skill. The structure and governance of NIV care is significantly improved. Hospital wide no facial pressure ulcer campaign Hospital wide no facial pressure ulcer day was hosted in 2014 and the team received very positive feedback.

Result
The result is encouraging; there is only 0.5-1.2% patient’s developed facial ulcer when receiving NIV. To compare with the data provided by an international study, they reported that there were 2-23% of patients had skin breakdown even after using Bipap for a few hours. (Gregoretti et al. 2002) Conclusion: In-service training that provided updated knowledge and skills on mask fitting and prevention of facial ulcer for nursing staff is effective in reducing the prevalence of developing facial ulcer for patients receiving NIV. Moreover, the setting up of NIV unit has significantly enhanced the quality of nursing care for patients receiving NIV. Reference: Gregoretti et al. Evaluation of patient skin breakdown and comfort with a new face mask for non-invasive ventilation: a multi-center study. Inten Care Med 2002; 28:278-284.