

NEWSLETTER

**Hong Kong Association of Critical
Care Nurses Limited (HKACCN)**

Message from the President

Vol. 23, No. 1, Dec 2022

LEUNG Fung Yee
President
HKACCN

To the best of our memory, we have gone through almost a year since the fifth wave of COVID-19 epidemic in Hong Kong from Dec 2021. Regrettably, the current situation is still fluctuating with no sign of cessation in the nearest future. The daily numbers of both locally acquired cases and imported cases are high as recorded, which concern us a lot. These figures so captured are regarded as the indicators for leverage of the COVID-19 control measures. At present, we are dealing with the ever-changing quarantine arrangements, infection control guidelines, and requirements of taking nucleic acid or rapid antigen tests. Quarantine centres and community isolation facilities open hastily in the community everywhere in Hong Kong.

Clinically in hospitals, we continue to face challenges and experience hardship brought on by this virus. All ICU in acute HA hospitals are overwhelmed with critically ill patients. Use of sophisticated technology combined with complex care is common for them, day-and-night. Truly speaking, many of our nursing colleagues have become mentally and physically exhausted. Being a professional organization to support nurses working in such a stressful environment, we believe that there is a desperate need to provide 'energy' to restore our nurses' strength and det-



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ermination. Please be rest reassured that HKACCN is always working together with you, offering you all our greatest genuine concern and fullest support.

Meanwhile at the peak of the outbreak when social contact is minimized, we have tried our very best to manage non-stop communication with our members by every available electronic means. In fact, we do continue our training programmes via the Zoom platform in the past year. In addition to the regular critical care nursing courses, we invite a very experienced instructor, Mr. Peter Tsang who is formerly DOM & Nurse Educator of a HA hospital, to conduct a comprehensive management course for nurses. The course so delivered does not only offer knowledge and skills to participants about ward management, it also inspires them for self-management. This in turn provides a boosting psychological backup to them in becoming a future competent nurse manager, aiming at building and leading a strong nursing team that supports our patients with the best possible and highest quality of care. After the course, Mr. Tsang is very enthusiastic to act as a personal coach to our nurses for further consultation whenever requested. In fact, the primary goal of those courses is to strengthen and empower the capability and competence of our nurses in handling crisis, and building up their resilience when facing adverse situations.

With the current relaxation of the infection control restrictions, we have started to conduct our courses in a hybrid-mode, i.e., simultaneously via Zoom with physical presence. We are planning to organize more courses with this approach for skills training, such as a ECMO course with practical training

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in priming of blood lines, and troubleshooting of the oxygenator, etc. We are looking forward to flourishing our nurses again in an all-round manner, through both the theory and practice of patient caring.

From the bottom of our heart, we deeply wish that with more and more people developing immunity against the infection, the community will soon return to normal. It is now also the time for us to start thinking about the 'new normal' of practicing critical care nursing. In the past two years, we have encountered very difficult moments with our patients, as well as their significant others, not to mention also nursing colleagues. Nevertheless, we have learnt and grew from our experiences, no matter good or bad. I would, therefore, like to inspire and encourage all of you to keep your stories. We will definitely meet again sometime later to share our stories, experiences, suggestions, and aspirations. We seize every opportunity to make changes, and without doubts, continue to shaping our future critical nursing while more new normal may endure.



Uses of High-flow Nasal Oxygen Therapy in Acute Respiratory Failure Patients

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In order to understand the mechanism of high-flow nasal oxygen therapy (HFNOT) in acute respiratory failure (ARF) patients, we need to know one of the respiratory mechanics, the peak inspiratory flow rate (PIFR). Peak inspiratory flow rate is the maximal flow rate, typically expressed in liters/minute (L/min), obtained during an inspiratory maneuver. In normal adults, the PIFR of each breath tends to range between 20-30 L/min. The adults are comfortable, and the respiratory muscles not fatigue with this PIFR.

On the contrary, patients with ARF usually struggle to breathe and they have a high peak inspiratory flow requirement. For example, the patient may generate a PIFR of 40L/min or more. When giving an 8L/min oxygen through a facial mask, 32 L/min of the

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remaining gas mixture will be taken from the entrained room air. This may lead to a dilution of FiO_2 from 1.0 down to approximately 0.35. This oxygen dilution does not meet the oxygen requirement of a patient with ARF. Nevertheless, no one actually knows the magnitude of oxygen dilution as the actual FiO_2 delivered to the patient depends on the patient's breathing pattern, PIFR, delivery system, and mask characteristics, etc (Papachatzakis, Nikolaidis, Kontogiannis & Trakada, 2020).

High-flow nasal oxygen therapy has been developed with the following advantages and may support the respiratory needs of patients with ARF.

- 1) It can deliver an oxygen flow up to 60L/min with a controlled FiO_2 ranging from 0.21 to 1.0. The high oxygen flow could reduce the oxygen dilution in high peak flow breathing patients (Nishimura, 2015).
- 2) It contains a humidification-heating

chamber to provide an optimized conditioning of inspired gases, improving mucociliar clearance, and reducing the risk of atelectasis (García et al., 2017).

- 3) It provides an anatomical oxygen reservoir within the nasopharynx and oropharynx, by virtue a CO_2 washout effect due to a high oxygen flow. As a result, it decreases the re-inhalation of exhaled CO_2 , and thus decreases the dead space (Dysart, Miller, Wolfson & Shaffer, 2009).
- 4) It provides a substantial positive end-expiratory pressure (PEEP) effect, with an upper airway distending pressure of 3.2 to 7.4 cmH_2O when the mouth is closed. This results in increased positive airway pressure, increased end-expiratory lung volume and thus alveolar recruitment (Ashraf-Kashani & Kumar, 2017).

In order to avoid risks associated with mechanical ventilation, HFNOT is one of the good choices for ARF patients.



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For enquiry on Philips IntelliVue MX750, X3 and Patient Information Center iX, please email to phcinfo.hk@philips.com for more details.

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An educational programme in Tuen Mun Hospital Intensive Care Unit to improve the nurses' attitude, knowledge, and behavior towards early mobilization of critically-ill patients

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Early mobilization (EM) in the Intensive Care Unit (ICU) is defined as the initiation of physical activity within the first 2 to 5 days of critical illness or injury (Hodgson et al., 2013). Immobility is strongly associated with the development of Intensive Care Unit-Acquired weakness (ICU-AW), which could lead to polyneuropathy, myopathy, and disuse muscle atrophy, resulting in motor weakness, prolonged mechanical ventilation, and length of

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stay in the ICU (Bergman & Chaboyer, 2020; Hermans & Van den Berghe, 2015). Early mobilization is effective in preventing ICU-AW, however, insufficiency of knowledge of nurses and manpower constraint, as well as patients' condition and cooperation hinder the implementation of it (Zang et al., 2020; Krupp, Ehlenbach & King, 2019; Anekwe et al., 2020).

Currently, mobilization exercises by physio-therapists are only available during weekday mornings, which posts a service gap. This could be alleviated by ICU nurses. Based on a chart review between 1 May 2022 and 12 June 2022, only about 7.38% of ICU patients in Tuen Mun Hospital (TMH) received mobilization exercises by nurses. An educational programme for ICU nurses in early 2022, aiming to improve attitude, knowledge, and behavior towards EM was conducted. A quasi-experimental pretest-posttest design was used to explore ICU nurses' attitudes, knowledge, and behaviors on EM before and after the educational programme. Five identical sessions of education talk were delivered to ICU nurses by the EM task group which consisted of nurses, doctors, and physiotherapists. The Patient Mobilization Attitude and Beliefs Survey (PMABS) was used to identify perceived barriers in performing mobilization exercises, of which a higher score indicated a greater level of perceived barriers (Hoyer et al., 2015). The survey was distributed to all frontline nurses in TMH ICU one week before, and six weeks after the educational programme. After the 6-week program, the attitude subscale score improved from 3.69 ± 0.62 to 2.95 ± 0.57 ($p < 0.001$); knowledge subscale score improved from 3.71 ± 0.83 to 2.85 ± 0.6 ($p < 0.001$); and behavior subscale score improved from 3.71 ± 0.46 to 3.17 ± 0.36 ($p < 0.001$). There were 72.7% of patients during the intervention period eligible for EM, and 92.3% of them received the nurse-

led mobilization exercises. The results showed that an education programme on EM to ICU nurses could significantly reduce the perceived barriers towards mobilization in ICU, and increase the rate of nurse-led mobilization exercises.

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HKACCN 2023 Programme Calendar

Elementary Critical Care Nursing Course (CNE: 14)			
Module 1: Respiratory System		Module 2: Cardiovascular System	
Fee: HK\$ 2,300 (Member) HK\$ 2,800 (Non-member)			
Early Bird Fee: HK\$ 2,100 (For members who enroll 1 month before course starts)			
Hybrid mode, class capacity: Face-to-face class: 20; Zoom class: 100			
Each Class: 7 lessons + quiz (date to be confirmed)			
Time: 18:00-20:00	Every MONDAY	Time: 18:00-20:00	Every TUESDAY
M1A Respiratory Nursing Date: 6/2, 13/2, 20/2, 27/2, 6/3, 13/3, 20/3		M2A Cardiovascular Nursing Date: 11/4, 18/4, 25/4, 2/5, 9/5, 16/5, 23/5	
M1B Respiratory Nursing Date: 3/7, 10/7, 17/7, 24/7, 31/7, 7/8, 14/8		M2B Cardiovascular Nursing Date: 5/9, 12/9, 19/9, 26/9, 3/10, 10/10, 17/10	

Advanced Critical Care Nursing Course (CNE: 14)	
Fee: HK\$ 2,300 (Member) HK\$ 2,800 (Non-member)	
Early Bird Fee: HK\$ 2,100 (For members who enroll 1 month before course starts)	
Hybrid mode, class capacity: Face-to-face class: 20; Zoom class: 100	
Each class: 7 lessons + quiz (date to be confirmed)	
Time: 18:00 - 20:00	Every THURSDAY
Dates: 5/10, 12/10, 19/10, 26/10, 2/11, 9/11, 16/11	

ECG Course for Beginners (CNE: 11)	
Fee: HK\$ 1,800 (Member) HK\$ 2,300 (Non-member)	
Hybrid mode, class capacity: Face-to-face class: 20; Zoom class: 100	
Each Class: 5 lessons + quiz (date to be confirmed)	
Time: 1 st & 2 nd lesson: 18:00-20:30 · 3 rd - 5 th lesson: 18:00-20:00	Every WEDNESDAY
Date: Class 1: 18/1, 1/2, 8/2, 15/2, 22/2	Class 2: 15/3, 22/3, 29/3, 12/4, 19/4
Class 3: 17/5, 24/5, 31/5, 7/6, 14/6	Class 4: 12/7, 19/7, 26/7, 2/8, 9/8
Class 5: 13/9, 20/9, 27/9, 4/10, 11/10	Class 6: 15/11, 22/11, 29/11, 6/12, 13/12

Basic Life Support (BLS) Provider Course (CNE: 4)	
Fee: HK\$ 300 (Member) HK\$ 500 (Non-member)	
FRIDAY classes	SATURDAY classes
Time: 08:30 - 13:00	Time: 08:30 - 13:00
Date: 17/2, 31/3, 12/5, 21/7, 15/9, 8/12	Date: 11/3, 29/4, 10/6, 26/8, 2/9, 28/10, 11/11, 16/12

Advanced Cardiac Life Support (ACLS) Provider Course (CNE: 11)	
Fee: HK\$ 1,950 (Member) HK\$ 2,150 (Non-member)	
THURSDAY & FRIDAY classes	SATURDAY & SUNDAY classes
Time: Day 1 08:30 - 18:00	Day 2 08:30 - 13:00
Date: 2-3/3, 4-5/5, 29-30/6, 6-7/7, 24-25/8, 7-8/9	Date: 7-8/1, 28-29/1, 11-12/2, 25-26/2, 25-26/3, 22-23/4, 20-21/5, 3-4/6, 24-25/6, 29-30/7, 12-13/8, 23-24/9, 7-8/10, 21-22/10, 4-5/11, 25-26/11, 9-10/12, 30-31/12

Remarks: For Hybrid mode classes: quotas for face-to-face classes are first come first served basis.

Updated: 10 Nov 2022



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