

NEWSLETTER

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

Vol. 16, No. 1, Oct 2015

Message from the President

LEUNG Fung Yee
President
HKACCN



Dear Members,

It gives me great pleasure to welcome you all to the 2015 Annual Dinner and Annual General Meeting of our Association which will be held on 30 Oct 2015. Every year, the Annual Dinner provides an excellent opportunity for members, ICU nurses, friends and guests to gather together, share, network and celebrate. It serves as an ICU family reunion bringing much joy, support and appreciation. Everyone treasures this warm occasion that brings cheer and relaxing moment to our dedicated team of ICU nurses after a long day's stressful work.

The 2013-2015 term of Board of Directors is due to expire. Last month, we had successfully elected new directors to serve our members in the coming two years. Here, I am delighted to introduce to you the new Board of Directors (2015-2017).

Position	Name
President	Ms. LEUNG Fung Yee
Vice-President	Mr. LUK Hing Wah
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Treasurers	Ms. LI Yuen (1 st Treasurer) Ms. CHIU Mei Chun, Katherine (2 nd Treasurer)
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Administrative Committee	Mr. KAN Siu Kuen (Chairperson) Ms. MA Suk Man (Vice-Chairperson) Mr. MAK Man Tak
Chief Editor	Dr. Vico CHIANG

I must thank all our members for your support and enthusiasm to take part in the election and commitment to contribute wholeheartedly towards the advancement of critical care nursing in HK, both in the public and private sectors. We will continue and strive hard to serve the Association in accordance with the main objectives to promote the standard of critical care nursing practice through education, collaboration and research.



香港危重病學護士協會有限公司
Hong Kong Association of Critical Care Nurses Ltd.

I would also like to express my heartfelt gratitude and appreciation to all advisers, office colleagues and supporters for their diligence, dedication and professional input to us. Our Association would not have been able to grow and succeed without your support! Thank you!

Strategies of Pressure Ulcer Prevention in ICU: An Educational Program

WAN Yuen Ki
RN, ICU
Queen Elizabeth Hospital

Background

Pressure ulcers have plagued the nursing profession for many years as a major health care problem in terms of patients' pain, disfigurement, prolonged hospitalization and financial cost. Pressure ulcers are the most preventable complication of patients in the intensive care units (ICU) (Compton et al. 2008, Gunninberg, & Stotts, 2008). Studies showed that the incidence rate of pressure ulcer in the ICU was higher than the average incidence of 8-10% in hospital populations (Eman, Dassen & Halfens, 2008; Capon, Pavoni, Mastromattei, & Di Lallo, 2007).

As nurses, our primary responsibility is to advocate for patients concerning their safety. Because of this, we are obligated to follow precautionary measures of pressure ulcer that could mitigate the severity of potential complications (Compton et al. 2008; Gunninberg & Stotts, 2008). Although preventive measures of pressure ulcer are in place, compliance with these measures is minimal at best (McNichol, 2012). The prevalence of pressure ulcer is one of the important indexes, which reflects the quality of care in ICU. The purpose of conducting this project is to improve patient's outcomes by reducing the prevalence of pressure ulcer, identifying areas for improvement in prevention of pressure ulcers, and increasing the adoption of effective preventive strategies in an ICU.

Aim

The aim of this project is to enhance the nursing knowledge in risk assessment, quality of care, awareness in prevention measures and wound documentation specific to pressure ulcer of ICU patients via an educational program.

Methods

This project included several steps, 1) recruiting lead team members for establishment of a pressure ulcer prevention workgroup; 2) evaluating quality processes and educating staff via evidence-based educational program; 3) using skin champions, and

4) standardizing communicable written care plans.

1) Recruitment of lead team members

There were 5 registered nurses invited and recruited to the pressure ulcer prevention workgroup which was led by ICU nurse consultant for the consultation of opinions. Regular meetings were held by the leading team members for discussion of the difficulties and achievement, and concision the messages of pressure ulcer prevention to the frontline colleagues. This process provided an opportunity for nurses to have sufficient communication with effective learning of pressure ulcer prevention through interaction.

2) Evaluating quality processes & educating staff

Concerning the improvement and evaluation of quality care of pressure ulcer, a pilot study was conducted. An evidence-based multi-session educational program on pressure ulcer and wound documentation was delivered with a total of 80 registered nurses (RNs) and 6 patient care assistants (PCAs) in ICU participated in the program. Educational sessions were held twice a week for one month. The relevant topics were constructed based on the Kowloon Central Cluster's (KCC) clinical practice guidelines on pressure ulcer prevention and management. Participants completed a pre-test and post-test for the educational program to assess their levels of knowledge. Data were collected via retrospective audits on two separate occasions, before the first educational session as the baseline, then at two weeks following the educational sessions. The retrospective audits were used to determine the impact of the educational program on quality of care and documentation. In addition, two separate groups of ICU patients were recruited as control and intervention in this pilot study. Moisturizing cream was mandatorily used in the intervention group for improving the patients' skin integrities especially in the pressure points; the control group received the usual care. All the ICU patients were recruited through convenience sampling. Patients were included if they were 18 years or older, their scores of Norton scale were 14 or less, had a hospital length of stay (LOS) of less than 7 days prior admission to ICU, and had an ICU LOS of 24 hours or more. Patients were excluded if they had a pressure ulcer at the time of admission to the ICU, or they were patients with physical trauma or head and neck surgery, e.g. esophageal cancer, and tongue cancer, etc. Their demographic characteristics were showed in Table 1 & 2.

3) Using skin champions

After the educational program, moisturizing cream was mandatorily used in the intervention group for the improving of patients' skin integrity, especially in the pressure points.

4) Standardizing written care plans

In order to reduce pressure ulcer related complications and improve preventive strategies, the leading team members consistently reinforce and monitor nurses in the ICU to have comprehensive documentation in regard to KCC's clinical practice guidelines. Clear and comprehensive documentation aids to facilitate nurses to communicate effectively with others and monitor the healing progress of pressure ulcer.

Table 1: Demographic Characteristics of Subjects (Control Group)

Characteristics (n=20)	Values
Age (mean), range	(56), 30-87
Gender	
Male	12
Female	8
Diagnosis on admission to ICU	
Respiratory distress	5
Gastrointestinal problem, e.g. I.O., perforated bowel	3
Septic shock	3
Acute renal failure	3
Cardiac problem, e.g. Myocarditis, Pericardial effusion	2
Gynecological problem, e.g. PET, HELLP syndrome	2
Buttock abscess	1
Asthmatic attack	1
Norton Scale (mean), range	(11), 8-14
Patient with PU	NA

Table 2: Demographic Characteristics of Subjects (Intervention Group)

Characteristics (n=22)	Values
Age (mean), Range	(54), 33-76
Gender	
Male	14
Female	8
Diagnosis on admission to ICU	
Respiratory distress	5
Gastrointestinal problem, e.g. I.O., perforated bowel, CA stomach, rupture appendicitis, septic shock	4
	3
Acute renal failure	2
Hepatic cell carcinoma	2
Seizure attack/ convulsion	2
Intra-cranial hemorrhage	1
Liver cirrhosis	1
Myasthenia gravis (MG)	1
Drug overdose	1
Norton Scale (mean), range	(10), 8-14
Patient with PU developed before ICU admission (stage)	1 (Stage II)

Key Findings

It was found that the level of perceived knowledge of the participants about managing pressure ulcer with the prevention strategies increased significantly after the educational program. The responses score of the post-test for the educational program was improved. Mean score of the test was 15.9 when compared with the baseline of 14. The test results were summarized in Diagram 1.

Diagram 1: Nursing Knowledge of PU (Pre & Post Test) – Results of the 16-item test

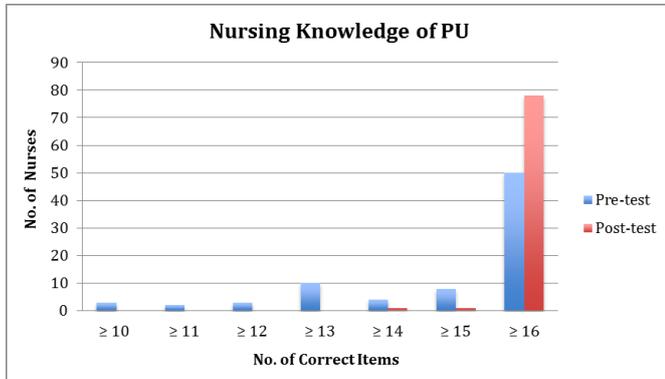


Diagram 2a: Audit results (Baseline)

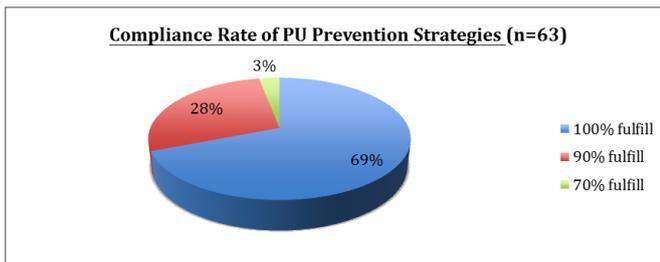
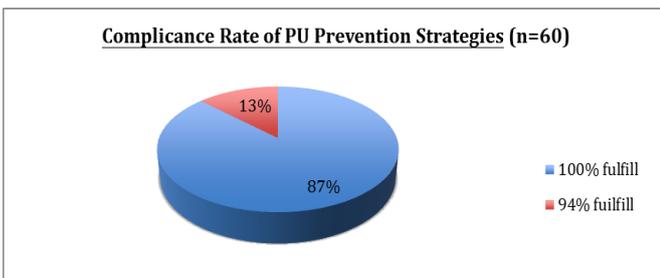


Diagram 2b: Audit results (After the Educational Program)



According to the audits, the quality of care and nursing documentation in pressure ulcer wounds increased considerably after the educational program. The 100% compliance rate was raised from 69% to 87% after the program (Diagram 2a, 2b). And the mean compliance rate of each item was improved from 96% to 99%, which included the risk assessment, preventive measures (proper position, pressure relief, shearing and friction control, and moisture control), documentation and evaluations. Before the educational program, moisturizing cream was not mandatorily used in patients for improving the skin integrity, especially the pressure point. After the educational program, the compliance rate of applying moisturizing cream on the pressure points of patient was raised from 65% to 99%. Within this period of time, there was no PU discovered from the recruited patients and the wounds of patients with pressure ulcer were

clearly improved.

It was worthy of mentioning that the description of pressure ulcer characteristics documented by the participants, such as the wound conditions and its management, was obviously improved. When comparing to baseline, the wound location, staging and management were documented by nurses more frequently and improved from 85% to 97% after the educational program. On the other hand, the lifting devices and pressure relieving devices were used more frequently, from 95% to 100%.

Conclusions

This project shed light on the enhancing knowledge and practice of nurses on the strategies of pressure ulcer prevention in ICU. It was clear that this program emphasized the value of applying quality approaches to achieve improvement (i.e. plan, do, study, and act) and the incorporation of evidence into practice. The pressure ulcers educational program was effective and efficient in enhancing the nursing knowledge, and improving the quality of care and comprehensive wound documentation of pressure ulcers in ICU. The findings support nurses in adopting the prevention pressure ulcer strategies; and the documentation on pressure ulcer changes accurately with sufficient guidelines. The essential aspect of care was that the prevalence of pressure ulcer, quality of nursing care, and patients' outcomes improved after this educational program for pressure ulcer prevention in ICU.

References

Available on Request

Continuous Renal Replacement Therapy (CRRT) in Post-operative Open Heart Surgery Patients: An Overview and the Way Forward

SHU Po Hung (APN)
LAI Wing Yan Vivien (RN)
LI Wai Ching Rita (DOM)
TO Pui Man Agnes (WM)
Department of Cardiothoracic Surgery
Queen Mary Hospital

Acute kidney injury is one of the most common complications after open heart surgeries. A small proportion of patients would need continuous renal replacement therapy (CRRT) to support their renal function. With a view to enhance the quality of care in this group of patients, two approaches are adopted by the Intensive Care Unit (ICU) of the Department of Cardiothoracic Surgery (CTSD) at Queen Mary Hospital. In particular, the first approach is to enhance the early initiation of CRRT that our ICU adopted a structured training program.

The second approach is to facilitate the early ambulation of post-operative patients with CRRT.

For the first approach, statistics from CTSD ICU from 2010 to 2014 revealed that with the adoption of early initiation, there was an increase of almost 200% in service demand in CRRT. To cope with this rising demand, besides purchasing additional Gambro Prismaflex machines (from one to two machines), a more structured, comprehensive and extensive training program was developed. Newly recruited nurses (i.e. around one year of ICU experience) could learn the essential knowledge and skills to perform CRRT with competence. For nurses who were more experienced, they could take the chance to update and refresh their knowledge in this area. The training program itself was divided into three parts:

1. A lecture to introduce:
 - the basic knowledge of CRRT;
 - the different modalities of CRRT; and
 - the management and nursing care on patients with CRRT.
2. A simulation workshop to demonstrate and for the learners to conduct hands-on practices on:
 - the priming of Prismaflex CRRT circuit; and
 - the strategies to handle common alarms.
3. A written and practical skill assessment based on a competency checklist. Nurses being trained must pass the assessment before they were allowed to care for the patient with CRRT independently at CTSD ICU.

It is worth to highlight that with the introduction of this structured training program, CTSD ICU was able to provide more opportunities for nurses on CRRT training. As a result, by 2014, over 90% of nursing staff at CTSD ICU were competent to perform CRRT independently, increased from less than 60% in 2008.

Early ambulation in post-operative patients with CRRT in CTSD ICU is beneficial to post-operative patients' recovery. Some benefits include prevention of atelectasis, improvement in pulmonary functions, and reduction in developing deep vein thrombosis. Traditionally, in order to maintain the patency and to safely secure the dialysis catheters, mobilization of patients on CRRT was much restricted in bed. To optimize patients' recovery, a night-time CRRT program was introduced to patients with impaired but improving renal functions, so as to maximize their day-time ambulation. At CTSD ICU, such night-time CRRT would usually take place during rest time of patients (i.e. from around 8pm to 8am the following day). During day-time, CRRT could be suspended. Thus, with a lower risk of dislodgement of dialysis catheters, nurses could facilitate patients to sit out of bed, encourage more active limbs exercise and chest physiotherapy. As a result, patients would have better morale during their stay in ICU.

Airway Management in Respiratory Compromised Patients

MA Suk Man
APN, CND
Kwong Wah Hospital

Airway Management in Respiratory Compromised Patients

I'm working in the Nurse Led Emergency Response Team (NLERT). The NLERT is a clinical team of APNs who provide cardiopulmonary resuscitation (CPR), rapid sequence induction (RSI), critical ill patient transportation, and technical support relating to invasive and non-invasive ventilator care.

Apart from the clinical support, NLERT also provides in-house critical care training workshops as well as CPR training workshops to nurses from various specialties in the hospital. These can strengthen competence of nurses in advanced critical care for emergency and deteriorating patients. In the coming future, there's still a lot of room for growth for our core services despite a challenging environment in decanting hospital.

"What is Rapid Sequence Induction (RSI)?"

In the acute hospital, we have the opportunity to care for patients with respiratory compromise such as COPD exacerbation, and acute pulmonary oedema, etc, and some of them need immediate airway management and protection in order to prevent respiratory arrest. Rapid sequence induction (RSI), being administered among others, is one of the airway management strategies.

RSI is the administration of a sedative and a neuromuscular blocking (paralytic) agent to render a patient rapidly unconscious and flaccid in order to facilitate emergent endotracheal intubation and to minimize the risk of aspiration (Reynolds & Heffner, 2005). The basic process of RSI involves preparation, pre-oxygenation, rapid sedation, paralysis and intubation. Bag-valve-mask (BVM) ventilation is avoided, unless hypoxia develops, in order to limit gastric distension, which may be an increased risk of aspiration.



Rapid Sequence Intubation

(Source: <http://prehospitalmed.com/2013/02/19/pharm-podcast-61-rapid-sequence-intubation/>)

Objectives of "RSI"

- To prevent hypoxia during the induction-intubation sequence,
- To minimize the time between induction and tracheal intubation, and
- To serve as an alternative measure to prevent the risk of pulmonary aspiration of gastric contents.

Indication of RSI

The key indication of RSI is for airway maintenance and protection when the patients suffer from impending airway obstruction or ineffective airway clearance. This may be related to the following conditions,

- facial fractures: no excessive oral bleeding,
- facial burns: inhalation injury,
- expanding retropharyngeal hematoma,
- excessive work of breathing,
- exhaustively asthmatic,
- acute pulmonary oedema,
- shock,
- GCS<8, and/or
- persistent hypoxia with SpO₂ < 90%

Assuring a smooth RSI

During the procedure of RSI, nurses are required to be competent in knowledge and skills with patient evaluation, airway-management techniques, sedation agents, neuromuscular blocking agents, additional adjunctive agents, and post-intubation management.

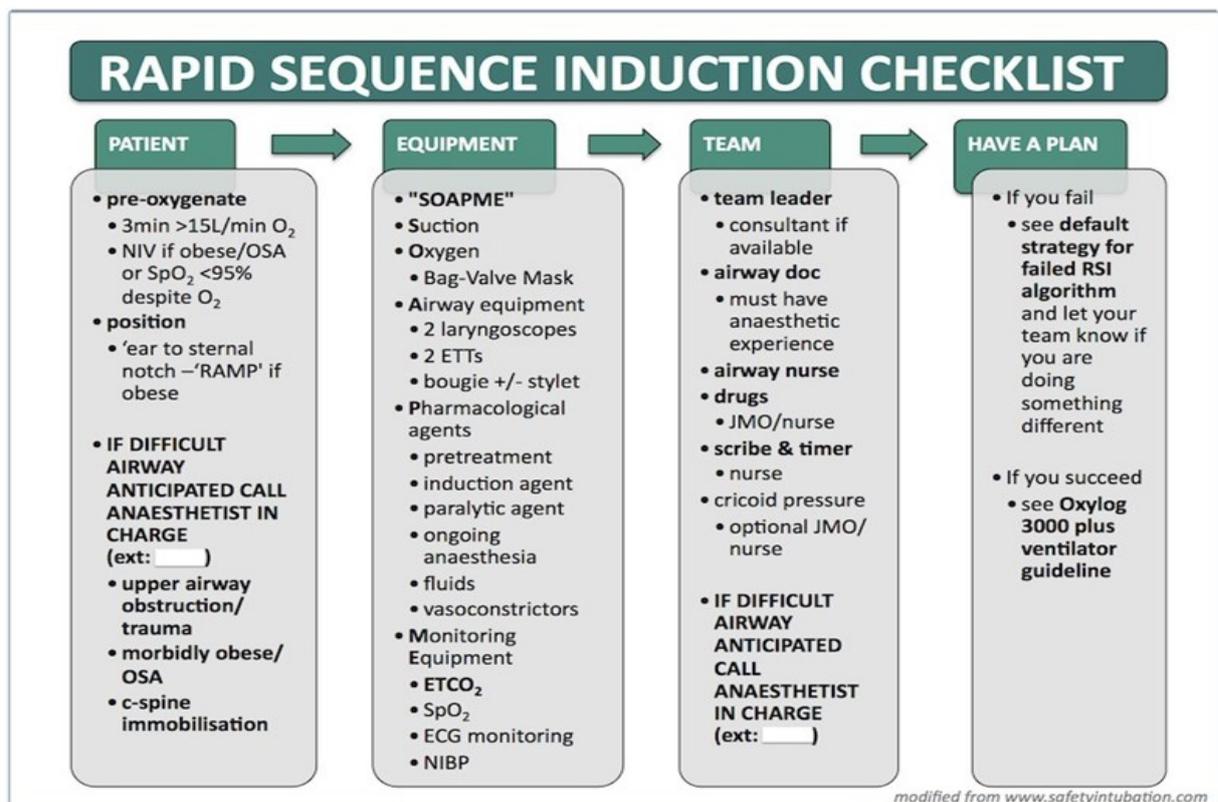
Since the aims of RSI are to prevent of aspiration

and achieve rapid intubation and to be well prepared for further immediate action should the intubation be failed. The team is well aware that difficult intubation may occur without predictive signs so that alternative strategies for failed intubation must be established in advance. The following charts show the preparation of RSI and the default strategy for failed RSI.

The 7 P's of RSI

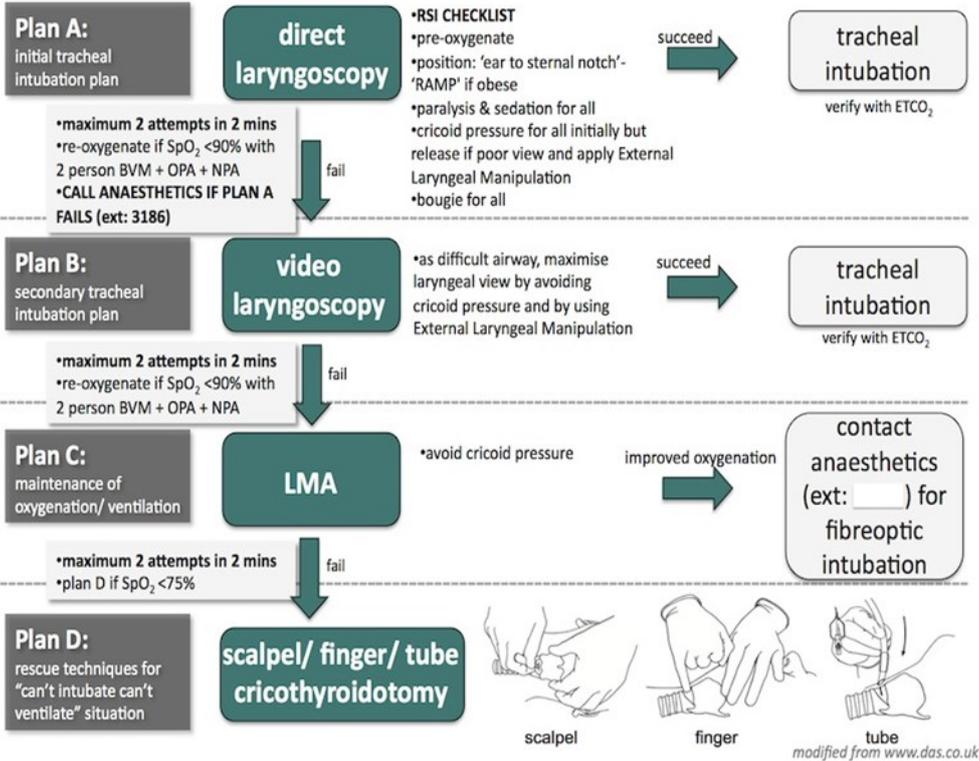
Well planning and good preparation (the 7 P's) are the most important aspects of RSI. Patients under a safe environment with fully functional equipment and competent skills of the NLERT can aid to increase the success of RSI.

1. **Preparation** - Bag-valve mask, cardiac monitor, BP, pulse Ox, ETCO₂, suction, and peripheral IV are all at hand
2. **Preoxygenation** - 100% oxygenation of the patient by non-rebreathing mask or BVM (avoid ventilation unless hypoxia)
3. **Pretreatment agent**, e.g. Atropine, and Lignocaine
4. **Paralysis with induction** - Rapidly acting induction agent is given to patient to produce prompt loss of consciousness, e.g., midazolam or etomidate for average adults; followed by paralysis with a neuromuscular blocking agent such as succinylcholine or Rocuronium
5. **Protection with Positioning** – Selectively apply Sellick's maneuver (cricoid pressure). When needed, the nurse to apply firm pressure on the cricoid cartilage to prevent passive regurgitation of gastric contents. This should be initiated immediately and maintained



Pre-intubation checklist (Source: <http://lifeinthefastlane.com/rsi-checklist-and-action-plan/>)

DEFAULT STRATEGY FOR FAILED RSI IN ADULTS



Difficult airway action plan (Source: <http://lifeinthefastlane.com/rsi-checklist-and-action-plan/>)

throughout entire intubation sequence until ET tube has been correctly placed, position verified, and cuff inflated. After placement, the ET tube must be taped or tied and secured into place

6. Placement with Proof - CO₂ detector, auscultation of bilateral breath sounds, observation of bilateral rise of chest wall, SpO₂ > 94%, and ETCO₂ between 35 and 45mmHg are expected
7. Post Intubation Management - Blood tests for ABG, CBC, cardiac enzyme, CXR, consider maintaining sedative agent, and reassess vital signs hourly

Conclusion

RSI is a method of inducing physicians in patients who are at risk of aspiration and required intubation. In the progress nurses and physicians had competent knowledge and skills to provide the patient as quickly and as safely as under this procedure.

References

Available on Request

UPCOMING PROGRAMS COURSES

- a) **ECG Course for Beginners:** 04 Nov; 11 Nov; 18 Nov; 25 Nov; 02 Dec; or 09 Dec
- b) **ACLS Provider Course:** 28 - 29 Nov; 17 - 18 Dec; or 26 - 27 Dec

ENQUIRIES for ALL COURSES:

Phone: 2861 2972

Email: hkaccn@hotmail.com.hk

For detailed information & application, visit <http://www.medicine.org.hk/hkaccn/activities.htm>

USEFUL LINKS

International Nurses Day 2015

Theme: Nurses: A Force for Change: Care Effective, Cost Effective

<http://www.icn.ch/publications/2015-nurses-a-force-for-change-care-effective-cost-effective/>

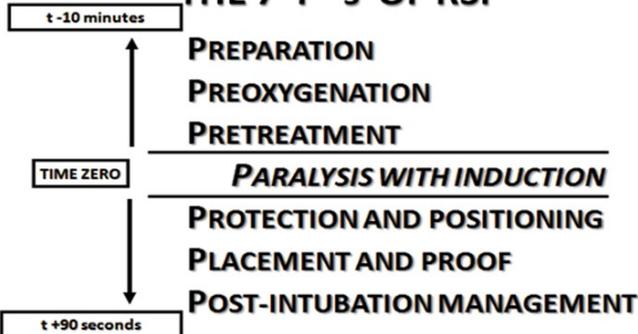
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Chief Editor: Vico Chiang



THE 7 P's OF RSI



The 7 P's of RSI

(Source: <http://reference.medscape.com/features/slideshow/airway-management>)