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240. Multidisciplinary critical care

P2003
Effectiveness of touchscreen device (iPad) as communication tool for intubated patients admitted at the University of Santo Tomas Hospital
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Objectives: To improve the communication between intubated patients and health-care providers using iPad. Specifically, (a) we would like to determine the level of frustration of intubated patients in the ICU while using touchscreen device (iPad) as a communication tool (b) determine the helpfulness of touchscreen device (iPad) as a communication tool between intubated patients in the ward/ICU and health care providers.
Subjects: (1) more than 18 years old, (2) able to read, speak and understand either English or Filipino, (3) oriented to person, place, time and situation at the time of interview, (4) Glasgow Coma Score 11 (Eyes 4, Verbal 1, Motor 6), (5) competent and able to sign an informed consent form; hemodynamically stable and (6) required intubation for at least 18 hours.
Design: A pilot observational descriptive study design.
Results: Patients level of frustration while intubated, eigthy-eight percent (88.46%) of the sample reported extreme levels of frustration when communicating with other people while intubated. Seven percent (7.69%) reported their experience as very frustrating. Almost four percent (3.85%) reported their experience as frustrating. Almost four percent of the patients (3.85%) reported their experience to be somewhat helpful, fifteen percent (15.38%) reported their experience to be helpful, almost four percent (3.85%) reported their experience to be most helpful, and seventy-six percent (76.92%) reported their experience to be extremely helpful when iPad was used as a communication tool.

P2004
The usefulness of high resolution computed tomography in burned patients with inhalation injury
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Background: Smoke inhalation may affect both airway and lung parenchyma. Then, airway injury can be easily assessed by bronchoscopy, but lung parenchymal injury might be evaluated by other imaging modalities. The aim of this study is to assess lung parenchymal injury by high resolution computed tomography (HRCT) in burned patients who had been identified inhalation injury bronchoscopically.
Methods: The bronchoscopy with biopsy at carina or 2nd carina and HRCT were performed in burned patients with inhalation injury initially after admission. Positive HRCT findings include peribronchial ground glass appearance with/or without consolidation, bronchial wall thickening, branching linear attenuation, atelectasis, interlobular septal thickening and bronchiectasis. We analyzed APACHE II scores, PF ratio, the need for mechanical ventilation care, pneumonia and degrees of airway injury according to HRCT findings.
Results: 22 burned patients were enrolled. Bronchoscopy was performed in all and HRCT in 19. Of those, 10 patents (52.6%) showed positive HRCT findings. Between positive and negative HRCT, age, burn size and initial COHb were not significant different (43±17.3 vs. 37±13.8, p > 0.05; 14.9±21.76% vs. 0.56±0.73%, p > 0.05; 6.2±7.68% vs. 11.5±8.64%, p > 0.05). Positive HRCT

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findings were closely associated with more frequencies of mechanical ventilation care and pneumonia, and higher APACHE II scores and PF ratio, and more severe airway injury.

Conclusions: HRCT in burned patients with inhalation injury may be useful to assess lung parenchymal injury and to guide further therapy because radiographic evidence for lung parenchymal injury may predict the severity of inhalation injury.

P2005

Clinical analysis of patients treated with mechanical ventilation in an emergency respiratory ward

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Aim: To make analysis of indications, duration, complications and outcome of the mechanical ventilation in patients treated in the Emergency Respiratory Ward.

Data and methods: A retrospective analysis of the patients in the Emergency Respiratory Ward treated with mechanical ventilation during the last 5 years (2007-2011) has been made. 191 patients (10,33%) from the total number of patients (1848) needed mechanical ventilation.

Results: The percentage of patients, treated with mechanical ventilation, does not differ substantially during the studied years – from 10,81% in 2007 to 11,68% in 2011.

The most common reason for heavy respiratory insufficiency, demanding mechanical ventilation, is pulmonary pathology (81,67%) as the greatest percentage belongs to COPD exacerbation and its complications (pneumonia) – 134 patients (85,90%). The most common reasons from the non-pulmonary pathology are alveolar hypoventilation in case of extreme obesity, chest deformations, left-side cardiac insufficiency.

The usual duration of mechanical ventilation is 15 days as there are no significant differences in the studied years – from 77,14% to 87,10%.

7 of the patients (3,66%) have a verified diagnosis ventilator-associated pneumonia. The total number of patients with lethal outcome is 66 (34,50%) as there are no significant differences in the studied years.

Conclusion: About 10% of the patients, treated in Emergency Respiratory Ward, need mechanical ventilation as the most common pulmonary pathology is COPD. Problematic microbial flora, most often Gram /–/ strains are isolated in tube secrets, which significantly deteriorates the prognosis and leads to lethality in 34,50% of the cases.

P2006

BiPAP in advanced IPF: Hope for palliation?

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Introduction: IPF poses challenges in patient management due to limited treatment options particularly in countries without option of lung transplantation. BiPAP was offered to patients admitted with acute exacerbation of IPF/worsening of disease as a final non invasive supportive measure. We report 7 such patients of advanced IPF who were administered home BiPAP.

Aim: To assess role of BiPAP on quality of life in patients with end stage ILD on optimal medical management visiting ILD clinic in NaviMumbai, India.

Methods: 7 patients with advanced IPF on home O2 therapy & optimal medical management were included. Pharmacotherapy included pirfenidone (1 did not tolerate), NAC, PPI and prednisolone. BiPAP was administered as final non invasive supportive therapy under supervision in hospital setting. Upon discharge BiPAP continued on trial basis for 2-4 weeks. On subjective benefit in dyspnoea, sleep quality and feeling of well being patients opted to continue use of BiPAP on regular basis. Objective assessment like PFT, DLCO, 6MWT were not done or patients were too sick to perform test.

Results: Mean duration of BiPAP therapy was 8.5 months (range 1-18 months). 7 patients reported improvement in quality of sleep and decrease in severity of breathlessness. 4 patients reported decrease in cough. 1patient died. All patients had subjective symptomatic improvement.

Conclusion: In these limited number of patients, definite subjective improvement in symptoms and well being was reported by the patients. These information provide stimulus for prospective assessment of role of home BiPAP in home setting targeting symptom benefit & impact on quality of life.

P2007

The impact of paramedics' education on controlled oxygen prescribing for patients with acute exacerbations of COPD during ambulance transfers on outcomes

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Introduction: Oxygen is a drug and should be administered with caution and only when indicated using the principle of target oxygen saturation (British Thoracic Society-BTS emergency oxygen guidelines, 2008) particularly in those at risk of Type 2 Respiratory Failure (T2 RF) like COPD patients.

Aims: To reduce complications of excessive use of oxygen during ambulance transfer in patients with acute exacerbation of COPD.

Methods: Ambulance paramedics within Salford, UK were offered education on the BTS acute oxygen therapy guidelines that included lectures and written material with supplementary access to on-line training. The education focused on the principle of using target O2 saturations and controlled oxygen delivery to guide oxygen therapy in patients transferred to hospital with suspected exacerbation of COPD.

Results: Total of 63 paramedics were trained. Over the 3 months evaluation period post training, 75 (21 males) patients with COPD exacerbations were transferred by ambulance to the local hospital, 10 of whom were transferred by trained paramedics. No differences were noted between the 2 groups of patients in relation to first blood gas results (PH, PCO2, PO2), length of stay and number of 30 days readmissions. Fewer patients in the trained paramedics group needed NIV within 24 hours of admission, were admitted to ITU, or died in hospital.

Conclusions: A simple programme of paramedics' education on the appropriate use of oxygen in patients at risk of T2RF according to guidelines may have a favourable impact on important patients' safety and outcomes like in-hospital death, admission to ITU or the need for NIV.

P2008

Clinico-pathological analysis of acute respiratory distress syndrome (ARDS)

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Purpose: ARDS is a severe disease and the therapy is not completely established and the pathophysiology is still controversial. There is a report one third of clinically diagnosed ARDS in the Intensive Care Units (ICU) were pathologically not diffuse alveolar damage (DAD), but were pneumonia, hemorrhage and so on. In this context, we clinico-pathologically studied the autopsy cases with clinically diagnosed ARDS in our hospital.

Cases and methods: The 20 patients had originally chronic diseases and were treated in our hospital. In clinical courses, they showed ARDS and were moved to ICU and died and were autopsied. The lungs and other organs were pathologically investigated what is the pathophysiological findings of clinical ARDS. Elastica stain, Al-PAS stain and immunohistochemistry for type I and IV collagen, α smooth muscle actin and Ki-67 were used. The periods of clinical ARDS and the estimated stages of DAD were compared and clinico-pathologically analyzed.

Results and discussion: A half of ARDS states were clinically diagnosed as pulmonary infection or tumor infiltration. However, 18 of 20 cases of clinically diagnosed ARDS were pathologically DAD. The period of ARDS and the stage of DAD were concordant in all 18 cases. One of non-DAD cases was lung edema due to acute endocarditis and the other was aspergillosis with CMV pneumonia. Some cases also showed pathologically acute pneumonia, though the lesions of pneumonia are localized in the proximal portion of organized DAD. These findings mean the lesions of pneumonia appear after DAD.

Conclusion: It is confirmed that DAD itself mainly causes ARDS in the patients associated with chronic underlying diseases under the treatment in a hospital.

P2009

Usefullness of noninvasive ventilation in patients with acute respiratory failure admitted in the intensive care unit (ICU) – Experience of a Portuguese ICU

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Introduction: Noninvasive ventilation(NIV) is a safe and effective mean of improving gas exchange in patients with many types of acute respiratory failure(ARF).

Study design and patient selection: Retrospective observational study to access the usefulness of NIV in patients with ARF submitted to mechanical invasive ventilation(MIV) admitted to the ICU(Santa Luzia Hospital Viana do Castelo, Portugal). We enrolled adults with ARF admitted to the ICU in 2011. Patients were analyzed globally and in two subgroups: patients that received MIV and NIV and patients that received only MIV,recording various parameters, namely, comorbidities, diagnosis, SAPS II, APACHE II, presence of hypercapnia, pH, pCO2, MIV duration, number of days in the UCI and release condition. The two groups were compared by the Chi-square and Mann-Whitney tests.

Results: 104 patients were included, mainly admitted for pneumonia (52%), other causes of ARF (23%) and COPD exhacerbation/hypercapnic acidemia (HA) (13%). 22 (21%) received MIV and NIV and 92 (79%) only MIV. When analized the differences between groups, was found statistical significant differences regarding the diagnosis (p=0,002), presence of hypercapnia (p=0,005), MIV time (p=0,015) and number days in the ICU (p<0,001), but no differences when compared comorbidities, SAPS II, APACHE II, nutricional status, social dependence or release condition. NIV was used in patients with HA (36%) and difficult weaning (63%).

Conclusion: NIV was effective in reducing the MIV time and number of days in the ICU probably because,in selected patients, it reduces the risk of ventilator-associated pneumonia,however no significant difference in mortality was observed.

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P2010
Factors associated with the requirement of ventilatory support during an acute exacerbation of COPD
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Background: Invasive or non-invasive ventilatory support is often required for patients hospitalised with acute exacerbation of COPD (AECOPD). We aimed to identify some baseline characteristics associated with subsequent requirement for ventilatory support.
Methods: A retrospective study of consecutive patients admitted with AECOPD in an acute teaching hospital.
Results: 67 patients (45% male) with a mean (SD) age of 72 (12), % predicted FEV1 of 55 (20) and baseline ECOG performance status (PS) of 2 (1.2) were studied. 10 (15%) required invasive or non-invasive ventilatory support at some point during their admission.

Patient characteristics and admission parameters

	Ventilatory support (N=10)	No ventilatory support (N=57)	p value
Age	69 (11)	73 (13)	0.38
% predicted FEV1	67 (13)	54 (21)	0.17
Baseline PS	1 (1.25)	2.14 (1.14)	0.005
No. of admission in the preceding year	1.2 (1.7)	1.1 (1.4)	0.84
Admission serum glucose, mmol/L	8.1 (3.9)	6.8 (1.9)	0.06
Admission SpO2	88 (9)	94 (3)	0.006
Admission lactate, mmol/L	1.5 (0.8)	1.2 (0.5)	0.09
Admission respiratory rate	24 (10)	21 (5)	0.04
pH	7.39 (0.08)	7.42 (0.06)	0.21
PaCO2, kPa	6.85 (1.81)	5.51 (1.15)	0.004
PaO2, kPa	8.9 (2.6)	10.2 (3.8)	0.32

Values presented as mean (SD).

Conclusions: Patients with AECOPD who subsequently required ventilatory support had a significantly lower SpO2, higher PaCO2 and a higher respiratory rate on admission. They also had a relatively better PS. Admission glucose and lactate levels were also important factors. Identifying high-risk patients based on these specific criteria on admission may help in managing patients with AECOPD more aggressively, thereby improving clinical outcomes.

P2011
Prospective comparison of a mobile, unit-use blood gas analysis device with a classical point-of-care blood gas laboratory machine in the daily ICU routine
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Technical quality of modern "unit-use" blood gas (BG) analyzers has developed during the last years. In a prospective cohort study, we tested the epoc® device comparing the ABL-800 Flex® machine routinely over 4 weeks in a surgical ICU. 2 nurses took paired BG samples from 8 long-term ventilated patients. Directly measured parameters were: pH, PO_2, PCO_2, Na^+, K^+, Glucose, Lactate, Hct (epoc), and Hb (ABL); calculated parameters: SO_2, BE, HCO_3^-, Hb (epoc), and Hct (ABL). Confounding factors (course of the study, user, patient) were analyzed. For Na^+, K^+, and Hb, central lab data were also taken into the analysis. Statistics: t test, Passing-Bablok-Regression, Bland-Altman-Plot, MANOVA.
56 paired samples were analyzed; good accordance was found for K^+, Glucose, and Lactate; for pH, a systemic deviation (epoc vs. ABL) was seen (delta MW: +0.03), as well as for Na^+ (delta MW: + 5.6); epoc data were nearer to the central lab data compared with the ABL results. For PO_2 and SO_2, epoc data were lower; similarly epoc PCO_2 was 1,8 mmHg (delta MW) lower as ABL. For one patient, considerably higher Hb values were measured with the epoc device. MANOVA resulted in a low relevance by the user, whereas different patients had a stronger effect.
Although several differences between both devices were significant, the majority of parameters had a good accordance. The strongest delta was seen for Na^+, differences for the pH are clinically not relevant. In conclusion, these data demonstrate that both devices deliver comparable results for most blood gas parameters, and thus are considered as equivalent methods in daily ICU practice.

P2012
In vitro evaluation of a new spacer for pMDI and nebulizers in mechanical ventilation
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Rationale: The objective of this study was to evaluate the performances of a new prototype spacer (Combihaler, Protec'Som, France) to improve antibiotic and bronchodilator delivery either from nebulizer or pMDI
Methods: A Servo 300 ventilator (Siemens, France) set up in controlled volume (450ml, 15/min, 40/60) was connected to an endotracheal tube. An absolute filter was connected between the endotracheal tube and a lung model (Dual adult model, Michigan instrument, USA). A vibrating mesh nebulizer (Aeroneb Solo, Aerogen, Ireland) loaded with amikacine (reference) was tested with its T piece (Aerogen, Ireland) and Combihaler. A pMDI of sabutamol (100µg, Ventoline, GlaxoSmithKline, France) was tested with a connector (Minispacer, AirLife, USA) and Combihaler. All aerosol devices were connected at the "Y" piece on the inspiratory circuit. Drug delivery on filter was assay.
Results: The duration of nebulization was not statistical different between the T piece and the Combihaler (42±0,9min vs 43,2±0,9min, p>0,05). The mass of amikacin deposited on the filter was twice higher with the Combihaler chamber compared with the Aerogen T-adapter (305.6±9.3 mg vs 142.4±4.9 mg, p<0,001) corresponding of an increasing of a factor 2 in term of output rate with Combihaler (7.1±0.2 mg/min vs 3.4±0.2 mg/min; p<0,001). The mass of salbutamol deposited on the filter was 2.3 fold higher with Combihaler chamber in comparison with the connector (43.5±6.3 µg vs 18.8±1.9 µg, p<0,05).
Conclusions: In comparison with T piece or connector, the use of the Combihaler spacer allows increasing the amount of drug delivery by a factor 2 either from nebulizer or pMDI during mechanical ventilation.

P2013
Predictors of 1-year mortality at hospital admission for acute exacerbations of COPD – A real-life study
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Background: Acute exacerbations of COPD (AE-COPD) are related to high mortality, especially when hospitalization is needed. Predictors for severe outcomes are still not sufficiently defined which constrains optimal management.
Study objectives: Assess the mortality rate and identify potential determinants of mortality in a real-life cohort of patients hospitalized for AE-COPD.
Design: Retrospective, observational cohort study including all consecutive patients admitted to the pulmonary ward of the University Hospital Maastricht between January 1, 2009 and April 1, 2010 for AE-COPD. Potential predictors were assessed at initial presentation at the emergency room. Primary outcome was mortality at 1 year. Univariate and multivariate time-to-event analysis using Cox proportional hazard models were used for statistical analysis.
Results: 260 patients were enrolled. The mean age was 70.5±10.8 years, 50.0% were male and 63.4% had advanced COPD. In-hospital mortality rate was 5.8% and the 1-year mortality was 27.7%. Independent risk factors for mortality were age (Hazard Ratio [HR], 1.04; 95% confidence interval [CI], 1.01-1.07), male sex (HR, 2.00; 95% CI, 1.15-3.48), prior hospitalization for AE-COPD in the last 2 years (HR, 2.56; 95% CI, 1.52-4.30), prior recorded congestive heart failure (HR, 1.75; 95% CI, 1.03-2.97), $PaCO_2 \geq 6.0$ kPa (HR, 2.90; 95% CI, 1.65-5.09) and urea ≥ 8.0 mmol/l (HR, 2.38; 95% CI, 1.42-3.99) at admission.
Conclusions: Age, male sex, prior hospitalization for AE-COPD in the last 2 years, congestive heart failure, hypercapnia and elevated levels of urea at presentation are independent predictors of mortality within the first year after admission.

P2014
Atrial fibrillation in critical care patients with respiratory failure: Incidence and clinical effects
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Background: Atrial fibrillation (AF) is the most common arrythmia in general population and among the critically ill patients. If not treated appropriately it might be an important cause of mortality and morbidity.
Aim: To determine the incidence of AF among critically ill patients and to evaluate its effect on ICU outcome.
Material and method: The ECGs of all the patients (both intubated and nonintubated) at admission were evaluated prospectively for the presence of AF. Patients were grouped into two as AF (+) and AF (-) and compared for their ICU outcomes, cardiac and bronchodilator therapies.
Results: A total of 147 patients (76 male, 71 female) with the mean age of 68±15 years were included in the study. AF was found in 36 (25%) patients and among them 33 were diagnosed and received treatment before ICU admission. Although no significant difference was identified at admission APACHE II, length of MV and NIMV, length of ICU stay, mortality was higher in AF(+) patients (36% vs 21%, p=0.05). Congestive heart failure, history of cerebrovascular event and acute renal failure development was significantly higher in AF(+) patients (p<0.05).No significant difference was identified between the two groups when their pre and post admission bronchodilator therapies were compared. Among the 23 discharged patients with AF, 12 (52%) were dicharged with warfarin and 11 (48%) with LMWH.
Conclusion: Atrial fibrillation must be given great importance and must be treated appropriately since it can be seen in 25% of critically ill patients and the incidence of heart and renal failure and mortality is higher in those patients.

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P2015
Attitudes to oxygen prescription

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Background: The BTS guidelines for emergency oxygen use in adults were published in 2008 to ensure the evidence-based safe usage of this commonly given drug. Four national BTS audits have repeatedly shown poor prescription and delivery of oxygen. This was reflected in our data at the Queen Elizabeth Hospital, Woolwich, a 500-bed district general hospital. We investigated the cause of poor oxygen use despite mandatory oxygen prescription (trust guidelines) and incorporation on the bedside prescription chart.
Methods & results: We distributed a survey to medical, nursing, and pharmacy staff. 113 responses were obtained. Assessment of oxygen knowledge was generally good among doctors, but 56% of nurses had not had any teaching on the subject. Amongst doctors 75% felt oxygen would be given no matter what the prescription stated and 60% felt that nurses did not look for the prescription on the drug chart. The majority did not believe that it was onerous to prescribe or that blanket provision of oxygen was harmless. Amongst nurses 47% felt that using oxygen prescription was onerous. 44% rarely or never signed for oxygen on ward rounds, and only 42% had changed the delivery device or flow rate independently despite prescription. 40% of pharmacists felt that it wasn't part of their role to check oxygen prescription and 50% thought that oxygen would be given regardless of a prescription.
Discussion: Despite recognizing its importance, there are significant attitude barriers to better oxygen prescription. As a result doctors don't prescribe oxygen as they believe nurses will ignore the prescription and nurses don't sign on the chart as oxygen isn't prescribed. Attitudes towards oxygen prescription need to be radically changed to improve matters.

P2016
The noninvasive ventilation results of critical stable hypercapnic patients in an intensive care unit

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Introduction: The application of noninvasive ventilation(NIV) in respiratory asidosis(RA) has been defined. The data about use of NIV in patients without RA for treating hypercapnia is limited.
Aim: We aimed to study the results of NIV application for critic hypercapnic patients without RA in intensive care unit(ICU).
Methods: Study design: single center, retrospective cohort study. Setting: 22 bed medical ICU in a research and training hospital.Study period: January 2010-December 2011.Patients: Hypercapnic ($PaCO2 \geq 65$mmHg) critic respiratory failure patients without RA(pH>7.35) who had no contraindications for NIV. ICU severity score(APACHE II), demographics, duration of NIV,arterial blood gas(ABG) results at admission, during NIV, nasal O2 and on last ICU day, ICU days and mortality were recorded from patients' records. Patient data were given as median and interquartile ratio(IQR,25%-75%).
Results: Of 2103 patients admitted to ICU in study period, 58(2.2%) patients with inclusion criteria were retrieved. PaCO2 value at admission, during NIV, nasal O2 and last day of ICU were 74 (69-82), 67 (61-79), 74 (63-80) and 60 (56-66) mm Hg, respectively (p<0.001) and PaO2/FiO2 values at admission and discharge were 186(143-235) and 240(202-282), respectively. APACHE II score, duration of NIV as hours(hr) on first and last day were 16 (12-18), 13 (9-14) and 6 (4-10), respectively. Days of ICU was 6 (4-9) and mortality in patient population was 4.3% (n=2)
Conclusion: The improvement of hypercapnia in critic patients without RA can be achieved by intense and regular application of NIV in ICU.Those patients should be considered for long term home NIV support.

P2017
Intensive care unit mortality of critically ill patients in first 24 hours: A single center 4-year cohort study

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Aim: There is limited number of studies examining the clinical features of patients who died within 24 hours of intensive care unit(ICU) admission.In our study we investigated whether these group of patients are in their terminal stage of desease or not.
Methods: *Study design:* Retrospective cohort study,single center. *Study place:* 22 bed ICU of tertiary research and training hospital. *Study period:* January 2008– September 2011. *Patients and data:* All patients died within first 24 hours of ICU admission during mentioned period were included.Demographic data of patients, ICU severity scores (APACHE II),ICU data, time of ICU entry and death were recorded.Terminal states of patients were identified by evaluating existence of advanced stage of chronic deseases(cancer, pulmonary parenchymal diseases, neurological diseases) and their functional life perfomance of last 3 months (Karnofsky

performance scale). *Statistics:* Results are recorded as median and inter quartile ratio (IQR).
Results: Within the specified period %16 (n=447) of 2787 patients died.96 (%21) of these patients who died within the first day of ICU admission were included in the study.Patients'values were found as for age and APACHE II: 68(56-76), 32(26-36) respectively.Distribution of 48 (%50) patients who meet the definition of terminally ill from 2008 to 2011 were as follows:%0, %60, %46, %63.%15 of patients died in first hour while %50 of them died in the first 9 hours.
Conclusion: Considering the presence of terminal desease in the half of the patients who died within first day of ICU admission, we recommend to follow these group of patients in the special units outside the ICU as national health policy and planning.

P2018
Does severity of obesity effect intensive care outcome of patients with obesity hypoventilation syndrome?

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Aim: Aim of study is to investigate the effect of severity of obesity on intensive care (IC) outcome of obesity hypoventilation syndrome (OHS) patients admitted to ICU with acute respiratory failure (ARF).
Method: Study is designed as retrospective cohort study between June 2009-2011 at ICU of teaching hospital. Patients with hypercapnia (PaCO2 <45mmHg) and body mass index(BMI) >30 kg/m^2 were grouped according to BMI 30-39 as group 1; and ≥ 40 as group 2 (morbid obesity). Demographic characteristics, comorbid diseases, blood gasses(ABG), invasive and noninvasive mechanical ventilation, ICU lenght of stay(LOS), mortality of groups are compared. Results are recorded as median and interquartile ratio (IQR, 25-75%).
Results: 149 OHS patients were included; 86 patients in Group 1, 66 patients in group 2. Respectively, patients median age was 66 (55-71), 61 (55-70) years; admission APACHE II score 16 (15-20), 18 (16-23); admission PaCO2: 75 (69-86), 78 (67-85); PaO2/FiO2: 173 (149-216), 180 (155-230) were similiar. IMV application was %30 and %29, NIV applicaton was 99% and 97%, respectively. The falling rate of PaCO2 below 45 mmHg was 55% and 75%, respectively and difference was significant (p<0.015). LOS and mortality rates were similiar between groups. Device reporting for home ventilation was 40% for group1 and 64% for group 2 (p<0.026). COPD/asthma coexistence was 40.7% at group 1 and 1.6% at group2 (p<0.001).
Conclusion: Obesity and morbid obesity don't alter ICU outcome of patients with OHS and ARF. COPD and asthma comorbidity cause persistent hypercapnia independent of BMI. Improvement in hypercapnia in morbid obesity without comorbidity is better.

P2019
Does technology matter? One intensive care unit's experience

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Background: Pneumatic nebulizers (PN) can add significant flow to the circuit and can harbor harmful pathogens.[1] Use of a PN with mechanical ventilation (MV) often results in incomplete nebulization with retrograde contamination from the patient. Vibrating mesh nebulizers (VMN) have a physical barrier between the aerosol pathway and the medication reservoir, reducing risk of contamination. We hypothesized VMN would provide more effective therapy and potentially reduce the risk of VAP.
Method: The Neuroscience ICU Respiratory Therapists initiated a QI project, trialing a VMN (Aerogen, Galway, Ireland), locating one controller in each room to avoid cross-contamination issues as part of a VAP reduction strategy. All medicated aerosol was perormed by VMN. Cumulative data was compiled for the 12 months prior. The new method (VMN) was used for 9 months, resuming the old method for an additional 60 day period (to act as an additional control)
Results:

	12 Months Prior (Old Method)	9 Months (New Method)	60 Days Post (Old Method – Control)
Average Ventilator Days	5.62	3.95	4.87
ICU Length of Stay	4.52	3.51* (p<0.05)	3.72
VAP Rate (1000 Vent Days)	4.05	3.87	3.83

Use of VMN resulted in a 15% drop in vent days, with a 19% increase during the 60 day return. LOS decreased by 28.7% during the study period. There was no statistically significant change in VAP rate, possibly due to the change in weighted value from the decreased vent days.
Conclusions: VMN was preferred by the therapists. In this instance, the advent of technology was felt to make a significant impact on patient care. Further study of the impact of choice of aerosol delivery device on patient outcome is indicated.
Reference: [1] Respir Care 2005;50(6):725-741.

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Determination of critical threshold value of SPO2/FiO2 ratio in the diagnosis of acute lung injury

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The determination of the critical threshold of S/F ratio for ALI/ARDS was conducted and evaluated. Corresponding measurements of PF and SF ratio was obtained from 106 intubated patients with the diagnosis of Respiratory Failure Type I, non cardiogenic(ALI) admitted in the intensive care units of Philippine Heart Center from June 2008 to December 2011. A Linear Regression Model [S/F = 29.6 + 1.09(P/F); p < 0.000] was obtained to determine the critical threshold of the SF ratio among Filipino patients. A correlation coefficient of 0.804 was obtained between the P/F and S/F ratio which yielded the critical threshold for SF ratio of 248 for PF ratio $\leq$ 200 and a critical threshold SF ratio of 357 for PF ratio $\leq$ 300. Analysis between ROC AUC of 0.645 and the inverse of FiO_2 correlates with PF ratio (r=0.604) indicate a consistent agreement between that S/F and P/F ratios. The SF ratio threshold of 248 (corresponding to P/F $\leq$ 200) yielded a sensitivity of 100% and specificity value of 96.23% with a likelihood ratio of 26.5 (95%CI: 6.80 – 103.20) for ARDS, while S/F ratio threshold of 357 (corresponding to P/F $\leq$ 300) had a sensitivity and specificity of 100% and 98.19%, respectively with likelihood ratio of 66.23 (95%CI: 18.7 – 283.8) for ALI. The high correlation between the SF and PF ratio and critical as well as the consistent relationships between ROC AUC and inverse FiO_2 vs. PF ratio, excellent sensitivity and very satisfactory specificity for ARDS and ALI indicate that the threshold SF ratio of 248 and 357 for PF ratio of 200 and 300 can measure and discriminate ARDS and ALI among critically ill Filipino patients.

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Influence of the pattern of admission on the outcome of patients admitted to a respiratory intensive care unit: Does the step-down pathway differ from the step-up one?

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The influence of the location prior to the admission in a Respiratory Intensive Care Unit (RICU) on the patients' outcome has never been assessed. We have evaluated the clinical outcomes and prognostic indices, according to their provenience, in 175 consecutive patients admitted over 1-year period in our RICU. 37% of the patients were admitted directly from the Emergency Room (ER), 27% from one of the Intensive Care Units (ICUs)within our hospital, 18% from our Respiratory ward (RW) and 18% transferred from other medical wards(OWs). Patients transferred from our RW had a significantly higher SAPSII score (44±10 vs 34±13,33±13 and 41±14, for ER,ICUs and OWs, respectively), a lower albumin (2.9±0.5 vs 3.2±0.6 and 3.6±0.5 for ICUs and ER, respectively). All the other clinical variables were similar except for CHF that was lower in those patients admitted from the ICUs. Mortality rate was significantly higher in the patients transferred from our RW and OWs (15%,18%,38%,43% for ER,ICUs,OWs and RW, respectively). A Cox multivariate analysis and the mortality risk (Hazard ratio) showed that an high SAPS II score (p<0.0114), low blood albumin levels (p<0.0216), non invasive mechanical ventilation (NIV) (p<0.004) and congestive heart failure (p<0.0481) were significantly associated with the mortality rate. In conclusion, when our RICU acts as "step-down" the mortality rate is lower than when it acts as "step-up", probably because these latter patients are admitted in end-stage conditions. NIV was surprisingly correlated with an high mortality risk, because in a large subset of patients it was used as ceiling treatment.