**wcna1-0083**  
**Adverse Incidents Surrounding Obstetric Anaesthesia**  
  
**IMPLEMENTATION OF GOAL-DIRECTED TRANSFUSION STRATEGY IMPROVES THE OUTCOME OF PREGNANCIES COMPLICATED BY SEVERE POSTPARTUM HEMORRHAGE**  
001  
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Implementation of point-of-care testing allows for rapid adjustment of administration of blood products to achieve pre-defined goals during the management of patients with severe hemorrhage.  We evaluate the result of introduction of a goal-directed transfusion (GDT) strategy during the peripartum period.   
  
**Methods:**  
  
We performed a cohort study to compare outcomes among parturients with severe PPH (estimated blood loss [EBL] 1500mL or more) who were managed before and after the implementation of a GDT strategy. Clinical outcomes (including EBL, blood product replacement, hysterectomy, ICU admission, length of hospital stay) were abstracted from the medical records.   
 **Results:**  
  
86 patients met criteria for inclusion; 58 in the non-GDT group and 28 in the GDT group. Median and interquartile ranges for EBL were 3000 (2000-4000) for non-GDT versus 2000 (1600-2500) for GDT (p=0.0005).  Transfused units of PRBC were 4 (2-8) for non-GDT versus 1 (0-2) for GDT (p<0.0001).  Similar results were for fresh frozen plasma (FFP).  In non-GDT group, 44.8% of patients received platelets versus none in the GDT group (p<0.0001).  Incidence of cesarean hysterectomy was 53.5% for non-GDT versus 25% for GDT (p=0.02).  Incidence of ICU admission was 43.1% for non-GDT versus 3.6% for GDT (p=0.0001).  Median and interquartile ranges for postpartum length of hospitalization were 5 (4-6) days for non-GDT versus 4 (3-5) days for GDT (p=0.0007).    
 **Conclusions:**  
  
Implementation of a goal-directed transfusion strategy for the management of severe PPH is associated with decrease in use of blood products, reduced rate of cesarean hysterectomy, fewer ICU admissions, and shortened postpartum stay.

**wcna1-0101**  
**Bariatric Anaesthesia**  
  
**SEIZURE DUE TO PROPOFOL!! MAY IT HAPPEN?**   
002  
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**Key words:** Propofol –Anesthesia - seizure

**Introduction:**

Seizure due to propofol   is an exceptional incident. Propofol has been the most often and controversially discussed drug in this context during the past few years and even early.

We present a patient who developed seizure at the time of propofol withdrawal.

**Case report:**

A 17 year-old man with a history of a colon’s wound caused by a domestic trauma and with no history of convulsion underwent a first surgery leading to a Hartmann stomy the 22nd-07-2011.Etomidate was used for the induction of anesthesia.

The patient was scheduled for a surgery of restoring intestinal continuity the 01 st-03-2012.

He developed a generalized tonic clonic seizure with rolling up of the four members after few seconds of propofol administration at anesthesia induction (300 mg).

The seizure resolved spontaneously after 1minute, however the patient’s vital signs were stable, therefore Pentothal was infused, tracheal intubation was performed.

Anesthesia was maintained with sevoflurane and 50% nitrous oxide in oxygen

There were no further episodes of seizure activityduring anesthesia or recovery.

In the recovery room, the neurologic examination was normal, blood gases were in the range of normality.

Muscles enzymes were twice the average.

Either natremia or kalemia and calcemia were normal.

**Discussion:**

Propofol is a rapid onset and short-acting intravenous anesthetic agent. Neuroexcitation is a well-recognized side effect of propofol anesthesia which appears as myoclonus. Propofol is known as an anticonvulsant drug. Nevertheless 30 references in literature describe the occurrence of seizure due to propofol from 1988 to2011.To our knowledge this is the first reported case of propofol-induced seizure in Tunisia. Even though propofol was the only drug injected, the causal relationship between propofol anesthesia and the seizure of our patient remains difficult to ascertain but we believe that we should be aware of this possible adverse relation that has been described before in literature.

**Conclusion:**

No drug in anesthesia is safe to be administrated despite recommendations and scientific data. Be vigilant.

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**wcna1-0043**  
**Cardiac Output Monitoring**  
  
**EFFICACY OF OMEGA-3 POLYUNSATURATED FATTY ACIDS FOR THE PREVENTION OF ATRIAL FIBRILLATION RECURRENCE**  
003  
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| Background: Atrial fibrillation (AF) remains to be one of the most common arrhythmia. It is associated with low quality of life, increased risk of thromboembolic complications and death. Traditional pharmacological treatment of AF is limited by low efficacy and risk of the serious adverse events. We suggest that omega-3 polyunsaturated fatty acids (PUFAs) may exert beneficial effects for the prevention of AF recurrence. Purpose: To evaluate the efficacy of omega-3 PUFAs for the prevention of AF recurrence.  Methods: We prospectively studied 58 patients (34 men and 24 women, mean age 56.8 ± 6.6 years) with stable coronary artery disease and moderate arterial hypertension who had a history of paroxysmal AF and sinus rhythm at the baseline. All patients regularly took standard therapy with ACE inhibitors, beta-blockers, statins, anti-platelet drugs and amiodaron. Participants were assigned to omega-3 group (1 g/day; n=28) or control group (n=30) for 6 months.  Results: During 6-month follow-up in 10 participants (33%) of the omega-3 group and in 18 (64%) patients of the control group AF recurrence were documented (χ2=4.39; p=0.036). Omega-3 group had significantly (p<0.05) less the mean number of AF episodes per one patient (4.4 ± 1.0 vs 7.0 ± 1.4) and the mean duration of AF episode (76 ± 38 vs 121 ± 56 min) compared to control group. Omega-3 PUFAs intake was associated with 29% (95% confidence interval 7.0-47.7%, ?=0.02) reduction in AF recurrence.  Conclusions: Supplementation with omega-3 PUFAs during 6-month reduces AF recurrence in patients with paroxizmal AF.  **Key words:** atrial fibrillation, arrhythmia, omega-3 polyunsaturated fatty acids  **References:**  1.      Simopoulos AP, Childs B, eds. Genetic Variation and Nutrition. World Rev Nutr Diet, vol. 63. Basel: Karger, 1990.  2.      Simopoulos AP, Nestel PJ, eds. Genetic Variation and Dietary Response. World Rev Nutr Diet, vol. 80. Basel; Karger, 1997.  3.      Eaton SB, Konner M. Paleolithic nutrition. A consideration of its nature and current implications. N Engl J Med 1985; 312: 283–9.  4.      Simopoulos AP. Omega-3 fatty acids in health and disease and in growth and development. Am J Clin Nutr 1991; 54: 438–63.  5.      Simopoulos AP. Genetic variation and evolutionary aspects of diet. In: Papas A, ed. Antioxidants in Nutrition and Health. Boca Raton: CRC Press, 1999: 65–88. |
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**wcna1-0044**  
**Cardiac Output Monitoring**  
  
**DM 2, HGA1 OR HOMA INDEX - WHETHER THEY ARE A BETTER PREDICTORS OF CORONARY ARTERY DISEASE AND ITS EXTENSIVENESS COMPARED TO STANDARD RISK FACTORS**  
004  
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Aims

Evaluation of patients with diabetes mellitus type 2 (DM2), HgA1c, HOMA-IR and standard risk factors for CAD (smoking, heredity, hyperlipoproteinemia, arterial hypertension ( HTA ​​)), who were sent to a tertiary center for invasive cardiology diagnostics, in assessing the existence of coronary artery disease (CAD ) and its extensiveness.

Method

Patients at high suspicion of CAD were evaluated on the basis of laboratory and clinical parameters. After invasive cardiology, diagnostics are divided into a group that do not have/ have CAD and is graded in relation to the number of diseased vessels, the one-, two-, three-, four-and-more-vessel disease.

Results

The study included 837 patients (60±8year), 76.9% were male. Evaluation of the individual risk factors have shown that HOMA-IR (p=0.761; p=0.415), HgA1c (p=0.208; p= 0.345), hereditary (p=0.171 vs. p=0.346), hyperlipidemia (p=0.140; p=0.346), hypertension (p= 0.422; p=0.101) had no significant correlation, while DM2 (p=0.0001; p=0.0001), smoking (p= 0.002; p=0.0001) had a significant positive correlation with the existence of CAD and its extensiveness. Multivariate analysis of individual risk factors, including clinical and laboratory parameters, showed that only DM2 and smoking are significantly important in predicting CAD.

Conclusion

In our study, after appropriate therapeutic approach, which significantly reduced the number of risk factors, DM2 and smoking were point out, as the only important parameters in assessing the CAD and its extensiveness.

**Key words:** diabetes mellitus type 2, coronary artery disease

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**wcna1-0045**  
**Cardiac Output Monitoring**  
  
**DO WE HAVE CUT-OFFS TO DEFINE OBESITY AS RISK FACTORS IN A POPULATION OF PATIENTS AT HIGH RISK FOR CORONARY ARTERY DISEASE?**  
005  
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Aims

Obesity is a chronic non-infective disease and is one of the leading causes of morbidity and mortality in the world. To determine the impact that obesity has to the occurrences and severity of coronary artery disease (CAD) according to different available definition for obesity (WHO, IDF).

Method

The study included 837 consecutive patients (60±8,7godina), 77% were male. Patients were divided into three groups depending on the values of BMI, waist circumference and waist-to-hip circumference relation. After invasive cardiac diagnosis, the patients were divided into a group that have/don't have CAD and CAD was graded as one, two, three, four or more-vessel disease.

Results

In patients who had CAD or higher degree of CAD, the average BMI was 27.8±4 (p=0.482 vs. p=0.903), waist circumference 101.9±12 (p=0.442 vs. p=0.934), waist-to-hip ratio 0.96±0.9 (p=0.933 vs. p=0.392). Patients with CAD or higher degree of CAD in BMI groups, were differed significantly by waist circumference (p=0.0001 vs. p=0.207), and also the relationship waist-to-hip (p=0.07 vs. 0.002). Patients who had a CAD and were obese by waist circumference had higher values of waist-to-hip circumference ratio (p=0.0001 vs. p<0.05).

Conclusion

Patients with CAD are more likely to be obese by all three parameters for defining obesity.

**Key words:** obesity, coronary artery disease

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**wcna1-0049**  
**Challenges in Paediatric Anaesthesia**  
  
**INTRAVENOUS CANULATION DEPENDS ON EXPERIENCE, NOT HIGHER LEVEL OF MEDICAL TRAINING INTRODUCTION**  
006  
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**Intravenous Canulation Depends on Experience, not Higher Level of Medical Training**

**Introduction**

Intravenous (IV) access has an essential role in the operating room for pediatric patients, allowing for drugs, fluids products and transfusion of blood.

Mostly nurses and anesthesiologists perform the IV catheterization. Catheterization success and duration might be dependent on period of experience of performers. In this research, the catheter insertion time and experience of performers have been studied.

**Material and Method**

The study was approved by the institutional review board and informed consent was obtained

from all volunteers’ family prior to enrolment. This prospective observational study was performed at a university hospital’s pediatric operating room in Turkey. Patients were enrolled from September 2015 to January 2016 within weekdays and working hours in the operating room. Historical and demographic information and diagnoses were recorded on a standardized data collection form. Patients were involved from new borns to 18-year-olds requiring surgery in the operating room. Peripheral venous catheterizations were performed after inhalation anesthesia with sevoflorane. IV canulation was performed by 14 different anesthesiology doctors and nurses. First of all, vein status was evaluated according to visibility or palpability. Assessments and applications were made by the performers. We measured the time from the start of puncture vein (after the tourniquet was applied) to successful insertion of the cannula. Successful insertion was defined as free flow of blood out of the inserted IV catheter. Likewise, we recorded the number of failed attempts, performers’ term of experience, the numbers and size of the used canula.

**Results**

A total of 109 patients were enrolled over a 2-months period. Mean age was 59.06±53(0.6-204) months and 66.9% (73/109) were male. The mean duration of the successful vascular access procedure time was 104.4±193.1(2-973) seconds. Success rate at IV access from periferal vein was 97.2% (106/109) and the performers were unsuccessful in accessing 3 patients from periferal vein. Central venous catheterization from jugular vein has been inserted in these patients. Of the 109 patients who had at least one attempt at IV access, 106 (97.2%) had successful peripheral venous access after one or more attempts. Anesthesiologists successful attempt rate was 54.7%, nurses successful attempt was 68.2% (p=0.05).  For patients who underwent one attempt at IV access median success time was 0.24 minutes (n=67); for patients who underwent two attempts 1.37 minutes (n=19); for patients who underwent three attempts, 2.81 minutes (n=6); for patients who underwent four or more attempts 7,85 minutes (n=17).

**Discussion**

The necessity of vascular access for pediatric patients in the operating room is crucial.  Our data demonstrated97.2% success rate at establishing peripheral venous access. Multiple attempts at venous access take time, potentially resulting in delay and cost effect. Higher level of medical training has a limited effect on the probability of successfully obtaining IV access. Improved training of personnel might marginally improve success rates at IV access.

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**wcna1-0106**  
**Challenges in Paediatric Anaesthesia**  
  
**BIS-CONTROLLED TOTAL INTRAVENOUS ANESTHESIA FOR THE PAEDIATRIC PATIENT WITH CEREBRAL PALSY UNDERGOING SURGERY**  
007  
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**INTRODUCTION**  
  
Cerebral palsy (CP) is a nonprogressive movement disorder originating from the damage on the developing brain during perinatal period.  The important factors effecting anesthesia practice are gastrooesephagial reflux, increased salivaton, , weakened head control, malnutrition, oropharyngeal dysfunction, electrolyte imbalance, anemia, recurrent respiratory infections , temporomandibular joint dysfunction, difficult airway , tendency for hypothermia, decreased minimal alveolar concentration for inhalational anesthetics, tolerance for nondepolarizant muscle relaxants, muscular atrophy, constipation, increased pain threshold.  
  
**CASE**  
  
13 yrs ,25 kg (<3% percentil) child undergoing surgery for sigmoid volvulus has been accepted for anesthesia with ASA III risk. Laboratory findings included hyponatremia  (129 meq/l), hyperpotassemia (5,4 meq/l), hypoproteinemia (4,8 g/dl) and hypoalbuminemia (3,3 g/dl). Computed tomography revealed bowel dilatation. We have administered 1 mg midazolam, 25 μg fentanyl ,75 mg tiopenthal and 10 mg rocuronium for anaesthesia induction. We ventilated the child with no:2 mask and used no:6 endotracheal tube for intubation.  We used total intravenous anaesthesia (TIVA) for maintenance of the general anaesthesia (100 μg/kg/min propofol, 0.33 μg/kg/min remifentanil (300 /1 ratio)) with 50% O2 + 50% air. We monitorized the depthness of anaesthesia with Bispectral index (BIS) and it was between 31 and 57 during operation. We administered propofol boluses (10 mg) in order to anticipate awareness when BIS levels increased. Duration of the operation was 3 hours and haemodynamic parameters were all in normal range. We administered  50 mg tramadol and 10 mg metoclopramid for postoperative analgesia and nausea-vomiting, respectively.  
  
**DISCUSSION**  
  
Preoperative clinical status is closely linked with postoperative outcome for CP. Hypothermia and hypotension are the most well-known complications. We prefered tiopenthal for preventing seizure. There was no pain and nausea-vomiting postoperatively. We did not use neuromuscular monitorization.  Volatile anesthetics potentialize the effects of rocuronium more than TIVA. In spite of the fact that it has been reported tolerance in CP patients for nondepolarizant blockers, single dose rocuronium was enough for the operation. It has been reported delayed emergence from anaesthesia for the patients with CP. There was no delay for our patient. BIS value was  90 at the 15th min postoperatively. Two days after discharge  the patient urged for constipation and responsed well to the lactulose treatment.

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**wcna1-0051**  
**Difficult Airway Issues Adult and/or Paediatric**  
  
**ANESTHESIA OF A PATIENT WITH MARFAN SYNDROME**  
008  
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INTRODUCTION:

Marfan Syndrome is a genetic disease that affects skeletal system, cardiovascular and ocular systems, and which involves generalized connective tissue defect. Being a disease with an autosomal dominant inheritance pattern, incidence of the disease is 4-10 per 100.000. Anesthesia is very important in cases with Marfan syndrome because of the probable heart valve diseases, thoracic aortic aneurysm, and the possible complications of joint instabilities. The intubation of these cases must be handled with care; hypertension or excessive hypotension must be avoided. This case study presents the situation of a 23 years old female patient with Marfan syndrome diagnosis who was scheduled to be taken under an operation for bilateral strabismus.

CASE:

During the physical examination of the case that had no medical family history, she was defined as of 62 kg and of a height of 164 cm, and her Mallampati grade as IV.   The lengths of lower and upper extremities of our patient were long and there was hypermobility on all her joints. There were not any other pathologic findings determined during her physical examination and routine laboratory evaluations. The patient was taken under the operation without being given any premedication. In the operating theatre, the patient was monitored with electrocardiogram, non-invasive blood pressure monitorization, and pulse oximeter (Sp02). Taking her Mallampati situation into consideration, all the necessary precautions for a difficult intubation were provided. After giving fentanyl (1 mcg/kg) , propofol (3 mg/kg) and rocuronium bromide (0,4 mg/kg) and airway is secured with laryngeal mask number 4, without any problem. Maintenance of anaesthesia was secured by 50 %  O2 and N2O and 1-2 % sevoflurane. The patient’s   hemodynamic values and oxygen saturation kept stable during the operation which lasted about 45 minutes. At the end of the operation, having decurarised with sugammadex (BRIDION®) 4 mg/kg in order to reverse the effect of the neuromuscular blocking agent, spontaneous ventilation was secured and then laryngeal mask was removed and the patient was transferred  into the recovery room. After being monitored for half an hour in the recovery, the patient was sent to the ward without any problem.

CONCLUSION:

The pathologies accompanying Marfan syndrome and potential complications must be watched carefully during the anaesthesia application and all necessary measures must be taken. Surgical interventions must be handled delicately, and excessive traction of the temporomandibular joint must be avoided during the intubation. The patients must be made to have the appropriate positions and their extremities must absolutely be supported in order to protect them from joint injuries and dislocations during the anaesthetic procedures. Laryngeal mask or regional anaesthetic methods must be chosen according to the type of the surgical intervention to be applied. Such cases must be approached with care, the preoperative preparations must be well done, and those patients must be closely watched with a well preoperative monitorization, hypertension and hypotension must be avoided for preventing serious anaesthetic complications which might occur for the above mentioned reasons.

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**wcna1-0081**  
**Difficult Airway Issues Adult and/or Paediatric**  
  
**INTUBATION WITH VIDEOLARYNGOSCOPY OF A PATIENT IN PRONE POSITION**  
009  
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Airway management is especially troublesome and difficult in patients who had to be anesthetized in prone position. Keeping in mind that mask ventilation and intubation will be difficult, alternative means of airway devices are considered in these cases. In this case report, the patient who had a penetrating trauma with a knife on his L4 vertebra, in close proximity with the spinous process, in order not to cause neural damage, induction of anesthesia and intubation with videolaryngoscpy were undertaken in prone position.

The patient was 39 years old, 90 kg body weight, male, classified as ASA I risk status, had a penetrating trauma on his back, at the level of L4, with a knife on his back, penetrating the paraspinal muscles, and spinous process had been admitted to the hospital. Because of the risk of neural damage, the foreign body had been left in place. After radiological investigation had been done urgently, the patient had been taken to the operation. The patient had to be kept in prone position, so the difficult intubation tray and the devices necessary for the difficult airway management were prepared before the induction. The patient was conscious, his blood pressure (BP): 130/70 mmHg, heart rate (HR): 103/minute (min), pulse oximeter (SpO2): 100.He had no neurological defects on examination. The efficacy of ventilation was assessed turning the head of the patient to his right side. Preoxygenation had been accomplished as the patient had been given 100% oxygen for 3 min, as his head turned right. The induction of anesthesia had been performed by thiopentone 6mg/kg intravenously ( i.v.) and the mouth opening, uvula, epiglottis, pharynx had been examined by the help of videolaryngoscope. Rocuronium bromide 0.8 mg/kg i.v. had been given for muscle relaxation. The patient had been mask ventilated as the head turned right side. Awake fiberoptic laryngoscopy and intubation necessitates special equipment and tracheal nerve blocks, so videolaryngoscopy was considered as the first choice. The videolaryngoscope had been placed as the mandibule of the patient had been opened and with the vision obtained through the videolaryngoscope monitor, the patient had been intubated successfully. Maintenance of anesthesia was performed by sevoflurane 2% in O2/N2O 1:2 mixture. The knife had been taken out when the fascia had been dissected at the level of L4 lamina. A blunt incision at paravertebral muscles had been done. After the fascia and the skin had been closed, the muscle relaxation had been reversed with neostigmine 0.4mg/kg, and atropine 0.2mg/ kg i.v. and extubation had been done without any problems.

Conclusion: Several methods had been described for management of difficult airway. Videolaryngoscopy is one of these methods. In a patient who had to be ventilated and intubated in prone position can be considered as an effective method.

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**wcna1-0100**  
**Difficult Airway Issues Adult and/or Paediatric**  
  
**THREE UNCHANNELED VIDEOLARYNGOSCOPES AND THE MACINTOSH LARYNGOSCOPE EVALUATED IN 480 PATIENTS WITH A SIMULATED DIFFICULT AIRWAY**  
010  
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1Bern University Hospital, Anaesthesiology and Pain Medicine, Bern, Switzerland*In a multicenter trial we evaluated three videolaryngoscopes with a guiding channel and three without a guiding channel for the tracheal tube. The highest success rates and the least tissue trauma were obtained with unchanneled videolaryngoscopes and similarly, anesthesiologists preferred unchanneled videolaryngoscopes over the channeled ones..(1) To differentiate whether this is due to device design or to guiding channels per se, the present prospective randomized controlled trial evaluates the unchanneled versions of the channeled videolaryngoscopes used in the first study. For comparison, the Macintosh laryngoscope was included.

With IRB approval and written informed consent, 480 patients undergoing elective surgery at the University Hospital Bern, Switzerland were included. After induction, a difficult airway was created with an extrication collar, limiting mouth opening and neck movement. In a randomized way, attending anesthesiologists intubated patients with one of three unchanneled videolaryngoscopes (KingVision® Airtraq® A.P. Advance®) or with a standard Macintosh laryngoscope. Primary outcome was first attempt intubation success. Overall success rate, Cormack Lehane grade, ease of insertion of the devices into the oropharynx, quality of visualization, ease of tube advancement, intubation times, and side effects were secondary outcomes.

Demographic data did not differ between groups (all p>0.05). Mouth opening decreased from 46 ± 6 mm to 24 ± 3 mm with the extrication collar (p<0.001). Data on the performance of the devices are given in the table. Performance differed significantly between devices and was best with the KingVision and the Airtraq for basically all evaluated parameters. Side effects like hoarseness, sore throat, pain swallowing and dysphagia did not differ between devices (all p>0.05). Success rates with the unchanneled version of the KingVision and Airtraq were similar to the channeled versions tested in the SWIVIT I study (KingVision 90% vs. 87%, Airtraq 82% vs. 85%). Success rate with the A.P. Advance was slightly higher with the unchanneled than with the channeled version (49% vs. 37%).

In patients with a difficult airway due to inhibited neck movement and small mouth opening, tracheal intubation is greatly facilitated by the unchanneled KingVision and Airtraq compared to the Macintosh laryngoscope. The A.P. Advance did not improve intubation success compared to the Macintosh laryngoscope and both showed unacceptably low success rates in this difficult airway setting. There were only minor differences in success rate between channeled and unchanneld versions of the videolaryngoscopes, indicating that performance largely depends on the blade and device design rather than on the presence of a channel for tube advancement.

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Key words:-

-Performance of KingVision®, Airtraq® and AP Advance®,

-limited neck movement

-small mouth opening

**wcna1-0023**  
**Enhanced Teaching Methods**  
  
**NEW NURSE ANAESTHETIST TRAINING REFERENCE DOCUMENT: IMPLEMENTATION AND SHORT-TERM IMPACTS OF “RESEARCH WORK PLACEMENT"**  
011  
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New nurse anaesthetist training reference document: Implementation and short-term impacts of “Research work placement"

The new training program for French nurse anaesthetist respond to the guidelines issued at the Bologna agreements. One of the major changes is the establishment of a theoretical and practical teaching unit dedicated to research. From now on, the new program includes theoretical and research methodology units completed with a clinical work placement in Clinical Research Unit of an Anesthesiology Department.

To date, thirteen Clinical Research Units have participated in the management of two successive classes. As part of the ongoing training evaluation system, a survey was conducted among 146 students. It consisted of issues on different topics including the impact of research activity on the representations of the students and the transferability of research internship in their future practice. The return rate of the questionnaires was 100%. Data analysis was performed using Excel®.

In terms of methodological knowledge, students reported having progressed mainly in evaluating the research subject relevance, in understanding chronology, in the analysis of an appropriate bibliography and in the mastering the statistical and computer’s tools. Besides, they emphasize the acquisition of a specific vocabulary and progress in terms of graph’s analysis and interpretation of results. Regarding possible transfers in professional practice, students suggest an in-depth study of scientific knowledge directly transferable during their daily activities, an increased interest in the evaluation of professional practices, a strengthening of their critical sense and discernment when dealing with information or problem. Regarding the impact of this course on their representation of the research, all students noted a profound change in their perception of this discipline. Students can see the opportunity to take part in this activity defined as "an evolving part” of their profession. In addition, students emphasize the unifying mission of this activity through improved interaction anaesthetist and nurse anaesthetist gathered around a common project.

Overall, an appropriation of research’s methodology and an active and supervised involvement during their internships allowed students to discern the necessity of a permanent questioning of our care and their evaluation. Improving our practices undoubtedly requires the development of paramedical research works. Each party has much to gain: the nurse anaesthetist will demonstrate new skills and the anaesthetist will lead to new collaboration and source of synergy and efficiency. The ultimate and clearly identified objective for this approach resides in improving the safety and quality of care in favor of the patient.

In the future, it will be necessary to evaluate the amount of initiated or invested research by nurse anaesthetist’s teams. Furthermore, it seems essential to organize training sessions for nurse anaesthetists who haven’t received the new training reference. It is absolutely necessary for the teaching staff to give support to our profession: to contribute to the production of collective knowledge, to an ongoing improvement in the quality of care, and to actively participate in the development, support and enhancement of a doctoral pathway for nurse anaesthetists.

Keywords : evaluation - representation – methodological knowledge – transferability – quality of care

**wcna1-0032**  
**Enhanced Teaching Methods**  
  
**IMPLEMENTATION OF A DIDACTIC COURSE TO IMPROVE HAND HYGIENE COMPLIANCE ON ANAESTHESIA WORKPLACE**  
012  
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**Introduction:**

Hand hygiene in the health profession is a key method for preventing **transmission of infectious diseases**. Hand disinfectants are typically used for routine disinfection.

Utilizing proper hand hygiene practices can prevent the transmission of **nosocomial infections** via hand route.  With this in mind, the Department of Anesthesiology and Pain Management at the University Hospital of Bern collects annual data for proper hand hygiene.

**Methods:**

During our annual hygiene control, all six **indications** for hand disinfection (see figure below) were recorded and logged, and the aggregate results of these observations were presented to the anesthesia personnel in the department.

**Potential Problems:**

During induction of a standard general anesthetic, we counted **27 Indications / hour** that require hand sanitization. Since most of these actions arise within the first half hour, correct hand disinfection, according to the aforementioned specifications, is **difficult to implement** due to the **short timeframe**.

**Hypothesis:**

For better understanding and to allow for variation in the work environment and processes during induction of anesthesia, the 6 indications of hand hygiene must be presented differently and integrated into a **new model**.

**Didactic** **Transfer**:

The integration of all 6 hand hygiene indications, which are defined according to Swiss Noso, into a **new didactic model,** which includes **environmental awareness** and thus is oriented to the anesthesia workplace, ensures adherence to:

"Reimann/Rohrer **three-zone model**"

**Implementation**:

During the introduction of the 3-zone model, we granted a hygiene control grace period of one year. Throughout this time the Department of Anesthesiology and Pain Management integrated scenarios for hand hygiene into existing **skills training sessions** in our simulation center. Parallel to **simulation training**, all **anesthesia workplaces**, furniture and equipment were **equipped with signs** to better orient staff to the new model and encourage proper hygiene.

In the clinic's internal continuing **education lecture** series, the **3-zone model was presented**.

**Results:**

Course of the annual surveys on hand **hygiene compliance** for our clinic.

The following table demonstrates the development and the impact of training measures for hand hygiene. The initial evaluation indicates modest success; didactic support of the three-zone model and further discussion concerning clinic hygiene standards contributed to the **positive result**. The results of our 2014 hygiene compliance control show that we **have reached the average achieved across** all OR personnel workgroups.

**Conclusions:**

Compliance with hygiene measures should be prioritized by clinic leadership! **Didactic reduction** always takes place when complex issues are broken down in order to make them **manageable and understandable** for the learner. A **manageable workplace** gives us the tools necessary to carry out the required actions. One facet of this is well-functioning **crew resource management** (CRM). It is, for example, ideally suited to provide further training on hygiene measures in an anesthesia workplace context. The video-based analysis, which is included in simulation, also provides **important feedback** on **individual behavior**, including potential improvements and necessary solutions. Ultimately, the 3-zone model provides the necessary guidance, so that focused hand-hygiene improvement measures can be implemented correctly.  
  
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Keywords:  
Transmission of infectious diseases  
new didactic model  
anaesthesia workplace  
education lecture  
didactic reduction  
manageable workplace  
individual behavior  
feedback

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**wcna1-0037**  
**Enhanced Teaching Methods**  
  
**E-LEARNING AS AN EDUCATIONAL TOOL IN THE USE OF THE ANESTHETIC MACHINE**  
013  
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**E-learning as an educational tool in the use of the anaesthetic machine**

**Introduction and Hypothesis**

The Anaesthetic Machine is an important tool in the daily work of the Anaesthesia Department. New staff receive structured tuition from super users.  An e-learning course is an educational tool that can complement the practical teaching and help to ensure acquisition of knowledge and understanding of the application of anaesthetic equipment.

The purpose of the study was to develop a course as a supplement to the practical instruction in the use of anaesthetic apparatus. The hypotheses were that the course would be assessed as highly usable and accommodate different learning styles.

**Method**

The course was developed in cooperation between the Anaesthesia Department at Vejle Hospital and the Centre for E-learning in the Region of Southern Denmark.

The course consists of three parts:

Quiz: through a series of questions one can test knowledge of the use of the anaesthetic machine. The quiz is a learning tool and feedback is given after each question on whether the answer is correct or false. It takes approximately 30 minutes to complete. The quiz is a self-test and the results are only available to the individual.

Questions and answers: this section contains answers to a number of typical questions in connection with the use of anaesthetic equipment.

Toolbox: contains a user manual for the anaesthetic apparatus, a checklist in the use of the anaesthetic machine, and a form with practical exercises.

The target audience for this course is primarily staff under training, anaesthetic nurse trainees and junior doctors. The course can also be used as a self-test for experienced staff.

**Results**

The course has been well received by staff. A questionnaire survey among anaesthetic nurses and doctors was conducted on a random day. The survey showed that 38% of the surveyed staff had reviewed the e-learning course, and among these 69% found the e-learning course usable to a high or very high degree. The motivation to open the e-learning course was primarily refreshing existing knowledge (43%), curiosity (36%), and new learning (21%). On the question of whether e-learning is generally a good way of learning and refreshing existing knowledge, 82% of users responded "high or very high degree". Comments included that the course was good, usable and easily accessible.

**Discussion and conclusion**

Even though the e-learning course was assessed as highly usable, the users found it difficult to find time in a busy work schedule. The course has since been used in connection with the training of new staff as a refresher after initial teaching. In the longer term, the course will become compulsory for staff in the Department and may also be used in connection with training in the use of other apparatus.

Using an e-learning course as an educational tool in connection with anaesthetic equipment was assessed as highly usable and seemed to accommodate different learning styles.

**Authors**

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**Key-words**

E-learning, anaesthetic equipment, questionnaire survey.

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**wcna1-0038**  
**Enhanced Teaching Methods**  
  
**SIMULATION-BASED EXAMINATION FOR NURSE ANESTHETIST STUDENTS IN SWEDEN**  
014  
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**Introduction**

In Sweden, students are required to complete one year of post nursing education before becoming a registered nurse anesthetist. At the end of the education, an examination is given to assess the student’s professional skills in anesthesia nursing. Historically, the exam has been performed under real conditions during surgery. This abstract describes the process of developing a simulation-based standardized examination for student nurse anesthetists.

**Methods**

The examination was developed through several steps. First, a literature review [1-3]; second, by creating a team with members from the faculty and staff with technical knowledge of mannequins; third, developing clinical simulations that were presented to the team members and the relevance, advantages, and disadvantages were discussed and changes made until the team was in agreement; fourth, the possibilities of equipment malfunction were addressed and the faculty members decided that the student could ask for help or instructions at any time during the simulation; and fifth, criteria for assessing the students’ clinical skills were determined.

**Results**

The students received both oral and written information before the examination. The simulation room was equipped as an operating room including a mannequin (SimMan 3g). The scenarios focused on different clinical skills; for example, preparing the equipment and patient, airway management, clinical decision making, and handing over to a colleague. One faculty member, who was outside the room and not visible to the student, assessed the student’s professional skills and the quality of the students’ performance. One member of faculty is in the room during induction, acting as an assistant nurse or anesthesiologist as appropriate. One team member manages the SimMan 3g during the scenario. After the simulation, the student is allowed to self-reflect and receives feedback on his or her strengths and weaknesses from a senior lecturer. Finally, the student writes a report focusing on an anesthesiological problem; for example, laryngospasm.

**Discussion and conclusion**

A major strength of this examination is the ability to assess care by the student in a controlled environment without harming a patient. The examination is also standardized and the simulations are similar for each of the students compared to examinations performed during an actual surgery.

A disadvantage is the possibility of equipment failure, which can distract and negatively affect the students’ performance. Also, the ability to ‘get into character’ and treat the mannequin as a patient may differ between individual students.

**Key words.** Nursing education, mannequin, professional skills

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**wcna1-0040**  
**Enhanced Teaching Methods**  
  
**PEER-TEACHING TO IMPROVE ENGAGEMENT DURING CONTINUOUS EDUCATION IN ANESTHESIA NURSING**  
015  
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Hypothesis:

The learning efficacy increases by peer-teaching of anesthesia nursing students.

Introduction:

The theoretical scientific-based medical knowledge in anesthesia nursing is taught at the Bern Education Center for Nursing. The acquisition of specific anesthesia techniques and special competences applied to the diversity of surgical and interventional specializes are learned at the university based department for anesthesia and pain medicine. The transfer of these skills learning into clinical practice is facilitated by a specialized anesthesia nurse teaching staff and by participating in the inter-professional education program of the departments. Due to the high academic standard we noticed, that especially beginners have troubles to benefit from these educational events.

Goals :

The objective of our project was to establish a peer-to-peer continues education program for departmental nursing students. Peers prepared out relevant anesthesia topics from their daily clinical practice to be comprehensible transferred to their colleagues. By including the students in these self-guided learning program we promote active involvement into the teaching process enhancing motivation for learning on both sides : the presenting and the receiving peer-student.

Methods :

-Learning by teaching

-Experiential learning

We place topic questions on the middle of our teaching methods. That implies, that teaching and learning is primarily to enable knowledge. The Students develops active their own learn settings.

« we cannot teach people anything ; we can only help them discover it within themselves. » (Galileo Galilei)

With implementation of the learning-teaching-concept, we facilitate professional networking on different learn settings.

Results:

The expected active participation and joint responsibility was observed as well as again in knowledge. Especially beginners were able to take part more active and to put out their own opinion. All that resulted in increased discussion an professional exchange among the students. The professional teaching staff supported the peer-teaching in the preparation phase, the selection of topics and the broad variety of teaching methods. In an evaluation interview held by the tutor the student receives feedback an can submit the teaching session a part of a mandatory order of learning transfer. Participants highlighted in the interview the benefit by such a teaching session but also the satisfying experience of presenting and engaging colleagues in a learning process gaining professional competence during these presentations.

Discussion and conclusion:

Subjective self-evaluation revealed that most of the peer-tutors felt that these teaching experience was very positive and encouraging. It enhanced self-esteem, fostered professional competence beyond the gained increase of knowledge and skills trained. The program was easy to implement and nearly without extra costs. Therefore we recommend strongly such a peer-teaching continues education program to engage nursing students in their own clinical learning  process.

Keywords :

- Comprehensibility

- personal responsibility

- tutoring system

- team spirit, cohesion

References :

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**wcna1-0071**  
**Enhanced Teaching Methods**  
  
**QUALITY EDUCATION AND TRAINING FOR QUALITY WORK AT THE DEPARTMENT OF INTENSIVE THERAPY**  
016  
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1, Ljubljana, Slovenia*

800x600

Department of intensive therapy is specially equipped and organized unit of a hospital that provides highly specialized care to patients at risk of life. It constitutes a specific organizational and spatial unit with the specified characteristics of the profession, nursing, facilities, technology, equipment, work organization, administration and education (1).

Nurses at the Department of intensive therapy are highly educated and trained and they are taking care of life-risk patients. A nurse must have well-developed knowledge base, together with special expertise and professional experiences relating to technology and health care requirements of a supply of critically ill patients, leading to the ability of a clear, quick, critical judgment in an environment of intensive treatment.

Possibility to education and training must be provided and accessible to all employees as they contribute to greater patient safety in health facilities. To successfully carry out the work it is important that each employee is properly educated and professionally qualified for the performance of his duties. By training the employee has the opportunity to expand his knowledge and also to apply it in practice. The purpose of the training is to conquer the standards and procedures in health care. Various studies show that the more educated nurses have a positive impact on the outcome of medical treatment, while the mortality, disability of patients and mistakes at work are in greater numbers associated with a lower level of education of nurses (2). Raising the education of nurses to a higher level is important as this ensures the skill of critical thinking in practice and the ability to apply knowledge in practice (3).

Department of intensive therapy is a learning base with the established system of education and training for both doctors and nurses. The department employs nurses who have formal education acquired during schooling.

The training is organized for nurses who are employed by the department, for the newly recruited nurses and nurses from other surgical departments. They are trained by the program with which they acquire the basic knowledge for safe and quality work to work with life-risk patients. The department is also training nursing students.

There are various workshops at the department and in the simulation center for the employees, aiming to integrate theory with practice. In short morning meetings novelties in the field of expertise and technology are presented. Employees have the option of renting a variety of professional literature in the departmental library, they also have the ability to access collections of scientific journals and articles in the departmental online library. Work instructions, protocols and standards are available on the website of the institution.

The process of education and training at the Department of intensive therapy for nurses is complex, but necessary, because it leads to quality treatment of the patient. Applied knowledge for the care of critically ill patients is a sign of professional nursing practice. Additional education and training enable nurses better quality performance of their duties and thus contribute to a more secure and better patient care.

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**wcna1-0031**  
**Exposure to Anesthetic Gases**  
  
**NURSES KNOWLEDGE OF THE HAZARDOUS SUBSTANCE AND SPILLS POLICY**  
017  
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Operating theatre nurses are exposed to the potential for contact with hazardous substances in many aspects of their workday. Knowledge of the hospital’s hazardous substances spills policy is therefore essential to ensure both staff and patient safety. The Australian National Safety and Quality Health Service Standards require clinicians to have an understanding of and to follow procedures as outlined in Standard 1: Governance for Safety and Quality in Health Service Organisations (ACSQHC, 2012). The main aim of this research was to establish the current knowledge and awareness of the Hazardous Substances and Spills Policy (GOR 02 060) amongst nursing staff in the operating theatres of St Vincent’s Private Hospital Melbourne. A further aim was to identify the type of training and introduction staff had undertaken specific to hazardous substances and spills management. As a further outcome, any deficits in nurse’s knowledge of hazardous substance spills management could be established. A quantitative research style was utilized. A survey was distributed to nursing staff in the operating theatres over a 2 week period in July 2014. Of the 60 surveys distributed, 57 were returned. The survey comprised of questions based on the content covered in the Hazardous Substances and Spills Policy. Nursing staff partaking in the survey covered areas including perioperative, central sterile services department (CSSD), anaesthetics, recovery and day procedure specialties. Of the 57 nurses surveyed it was found that 45 respondents or 79% had no training in the use of hazardous substances. 23 nurses or 40% stated that they had not received any orientation regarding the hazardous substances spill policy or the procedure in the event of a spill. Findings from this study mirror that of Polovich and Martin (2011) where it was found that nurses within an oncology setting were aware of the content of the NIOSH Alert policy however knowledge of handling hazardous drugs and the locations of safety equipment were lacking. It was concluded that alternative methods for communicating safety information and policies were warranted. Hazardous substances spills, whilst are an uncommon event, require nursing staff to have the knowledge and preparedness to manage. Not only is knowledge of the hospital's policies essential to reduce the risks associated with hazardous spills, they are also required to fulfill Standard 1 of the National Safety and Quality Health Service standards. The results from this survey indicate that nurses knowledge regarding aspects of the policy are lacking. Keywords – occupational health and safety, precautions, regulations References: Australian Commission on Safety and Quality in Health Care (2012). National Safety and Quality Health Service Standards. Sydney. ACSQHC. Polovich, M., & Martin, S. (2011). Nurses' Use of Hazardous Drug-Handling Precautions and Awareness of National Safety Guidelines. Oncology Nursing Forum, 38(6), 718-726 719p. doi: 10.1188/11.ONF.718-726

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**wcna1-0072**  
**Exposure to Anesthetic Gases**  
  
**CORE TEMPERATURE-THE INTRAOPERATIVE DIFFERENCE BETWEEN ESOPHAGEAL VERSUS NASOPHARYNGEAL TEMPERATURES AND THE IMPACT OF PREWARMING, AGE AND WEIGHT; A RANDOMIZED CLINICAL TRIAL. UNPLANNED HYPOTHERMIA, ANESTHESIA**  
018  
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**Intoduction**

Despite recommendations and several clinical guidelines, prevention of unplanned perioperative hypothermia (UPH) is still missing in many anesthetized patients and the incidence of inadvertent hypothermia remains high [1]. UPH is related to the environmental temperature in the operating room but mainly to altered thermoregulation in the body due to general anesthesia and neuroaxial analgesia. Efficiency in preventing UPH depends on valid temperature measurement and effective warming routines [1].When noninvasive core temperature measurements are wanted during surgery, the esophageal and nasopharyngeal temperatures are regarded as reliable alternatives [2]. These methods enable a continuously monitored temperature measurement during surgery. The combination of pre-warming, defined as actively warming the skin before anesthesia start [2], and active intraoperative warming are effective ways to prevent UPH during surgery [3]. This study was conducted to determine the intraoperative temperatures with two different measurements techniques (esophagus versus nasopharynx). This issue was evaluated in two groups with and without prewarming (warming before anaesthesia start).

**Methods**

All patients were recruited from a waiting list for colorectal surgery. Patients included were adult and of both genders with ASA physical status 1 and 2, who were to undergo elective open colorectal surgery under general anesthesia combined with regional analgesia for an anticipated anesthesia time of at least 210 minutes. The study was designed to perform repeated core temperature measurements in two groups, A (pre- and intraoperative warmed), and B (intraoperative warmed) from probes in the esophagus, and nasopharynx. In the OR, patients were randomly assigned by a sealed envelope technique to group A (n = 26) or group B (n = 26). To minimize diurnal variation in body temperature as a confounding factor all studies started at 07.30 a.m. The temperature values were displayed continuously on the monitor screen, but recorded according to the intention of reflecting the three phases (peripheral redistribution, heat loss exceeding heat production and the plateau phase) of hypothermia.

**Results**

Mean temperatures at 210 minutes were statistically different between the groups at both sites of measurement. Esophageal temperature in group A was 36.5 ± 0.6 versus 35.8 ± 0.7 in group B (p = 0.001), and nasopharyngeal temperature was 36.7 ± 0.6 and 36.0±0.6 in group A and group B, respectively (p = 0.002). A negative correlation was found between esophageal temperature and age (r2 = -0.381, p < 0.012). Esophageal temperature was different with respect to BMI below or above 25. The temperatures were 35.81 ± 0.66 in the lower BMI group versus 36.46 ± 0.59 (p < 0.001). These results demonstrate a difference between the two measurement techniques and that pre-warming, age and BMI have an impact on measured temperatures.

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**wcna1-0029**  
**Fluid Therapy**  
  
**DEVELOPMENT OF THE A-DIVA SCALE: A CLINICAL PREDICTIVE SCALE TO IDENTIFY DIFFICULT INTRAVENOUS ACCESS IN ADULT PATIENTS BASED ON CLINICAL OBSERVATIONS**  
019  
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Objective  
Placement of peripheral intravenous catheters is a routine procedure in clinical anesthesia practice, but failure of intravenous cannulation regularly occurs. We aimed to develop a predictive scale to identify adult patients with a difficult intravenous access prospectively based on clinical observations: the A-DIVA scale.

Methods  
This prospective, observational, cross-sectional cohort study was conducted and performed at the pre-operative holding area of the department of anesthesiology of the Catharina Hospital. Patients 18 years or older were eligible if scheduled for any surgical procedure, regardless ASA classification, demographics, and medical history. A population-based sample of 1063 patients was included. Experienced and certified anesthesiologists and nurse anesthetists routinely obtained peripheral intravenous access according to practice guidelines. Before cannulation, a tourniquet was placed on the upper extremity to apply dilatation of the target vein. Palpating and visualizing the upper extremity helped identifying the target vein. Veins on the upper extremity were considered for cannulation. A failed peripheral intravenous cannulation on the first attempt was the primary outcome.

Statistical analyses  
Significant associated items with the primary outcome from the univariate logistic model were entered in a multivariate logistic regression model. The definitive predictive scale was constructed by deriving ß-coefficients of significant variables from this logistic model. Each patient received a weighted risk score based on the sum of the points of each predictor and three risk groups were created.   
  
Results  
Failure of intravenous cannulation was observed in 182/1063 patients (17%). Five variables were associated with a failed first attempt of peripheral intravenous cannulation: palpability of the target vein (OR = 4.94, [2.85-8.56]; p < 0.001), visibility of the target vein (OR = 3.63, [2.09-6.32]; p < 0.001), a history of difficult peripheral intravenous cannulation (OR = 3.86, [2.39-6.25]; p < 0.001), an unplanned indication for surgery (OR = 4.86, [2.92-8.07]; p < 0.001), and the vein diameter smaller than two millimeters (OR = 3.37, [2.12-5.36]; p < 0.001). The scores for existing risk factors was applied in three risk groups: 36/788 patients (5%) suffered from a failed first attempt in the low risk group (A-DIVA score 0-3), whereas the medium (A-DIVA score 4-7) and high risk group (A-DIVA score 8 plus), included 72/195 (37%) and 74/80 (93%) patients with a failed first attempt respectively.

Discussion  
We identified five risk factors, which were associated with a failed first attempt of inserting an intravenous cannulation, and were included in the A-DIVA scale for its use as a clinically applicable predictive rule in daily anesthesia practice (table 1). A score on the A-DIVA scale will predict the likelihood of failed peripheral intravenous catheter placement, whereas a higher score on the A-DIVA scale indicates a higher risk for difficult intravenous catheter placement (table 2). We believe that early recognition of patients at risk could help in applying alternative approaches, such as ultrasound guidance, to achieve a successful peripheral intravenous access.

Conclusion  
The five-variable weighted A-DIVA scale is a reliable and accurate predictive rule that implies the probability to identify patients with a difficult intravenous access.

**wcna1-0080**  
**Fluid Therapy**  
  
**IMPROVED PATIENT SAFETY USING COMPUTERISED SCANNING OF BLOOD PRODUCTS**   
020  
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Introduction

The Swedish National Board of Health and Welfare (SNBHW) demands that 100 percent of the blood units being delivered from blood banks are traceable down to the patients receiving them. During 2013, there were on our Operating Theatre a few occasions when patients received blood not meant for them. This was mainly due to human error. To manually check that a blood unit is suitable for a patient involves checking the patients id, what blood group he/she has, if the blood unit is of that group and tested for antibodies. It takes time and errors can easily be made,  sometimes with life threatening result. On our Obstetric operating theatre, significant blood losses are not unusual and lead to highly stressful situations when perhaps up to 60 blood units have to be checked before  transfusion. This led to the question, is there a faster and more importantly safer way to check the compability between patient and blood? If so, would it improve the working environment and the patient safety?

Method

A project group was set up in order to answer our questions. The group found that there was a computerized system using hand scanners on the Swedish market, used by a few Operating Theatres as well as Intensive Care Units. When giving a blood transfusion, they simply scanned the patients id printed on a bracelet and the bar code of the blood unit. That information was sent to the blood banks system and within a split second they received an “OK to transfuse” on the screen. Each and every unit of blood was also automatically documented in the patients computerized journal. Since all the wards using the scanning system were very satisfied with it we decided to implement it on our Operating Theatre. We applied and received sufficient fundings from a local government fund whose goal were to encourage projects improving working environment.

Key words: working environment, patient safety, blood transfusion

Results

After the hand scanners were installed and able to communicate with the Blood banks system as well as the patients journal the project group began to teach all Nurse Anesthesists how to use the system. It took maximum half an hour per person. The technical problems have been surprisingly few coming down to a scanner being discharged once or twice. The nurse anesthesiologists experience less stress when blood needs to be given, even when the blood loss is severe, because the system is both safe and fast. We have also reached the goal set by SNBHW that every single blood unit must be traceable.

Discussion

At a rather small cost we have been able to improve the working environment for Nurse Anesthesiologists as well as increasing patient safety.

**wcna1-0033**  
**Leadership in Anesthesia**  
  
**CREATING AN OPEN-SOURCE ANESTHESIA ELECTRONIC MEDICAL RECORD**  
021  
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**Introduction**

 Currently there are no widely available open-source anesthesia electronic medical records (AEMRs) specifically for Nurse Anesthetists.

Our goal was to create an open-source, widely-available AEMR that can be downloaded and installed on a tablet computer (the Apple® iPad).  For simplicity and ease of use, its focus will be on solo- or small-practice nurse anesthetists operating in environments with limited or no network and computing resources other than the iPad.  One patient, one nurse anesthetist, and one iPad.

**Methods**

 We chose to use FileMaker® database management platform to create our anesthesia EMR solution because once created in the FileMaker program on a desktop computer, the solution file can be downloaded and installed for free on any iPad that has previously installed the free FileMaker Go® iOS app.

We had additional concerns that had to be addressed:

Ease of use - the solution must require minimal learning and setup time, and allow maximum attention to be placed upon the patient and not on data entry. Also, for international use, it must be “localizable” such that different languages may be accommodated.

Open-source - the solution should be licensed in such a way as to allow users (or developers they employ) to modify and expand the basic code for their own particular uses.  However, the license will prohibit commercial use or sale of the solution unless it has been substantially modified.

Security - the solution must comply with USA government security requirements as put forth in the Health Information Portability and Accountability Act (HIPAA) and 21 CFR Part 11 statutes.

Data reporting - the solution will allow simplified data reporting for quality improvement activities and requests by national or international data repositories or agencies, such as the Center for Medicare and Medicaid (CMS) Physician Quality Reporting System (PQRS).

Billing - the solution will allow secure transmission of billing data to third parties.

**Results**

Anesthesia\_EMR\_version\_x\_xx.fmp12, a downloadable FileMaker solution file.

**Discussion and Conclusion**

Given the movement by both governments and insurers to require electronic data collection and transmission for payment, compliance, and quality improvement efforts, solo- or small-practice nurse anesthetists with limited financial and computing resources may find it increasingly difficult to care for their patients in these settings.  Governments and insurers may either refuse or decrease the payments to practitioners who cannot supply EMR data.  This trend is well underway in the USA, where CMS is reducing payments to providers who cannot supply data to the PQRS.

By downloading our free open-source Anesthesia EMR solution, nurse anesthetists will be able to create a digital anesthesia record and meet all pertinent requirements for data from third parties.

#### 

**wcna1-0047**  
**Leadership in Anesthesia**  
  
**THE DEVELOPMENT OF PRACTICE DOCTORATE STANDARDS FOR NURSE ANESTHESIA PROGRAMS LOCATED IN THE UNITED STATES**  
022  
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**Key Words**: accreditation, advanced education **Introduction**: In 2007, following a 2 year study to assess the implications of doctoral education, the American Association of Nurse Anesthetists (AANA) issued a statement supporting doctoral education for entry into practice for nurse anesthetists by 2025. The Council on Accreditation of Nurse Anesthesia Educational Programs (COA) is responsible for establishing accreditation standards for nurse anesthesia programs located in the United States and its territories. In support of the movement to doctoral education, in 2011 the COA appointed a Standards Revision Task Force (SRTF) to develop accreditation standards for entry level nurse anesthesia programs awarding practice doctorate degrees.

**Methods**: The development of Practice Doctorate Standards (PDS) occurred over a 3 year period. The SRTF started by formulating assumptions to provide a foundation for its work. A total of 4 draft PDS were developed. The first draft was developed based on input from the communities of interest, a review of the literature, and analysis of clinical experiences records. Each draft was preceded by a call for comments from the communities of interest. Comments were submitted by online surveys, hearings, and focus sessions held at national AANA meetings. The second draft was subject to statistical analysis to assess its reliability and relevancy. During development, the SRTF made presentations at national AANA meetings and at every COA meeting to obtain input from the communities of interest. To assess consistency, crosswalks were conducted between the draft PDS and the AANA Scope of Nurse Anesthesia Practice, and the United States Education Department (USDE) and Council for Higher Education Accreditation (CHEA) recognition requirements for accrediting agencies.(1)

**Results**: In January 2014 the SRTF presented the COA with draft 4 of the PDS. The standards are organized into 8 sections reflecting the major content areas (i.e., conducting institution, faculty, student, graduate, curriculum, clinical site, policy, and evaluation). There is a single appendix containing clinical experience requirements. The standards also include a Glossary that defines and clarifies specific terms and concepts. At its January 2015 meeting the COA approved the PDS and requires compliance by programs awarding doctoral degrees for entry into practice. (2)

**Discussion and Conclusion**: The PDS provide the foundation to advance nurse anesthesia education, practice, and the profession. On January 1, 2022, and thereafter, all students matriculating into an accredited nurse anesthesia program must be enrolled in a doctoral program. As of January 1, 2016, there are 39 nurse anesthesia programs approved by the COA to award doctoral degrees for entry into practice. Challenges that programs face in transitioning to doctoral education include obtaining qualified CRNA faculty, financial support, approval by university committees, and, in some cases, approval by state government and regional accreditation agencies.

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#### 

**wcna1-0058**  
**Leadership in Anesthesia**  
  
**THE ROLE OF NURSE ANESTHETISTS IN JAPAN**  
023  
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**【Background】** In Japan there were no nurses designated to assist with anesthesia care until 2010, although nurses have played an important role in anesthesia care outside Japan for many years. However St. Luke's International University (SLIU) established a master’s course to train nurse anesthetists, known as perianesthesia nurses (PANs). There are currently 4 PANs at St. Luke’s International Hospital and 2 PANs at Yokohama City University Medical Center (YCUMC). The purpose of this presentation is to report on the Japanese PAN system.

**【Method】**

 Practices performed by 2 PANs at YCUMC were retrospectively assessed using computerized anesthesia records from April, 2015 to December, 2015.

**【Results】**

 During the period of the study, the 2 PANs administered operative anesthesia as the principal anesthesia provider under the direct instruction and supervision of anesthesiologist in 259 cases. Complications related to anesthesia including PONV, sore throat or hoarseness and teeth injury were reported. The 2 PANs also engaged in preoperative assessment of about 2000 cases in the outpatient department. Neither Sedation service nor pain management outside operating room (OR) were practiced.

【**Discussion and Conclusion**】

 It was proved that PANs at YCUMC contributed to perioperative care. Common or slight complications such as PONV were reported in some cases, however severe complications such as hypoxia or critical accidents did not occur.  
 PAN’s essential mission is to improve the safety and quality of anesthesia care as a member of anesthesia care team. The PAN’s role is designed within the framework of ‘perianesthesia’ beyond ‘perioperation’, namely, PANs play a role not only during surgery in the OR but also wherever anesthesia care is required. The role of PANs at YCUMC is currently limited within perioperative care because PAN system is still very new in Japan, although PANs will be able to contribute more broadly and significantly to anesthesia care as the system develops.   
 Our hope is that the value of perianesthesia nursing will become more widely recognized in Japan, for the betterment of anesthesia care in this country.

【Key words】 perianesthesia nurse, expanding role of nurse, investigation of practice

#### 

**wcna1-0021**  
**Leadership in Anesthesia**  
  
**APPLYING A TIME-OUT AND STANDARDIZED REPORT FORM IN ANESTHESIA HAND-OFFS**  
024  
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Introduction: At the Memphis Veterans Affairs Medical Center (VAMC), there was no established protocol for patient hand-off from anesthesia providers to the Surgical Intensive Care Unity (SICU) and Post Anesthesia Care Unit (PACU). Anesthesia and SICU staff members reported frustration regarding inconsistent and incomplete post-surgical handoffs.  Issues identified included: difficulty contacting SICU staff to give report and inconsistent availability of SICU staff upon first arrival to the SICU. The staff nurses felt rushed and received inconsistent reports. The current process resulted in unsafe hand-offs, as well as slower operating room turnovers, causing an increase in hospital costs.

Methods: A multidisciplinary committee was formed consisting of representatives from Anesthesia, PACU and SICU to discuss the problem and offer solutions. A hand-off form was created by the committee.  To increase situational awareness during transfer, anesthesia providers began to announce a “time out” before giving report. After initial compliance lagged, small tests of change were implemented to foster a culture of change and acceptance among staff.  The committee established specific roles and assignments for when a surgical patient arrived in the SICU. This was dubbed the “ABCs of safe hand-off”. A stood for Airway, meaning the anesthesia provider or respiratory therapy places the patient on the ventilator or puts on supplemental oxygen. B stood for brick, the transport module (known as the brick) and Pulmonary Artery (PA) catheter transducer are inserted into the monitor by the circulating nurse and SICU nurse respectively.

Results: The overall impact of the project has been to further promote a culture of patient safety. The key to this is establishing continuity of care as an institutional priority. To do this, the existing hand-off sheet, "Time Out” and “Cross Check” has been adapted to all hospital wide transfers. Compliance with completion of the hand-off form and “time out” has averaged 97.5% since inception of the protocol. Additionally, statistical analysis showed significant increases in the percentage of staff who felt that they were part of a team, felt the hand-offs were more efficient and effective, and felt more comfortable assuming care.

Discussions and Conclusions:

The overall Surgery to SICU transfers utilizing the Hand-Off card increased from 33% from the first month to an average of 98% after interventions. The “Time Outs” in SICU, increased from 29% from the first month and have continued to average 98.74%.  SICU staff members present at patient arrival was initially 83% and has risen to an average of 97.38% over 10 months.

Anesthesia Hand Off report for PACU patient transfers was 79% initially and increased to 98.8%.  The “Time Outs” in PACU, increased from 39% from the first month and have continued to average 98.74% over 10 months. With the guidance and expertise of the hand-off committee, PACU has begun using a hand-off sheet and “time-out” when transferring patients to the medical/surgical floors. Further areas to research include transfers from the Emergency Department as well as transfers among anesthesia providers.

 keywords: hand-offs, safety, time out

#### 

**wcna1-0017**  
**Management of Pain**  
  
**DIMENSIONS OF PATIENT SATISFACTION IN THE EMERGENCY DEPARTMENT**  
025  
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**Keywords**  
- Patient satisfaction   
- Emergency department   
- Pain management   
- Process optimisation   
- Quality management  
  
**Introduction with Hypothesis**   
The emergency departments of German hospitals have been facing increasing numbers of cases for many years. Meanwhile, costs and competitive pressure increase. Additionally, patients turn more and more into customers who address their wishes and needs. Patient satisfaction is closely linked to the quality claims of hospitals.   
The aim of this scientific investigation is to determine how satisfied patients in the emergency department are and to clarify which dimensions of satisfaction are of particular importance. Questions about patient experience allow assessing whether there is a need for improvement of established processes, and, if so, in which ways. The aim is to make processes more patient-friendly and to optimise both process and outcome quality.   
  
**Methods**  
This is an empirical study, specifically a two-week cross-sectional study with a pretest on a cluster sample with a subsequent computerised analysis. A validated standard questionnaire on patient satisfaction in the hospital is adapted to the specific requirements of an emergency department and pretested in a small patient cohort (1). Additionally, all patients receive a second questionnaire to be completed only by those experiencing pain (1). The analysis and evaluation is carried out with an MS Excel data table.   
Patients receive the questionnaire on the day after their admission to avoid burdening them in the acute situation. Informed consent is mandatory to participate in the study. Children, confused, comatose, non-German-speaking patients, etc. are not included in the interrogation. Patients on intensive, palliative or psychiatric wards are not consulted either.   
  
**Results**  
Overall, 184 questionnaires are given out to suitable patients according to the inclusion criteria. The return is n = 111 (60.3 %; additional questionnaire pain: n = 60, ≙ 54.1 %).   
For patient satisfaction in the emergency department, the areas of pain relief, medical care, hygiene, nursing care and trouble-free admission processes are of particular relevance. There also seems to be a correlation between pain, analgesia received and overall satisfaction.   
  
**Discussion and Conclusion**  
As a result of the study the default processes in the study hospital are optimised so that the initially triaging nurse always raises important patient parameters and performs certain obligatory medical examinations. In addition, according to the requirements from literature, all pain patients should promptly receive sufficient analgesia (2, 3).   
  
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**wcna1-0070**  
**Management of Pain**  
  
**HOW CAN WE MEASURE THE INTRAOPERATIVE PAIN? ASSESSMENT-CRITERIA OF PAIN IN PATIENTS WITHOUT SELF-EVALUATION**  
026  
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**Introduction with Hypothesis**

A literature review was created as part of a bachelor thesis in 2011 and complemented by the latest research results.

Pain is a phenomenon with a person can be confronted anytime. It is an unpleasant sensory and emotional experience and is caused by an acutal or potential tissue dammage.The experience of pain is subjective and individual and has an impact on the physical and psychological well-being and quality of life of those affected.

The purpose was how to capture intraoperative pain and what influence this has on the activity of nurse anesthetists?

**Methods**

A systematic literature review was conducted in the databases Medline, PubMed, CINAHL, and the Cochrane Library from December 2010 to March 2011 and August 2015. From eight selected studies, three are presented in detail and complemented with new research.

**Results**

For conscious patients with local / regional anesthesia existing pain assessment instruments (VAS, NRS) can be used for intraoperative pain assessment (self-assessment). For patients with general anesthesia nurse anesthetists evaluate intraoperative pain on the basis of other criteria (external assessment). Existing assessment instruments can be used only limited for intraoperative pain assessment.

Study 1 (1): Researchers examined Swedish nurse anesthetists (n = 40) with three to more than ten years of professional experience in anaesthesiology setting, as they assessed the pain responses of patients during general anesthesia. The researchers found out that a differentiation of the assessment criteria was considered to be difficult regarding a possible inadequate treatment of pain and / or anesthetic depth by the participants.

Study 2 (2): This multi-center trial conducted at nurse anesthetists (n = 223) answered the question; how nurse anesthetist evaluate and interpret intraoperative clinical signs, which are caused by pain and / or an inadequate depth of anesthesia. The results be weighted with variables turned out to be difficult, it was not possible to make a clear division.

Study 3 (3): The researchers demonstrated with this study between different health professionals (n = 72) (anesthesia providers, nurse anesthetists and nurses) in the perioperative setting; the importance of knowledge and attitude toward pain and how this affects the quality of care. Significant differences were detected between anesthesia providers and nurses in the preoperative care.

**Discussion and Conclusion**

To assess the pain of patients a self-evaluation should always be given priority. If an external assessment is required, it must be taken in the knowledge that the subjectively experienced by the patient pain cannot be objectively measured. Pain assessment and treatment is a responsible task that requires constant attention and currently cannot be taken over by electronic devices. Personal factors such as education and knowledge skills are also important. By using clinical parameters and measured vital parameters, pain cannot be clearly demonstrated, but often there is a connection with an intraoperative inadequate anesthetic depth, caused by a strong pain stimulus.

For intraoperative pain assessment of patients be using the external assessment, further research is needed. Requires are reliable and validated pain assessment tools and technical devices which can be used in clinical practice.

**Keywords:**

Anesthesia, nurse anesthetist, management, perioperative.

#### 

**wcna1-0016**  
**Management of Pain**  
  
**HOW TO ASSESS WHAT NURSE ANAESTHETISTS KNOW ABOUT PAIN: PSYCHOMETRIC TESTING OF THE ADAPTED GERMAN VERSION OF NURSES KNOWLEDGE AND ATTITUDES SURVEY REGARDING PAIN ANAESTHESIA**  
027  
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**Introduction:** Despite new insights into pathophysiology and modern treatment options, surgery is often accompanied by acute postoperative pain [1]. Acute pain is a relevant problem within the first 48 hours after surgery in up to 83%. These patients are at risk of developing chronic pain accompanied by psychological and physiological effects [2]. Effective postoperative pain therapy helps not only to avoid chronic pain but also prevents the development of various complications and postoperative delirium.

To provide appropriate care, nurse anaesthetists require adequate knowledge and technical expertise to respond to patient’s needs and to deal with perioperative changes as necessary. Gaps in current knowledge in the field of pain therapy can negatively impact treatment and recovery [3]. The objective of this study was a further adaptation of the existing, unpublished instrument "Nurses Knowledge and Attitudes Survey-Anaesthesia" (NKAS-A) and the psychometric testing of this tool.

**Methods:** The NKAS-A instrument was evaluated by experts in anaesthesia (n = 10). The results were recorded, and the instrument comprehensively revised and further developed by independent experts (n = 5). The instrument consists of 34 items. A review of the face validity was carried out in order to elicit the relevance of the items. Calculation of the content validity (n = 11) of the individual items (I-CVI) and of the entire instrument (S-CVI Ave) served as an assessment for the relevance of the instrument. Before testing the psychometric properties, the readability of the items (n = 3) were reviewed. Finally, the reliability according to Kuder Richardson (KR-20) and convergent validity according to Pearson were assessed in a convenience sample of nurse anaesthetists (n = 209) of five Swiss hospitals. The survey was carried out online.

**Results:** One-hundred nine nurse anaesthetists took part in the investigation, which corresponds to a return rate of 52%. The I-CVI ranged of 0.4-1.0; the S-CVI / Ave was 0.85. Pearson’s correlation was not significant (α = 0.05, two-tailed); the correlation coefficient was r = 0.017. KR 20 was 0.52 for the entire instrument (0.45 first part and 0.73 second part).

**Conclusions:** The adapted instrument meets the criteria of validity, but only partly those of reliability. It is recommended that only the second part, i.e. questions 19-34, of the instrument is to be used for assessing the knowledge of nurse anaesthetists. Before using the  instrument to assess knowledge of the nurse anaesthetists in practice, the usefulness of the items of the first part should be reconsidered, and/or the psychometric properties should be tested in a larger sample to permit a multivariate analysis. A rewording of certain items is recommended.

**Keywords:** Nurse anaesthetists, pain management, validity, reliability

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**wcna1-0036**  
**Management of Trauma, Burns and Shock Patients**  
  
**A CRITERIA DIRECTED PROTOCOL FOR IN-HOSPITAL TRIAGE OF TRAUMA PATIENTS**  
028  
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**Introduction:** Low rates of correct triage and high overtriage rates is a common problem in trauma centres in Scandinavia and interventions to improve correct triage have been warranted [1]. To better match hospital resources to patients’ needs of trauma care, a protocol for facilitating in-hospital triage decisions was implemented at a Swedish level I trauma centre. The purpose of the study was to evaluate the efficacy of the criteria-directed protocol for determining in-hospital trauma triage in an emergency department (ED).

**Methods:** The hospital is the primary trauma centre in the region (level I) and serves about 2.5 million inhabitants. Annually, around 1500 patients are admitted to the hospital due to traumatic injuries. Approximately 300 of these patients are severely injured. When arriving to the ED, trauma patients are triaged to either limited trauma team activation or full trauma team activation by the triage designated nurse. Before implementation of the protocol no formal support for triage decisions was at hand. During 2012 a protocol containing criteria of physiological parameters, anatomical injuries and mechanism of injury was implemented and used to render in a recommendation for full or limited trauma team response. Level of triage and triage rates were compared before and after implementation of the protocol. Overtriage and undertriage were assessed with injury severity score (ISS) >15 as cut-off for defining major trauma. Primary endpoints were over- and undertriage rates. Patient characteristics and trauma related data were obtained from the local trauma registry from 2011 and 2013. In 2013 protocols were consecutively collected from the ED. Overtriage was considered present when trauma patients with minor injuries, ISS < 15, were triaged to full trauma team treatment. Undertriage was defined as severely injured patients with ISS greater than 15, triaged to a limited trauma team treatment.

**Results:** In 2011, 78% of 1408 trauma team activations required full trauma response with an overtriage rate of 74% and under triage rate of 7%. In 2013, after protocol implementation, 58% of 1466 trauma team activations required full trauma response. Overtriage was reduced to 52% and undertriage was increased 10 %. However, there were no preventable deaths in the undertriaged patients. Sensitivity and specificity of the protocol was 90% and 48% (p<0.05).

**Discussion and conclusion:** Relocation of trauma patients from the trauma bay to the emergency department, due to a more correct triage gives us a chance to optimize resources and improve patient care.Implementation of the protocol improved correct triage, reduced overtriage and did not risk undertriaged patients’ safety, even though overtriage rate still exceeds 25-35% as recommended by American College of Surgeons Committee on Trauma [2].

**Key-words:** overtriage, undertriage**,** injury**,** trauma team activation, emergency care

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**wcna1-0066**  
**Management of Trauma, Burns and Shock Patients**  
  
**MULTIPLE SCLEROSIS AND ANESTHESIA**  
029  
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INTRODUCTION: Multiple Sclerosis (MS) is a chronic autoimmune disease characterized by demyelinization, sclerotic plaque formation and central nervous system inflammation (1). Emotional trauma, pregnancy, surgical and anesthesia stress might cause exacerbation of the disease. MS generally reveals itself with suddenly appearing symptoms related to eyesight and other senses, partial or full paralysis. Infection, fatigue, and stress and especially surgical stress cause increase in the symptoms (2). We aim, by this case report, to present our overall approach in an MS case operated for femur fracture reduction.  
CASE: 29 years old female patient who has been being monitored for 5 years with MS diagnosis was taken under an operation. There was no characterization during preoperative examination and routine laboratory evaluations.  The patient was given midazolam i.v 3 mgr for the purpose of premedication, then she was taken to the operating theatre and then non-invasive blood pressure, electrocardiogram, pulse oximetry and temperature monitorization were applied. A trouble-free intubation was performed by applying fentanyl 1 mcg/kg, propofol 2,0 mg/kg and vecuronium 0,1 mg/kg in anaesthesia induction. Maintenance of anaesthesia was secured by the mixture of 1-2 % sevoflurane and 50 %  O2-N2O. The patient was given i.v 1 mg/kg of methylprednisolone and 50 mg of ranitidine. The patient’s body temperature value kept at the level of 36,8 oC during the 90-minute operation, and vital signs were stable. After having extubated by decurarisation with sugammadex (BRIDION®) 4 mg/kg at the end of the operation, the patient was monitored in the recovery room and then sent to the related service without any problem.   
DISCUSSION: In cases with MS, surgical stress and anaesthetics, especially during acute stage, aggravate the symptoms. Therefore, elective surgery must not be applied during exacerbation periods. It has been reported that the inhalation agents used in general anesthetic practice are safe for MS cases (3). Succinylcholine must not be used because it might cause hyperkalemic response in severe MS cases with neurologic deficits and muscular atrophy. There were not any variable responses recorded against non-depolarizing neuromuscular blocking agents. Use of anticholinergic drugs might cause temperature increase.  For this reason, body temperature must be monitored during the operation. An effective premedication before the anaesthesia , a deep anaesthesia application and postoperative pain control are highly important (3). One of the points to be taken into consideration with regards to MS patients is to conserve the body temperature in a stable manner. Cases, as the result of insufficiency in their respiratory muscles, might need mechanical ventilation in postoperative stage.  
CONCLUSION: We are of the opinion that the occurrence risk of new attacks related to the disease would be minimized by means of an effective premedication during general anaesthesia application, sufficient fluid maintenance and body temperature monitorization.  
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**wcna1-0089**  
**Management of Trauma, Burns and Shock Patients**  
  
**THE PHARMACOKINETICS AND RESUSCITATIVE EFFECTS OF HUMERAL INTRAOSSEOUS VASOPRESSIN IN A SWINE MODEL OF VENTRICULAR FIBRILLATION**  
030  
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**Introduction:** The intraosseous (IO) route may be used when intravenous (IV) access cannot be rapidly obtained. Vasopressin may be used as an alternative to epinephrine to treat ventricular fibrillation (VF). The purpose of this study was to compare the effects of humeral IO (HIO) and IV vasopressin, on the rate of return of spontaneous circulation (ROSC), odds of ROSC, time to ROSC and pharmacokinetic measures in an adult swine model of VF.

**Methods:** This prospective,experimental study randomly assigned 27 Yorkshire-cross swine to three groups; HIO (n = 9), IV (n = 9), and a no drug control group (n = 9). VF was induced under general anesthesia and chest compressions began at 2 minutes post-arrest. Vasopressin (40 U) was administered at 4 minutes post-arrest. Blood specimens were collected for 4 minutes and analyzed. Swine were resuscitated in accordance with American Heart Association Advanced Cardiac Life Support guidelines until ROSC or 29 post-arrest minutes elapsed.

**Results:** ROSC was significantly higher in the HIO and IV groups compared to control (p = 0.001). Odds ratios of ROSC indicated no significant difference between the HIO and IV groups (p = 0.47) but significant differences between the treatment groups and control (p = 0.01 and 0.02). Time to ROSC for HIO and IV was 621.20 seconds and 554.50 seconds, (p = 0.22). Maximum plasma concentration and time to maximum concentration in the HIO and IV groups was 71753.9 pg/mL and 61853.7 pg/mL, 111.42 seconds and 114.55 seconds respectively.

**Conclusions:** The HIO route delivers vasopressin effectively in an adult swine model of VF. Plasma concentrations of HIO vasopressin were comparable to IV vasopressin.

**Key words:** Intraosseous vasopressin; resuscitation; cardiac arrest.

**Funding Source:** This work was funded by a grant from the Triservice Nursing Research Program.

**Conflict of interest statement**

The authors declare there is no conflict of interest connected to this work. The views expressed in this work are those of the authors and do not reflect the official policy or views of the US Army, the US Department of Defense or the US Government.

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**wcna1-0090**  
**Management of Trauma, Burns and Shock Patients**  
  
**EFFECTS OF TIBIAL INTRAOSSEOUS VERSUS INTRAVENOUS ADMINISTRATION OF VASOPRESSIN IN A PORCINE MODEL OF HYPOVOLEMIC CARDIAC ARREST**  
031  
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**Introduction:** Hypovolemic cardiac arrest is the leading cause of preventable traumatic death in the US. Vascular collapse makes vascular access procedures difficult and delays the administration of life-saving drugs. The intraosseous (IO) infusion route may be used when IV access is delayed or unobtainable. The purpose of this study was to compare the effects of vasopressin via tibial intraosseous (TIO) and intravenous (IV) routes on maximum drug concentration (Cmax), the time to maximum concentration (Tmax), return of spontaneous circulation (ROSC), and time to ROSC in a hypovolemic cardiac arrest model.

**Methods:** This prospective, experimental study randomly assigned Yorkshire swine to one of four groups: TIO (n = 7), IV (n = 7), CPR with defibrillation, no drug (n = 7), and the control group receiving CPR only (n = 7). After exsanguinating 31% of total blood volume, ventricular fibrillation was induced and CPR initiated 2 minutes post-arrest. At 4 minutes post-arrest, 40 units of vasopressin were administered via the TIO or IV routes and blood samples collected over 4 minutes. Vasopressin concentrations were analyzed using liquid chromatography. Resuscitation continued for 20 minutes or until ROSC.

**Results:** There was no difference in Cmax (p = 0.08), Tmax (p = 0.08) between the TIO and IV groups or time to ROSC between the TIO, IV, and CPR with defibrillation groups; (p > 0.05) in all instances. There was no significant difference between the TIO and IV groups relative to occurrence of ROSC (p = 1.0).

**Conclusion**. The TIO route was an effective route for the administration of vasopressin in a porcine model of hypovolemic cardiac arrest.

**Key words:** Intraosseous vasopressin; resuscitation; hemorrhagic shock, trauma

**Funding Source:** This work was funded by a grant from the Triservice Nursing Research Program.

**Conflict of interest statement**

The authors declare there is no conflict of interest connected to this work. The views expressed in this work are those of the authors and do not reflect the official policy or views of the US Army, the US Department of Defense or the US Government.

#### 

**wcna1-0053**  
**Neuro Anesthesia**  
  
**A CASE STUDY ON THE NURSING CARE OF THE PATIENTS WITH HYPOTHERMIA UNDER ANESTHESIA**  
032  
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**Background**; Most of patients under anesthesia experienced hypothermia due to anesthetic drugs, low temperature of operating room, disinfectant and irrigation of operation site, infusion of fluids and transfusion. The nurse anesthetist concerned keeping normal body temperature to prevent complications such as increment of surgical site infection, delay of wound healing and increase in blood loss.

**Methods**; Neurosurgery patients, 30 numbers patients under general anesthesia via TIVA were selected and the patients with cardiopulmonary, liver, kidney & thyroid diseases were excluded. The patients also were selected infusion fluid were under 2000ml and estimated blood loss were under 500ml during operation time. The body temperature were measured just before surgery, just after intubation, under anesthesia and end time of surgery. We applied warm air after insertion of esophageal stethoscope, maintained room temperature to 19℃, controlled circulating water blanket 37℃ and set warmer(Bair hugger warming unit: Model 505) to 38℃. We measured core temperature by esophageal stethoscope lied under 1/3 part of esophagus, expose head area during operation time.

**Results:** The objects are composed of male 13 & female 17 numbers and showed average age 49.8yr, height 162.6±9.4, body weight 66.7±13.6kg and BMI 25.1±4.2. The name of surgery were aneurysm clipping30%, Brain tumor removal 26.7% & MCA-STA20% etc. and the operation time were average 187.2±72min, anesthesia time average 249±75.9. The results of body temperature are average 36.4±. 3℃ just before surgery, 36.2±.4℃, just after intubation, 35.7℃±.4 under anesthesia and  36.1±.4℃  end time of surgery. The body temperature between just after intubation and under anesthesia showed correlation r=.690, p<.01 by Pearson’s correlation coefficient analysis.

Conclusion; The nurse anesthetist concerned keeping normal body temperature more actively the nursing management in operating room. Especially the nurse anesthetist should consider correlation between the body temperature just after intubation and under anesthesia.  
  
  
key word ; Hypothermia, anesthesia , Body temperature

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#### 

**wcna1-0067**  
**Neuro Anesthesia**  
  
**ANAESTHESIOLOGICAL ASPECTS AND KEY POINTS OF NEUROSURGICAL OPERATIONS WITH INTRAOPERATIVE MRI**  
033  
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**Introduction with Hypothesis:**

With intraoperative magnetic resonance imaging (iMRI), images of the brain during the surgery are created. The implementation of this discipline requires the development of a practice concept that illustrates the anaesthesiological requirements and aspects for this working environment and describes the work processes and work flows in order to guarantee the safety of patients and involved employees (1). This setting requires individual solutions, a specific anaesthesiological procedure and suitable equipment (2). From an anaesthesiological perspective, there is little documented experience and literature in relation to iMRI. The development of a practice concept was inevitable.

With the developed practice concept, the complexity of the iMRI (PoleStar® N30) procedure should be demonstrated from an anaesthesiological perspective. Internal processes within the clinic should be optimised and standardised with specific instructions for treatment (including emergency situations), thereby contributing towards the safety of patients and employees.

**Methods:**

A literature review was performed of Pubmed, Medline, CINAHL and Cochrane Database in November 2015. There was little scientific evidence of anaesthesiological experiences and best practice available.

**Results:**

In order to perform a safe and appropriate anaesthesia, an iMRI requires spatially and structurally adapted conditions. Specific MRI monitoring is essential along with suitable equipment (respirator, syringe pumps) and materials in order to avoid intraoperative confounders during the imaging process.

Restricted patient access during the scanning process is the main problem for intraoperative incidents (resuscitation). For this reason, binding instructions have been compiled.

From February 2013 to June 2015, a total of 321 interventions were conducted (156 men, 163 women); Aged 15 to 96. Most frequent diagnoses were: benign pituitary growth (65), lumbar spinal canal stenosis (45), malignant growth on the temporal lobe (20). Most performed operations were: partial pituitary excision with transphenoidal approach (87), lumbar / lumbosacral spondylodesis (74) and excision of primary intracerebral tumour tissue on the brain (29). The average operative time was 222 minutes. Emergency situations were not reported. The average of hospitalization was 9.8 days.

**Discussion and Conclusion:**

The iMRI with the PoleStar™ N30 enables the neurosurgeon a precisely localization of the tumour area while taking into consideration brain shifts. With regard to the anaesthesia, this intraoperative diagnosis means that, alongside the anaesthesiological requirements, suitable equipment (materials and devices that are suitable for MRI) as well as additional extended anaesthesiological preparations are required; the latter also require, beside the personnel-related expenditure, greater time input during the introduction in order to ensure intraoperative safety and proper anaesthetic management (3).

To summarise, the development of a practice concept for employees was both helpful and necessary. Theoretical thinking-through of specific emergency situations (resuscitation) contributes towards being able to introduce therapy early on by following the defined treatment instructions, thereby avoiding any further time delays.

Past experience is valuable and important for further practice development and perioperative management, in order to evaluate and develop processes. Further research and the writing of case studies is recommended.

**Keywords**:

Practice concept, best practice, anesthesia, anaesthesia, experience

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**wcna1-0015**  
**Recent Research in Anesthesia**  
  
**IMPACT OF I.V LIDOCAINE INFUSION ON POSTOPERATIVE ANALGESIA AND RECOVERY FROM SURGERY:A SYSTEMIC REVIEW OF RANDOMISED CONTROLLED TRIAL**  
034  
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1, Kigali, Rwanda***Abstract Text**

**Abstract**

Postoperative pain continues to be inadequately managed. While opioids remain the mainstay for postoperative analgesia, their use can be associated with adverse effects, including ileus, which can prolong hospital stay. A number of studies have investigated the use of perioperative intravenous lidocaine infusion for improving postoperative analgesia and enhancing recovery of bowel function. This systematic review was performed to determine the overall efficacy of intravenous lidocaine infusion on postoperative analgesia and recovery from surgery in patients undergoing various surgical procedures. We searched the databases of MEDLINE, CINAHL and the Cochrane Library from 1966 to December 2009. We searched for randomized controlled comparisons of lidocaine infusion with placebo in the surgical setting and reporting on postoperative analgesia and other aspects of patient recovery from surgery. The quality of all included studies was assessed using the Modified Oxford Scale. Information on postoperative pain intensity and analgesic requirements was extracted from the trials and compared qualitatively. Other relevant data such as return of bowel function, length of hospital stay, intraoperative anaesthetic requirement and adverse effects were also compared. Sixteen trials were included. A total of 395 patients received intravenous lidocaine with 369 controls. In open and laparoscopic abdominal surgery, as well as in ambulatory surgery patients, intravenous perioperative infusion of lidocaine resulted in significant reductions in postoperative pain intensity and opioid consumption. Pain scores were reduced at rest and with cough or movement for up to 48 hours postoperatively. Opioid consumption was reduced by up to 85% in lidocaine-treated patients when compared with controls. Infusion of lidocaine also resulted in earlier return of bowel function, allowing for earlier rehabilitation and shorter duration of hospital stay. First flatus occurred up to 23 hours earlier, while first bowel movement occurred up to 28 hours earlier in the lidocaine-treated patients. Duration of hospital stay was reduced by an average of 1.1 days in the lidocaine-treated patients. Administration of intravenous lidocaine infusion did not result in toxicity or clinically significant adverse events. Lidocaine had no impact on postoperative analgesia in patients undergoing tonsillectomy, total hip arthroplasty or coronary artery bypass surgery. In conclusion, intravenous lidocaine infusion in the perioperative period is safe and has clear advantages in patients undergoing abdominal surgery. Patients receiving lidocaine infusion had lower pain scores, reduced postoperative analgesic requirements and decreased intraoperative anaesthetic requirements, as well as faster return of bowel function and decreased length of hospital stay. Further studies are needed to assess whether lidocaine has a beneficial effect in patients undergoing other types of surgery and to determine the optimum dose, timing and duration of infusion of lidocaine in this setting

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**wcna1-0025**  
**Recent Research in Anesthesia**  
  
**SAME DAY SURGERY PATIENT´S PSYCHOLOGICAL SYMPTOMS TWENTY FOUR HOURS AND FOUR DAYS AFTER ANESTHESIA**  
035  
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**Aim /s.**To investigate the psychological recovery of same day surgery patients the first four days after anesthesia.

**Design.**  A prospective, explorative panel study design was used. Patients 18 years and older, scheduled three days in advance to have same day surgery were offered participation in the study. Exclusion criteria were staying overnight at the hospital, not being able to read and write Icelandic and that vision, hearing or psychological status did not compromise the patients’ ability to answer the study questionnaire.  The Quality of recovery-40 (QoR-40) was used to measure recovery on days 1 and 4 after surgery. The QoR-40 is composed of five dimensions: Physical comfort (12 items), Emotional state (9 items), Physical independence (5 items), Psychological support (7 items) and Pain (7 items). Individual items are scored on a five-point Likert scale with total score ranging from 40 (poor quality of recovery) to 200 (excellent quality of recovery). In addition to the QoR-40 the study questionnaire asked about tiredness, soreness and thirst at T2 and T3 and about general physical and psychological health at T1 and T3. Data was collected, from November 1st 2012 until March 1st 2013, before surgery (T1), day one after surgery (T2) and day four (T3) after surgery.

**Results.** Participants were 564 on day one (T1) and 425 (75,4% ) on T2 and T3.  More than half were women (55,8%), 78,5% were married or cohabiting. About one fourth (26,1%) of the patients had general surgery and one fifth (19,2%) had urological surgery. Significantly more patients reported their psychological health as rather good or very good on T1 (90,7 %) compared to T3 (85,7 %; Chi-square, p<0,001). There was a significant difference (p<0.001; t-test) on the mean QoR-40 score on T2 (M=181,1;sf=16,6) and T3 (175,1;sf=17,4). The same applied to all the subscales of QoR-40 and the individual symptoms tiredness, hoarseness and thirst.  Majority of participants had received psychological support from nurses on T2 and from family and friends on T3. Logistic linear regression with QoR-40 T3 as the dependent variable found daily activities, pain and general well-being at T2 to be major predictors of the score on QoR-40 at T3.

**Discussion.** The findings of this study provide anesthesia nurses with valuable information on how to screen patients at risk for slow recovery.  As a routine the anesthesia nurses phone all patients before surgery and during this correspondence the nurses should assess ability to perform daily activities, pain and well-being and develop strategies on follow up for patients at risk.

**Keywords.** Nursing, anesthesia, postoperative recovery, QoR-40.

#### 

**wcna1-0027**  
**Recent Research in Anesthesia**  
  
**PATIENTS’ EXPERIENCES OF INTERSCALENE BLOCKS RELATED TO SHOULDER SURGERY**  
036  
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**Background**: In 2008 approximately 11000 shoulder surgereries were carried out in Sweden. At Karolinska University Hospital in Huddinge, Sweden approximately ten to fifteen patients per month undergo shoulder surgery in an ambulatory setting. The patients who require shoulder surgery have degenerative conditions, joint injuries or damages related to trauma. Before the operation a majority of the patients receive an interscalene nerve block for regionalanestesia and postoperative pain relief. An interscalene block means a total paralysis and sensory block of the affected arm with a lasting effect of up to twelve hours. This form of regional anaesthesia is deemed to have a clear advantage fpr shoulder surgery and is performed preoperatively by an anaesthesiologist at the clinic. Benefits include shorter nursing periods and that patients can be discharged on the day of surgery.  **Aim**: The purpose of this study was to describe the patients`experiences of interscalene blocks related to shoulder surgery in an ambulatory setting and their experiences of the first week after shoulder surgery. **Method:** The study was performed using a qualitative interview technique. Interviews were conducted with four women and four men, who underwent interscalene blocks one week after surgery based on an interview guide with eight questions. The interviews were analyzed with content analysis.    **Results** The patients described their experiences of the interscalene block and their shoulder surgery in the ambulatory setting. The patients described their fear of pain or worries concerning inadequate anaesthesia from the interscalene block. None of the patients had previous experiences of interscalene blocks. The interviews emphasized the problems or inconveniences that were experienced postoperatively after discharge and how the patients  managed to solve postoperative inconveniences in the setting of their home. Those who received plexus blockade expressed surprise over the duration of the loss of sensation and not being able to move.  Most patients had difficulties in managing hygiene and cooking as well as trouble with dressing and undressing were. Patients lacked information about how to handle their situation the first few days after surgery. The postoperative pain varied depending on the type of shoulder surgery patients undergone. Sleeping difficulties were experienced during the first week. It was difficult to sleep on the same side as the operated shoulder. More information was needed regarding sick leave and rehabilitation. Conclusion: The patients in this study did not understand the procedure of an interscalene block prior to the operation and were anxious about the anaesthesia and shoulder surgery. Questions were raised concerning preparation for the interscalene block and surgical procedure and several patients requested more comprehensive and individualized information about postoperative care. The results from this study can be used to for improve patient information. Several patients requested more comprehensive and individualized information concerning the interscalene block and postoperative care.

#### 

**wcna1-0039**  
**Recent Research in Anesthesia**  
  
**CONSTRUCTING RECOGNITION OF THE OTHER’S STATE OF SURRENDERING**  
037  
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**Introduction**: The nurse anesthetist’s presence at the threshold of unconsciousness encompasses not only her/his skill but also ethics and knowledge of how to manage the patient’s life from induction to emergence (Liebenhagen and Forsberg 2013). However we know very little about how external conditions in the intraoperative setting affect the nurse anesthetists’ moral compass and subjective perceptions while administering general anaesthesia. Previous relevant research indicates that the ability to stand by the patient is more or less restricted by external conditions such as; organisational demands on productivity, time constraints as a result of the need to adhere to the operating schedule and pressure from co-workers to perform.Accordingly, the aim of this study is to explore in depth; what are the nurse anesthetists’ main concerns adjacent to the anesthesia induction process and how nurse anesthetists’ deal with these concerns.

**Methods**: Grounded theory according to Charmaz (2014) was used to illuminate the context and specific conditions under which the participants performed anaesthesia nursing. Nurse anaesthetists’ were interviewed using a constructivist open-ended method.  A total of 15 eligible participants with a mean age of 50.5 years, and mean work experience as a nurse anaesthetist of 18.5 years, participated. They were included by theoretical selection and the process ended when no new sub- or main category emerged from the data.

**Results**: The grounded theory that emerged revealed how 15 nurse anaesthetists endeavoured to construct recognition of the Other’s state of surrendering, providing a new understanding of the concerns and actions related to the anaesthesia induction. The construction of recognition illustrates a social process in which the generated grounded theory is based on three main categories; Creating a trusting relationship, Working with the technology and Establishing recognition. Although the driving ambition among a majority of the participants’ appeared to be an aspiration to ensure the best possible care and recognizing that the patients were vulnerable in their state of surrendering, they were nevertheless aware that this was not always the case. Rather than acknowledging the patient’s subjection and vulnerability some nurse anesthetists’ more or less unintentionally came to mediate a sense of repudiation.

**Discussion:** Recognition of the Other as a person involves the nurse anesthetist identifying situations that have an ethical dimension (Honneth1996), i.e., the caring encounter. One could argue that the feature of recognition appeals to the nurse anesthetist’s empathic competence, as it requires the skill to see oneself in the Other in order to establish recognition (Honneth 1996). Establishing recognition is the phase in which the majority of the participants became aware of the patient’s vulnerability and in response chose an ethical approach by; a) understanding the importance of recognition for the patient, b) respecting the patient’s right to autonomy and c) allowing the patient to participate.

**Conclusion:** The act of recognition highlights the healthcare organisation’s obligation to provide sufficient time for the ethical practice of anaesthesia, which presupposes awareness on the part of anaesthesia staff of their own professional approach.

**Keywords:** Anaesthesia, Nursing, Grounded Theory, Recognition, Ethics

#### 

**wcna1-0048**  
**Recent Research in Anesthesia**  
  
**REDUCING GLASS PARTICLE CONTAMINATION IN ANESTHESIA PRACTICE**  
038  
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Introduction:

Glass particle contamination of medication occurs when glass ampoules are opened while preparing medications.These tiny glass particles may cause harm to patients when injected into the bloodstream [1]. The use of 5 micron filter needles reduces the number of glass particles [2] and the risk of patient harm. The problem is that many anesthesia providers use ampoules every day in practice, but do not use filter needles when aspirating medications from ampoules. In addition, filter needles may not be readily available at the anesthesia medication preparation site on the anesthesia cart [3]. Not using filter needles or having them available can increase the risk of patient harm by glass particle contamination. The purpose of this quality improvement project was to increase anesthesia provider’s knowledge regarding filter needle use and reducing glass particle contamination, thereby improving compliance with evidence-based standards when preparing medications from ampoules.The goal was to increase filter needle use by anesthesia providers when medications are aspirated from an ampoule in order to decrease the risk of glass particle contamination to the patient. The hypothesis was that anesthesia providers would use filter needles more often to reduce the risk of patient harm once they were aware of and practiced existing standards and filter needles were available at the medication preparation site.

Methods:

This project consisted of a one-group pre/post intervention design using a self-developed online survey, an education intervention following the survey, and filter needle use tracking.The convenience sample of eighty-three recruited anesthesia providers included anesthesiologists, nurse anesthetists, and anesthesiologist assistants that consented to participate from a single anesthesia group in Northeast Florida,USA. The filter needle inventory was tracked at one hospital in Northeast Florida via an existing inventory software program to determine filter needle use three months prior and three months after the intervention. Data were collected and analyzed using descriptive statistics via Qualtrics® (2014) software survey tool from January–July 2014.

Results:

The results of this project found greater awareness among participants of existing practice standards regarding filter needle use with ampoules, greater awareness of availability of filter needles on anesthesia carts, and a five-fold increase in filter needle usage by participants three months following the education intervention as compared to three months prior to the intervention. Statistical significance was not determined as this was a quality improvement project within one anesthesia group at one specific hospital.

Discussion and Conclusion:

Anesthesia providers have an ethical responsibility to follow established standards when preparing medications from glass ampoules. Safe injection practices will reduce the amount of glass particle contamination and therefore, the risk of patient harm. Providing an education intervention to anesthesia providers can increase an awareness of the evidence supporting compliance to existing standards regarding filter needle use with ampoules. Anesthesia providers did change practice after participating in an education intervention as evidenced in the project by a five-fold increase in filter needle use post education intervention.

Keywords:filter needle use, glass ampoule medication preparation, and safe injection practices

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#### 

**wcna1-0056**  
**Recent Research in Anesthesia**  
  
**PERIOPERATIVE PATIENT ADVOCACY: DOING GOOD FOR ANOTHER HUMAN BEING**  
039  
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**Aim:**To identify the characteristics of and the consequences that follow with perioperative patient advocacy, from the perspective of registered nurse anesthetists and operating room nurses.

**Background:**Patient advocacy has been described as acting on a patient’s unmet needs, including informing, protecting, and speaking up for patients. Since advocacy implies taking action on behalf of another, it is of particular interest to study this phenomenon in the perioperative environment where patients are vulnerable due to sedation or general anesthesia.

**Design:**An integrative review approach was employed in order to summarize past empirical and theoretical literature (1).

**Method:**A comprehensive database search to identify peer-reviewed papers that focus on perioperative patient advocacy was conducted in PubMed and CINAHL. The databases were searched for English-language papers, no date restrictions were applied up until the search date of January 2014. A manual search for additional papers was carried out. Seven papers and two dissertations were included in the review. The process for data abstraction and synthesis was conducted with qualitative content analysis.

**Result:**The analysis resulted in seven categories, two sub-themes and one main theme.The main theme, “Doing good for another human being – a balance act between philanthropy and personal gratification” was the core of perioperative patient advocacy. The characteristics of perioperative patient advocacy was summarized into the sub-theme, Safeguarding and caring, comprising four categories: Protecting, Value preserving, Supporting, and Informing, which are integrated parts of what perioperative nurses do for the patient. The consequences of perioperative patient advocacy are related to the characteristics and summarized into the sub-theme, Being emotionally involved. This sub-theme contains three categories: Vulnerable, Constrained, and Satisfied, which all are parts of the impact that perioperative patient advocacy has on the nurses.

**Discussion:**Research regarding perioperative patient advocacy from the perspective of the nurses is sparse. The topic has received little direct focus, but in the results here, it is apparent that this role is needed. The characteristics of perioperative patient advocacy; Safeguarding and caring, embracing the actions protecting, value preserving, supporting, and informing, have similarities with the ICN Code of Ethics for Nurses which describes that nurses should promote health, prevent illness, alleviate suffering, respect human rights, and ensure that the individual receives accurate and sufficient information (2).

**Conclusion:**Perioperative patient advocacy is a part of the perioperative nurses’ professional role and it affects them emotionally. The identified characteristics and consequences from the perioperative setting is similar to what previously have been described as features of patient advocacy in other health care settings. Advocating is not always perceived as easy, but is nevertheless done for the sake of the patient.

**Keywords:**advocacy, integrative review, perioperative nursing

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**wcna1-0057**  
**Recent Research in Anesthesia**  
  
**THE CURRENT SITUATION OF “SPECIFIC MEDICAL PRACTICE NURSES” AND THE ISSUE OF NEW NURSING SYSTEM IN JAPAN**  
040  
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**Introduction with Hypothesis:**

The new nursing system called a “Specific Medical Practice Nurses (SMPN) program” from October 2017 was introduced in Japan. The Ministry of Health, Labor and Welfare (MHLW) said that 100,000 SMPN program were trained by 2025.On the other hand, the graduate school specialized in anesthesia nursing education is increased at 2 school, and the nurses are providing anesthesia care in their facility. Therefore, the purpose of this investigation is to do an attitude survey to the nurse engaged in anesthetic nursing and do the agenda of the Japanese Society of Peri-Anesthesia Care (JSPAC) clearly.

**Methods:**

About SMPN undertook information gathering from material of existence. And an attitude survey put an Internet investigation into effect targeted for 35 people in the nursing members of JSPAC.

**Results:**

1. Situation of SMPN SMPN is begun in 17 establishments in Japan, and completion student's production of about 200 people a year is expected. Expansion of a designation engine will be also expected from now on, and arrival to the target value is expected by 2025. In my hospital, the requirements for examination to have a clinical nurse experience for more than 3 years and to have an experience of acute period nursing for more than 1 year. And qualification is acquired about practice in 12 acts of 5 repartition related to anesthetic management. 2. Result of Internet survey for nurses A response was had from 14 people (40%). All the members felt dissatisfaction in that there are no certification systems in Japan and that an active place after graduate school finish is limited. More than 70 percent of the respondent preferred to acquire international authorization qualification.

**Discussion and Conclusion:**

Japan has many nursing authorization qualifications, but we don’t have certification system for anesthetic nursing. On the other hand a possibility which　 becomes state qualification is high, and a SMPN is also included in act of anesthetic nursing. JSPAC has to promote a political campaign for establishment of Anesthesia nursing certification system in Japan by making reference to the educational standard of IFNA.

**Acknowledgment:**

This study received a grant of Pfizer Health Research Foundation.

#### 

**wcna1-0068**  
**Recent Research in Anesthesia**  
  
**QUALITY IMPROVEMENT ACTIVITIES FOR DECREASING THE OCCURRENCE RATE OF PRESSURE ULCER IN NEUROSURGERY PATIENTS**  
041  
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**Background**; Prevention of pressure ulcer after neurosurgery is very important nursing care in operating room. The grade Ⅰ,Ⅱ of pressure ulcer occurred intra op time because of long operation time  & positioning during anesthesia period. The occurrence rate of pressure ulcer in operating room reported 0.17~0.3%, 18 cases and gradeⅠis 61%, grade Ⅱis 39% from August to December, 2014yr,in seoul national university hospital. Among 18cases the patients of neurosurgery patients are 13cases, 72.2%. Average 3700 cases monthly operation were done in adult patients’ operating room.

**Purpose**; Preventive activities are needed for decreasing the occurrence rate of pressure ulcer after neurosurgery. We tried to find out the correlation 13cases patient’s operation position with pressure ulcer skin area by analyzing the nursing record. The patients with prone positioning intra operative period bring about chest area skin pressure ulcer and left lateral positioning cause left chest lesion.   
**Quality Improvement activities**; We organized Patient safety team including neurosurgery surgeon, junior doctor and neurosurgery operating room nurses. Nursing staffs provided preventive measures including changing patient’s operation positions and supported gel pad, air mattress from January to June,2015 yr. **Results**; Zero occurrence rate of pressure ulcer after neurosurgery reported in our hospital relation with QI activities. Average 189 cases monthly adult patient’s neurosurgery were carried out in our hospital.  **Conclusions**; More than gradeⅢ pressure ulcer is never-event in hospital, so prevention of grade Ⅰ,Ⅱ of decubitus ulcer is very essential nursing care by QI .  
Key words; pressure ulcer, neurosurgery,positioning

**References;**

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**wcna1-0073**  
**Recent Research in Anesthesia**  
  
**APPROACHES TO DELIRIUM PREVENTION IN ANESTHESIOLOGY**  
042  
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**Keywords**

Anesthesia, Postoperative Delirium, Prevention, ABCDE-Approach

**Introduction**

Postoperative deliriums are common and put a strain on patients, relatives, nurses and hospitals. By implementing an effective prevention program, up to 35% of post-operative deliriums can be avoided [[1](https://cmoffice.kenes.com/cmAbstractSubmission/conferencemanager/abstractsubmission/WCNA16/normal#_ENREF_1)].

Due to the wide-ranging consequences of deliriums, prevention programs already exist for intensive care, but this is not the case in the field of anesthetics. Anesthesiological interventions influence, increase and / or generate the risk factors that contribute to deliriums. Consequently, there is a critical need for strategies to prevent postoperative delirium in the field of anesthesiology. In this paper, approaches for a delirium management are presented.

**Method**

At the Swiss National Anesthesia Conference, participants of a workshop [[2](https://cmoffice.kenes.com/cmAbstractSubmission/conferencemanager/abstractsubmission/WCNA16/normal#_ENREF_2)] (physicians and nurses) received a presentation on post-operative delirium. In brainstorming and brainwriting sessions, three work groups discussed and generated ideas on anesthesia-specific interventions. Afterwards, the results were presented to the rest of the workshop participants, followed by a general discussion on feasibility.

**Results**

The interventions suggested by the participants can be categorized as follows:

·           **Identification:**

o    Identify patients at risk.

·           **Assessment:**

o    Assess risk factors preoperatively and integrate this knowledge in the anesthesiological evaluation.

o    Provide adequate, multimodal pain therapy based on perioperative pain assessment.

·           **Sedation:**

o    Critically examine the use of Benzodiazepines for premedication and evaluate alternatives.

o    Keep the total duration of sedation across care transitions as short as possible.

o    Evaluate and manage the depth of sedation for patients at risk using Bispectralindex (BIS) monitoring.

·           **Perioperative Management:**

o    Maintain physiological equilibrium.

·           **Environmental factors:**

o    Minimize noise, light, cold.

·           **Care and psychological support:**

o    Support patient psychological stress management.

o    Facilitate the presence of family caregivers.

·           **Orientation:**

o    Support patients’ spacial and temporal orientation.

**Conclusions**

The prevention strategies suggested by the workshop participants draw from risk factors for postoperative delirium described in the literature from outside the field of anesthesiology. The categories that were identified show similarities to the established ABCDEF Bundle [[3](https://cmoffice.kenes.com/cmAbstractSubmission/conferencemanager/abstractsubmission/WCNA16/normal#_ENREF_3)], which includes both pharmacological and non-pharmacological aspects, initially developed for intensive care. Further steps should be:

·         to describe in detail the process of the interventions,

·         to assess the ABCDEF bundle’s transferability to the anesthesiological context,

·         to develop an evidence-based guideline.

An approach shared by anesthesiology and intensive care might simplify interdisciplinary collaboration and as a consequence improve patient safety.

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**wcna1-0084**  
**Recent Research in Anesthesia**  
  
**A NOVEL USE OF THE ANAETHETISTS' NON-TECHNICAL SKILLS (ANTS) TOOL TO MEASURE CONGRUENCE OF GRADUATE NURSE ANESTHESIA STUDENTS' SELF EVALUATION AND FACULTY EVALUATION**  
043  
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**Introduction**

Non-technical skills (NTS) have been identified in high-risk industries as important and have emerged as important safety competencies in anesthesia (1). Non-technical skills education, training, and development are virtually non-existent in nurse anesthesia curricula. The Anaesthetists’ Non-technical Skills (ANTS) tool offers a tangible, structured framework and method to evaluate these human behaviors and could be useful in the simulated environment to practice and evaluate student nurse anesthetists’ NTS (1).

**Hypothesis**

This prospective, non-experimental, mixed-methods study sought to determine if individual nurse anesthesia student’s self-evaluation of ANTS after high fidelity simulation is a valid form of evaluation when compared to faculty evaluation using the same tool. Student and faculty written perceptions of the ANTS tool were also explored.  It was hypothesized that student self-evaluations would vary significantly from faculty evaluations of student NTS serving as insight for self-improvement and professional growth.

**Methods**

Thirty senior nurse anesthesia students individually participated in a high-fidelity simulated anesthesia scenario as a primary anesthesia provider.  Immediately after scenario conclusion each student self-evaluated non-technical performance using the ANTS tool and this evaluation was correlated to faculty evaluation of student performance using the ANTS tool.  Written perceptions regarding using the ANTS tool were also collected from students and faculty. Demographic data, ANTS tool scores (Spearman’s rho) and written qualitative data were collected in 2015, over 12 months atTexas Christian University School of Nurse Anesthesia in Fort Worth Texas.

**Results**

No significant correlation was found between faculty and student evaluation using the ANTS tool in any category team working (ρ=-0.38, P=0.1), decision-making (ρ=-0.33, P=0.107), situation awareness (ρ=-0.36, P=0.229), or task management (ρ=-0.018, P=0.953). Four themes emerged from written comments:  unexpected situation, lack of confidence, wanting more simulated experiences, and wanting more practice with the tool.

**Discussion**

This study demonstrated a gap existed between student self-evaluation using the ANTS tool and faculty evaluations of student NTS performance using the ANTS tool (2).  Similar disparities between self-assessment and faculty-evaluated NTS have been observed among physician surgical residents during simulated procedures (3).  Graduate nurse anesthesia students may lack insight into their NTS.  Written comments indicated that students perceived the tool to be a useful insight to their behaviors and could be useful in future clinical practice for self-improvement. ANTS framework complexity and the need for more experience using the tool were limitations.

**Conclusion**

Student nurse anesthetists exposed to NTS training could develop more accurate self-awareness into their own clinical practice. Exploring and evaluating nurse anesthesia students' NTS in a high-fidelity simulated environment, using both faculty observation and self-evaluation could positively impact anesthesia education, by helping to develop a more mindful practitioner with more accurate self-understanding.     
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**wcna1-0109**  
**Recent Research in Anesthesia**  
  
**CANMEDS FRAMEWORK AND THE COMPETENCY-BASED IFNA STANDARDS OF PRACTICE FOR SWISS NON-PHYSICIAN ANESTHESIA PROVIDERS: A VALIDITY STUDY**  
044  
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**Introduction**

Several professions of Non-Physician Anesthesia Providers (NPAPs), such as specially trained nurses or physician assistants, perform anesthesia independently, under direct or indirect supervision of physicians, physician anesthetists or anesthesiologists worldwide. According to the vision of the International Federation of Nurse Anesthetists (IFNA), several recommendations are provided for the member countries that should support the work of Nurse Anesthetists in regard to the countries’ economy and healthcare systems. The IFNA Standards of Practice based on the CanMEDS Roles, could be the guiding framework for the Swiss workforce of NPAPs to define their scope of practice. The major purpose of the present research was to conduct an empirical study of the CanMEDS Roles as applied to Swiss NPAPs, to investigate the feasibility, reliability, and validity of the seven roles and the 76 graduate competencies for Swiss NPAPs’ scope of practice.

**Methods**

All NPAPs, mainly Nurse Anesthetists, practicing in Switzerland were included. About 1200 NPAPs were accessible through the database of SIGA/FSIA, the national association, which represents about 61% of Swiss NAs workforce. A small number of NPAPs with foreign degrees working in Switzerland, as well as students in Nurse Anesthesia programs were also included into the study. Participants were asked to rate all 76 graduate competencies on “How relevant are the following competencies for your scope of work as Nurse Anesthetist  in Switzerland?”. Data were analyzed (e.g., mean, SD, range, skewness, kurtosis) for the 76 graduate competencies on a Visual Analog Scale (VAS) Scale for each competency from “not applicable” (1) to “very relevant” (5) in scope of practice.

**Results**

Data for a total of 449 NPAPs working in Switzerland  (83.9% Nurse Anesthetists with Swiss diploma, 8% Nurse Anesthetists in education, 5.8% German Nurse Anesthetists, 0.4% Austrian Nurse Anesthetists, 0.2% Dutch Nurse Anesthetists and 0.2% others) were analyzed.

The overall results for relevance of all CanMEDS Roles together were very positive (4.22). Five Roles reached relevance ratings above VAS 4 (relevant): Nurse Anesthetist Expert (4.58), Communicator (4.58), Collaborator (4.35), Scholar (4.07) and Professional (4.25). Only the role of the Manager (3.81) and Health Advocate (3.89) were rated lower than VAS 4. The graduate competencies were mostly rated between 5 (very relevant) and 4 (relevant) 4.86 – 4.01 relating to Swiss NPAPs’ scope of practice. Only 14 of the 76 graduate competencies were rated lower in between 3.91 and 3.13.

**Discussion and Conclusion**

The relevance of the seven CanMEDS Roles and the graduate competencies of the IFNA Standards of Practice for Swiss NPAPs, predominantly Nurse Anesthetists, is very high. Minor adoptions of lower rated graduate competencies, especially within the Manager and Health Advocate role, are recommended.

**wcna1-0082**  
**Recent Research in Anesthesia**  
  
**SLIMING THE ANESTHESIA WORKSTATION, SLIMING THE PATIENT: DOCUMENTING THE RAMBUNCTIOUS JOURNEY OF THE ANESTHESIA PROVIDER’S HANDS DURING SIMULATED, ROUTINE CARE**  
045  
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**INTRODUCTION:** This study had three objectives. Firstly, we aimed to quantify the dispersion of biological material from a simulated patient’s mouth to the anesthesia workstation throughout the induction period. Secondly, we tested the hypothesis that there would be fewer contamination sites in those who used a double-gloving technique versus those using a single-gloving technique. Lastly, we examined the effectiveness of the routine, between case anesthesia apparatus cleaning protocol used to disinfect commonly observed contamination sites.

**METHODS:** A convenience sample of 20 experienced anesthesia providers performed a simulated induction of general endotracheal anesthesia, using a set of standardized interventions. Participants were blinded to the true purpose of the study.  Group 1 (N=10) used a single-glove technique and group 2 (N=10) used a double-glove technique. DAZO®, a clear fluorescent marking gel, was used as an analog for biological material in the patient’s mouth. A standard Wood’s lamp, emitting long-wave ultraviolet light was used to fluoresce the DAZO® gel, quantifying its spread across the work area. Dispersion of the surrogate biological material from the oral cavity to other sites was considered to be due to the actions of the anesthesia provider and served as the dependent (outcome) variable. A standardized data collection tool was used to inventory areas of contamination.

**RESULTS:** Nine of the 33 discrete surfaces monitored were contaminated greater than 50% (10 or more touches) of the time inclusive of both the single and double-gloved groups. The single-glove group (group I) contaminated an average of 16.0 (SEM = 0.89) discrete sites compared to the double-glove group (group II) who contaminated an average of 7.6 (SEM = 0.85) discrete sites (t – 6.823, P = 2.2). Six of the 33 surfaces deserve special mention. The cart drawers, fresh gas flow dial, the medication vials and the ventilator controls were significantly contaminated by group I, but not contaminated by group II (P < 0.05 in all cases). The APL valve and the temperature probes were also more contaminated in group I relative to group II, but only at a marginal level of significance (P = 0.070 for both surfaces). Standardized end-of-case cleaning protocols were tested for efficacy in removing surrogate oral contaminates from the anesthesia workspace and were consistently ineffective in removing the DAZO® from the anesthesia workstation despite being easily removed with targeted cleaning after the fact.

**CONCLUSIONS:** Anesthesia providers do contaminate their workstations with the patient’s oral biologic materials. Utilizing a double-glove technique during the induction period mitigates environmental contamination but does not entirely eliminate inoculation of work surfaces. Finally, standard cleaning protocols were highly ineffective in removing the DAZO® contamination, a material that is otherwise easily removed with a simple swipe of a cleansing cloth.

Nosocomial infection, DAZO®, gloving techniques, cleaning protocols, induction, bioburden

**wcna1-0050**  
**Spinal and Epidural Anesthesia**  
  
**ANAPHYLAXIS AND PERSISTANT HYPOTENSION DURING SPINAL ANESTHESIA**  
046  
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INTRODUCTION:

Anaphylaxis is a life-threatening, acute systemic clinical picture (1). Clinical presentation might be severe, it might appear in a few minutes as a result of exposure to the factor. In this study, we present an anaphylaxis that developed as a result of the colloid used for the treatment of the hypotension of the patient under spinal anaesthesia.

CASE:

52 years old, 85 kg male patient who was scheduled for arthroscopy operation on his right knee. There was not any abnormality in the laboratory evaluations and medical history of the patient who was evaluated as ASA II during preoperative examination. Spinal anaesthesia  was planned for the patient. Before the spinal block, 500 ml % 0,9 isotonic sodium chloride infusion was applied to the patient with  Blood pressure(BP): 135/85 mmHg, Heart rate(HR): 85 min. In the sitting position, 20 mg Bupivacaine was given with 22 G spinal needle at the level of L 4-5. After having the patient lay on his back, the operation was started when his sensory block level reached to T 10 level. Upon the development of a sudden hypotension and bradycardia at the 15th minute of the operation, 500 ml of succinylgelatine (Gelofusine) infusion was started with the patient. Five minutes after the beginning of the infusion, severe pruritus, skin redness and rash started to appear on the patient. Discontinuing the Gelofusine, the patient was given  i.v 0,5 mg atropine for bradycardia treatment and 40 mgr i.v ephedrine for hypotension. Upon the continuation of the hypotension, dopamine infusion (10 µ.kg.min-1) was performed. For the treatment of anaphylactic reaction, 0,1 mg of i.v adrenalin and 16 mg of dexamethasone was given. Seeing that hypotension was continuing, adrenalin infusion (0,01 mg kg-1) was started. During the surgery 2000 mL of crystalloid was applied. At the end of the operation, the patient was taken into recovery room and then sent to the ward without any problem after the symptomatic relief of the allergic reactions, and maintaining BP: 120/75 mmHg and HR: 80 min.

DISCUSSION:

Incidence of anaphylaxis during  operation is 1:3:500 and 1:20.000 (2).  Gelofusine is a colloid which is used by intravenous infusion manner and has high risk of allergic reactions. Although the incidence of anaphylactic reactions due to colloid is low (0.03 %), yet it might lead to fatal consequences (3). The symptoms appearing as the result of colloid use and the treatment of developing clinical situation have no specificity. Therefore, the symptoms of developing anaphylactic reactions must be diagnosed in early stage and treated accordingly and efficiently.

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**wcna1-0098**  
**Spinal and Epidural Anesthesia**  
  
**SEVERE CEPHALALGIA REQUIRING AN EPIDURAL BLOOD PATCH PREDICTORS**   
047  
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**Introduction:**

Severe post lumbar puncture cephalalgia remains a hot topic (SFAR Conference 2012 [1]). It requires appropriate care. The aim of this study was to assess the incidence and risk factors for severe headache after spinal anesthesia.

**Material and methods:**

This is a retrospective study, spread over 10 years from 2005 to 2014, which analyzed the characteristics of patients operated in a general surgery department under spinal anesthesia and have presented a postoperative headache.   
In all patients the puncture was performed in a sitting position, with a 25 Gauge needle. The measured parameters were: age, gender, headache intensity, time to onset and visual or auditory signs.  
Two groups were individualized according to the intensity of headaches: Intense headache group resistant to conventional analgesics (EVA ≥4) and Moderate headache group (EVA≤3). An epidural blood patch was performed 48 hours after spinal all patients of severe headache group. Other patients received analgesic treatment based on paracetamol. Statistical analysis was made by the Student t test, the Chi² test and Wilcoxon-Mann-Whitney test. The chosen significance level was 0.05.

**Results:**During the study period 2960 patients underwent a spinal anesthesia. Eighty-eight patients (78 men and 10 women) had a postoperative headache (incidence of 2.9%) and were included in this study. The average age was 53 ± 18 years. Twenty five patients (28%) had severe headaches (EVA ≥4).They were younger than patients in the moderate headache group: 38 ± 12 vs 58 ± 17, p = 0.0001.   
Intense headache was more frequently observed in patients who have had multiple puncture attempts 15/25 (60%) vs. 9/63 (14%) p <0.0001 in whom headache onset time is shorter after spinal 6 vs 20 ± 5 hours, p <0.0005. In multivariate analysis a short installation period and visual or auditory signs were factors independently associated with an intense headache.

**Discussion:**

A postlumbar puncture cephalalgia that occurs early after multiple puncture attempts in young patient warrants an epidural blood patch without waiting for a period of 48 hours especially in the presence of visual or auditory associated signs.  
  
Keywords: Spinal anesthesia - Complications - Blood patch -

 References:

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#### 

**wcna1-0007**  
**The Effects of the Current Economic Situation on the Workforce**  
  
**SCOPE OF PRACTICE OF NURSE ANESTHETISTS IN SWITZERLAND - HOW TO KEEP THEM SATISFIED IN THEIR JOB**  
048  
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Introduction and Hypothesis

The health care system faces huge challenges in the near future. While growing financial pressure and a worldwide workforce shortage put a strain on health care institutions, there is a demand for higher quality and more service orientation. Nurse anesthetists offer a wide range of solutions. The author suspects that an appealing and challenging professional role with a formal recognition will attract more future graduates and prevent early job exit. But will it also keep them satisfied in their job?

Method

A systematic database research and literature review was performed to obtain recent evidence in the area of subject. An analysis of a recent survey among student nurse anesthetists in a university hospital was done. Main object of the survey was the workplace satisfaction before and after reorganization of the education structure. The questionnaire included 9 questions targeted job satisfaction, learning and professional support. It was sent by email to all student nurse anesthetists in the observed hospital. Answers were analyzed in a descriptive manner. The results were set in relation to findings from literature.

Results

The reviewed literature shows evidence that nurse anesthetists with an extended scope of practice will not harm patients. Furthermore multiple authors suspect that a challenging and supportive environment will promote job satisfaction. The electronic survey was sent to 26 student nurse anesthetists. The response rate was 69 %. The results show that a wide scope of practice and a structured programm with a supportive environment and an intelectual challengin scope of practice will lead to more job satisfaction. Therefore a close support of senior nurses and clinical nurse educators seems a factor that supports the satisfaction. Summarized an intelectual and challenging environment in combination with a wide but clear scope of practice will lead to more job satisfaction.

Conclusion

Today nurse anesthetists perform between medical and nursing competencies. They guide anesthesia under supervision of an anesthesiologist on a routine base. Concerning further workforce shortage Swiss nurse anesthetists can adopt a wide range of additional functions. There are a lot of opportunities to expand the scope of practice of nurse anesthetists in Switzerland, but it is strongly recommended to provide enough training and to promote acceptance for new contents. These new role models lead to more job satisfaction and they provide solutions for the healthcare system. It is important to maintain a professional relationship to all partners and to be willing to find consent. To promote anesthesia nursing as an attractive role there is a need of a certain independence scope of practice. Furthermore it seems useful to support continuous professional development to keep a high standard in both practical and theoretical knowledge. Efforts in the surveyed clinical setting confirm this thoughts. Clear evidence is available that nurse anesthetists and medical doctors increase their performance if they are working closely together and build an anesthesia care team. Finally, as evidence shows the anesthesia care team will lead to a better patient outcome than other systems, we should follow the chosen path.

#### 

**wcna1-0065**  
**The Effects of the Current Economic Situation on the Workforce**  
  
**JOB SATISFACTION OF THE ANESTHESIA TECHNICIANS**  
049  
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Objective: The aim of the study is to define the level of job satisfaction of the anesthesia technicians in Turkey and the effect of job description on their job satisfaction as a descriptive study.

Materials and Methods: The study population is the anesthesia technicians working in public and private hospitals in Turkey and who are registered to Anesthesia Technician and Technician Association. All the anesthesia technicians who had replied the questionnaire had been accepted as the research sample. During the period a total of 600 anesthesia technicians had replied the questionnaire. Research data was collected between 1.12 . 2012 - 03/09/2013. In order to find the appropriate survey questionnaire, data surveyed  in the literature, the most appropriate for job satisfaction survey was found as Paul Spector 36-item Job Satisfaction Scale and it was decided to be used. In the analysis of data using SPSS (Statistical packageforthesocialsciences) 11.5 statistical software was used. Data analyzed by Mann-Whitney U, Kruskal-Wallis, Kolmogorov-Smirnov, Independent Samples T Test, One-Way Analysis of Variance (ANOVA) tests were conducted.  
Results: The demographic characteristics of the respondents were; 54.7% in the 19-29 age range, 73.9% female, 48.8% were single, 73.6% were associate degree graduates. The respondents; 35.2% are working in this profession for 6-10 years, 49% worked for the same institution for 1-5 years , and 46.6% worked in the public hospital association. Seventy nine point four percentage of them worked in the institution overtime / on duty , 72.5% had permanent works, 40.7% have health problems related to their profession, 46.6% of them stated 2001-3000 YTL (Turkish Lira) (less than 1000 USD) of income. Again, 73.4% of respondents had a moderate economic level and 53.9% had relatives working in the health profession. Again, 71% of  them did not have job descriptions clear enough, 77.1% had to work beyond the job description, 91.4% stated that they worked more than that is specified and stated in the regulations. When the total satisfaction score was compared taking in consideration the clarity of job description, there was no statistically significant difference between the ones who had stated that they had no clarity in job description and the ones who stated that they had clear job descriptions (p <0.05). The job satisfaction score were higher in the technicians who had stated that they had clear job descriptions when compared to the ones who had stated that they had no clear job descriptions. When the satisfaction scores were compared according to the age groups, there were statistically significant differences in satisfaction scores between the age groups, the difference being in 41-51 years and 19-29 years old technicians.

Conclusion: Anesthesia Technicians have low levels of job satisfaction; decreases with increasing working hours, does not change with their permanent work or being staff at their hospitals. The satisfaction scores increase when they had clear job descriptions and the job satisfactions decrease when there is no clear job descriptions.

Key words: Anesthesia Technician, Anesthesia Technician, Job Satisfaction

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**wcna1-0085**  
**The Effects of the Current Economic Situation on the Workforce**  
  
**AFFECTING FACTORS ON THE TIME OF STAY IN PACU :FOCUSED ON MAC ANESTHESIA AND SPINAL ANESTHESIA**  
050  
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**Affecting factors on the time of stay in PACU**

**:Focused on MAC(monitored anesthesia care) anesthesia and Spinal anesthesia**

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The purpose of this study was to examine staying time and to find affecting factors on the time of stay in order to reduce the unnecessary staying time in PACU.

The data were collected from January 1st to February 12th, 2015 from 214 patients over the aged of 18 who had operated under MAC anesthesia and spinal anesthesia in Seoul national University. The data were collected from medical records and the questionnaire was designed to obtain information on demographic factors and the factors related to operation such as anesthesia, anesthetic medication, transfusion, oxygen supply, usage of inotropic or antiemetics , checking blood test, recovery time, PAR score or spinal level at admitting time after operation ect.

To analyze the data, destrictive statistics and T-test, Anova, Mann-Whitney U test and Multiple regression were used with the software package SPSS version 22.0 program.

    The Results from this study are that 181 patients(84.6%) under Mac anesthesia stayed for 21-60minutes, 131 patients(61.2%) under Spinal anesthesia stayed for 61-120 minutes.

Among the factors related to operation there were significant differences in anesthetic medication(U=4022.000,p=.022), anesthesic  time(F=3.281, p=.022), PAR score(F=1.412, p=.001), Usage of inotropic drug(t=-2.175, p=.031), oxygen apply(t=-3.766, p<.001).

There were 3 major affecting factors PAR score(p=**.035**), recovery time(p=**<.001**), checking lab or not(p=**<.001**) on the time of stay in PACU.

The Results from this study suggested that there were unnecessary staying time in PACU caused by discharge protocol such as discharge after checking blood test, staying time.  For reducing unnecessary staying time in PACU, discharge protocol review and modification of each anesthetical method are needed after Quasi experimental intervention study.

**Key words** : Staying Time, PACU, MAC anesthesia, Spinal anesthesia

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**wcna1-0030**  
**Ultrasound in the Placing of Lines (various)**  
  
**ULTRASOUND GUIDED NEURAXIAL BLOCKADE**  
051  
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Neuraxial blockade, encompassing spinal, epidural and caudal anaesthesia, has been generally performed using an anatomic landmark technique. However, the traditional landmark technique is prone to error. Factors include clinical technique, operator experience, difficult to palpate spinal landmarks and abnormalities of the spine (Ansari, Yousef, El Gamassy & Fayez, 2014; Terblanche, 2013). There has been increasing interest in the utilisation of ultrasound for these procedures.

Ultrasound guidance is not without its limitations however. Research has acknowledged perceived technical difficulties, operator inexperience and limited research as to its drawbacks over traditional methods (Ansari et al, 2014). Research to date has focused on two techniques in the use of ultrasound. The ultrasound can be utilised prior to the procedure whereby the operator marks the suitable needle or catheter insertion site. The alternative technique utilisies the ultrasound during the procedure (Terblanche, 2013).

The use of ultrasound for neuraxial blockade has a number of advantages. The technique reduces the incidence of failed blocks due to the ability to view the area of needle insertion and local anaesthetic infiltration (Kline, 2011). Ultrasound has also been found to reduce the number of needle passes for success over the traditional landmark technique. Patient populations whereby the traditional approach has been met with difficulty have also seen to benefit. These include the obese, elderly, patients with a history of past spinal surgeries or thoracic or lumber curvatures (Chin et al, 2010).

**Conclusion**

In summary, ultrasound guidance has been found to improve accuracy, technique and failure rate. In addition, patient satisfaction and participation can also benefit. Whilst researchers acknowledge ultrasound guidance will not surpass the traditional landmark technique it can be seen as a useful addition to clinical practice.

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Keywords: technique, local anaesthetic infiltration, anatomy visualisation

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**wcna1-0093**  
**Other**  
  
**IFNA ANESTHESIA PROGRAM APPROVAL PROCESS (APAP) GRANT**  
052  
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Introduction: The International Federation of Nurse Anesthetists (IFNA) believes that it is possible to improve the health and welfare of humanity by promoting international educational standards for non-physician anesthesia programs. In June 2010, during the 9th World Congress for Nurse Anesthetist in The Hague, The Netherlands, IFNA approved an Anesthesia Program Approval Process (APAP).  During the years IFNA has awarded several grants for APAP projects.

Aim: The APAP process is meant to encourage programs/schools to comply with IFNA’s Educational Standards for Preparing Nurse Anesthetists through an approval process that takes cultural, national or regional differences into consideration.

Subject: Three categories of approval are available; Level #1 Registration, Level #2 Recognition and Level #3 Accreditation.  Offering several categories of approval recognizes:  (1) the diversity of nurse anesthesia programs throughout the world; (2) the capacity of a program given its national or regional context; (3) the resources available to individual programs; (4) a commitment of diverse programs to a common standard of educational quality.  Decisions are a joint activity of the Education Committee and IFNA authorities. Progress toward meeting all of the standards and changes in programs are to be reviewed at 5 year intervals.

Information contact: Betty J. Horton, PhD, CRNA, FAAN at bettyhorton10@ymail.com

Deadline for grant application: Each year February 28 send to ifna.rod@wanadoo.fr

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**wcna1-0094**  
**Other**  
  
**IFNA FOUNDATION RESEARCH GRANT**  
053  
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Introduction: The IFNA established the IFNA Education and Research Foundation in 2002 in order to support education and research with an international interest for nurse anesthesia worldwide. The finances are based on grants, donation and a part of the benefits of each IFNA World congress.

Aim: To support research projects about nurse anesthesia with an international relevance.

Subject: Every project for basic and/or continuing education, workshops for nurse anesthetists and all type of research about nurse anesthesia with an international relevance can apply for financial support from the Scientific Committee behind the IFNA Foundation.

An application form should be completed preferably by the person responsible for the project and should include: Relevance to nurse anesthesia internationally, how the proposed education, practice, or research study will contribute to the increasing of nurse anesthesia research in the country where research will be conducted. Other main topics included in the application: Introduction and Purpose of the research project; Methods and materials; Research design and protocol; Data collection plan and procedures; Data analysis plan and procedures; Timelines of study; Budget justification and a list of the direct cost of study.

Applications will be judged by the IFNA Foundation Scientific Committee.  An application including a project that involves a study collaboration between two or more countries will receive priority over a project involving only one country.

Deadline: Application has to be submitted to the Foundation Scientific Committee before March 1st of each year.

The application form can be found on the IFNA webpage http://ifna.site/ifna-education-research-foundation/

Contact: ifna.rod@wanadoo.fr

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**wcna1-0095**  
**Other**  
  
**IFNA STUDENT, FACULTY AND NURSE ANESTHESIA PRACTITIONER EXCHANGE - GRANT FOR PILOT PROJECT**  
054  
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Introduction: International collaboration between health care institutions is becoming more and more important and many educational institutions see it as a part of their mission to promote international collaboration. At the World congress in Slovenia 2012 IFNA decided to develop Guidelines for student, faculty and nurse anesthesia practitioner exchange worldwide.

Aims: To promote and intensify collaboration between educational partner institutions worldwide, to get an understanding of the nurse anesthesia programs worldwide as well as to promote collaboration and increase understanding of the cultural differences between the partners in the exchange activities.

 Subject: The grant is established in order to support student, faculty and nurse anesthesia practitioner exchange, and the project is to include contributions from all these groups.  The intentions behind the grants are

* To promote and intensify collaboration between educational partner institutions
* To promote collaboration and increase understanding of the cultural differences between the partners in the exchange activities
* To develop an understanding of the nurse anesthesia education in the host country and to identify the competencies and the daily practice of nurse anesthetists
* To identify the structure and organization of the anesthesia ward and to describe the management of the patients pre-, intra- and postoperatively
* To identify current anesthetic methods and medications in the host country

 An application form should be completed preferably by the responsible for the exchange project and include: General Information about the project's curriculum; Proposed exchange activities; Budget; Timetable and evaluation of the Project.

The application form and further information about the Exchange project can be found on the IFNA webpage.

Deadline: Due March 1/October 1 every year  
Contact: ifna.rod@wanadoo.fr

**wcna1-0042**  
**FREE COMMUNICATION SESSION 13**  
  
**INTRODUCTION IN SHOCK ROOM MANAGEMENT AT THE UNIVERSITY HOSPITAL ZURICH – A CHALLENGE FOR STUDENT NURSE ANESTHETISTS AND CLINICAL NURSE EDUCATORS**  
  
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**Introduction:**

The model of a shock room as an integrated part of the emergency operating room at the University Hospital Zurich (USZ) is unique in Switzerland. An interdisciplinary team of physicians and nurse anesthetists treat severe ill patients. The facilities are operated by the Institute of Anesthesiology in close relationship with other disciplines. Furthermore the USZ is Switzerland`s largest teaching hospital for nurse anesthetists. The shock room team is staffed with two clinical nurse educators. Every year they teach, supervise and accompany 26 students.

**Methods:**

The process and content of education and training for students nurse anesthetists in the shock room will be described. Tasks and responsibilities of the clinical nurse educators will be shown.

**Results:**

All students have a shock room traineeship for a period of 4 months. Previously they take part in a workshop with clinical nurse educators to gain theoretical instructions and background information according to the shock room management. Following the theoretical input students are introduced to the treatment team, rooms and equipment. In addition written documents with different standard operating procedures help them to get familiar with organization and processes in the shock room. So they can acquire knowledge to use in clinical settings. As clear communication is crucial for all team members in shock room skills are trained regularly in the simulation center at the USZ based on “crisis resource management” principles. Students take part in these training sessions. Clinical nurse educators and nurse anesthetists with a certificate in Advanced Trauma Care for Nurses (ATCN®) supervise students in daily practice to support if necessary. Furthermore physicians using the concept of Advanced Trauma Life Support (ATLS®) give them assistance. To assess the student`s individual progress in learning, clinical nurse educators obtain feedback from team members, such as physicians and nurse anesthetists. At the end of the traineeship students get a written qualifying evaluation.

**Conclusion:**

Challenges in shock room setting are high both for student nurse anesthetists and clinical nurse educators. Students have to learn a lot in a short time. Flexibility and responsiveness in working are essential. Advanced basic knowledge is mandatory to handle appropriate in fast changing situations. Nevertheless students show great interest for work in this special field. However, traineeship can lead to uncertainness, stress and mental overload. Therefore it is important for clinical nurse educators to be aware of early signs and react in a suitable manner. So they can contribute to a professional education of nurse anesthetists at the USZ.

**wcna1-0076**  
**FREE COMMUNICATION SESSION 13**  
  
**SIMULTANEOUS KIDNEY AND PANCREAS TRANSPLANTATIONS - THE TIMESCALE BEHIND THE SCENES**  
  
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“Without the organ donor, there is no story, no hope, no transplant. But when there is an organ donor, life springs from death, sorrow turns to hope, and a terrible loss becomes a gift.” [1]

As one of the largest Cancer and Transplant Centres in the UK, the Churchill Hospital is in charge of countless kidney and pancreas transplantations [2]. In 2008, the UK Department of Health criticised a lack of knowledge, on a hospital by hospital basis, of key steps along the donation pathway [3]. This contribution aims for an understanding of the procedures and protocols to be conducted before the organ and the organ recipient arrive in the operating theatre. How essential is a smooth flow of these processes for patient survival rates?   
In order to gain a comprehensive insight into the time dependencies within the donation pathway, scientific articles and reviews, annual statistics of the NHS Blood and Transplant agency, and internal standard operating procedures were analysed and compared.  
Organ transplantations are not only among the medically most challenging and logistically most difficult procedures but also emotionally demanding for donor and recipient families and healthcare professionals alike. A successful transplantation pathway relies on efficient communication in a complex network of different staff groups comprising national organ donation teams, referring hospital teams, the national organ retrieval service, theatre coordinators, laboratory staff as well as additional staff including radiology, portering staff, chaplaincy, and bereavement officers.  
This communication network benefited greatly from the establishment of the NHS Blood and Transplant agency in 2005 monitoring the whole transplantation process performed by different specialties in all UK hospitals.  
Apart from organisational aspects, time is the bottleneck for a successful transplantation. The decisive factors for organ survival are meticulous preservation and a short ischemic time.  
In addition to patient selection and organ procurement, the quality of perioperative care, which includes prevention and management of complications, and the post-transplantation treatment need to be the subject of regular improvement.  
Even high-quality care, however, does not minimise the huge gap between the number of patients on waiting lists for organ transplants and the availability of suitable organs. Only public relations activities such as the ‘Taking Organ Transplantation to 2020 Strategy’ [3] will counteract the persistent shortfall in the availability of organs for transplantation.

**References**

[1] United Network for Organ Sharing (UNOS); <https://www.unos.org/>

[2] NHS Blood and Transplant; <http://www.odt.nhs.uk/uk-transplant-registry/annual-activity-report/>

[3] Department of Public Health; <http://webarchive.nationalarchives.gov.uk/20080205142251/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_082122>