
ANESTHESIA SAFETY NETWORK

QUARTERLY PERIOPERATIVE INCIDENTS REPORT
Newsletter #005 - october 2017



**TOWARD EXCELLENCE
IN HEALTHCARE**

INTRODUCTION

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This newsletter should have been published two weeks ago but some difficulties have occurred to postpone the publication on our website. You have probably received an email requesting for more events and I'd like to thank all the subscribers who have responded positively to this request.

Again it is emphasised, near misses must be viewed as invitations to improve, not proof that a system has enough checks to prevent a catastrophe. In your practice, every near-miss or hazardous event must be shared, using the form on www.anesthesiasafetynetwork.com.

Learning from mistakes, even without any critical consequences, must become our priority as standardisation and better communication. This incident reporting system guarantees the reporters total anonymity. So don't be shy and become proactive. The healthcare system needs you!



- ▶ During the summer holidays, a friend of mine has sent to me the last issue of the AIR FRANCE reporting system (SURVOL 52) published in July 2017. The editorial written by the flight safety officer wrote that: " All these events represent our collective awareness of flight safety ". As in other high reliability organisations, airline pilots must deal with pressure to proceed, task interruptions, effective communication and situation awareness. Nevertheless, flight safety is improving a little bit more every year. Why is it so difficult to engage frontline staff into quality and patient safety? Together, we could tear down the barriers.

Looking ahead, some initiatives are worth watching. Recently, the human factor group in medicine has been created (September 21th 2017) bringing together French sociologists, human factor specialists, airline pilots, air traffic controllers, health care givers (nurses, surgeons, anaesthesiologists, general practitioners) and patients. The first meeting was held outside the annual meeting of the French Society of Anaesthesiology and Intensive Care.

Finally, in three weeks time in Boston, The International Forum on Perioperative Safety and Quality will held. This meeting is jointly conducted by the American Society of Anesthesiologists and the European Society of Anaesthesiology which will occur one day before the ASA congress. If some of you are interested in networking at this session or during the congress, don't hesitate to send me an email : fmartin@anesthesiasafetynetwork.com

Together we are stronger; together we can deliver safer care!

Frédéric MARTIN

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ENOUGH CHECKS TO PREVENT
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EDITORIAL



In 2016 in Belgium, Guillaume Tirtiaux from REPORT'in (Development and Training Director) declared during his presentation that the CRM acronym meant at the beginning Cockpit Resource Management. From there it has continued to evolve towards "Crew Resource Management" and now "Company Resource Management". This message is loud and clear: "patient safety has to be shared by all stakeholders". The AHRQ (Agency for Healthcare Research and Quality) has created a set of new teamwork tools aimed at optimising patient outcomes by improving communication and teamwork skills amongst health care professionals: TeamSTEPPS® 2.0. This is a big challenge because our mental framework has been shaped during our medical studies for outperforming opponents instead of working as a team with the same goal. Everything is organised during our study as a contest to select medical elite. When it comes to real life it's difficult to change our mental model and most of health care professionals act as group of experts instead of an expert team. According to TeamSTEPPS® 2.0, expert team skills are: mutual support, effective communication, leadership and situation monitoring. In the August issue of *Anesthesiology* (1), Schulz reported that anaesthesiologists' situational awareness errors contributed to death or brain injury in 74 % of claims. This situation awareness was defined as perception, comprehension or planning errors. These authors emphasised that comprehension or planning errors needed the use of long-term memory. This memory was highly difficult to engage during crisis code. That's why cognitive aids and call for help are two major items to prevent these errors.

« ANAESTHESIOLOGISTS SITUATIONAL AWARENESS ERRORS CONTRIBUTED TO DEATH OR BRAIN INJURY



FOREIGN BODY FORGOTTEN

A woman was operated on by laparoscopic procedure for a pelvic organ prolapse and an ovarian cystectomy. The surgery was close to the end when another surgeon arrived in the operating room (OR). The discussion was friendly and both colleagues talked about their weekend with the two nurses. After skin closure, the two surgeons left the OR and the patient was moved to the post anaesthesia care unit (PACU), still sleeping due to residual curarisation needing antagonization before waking her up. A few minutes later, her surgeon arrived in PACU and asked to return to the OR because he thought he had forgotten to remove the bag containing the ovarian cyst from the abdomen. The nurse confirmed that she didn't find the surgical specimen for the pathological analysis. The patient was returned to the OR and the bag was easily found and removed.

Good points : *incident detection*

Ways for improvement : *surgical safety checklist before patient leaves the OR (sign out) / sterile cockpit (avoid distraction) / speak up when team members are concerned about distraction or event*

KEY WORDS : *distraction / foreign body / surgical checklist*

«Sterile» cockpit below 10000 feet

The «sterile» cockpit rule below 10000 feet (about 3000 meters) was introduced in 1981 by the FAA (Federal Aviation Administration in the USA). After reviewing several accidents, the FAA determined that one of the contributory causes was the distraction of the pilots. They chatted or engaged in non-essential activities during so-called critical phases of the flight. (2)

Since, this rule has been adopted worldwide. The European Aviation Safety Agency (EASA) has its own version. (3)

This rule requires pilots to restrict their conversations and occupations to essential flying duties and procedures during taxi, take-off, landing and in flight below 10000 feet above ground. Cabin crew members are also required to apply this rule and may contact the pilots during these phases of flight only if safety is at stake.

We are social animals, and the strict application of this rule requires discipline in the daily life of a pilot. In your opinion, what is discipline?

On May 7th, 2004, General Shumacker of the U.S. Marines Corp was heard by the US Congress about the torture allegations at Abu Ghraib prison in Iraq. He gave his definition of discipline: «Discipline is doing what is right when nobody is watching.»

The check-list as a tool to check the fulfilment of the contract

Imagine flying somewhere. Upon arrival, you hear the following announcement by the captain: «Ladies and gentlemen, this is your captain. The good news is that we landed safely. The bad news is that we landed at the wrong destination. My colleague and I were distracted. I apologise for the inconvenience.»

A year ago, the 130 passengers of a Delta Airlines flight had the unpleasant surprise to see their plane land by mistake at Ellsworth Air Force Base, some 11 km from their initial destination - the airport of Rapid City in South Dakota.

What would you think about this crew, knowing that the execution of the «Descent checklist» would have enable them to find out about their mistake and correct it early enough?

In the same vein, the «Before patient leaves operating room» section of the WHO checklist requires the nurse to confirm orally the type of intervention, in the presence of the anesthesiologist and the surgeon. This enables the team to check that the contract has been fulfilled.(4)


REPORT'in



INDIGO CARMINE

A woman with ASA 2 physical status was operated on for a partial nephrectomy. The medical documents found in her medical history included a breast surgery ten years before and a polytrauma resulting from a car accident. Peripheral venous access was very difficult and failed despite two attempts by two different highly-qualified professionals. The woman was very anxious and cried so the team decided to proceed with inhalation induction with sevoflurane but no venous sites were found leading to the insertion of a jugular central venous catheter using ultrasonography. Then the surgery began with a one-hour delay. The surgeon was angry and stressed. After the extraction of the surgical specimen, the surgeon asked for the intravenous administration of indigo carmine before skin closure. The anaesthetist prepared the indigo carmine solution with 20 ml of saline serum. He took a specific filter and tried to inject the solution through the filter but there was a resistance even with high pressure. The surgeon asked for a quick injection and the anaesthetist decided to remove the filter and injected directly in the central venous line but it seems that some blue clots were present. A few seconds later, a major arterial hypotension and bradycardia occurred with hypocapnia. The anaesthetist called for help and asked for chest compressions. He injected 0.5 mg IV of epinephrine and added continuous IV infusion of epinephrine allowing the patient to recover a steady state. At the end of the surgery, the patient was transferred into the intensive care unit and she recovered quickly. The blood samples didn't find any reasons for an anaphylactic shock.

Good points : call for help / situation awareness

Ways for improvement : No Go / speak up = CUS acronym (TeamSTEPPS® 2.0) / medical skills about use of dye in medical procedure / at-risk behaviour

KEY WORDS: collapses / indigo carmine / medical equipment

DISCOMFORT OF A RESIDENT IN THE OPERATING ROOM

This case took place in the OR of a general hospital. The senior anaesthetist was anxious because he wasn't confident in his anaesthesia paediatric skills and the number of young patients that were to be operated on this morning. He worked with a resident whose place and rules weren't well defined. The assistant of the surgeon was overconfident and declared that she had already worked in PACU so she began to preoxygenate the patient to "save time". One hour later, she rattled the resident at the beginning of a general anaesthesia. Then he realised that some of the cardio-pulmonary monitoring hadn't been used. He talked to his senior reporting he was uncomfortable because the nurse was overconfident and that his role hadn't been clearly defined. The question was « How to deal with intrusive people? »

Good points: *recognise discomfort*

Ways for improvement: *CRM (establish role clarity, distribute the workload) / speaking up and debriefing after the event / CUS acronym (I'm Concerned, I'm Uncomfortable, This is a Safety issue!)*

KEY WORDS: *team / discomfort / leadership*



SEVERE ARTERIAL OXYGEN DESATURATION DURING INDUCTION OF GENERAL ANESTHESIA

During a weekend shift, a morbidly obese patient was operated on for an acute appendicitis during a weekend shift. The resident had worked occasionally in this ward. The CRNA and the senior anaesthetist didn't know him. The CRNA put the mask on the patient's face for preoxygenation without being sealed. The anaesthetist said: "let's go! That's fine now!" without checking the effectiveness of denitrogenation. The resident had to deal with IV line but he was concerned about the quality of preoxygenation. He didn't speak up (hierarchical problem). The senior proceeded in the crush induction but unfortunately, the patient difficult to intubate (Cormack 4) and a severe arterial desaturation occurred. The team decided to use a videolaryngoscope with an Eschmann introducer. Finally, the situation was resolved after tracheal intubation without any bad outcomes.

Good points : *good outcome*

Ways for improvement: *ineffective communication between team members (hierarchical problem and new professional in an "old" team) / difficulty encountered for speaking up / not effective denitrogenation confirmed / no planning for difficult airway suspected / short briefing before induction (surgical checklist) / "one minute lost = 10 minutes won"*

KEY WORDS: *Hierarchical gradient / arterial desaturation / difficult airway management*

“SLOPPY WORK” DURING INDUCTION

An 80-year-old patient was operated on for a hip replacement. She had hemodynamic instability and the anaesthetist was stressed by some respiratory difficulties in the PACU. Despite his preoccupation, he decided to continue with the next patient in the OR calling for help to the young resident (another hip replacement surgery). It was 10:00 a.m. and the surgeon expected to finish on time because he had a consultation at 1:00 p.m. The anaesthetist was uncomfortable with his first patient extubation so he asked a colleague to take care of her while he proceeded with the general anaesthesia of the next patient. The pressure to proceed was very high. The anaesthetist said he was exhausted and that he was in a bad mood due to family problems. The resident started to inject hypnotic drugs and prepared for the orotracheal intubation. He had some trouble with the airway management despite injection of myorelaxant drug. He felt the anxiety of his senior. At this stage, the anaesthetist took the matter into his own hands and vigorously inserted the tracheal tube. The team noticed a powerful cough from the patient and they discovered that myorelaxant drug was still in the venous line (no flush). During the same period the first patient recovered "peacefully". This situation was highly frustrating and the anaesthesiology team debriefed this sentinel event concluding that the pressure to proceed was present but not verbally shared.

Good points : *immediate debriefing / call for help*

Ways for improvement : *no handoff in the PACU / workload dispatching / lack of awareness (fatigue, bad mood, stress) / briefing at the beginning of the surgeon vacation (way to share team preoccupations)*

KEY WORDS: *pressure to proceed / myorelaxation / team work*





NO ANALYSIS OF A NEAR MISS LOCALLY

During a shift in a hospital obstetric ward, the resident had usually to prepare the epidural local anaesthetic infusion and change it when it was empty. The anaesthetist resident was woken up at 3:00 a.m. to replace an empty epidural infusion bag. He picked it up on the anaesthesiologists' shelve card and as usual hung it on the IV stand. One hour later, the midwife called him because there was an epidural local anaesthetic bag connected to the venous line. He came back and removed it immediately and then informed the patient and the whole team. He looked for local anaesthetic toxicity symptoms and calculated the quantity of local anaesthetics and sufentanil injected (sufentanil 20µg in one hour).

Good points : *inform patient and the whole team about the error / midwife detected the error.*

Ways for improvement: *any root cause analysis performed / lack of forced function for epidural line and IV line for preventing misconnection / No effective alarm was heard (empty bag alarm) / 24-hour shift is too long / phone call in the deep night.*

KEY WORDS : *fatigue / medication error / epidural analgesia*



PERIOPERATIVE STROKE

A 72 year-old patient was treated with coumadine for preventing stroke because she had an atrial fibrillation. She had fallen down and had come into the emergency room because she had broken her leg just close to the hip arthroplasty. She had a really complex fracture and was admitted into the orthopaedic ward by a colleague of her surgeon. He decided to wait for the return of her surgeon and the reversion of the coumadine effect. One of the anaesthetists carried out the preoperative consultation requesting a cardiologist appointment. The cardiologist performed a heart echocardiography and suspected the presence of a left atrial thrombus. He asked for maintaining an effective anticoagulant therapy until the day before surgery but he didn't call his colleague. The nurse on duty called the anaesthetist who was too busy. He verbally prescribed the SC injection of enoxaparine. During the next few days, the prescription was updated but with prophylactic prescription of enoxaparine because nobody was aware of the cardiologist's recommendation. The surgery was postponed for five days due to a urinary tract infection. In the morning of the surgery, when the nurse came into the room of the patient, she discovered that she was aphasic and hemiplegic. She was immediately transferred into a stroke unit for adapted therapy.

Good points : *cardiologic advice and recommendation / RCA performed*

Ways for improvement: *who is the leader? Who is in charge of this patient? / Improve handoffs / patient education and information about anticoagulants therapy (in case of an emergency or surgery)*

KEY WORDS: *stroke / communication / handoff*

DIFFICULT AIRWAY MANAGEMENT

This event took place in the orthopaedic OR with an anaesthesiology team composed of a CRNA, a resident and a fellow. The surgeon attendant was moving between the OR and the storage area outside. The resident performed an axillary block using ultrasonography under the fellow supervision. The patient didn't speak French or English and she had fractured her elbow (humeral fracture). Because it was very difficult to communicate and test the efficiency of the anaesthesia, the fellow decided to convert this loco-regional anaesthesia into general anaesthesia without any explanation to the team (nobody had read her medical documentation). The anaesthesia appointment had been conducted the day before. After being placed in the OR; the team proceeded with general anaesthesia. The resident had to manage the airway. The myorelaxant drug was injected without checking the facemask ventilation. The ventilation was highly difficult so the resident tried to insert a Guedel cannulas and suddenly blood flew out of the mouth. The fellow promptly decided to check the patient mouth and discovered that the patient's teeth were mobile with a "tumefaction". They asked for the videolaryngoscope and inserted the orotracheal tube. After this hazardous event, all the staff were uncomfortable and realised that this situation shouldn't have happen if the medical documentation had been checked previously. The resident was at the end of his shift so he relayed all this information during handoff.

Good points : *handoff*

Ways for improvement: *surgical safety checklist before induction / CRM = anticipate and plan / team communication / no debriefing after the incident*

KEY WORDS: *airway / difficulty / medical documentation*

CONCLUSIONS A RETENIR

- **100 – Level Skills TeamSTEPPS® 2.0**
- **Request, call-out**
- **Cross-check, check-Back**
- **Briefing before action and use of SBAR acronym**
 - **Shared situation awareness (perception, comprehension, planning)**

BIBLIOGRAPHY

- Schulz CM, Burden A, Posner KL, Mincer SL, Steadman R, Wagner KJ, Domino KB. Frequency and Type of Situational Awareness Errors Contributing to Death and Brain Damage : A Closed Claims Analysis. *Anesthesiology*.2017 Aug;127(2):326-337.
- (2) Robert L. Sumwalt (June 1993), «The Sterile Cockpit»
- (3) Regulation (EU) No 965/2012 on Air Operations, Annex I (Definitions) and Annex III (Part ORO)
- (4) WHO 2009, Implementation manual – Surgical safety checklist

USEFUL WEBSITES :

[AHRQ \(Agency for Healthcare Research and Quality\) – TeamSTEPPS® 2.0 : https://www.ahrq.gov/teamstepps/index.html](https://www.ahrq.gov/teamstepps/index.html)

[EUROCONTROL Hindsight 25 – Summer 2017 « WORK-AS-IMAGINED & WORK-AS-DONE »
http://www.eurocontrol.int/publications/hindsight-25-summer-2017](http://www.eurocontrol.int/publications/hindsight-25-summer-2017)

COMING SOON :

- The International Forum on Perioperative Safety and Quality, Seaport Hotel, Boston, on October 20, 2017 provided by ASA and ESA.
- The 6th Annual World Patient Safety, Science & Technology Summit will be co-convened with the United Kingdom Department of Health and take place in London, England, on February 23-24, 2018