

## Belgian standards for patient safety in anesthesia. Revision 2019 of the last version published in the Acta Anaesthesiologica Belgica, 2002, 53 (1) : 5-9

*The Society for Anesthesia and Resuscitation of Belgium (SARB) and the Belgian Professional Association of Specialists in Anesthesia and Resuscitation (BSAR-APSAR)*

*SARB board : Vincent Bonhomme, Patrick Wouters, Luc Foubert, Marc Van de Velde, Jean François Brichant, Stefan De Hert, Panayota Kapessidou, Annelies Moerman, Mona Momeni, Jan Poelaert, Steffen Rex, Vera Saldien, Michel Van Dyck, Luc Van Obbergh, Luc Sermeus.*

*BSAR-APSAR board : Stefaan Carlier, Eric Deflandre, Erika Slock, Guy Bergiers, Gilbert Bejjani, René Heylen, Dirk Himpe, Jan-Paul Mulier.*

### INTRODUCTION

The present standards and recommendations for patient safety in anesthesia are a revision of the previous version published in the Acta Anaesthesiologica Belgica in 2002 (1). This revision has been written jointly by the board members of the professional and scientific Belgian anesthesia societies, namely the *Belgian Professional Association of Specialists in Anesthesia and Resuscitation (BSAR-APSAR)* and the *Society for Anesthesia and Resuscitation of Belgium (SARB)*. The motivation to come up with a new version was based on the necessity to adapt recommendations to the current reality of anesthesia practice in Belgium. The complete motivation is detailed in the Editorial published in the present issue of the journal (2). Consequently, this updated version constitutes the second revision of the initial recommendations (3), and replaces it. Other revisions may occur in the future, as a function of the evolution of standards of care, and professional environment.

As for the previous versions, the following principles should apply when interpreting the manuscript :

– Standards and recommendations cannot replace sound clinical judgement. Whenever the application of the standards is not possible, the reason therefore should be reported on the anesthesia record.

– Whenever an anesthesia department has difficulties in obtaining the necessary means for a safe practice or undergoes pressure to proceed without following the safety rules highlighted in this manuscript, we recommend that the Head of the Department of Anesthesiology call for an independent audit, to be performed by qualified professionals from outside the hospital. Such

audit can be organized jointly by the SARB and BSAR-APSAR. If the hospital management makes it impossible to put these standards into practice, despite a formal written request, we strongly recommend the Head of the Department of Anesthesiology to call for an external audit to document the problem and show the efforts made by the Department to comply with the standards.

– These safety recommendations apply not only for anesthetic procedures occurring in hospitals, but also for those occurring *extra muros*, e.g. in private clinics where anesthetic procedures are performed, or in any case of so called office-based anesthesia.

### PART ONE : MINIMAL STANDARDS AND ORGANIZATIONAL REQUIREMENTS

#### Section I : General principles

1.01 The function “Anesthesiology”, which is included in the K.B.-A.R. 30.01.1989 automatically implies the existence of an organized Department of Anesthesiology.

1.02 The accreditation of a hospital depends in part on the application of minimal standards in anesthesia. These standards are to be met every time a patient undergoes general anesthesia, regional anesthesia or sedation given by an anesthesiologist for diagnostic, therapeutic and/or surgical procedures.

1.03 The Hospital Manager is responsible for the provision of nursing staff, equipment for anesthesia and monitoring, according to the advice

**Corresponding author** : Vincent Bonhomme, Department of Anesthesia & ICM, CHU Liège, 4000 LIEGE, Belgium.  
E-mail : vincent.bonhomme@chuliege.be

of the Department of Anesthesiology. The Hospital Manager is also responsible for the effective maintenance of this equipment.

## Section II : Departmental organization

1.04 Each Department of Anesthesiology has a Head of the Department, who is responsible for the organization and coordination of all activities of the Department. He/she must be a physician and fully certified anesthesiologist.

1.05 Staff members in each Department of Anesthesiology define and apply together a common policy in the interests of the patient.

1.06 The Department of Anesthesiology has suitable space for its professional and educational activities, and sufficient secretarial support.

## Section III : Assistance to the anesthesiologist - Minimal standards and organizational requirements

1.07 The anesthesiologist is always assisted by properly trained nursing staff during induction and emergence periods. During maintenance of anesthesia, assistance is also readily available on demand. This assistance **is specifically dedicated to the anesthesiologist at the exclusion of any other task**, has priority, and is given in such a way as to allow the anesthesiologist to maintain close contact with and provide care to the patient, at all times. This also applies to anesthesia care outside the main operating theatre area.

1.08 **No medical act related to the management of an anesthetized patient can be delegated to a third person.** Patient monitoring can be delegated, but only for a brief period of time and in line with the safety rules specified in Part 2, Section IV, V, and VI. The concerned person **must be specifically dedicated to the monitoring task, have the necessary theoretical knowledge, and have sufficient practical skills in that respect. The anesthesiologist in charge of the patient is the only one to judge on the ability of a person to adequately monitor the patient.** This implies that **the anesthesiologist has the responsibility of appointing the right person for such a task** and remains medico-legally responsible.

1.09 **The ideal needs with respect to the competencies of persons helping the anesthesiologist** have been clearly defined in previous texts (4). Although not sufficiently described to the finest detail in the M.B.-A.M. 26.03.2014 and in the advice of the Technical Commission

for Nurse Art, Directorate General of Public Health of Belgium (emitted on January 1, 2019 ; TCV/2019/ADVIES-01 or CTAI/2019/AVIS-01 ; <https://organesdeconcertation.sante.belgique.be/fr/documents/avis-de-la-commission-technique-de-lart-infirmier-relatif-aux-infirmiers-porteurs-du-titre>), there is actually a huge overlap between the competencies of nurses entitled as ‘nurse specialized in perioperative care’ and the ideal competencies of anesthesiologist’s helpers. These shared competencies may also be acquired by other categories of para-medical professionals.

1.10 The SARB and BSAR-ASPAR here point out the current necessity of increasing the number of available competent staff to help the anesthesiologist in his/her tasks. Efforts should be made in this direction by hospital managements and relevant authorities in order to improve patient outcome, decrease mortality, and shorten length of stay.

Currently, adequate theoretical knowledge should normally be acquired by nurses who are experienced in perioperative care and who are continuously trained theoretically, nurses specialized in perioperative care (special professional title), and nurses specialized in anesthesia and resuscitation (NASAR : nursing aid specialized in anesthesia and resuscitation (5), which is currently not a special professional title). Practical skills are acquired with experience. Theoretically, **the NASAR constitutes the most suited category of professionals to help the anesthesiologist in his/her tasks.** Such a category of specialized nurses is highly needed to cope with the increasing demand for safe anesthesia, the complexity of modern anesthesia care and the growing surgical population at high risk. Ideally, for this purpose, formal training of nurses with subsequent accreditation and a protected professional title of nurse specialized in anesthesia should be initiated urgently. Meanwhile, and until there is adequate government financing and a sufficient number of these professionals, it is advised to promote education in the domain of anesthesia, organ function monitoring, and perioperative care for those nurses who intend to work in the operating room, notably during their basic educational curriculum as optional courses. Education can be adapted to the working environment of helping staff, and courses can be organized at a local institutional level to improve their knowledge and technical skills. Anesthesiologists are the most competent persons to provide this education to nurses.

1.11 To the opinion of the SARB and BSAR-APSAR, optimal competencies should include :

1. During the preoperative visit : the ability of contributing to the pre-anesthetic collection of the patient's past medical/surgical history and current medical treatments, determining the risk classifications and scoring systems, preparing the patient for the clinical examination by the anesthesiologist, recording preoperative body measurements and vital signs, completing the pre-anesthetic file, collecting complementary pre-operative technical exams ordered by the anesthesiologist, contributing to provide information to the patient with respect to the preoperative precautions and instructions, the anesthetic and/or analgesic techniques available, and the postoperative care. These interventions complete but replace neither the preoperative visit by the anesthesiologist nor his/her discussion with the patient.

2. Before an anesthetic procedure starts : the ability of preparing and checking all necessary anesthetic drugs and equipment according to the written orders of the anesthesiologist, welcoming and installing the patient in the operating or procedure room, checking the patient's identity, the pre-anesthetic file, the type, site and side of the intervention, eventual allergies, and compliance with the preoperative instructions.

3. During anesthesia : the ability of assisting the anesthesiologist during induction of anesthesia, reading and understanding monitored parameters, detecting relevant changes in them, and informing the anesthesiologist about these changes.

4. During emergence from anesthesia and the postoperative period : the ability of assisting the anesthesiologist at the moment of emergence from anesthesia, monitoring the patient in the PACU, participating in acute pain management by evaluating the efficacy of the analgesic technique and reporting any relevant information to the responsible anesthesiologist.

5. For regional anesthesia : the ability of assisting the anesthesiologist in performing the block.

1.12 The Department of Anesthesiology is entitled to request the nursing management to transfer a nurse for reasons of incompetence or unreliability. If this transfer is not made, the anesthesiologist cannot be held responsible for the consequences. He/she will ask the management to notify in writing and justify the decision of a possible refusal.

1.13 Anesthesiologists in training are allowed to perform medical acts, under the supervision of a certified anesthesiologist. Working conditions and supervision of anesthesiologists in training are

detailed in Part 2, Section VI, Point 2.23.

1.14 A registered technician responsible for the maintenance of ventilators and monitoring devices and for any other equipment necessary for the practice of anesthesia can be called at any time during office hours. Technical assistance should also ideally be available during nights and weekends, through the organization of an on-call duty system.

#### **Section IV : General equipment. Minimal standards**

1.15 All equipment is in accordance with the ISO standards and meets the applicable European Union regulations.

1.16 The basic equipment, for each anesthesia workstation comprises :

1. A standard anesthesia trolley in the sole form selected by the Department of Anesthesiology, as well as an anesthesia machine.

2. A suction appliance.

3. Equipment for mask ventilation with pure oxygen, including a self-filling ventilation balloon, and instrumentation for tracheal intubation, with at least two properly functioning laryngoscopes, and a Magill clamp.

4. Specific equipment for the adequate lighting of the patient, the anesthesia machine, the anesthesia trolley and the monitoring equipment.

5. Means of communication including :

a. A telephone, reserved for the anesthesiologist and, if possible, standing at a place where the user may continue to observe the patient and the monitors, or ideally an independent cell-phone operated on the private communication network of the hospital, with the possibility of giving and receiving calls from in or outside the hospital ; through the cell-phone, the anesthesiologist must be reachable anywhere in the hospital.

b. A pager if no above-mentioned cell-phone.

c. A "cardiac arrest" call button or any equivalent system to call for help in case of emergency.

6. Electric power points, connected to an emergency supply source of electricity, in sufficient number so as to allow the functioning of all the necessary appliances and monitors.

7. Outlets for medical gases from a central supply. The tubing, which connects wall plugs to the anesthesia machine, are manufactured and supplied as single pieces, without any detachable components.

1.17 In addition to this basic equipment, the following equipment should also always be available :

1. A standard resuscitation cart in the sole form selected by the Department of Anesthesiology must be available within two minutes or less. It contains, among other items, a defibrillator and an emergency airway access set.

2. A spare tank of oxygen, cool infusion solutions, ice, a minimum of 240 mg of Dantrolene®, and a 500 mL infusion bag of Intralipid® 20% or its equivalent must be immediately available, at all times.

### Section V : Monitoring equipment. Minimal standards

(In this text, the words “continuous” and “continuously” mean without interruption, whereas the words “continual” and “continually” refer to actions which are performed on a regular basis throughout the procedure)

1.18 Minimal standard monitoring equipment for each anesthesia workstation includes :

1. An oxygen analyzer, incorporating an audible signal to warn in case of low oxygen concentration, correctly fitted into the breathing system.

2. When an automatic ventilator is used :

a. A manometer to display the pressure in the breathing system, continuously ;

b. A pressure/volume alarm system including :

- A high pressure alarm sounding each time the maximum selected pressure is reached.

- A disconnection alarm, indicating that the minimum selected pressure and ventilation volume has not been reached in the last twenty seconds. This delay of twenty seconds may be prolonged temporarily but not permanently. The starting and stopping of the alarm system should be independent from the functions of the ventilator.

c. A device to continuously measure the respiratory rate.

3. A device to measure systolic and diastolic arterial blood pressure with appropriate sizes of inflatable cuffs.

4. Equipment to display the electrocardiogram continuously.

5. Equipment to read the heart rate continuously.

6. Equipment to measure the body temperature continuously.

7. A continuous pulse-oximeter with a minimum value alarm setting.

8. A device to measure the CO<sub>2</sub>-concentration of inspiratory and expiratory gases and displaying the tidal curves on a screen, continuously.

9. A device to continuously measure the concentration of all inhalation anesthetic agents used in the respiratory system.

10. A monitor of neuromuscular function.

11. A manual or an automatic anesthesia record system, fulfilling the specific requirements of the Department of Anesthesiology, and allowing secure storage and backup, with easy access from and to the medical record of each patient. This system must comply to the European rules in terms of personal data protection.

12. Computerized automatic filing of data captured by the patient monitors into the anesthesia record system is recommended.

13. All alarms should be set up in order not to enter in conflict with each other, and have an individual sound that is clearly distinguishable from the other alarms. The alarm limits should be adjusted in order to immediately alert the anesthesiologist of relevant modifications in the monitored parameters.

1.19 In addition to this basic equipment, there must be around the clock facilities in the operating theatres or in the hospital for relevant biochemical and hematological monitoring, including : pH, blood gases, hemoglobin concentration, hematocrit, serum electrolytes, glucose, blood group testing and compatibility, blood cell count, and blood coagulation tests.

### Section VI : Transport of the patient

1.20 A portable battery-powered continuous pulse-oximeter and an oxygen delivery system must be available for the transport of a spontaneously breathing patient.

1.21 The transport of a mechanically ventilated and sedated patient from and to the operating theatre necessitates the use of a specifically dedicated cart, equipped with the complete basic material described in Part 1, Section V, Point 1.18 (except for item 6, and 9 to 12), syringe pumps to permit the administration of anesthetic or non-anesthetic medications, as well as all medications and material that are deemed necessary in case of an acute deterioration of the patient's status during the transport.

### Section VII : Post-Anesthesia Care Unit (PACU). Minimal standards.

1.22 The minimal standards for the post-anesthesia care unit (PACU) are as follows :

1. One and a half bed per operating room.

2. One nurse, properly trained and exclusively assigned to the PACU, for each unit of three or less patients in normal conditions of anesthesia recovery.

3. A device for ventilation with pure oxygen, including a self-inflatable ventilation balloon and the appropriate equipment for tracheal intubation.

4. For each patient, the following equipment is available :

- a. An oxygen delivery system ;
- b. A suction appliance ;
- c. A device for the continuous display of the electrocardiogram ;
- d. A non-invasive blood pressure measurement device ;
- e. A device to measure the temperature ;
- f. A continuous pulse-oximeter (SpO<sub>2</sub>) with a lower limit alarm ;
- g. A respiratory monitor which operates either :
  - By recording expiratory CO<sub>2</sub> concentration (ETCO<sub>2</sub>) if the patient is intubated and mechanically ventilated, or,
  - By impedance measurement between ECG electrodes, or,
  - By any other reliable system.

5. The immediate access to devices allowing mechanical ventilation and ready to use. Each device must be equipped with :

- a. A respiratory monitor as mentioned in Part I, Section VII, Point 1.22, Item 4g.
- b. Outlets for medical gases from a central supply. All tubing, which connects wall plugs to breathing systems are manufactured and supplied as single pieces, without any detachable components.

6. Electric power points, connected to an emergency supply source of electricity, in sufficient number so as to allow for the functioning of all the necessary appliances and monitors.

7. A standard resuscitation cart in the sole form selected by the Department of Anesthesiology, available within two minutes. The cart must at least contain a defibrillator and an emergency airway access set, in addition to all medications and material that are deemed necessary for resuscitation.

8. The following means of communication :
  - a. A telephone standing at a place that allows the user to continuously observe the patients.
  - b. Within reach of each bed : an intercom, a “cardiac arrest” call button, or any equivalent system to call for help in case of emergency.

## Section VIII : Maintenance of anesthesia equipment and PACU equipment

1.23 Systematic control and maintenance are carried out bi-annually for anesthesia machines and respirators and annually for monitoring equipment.

1.24 These duties are undertaken either by commercial firms, by the Biotechnical Department of the hospital, or both in efficient collaboration. In all situations, a detailed written maintenance contract is agreed between parties. Whenever maintenance is carried out, a printed report is provided to the Head of the Department of Anesthesiology.

1.25 A label is attached to each appliance, showing the dates of controls, maintenance and repairs, and the date of the next control due. A technical journal of each appliance is kept by the Department of Anesthesiology or by the Biotechnical Department, available on request 24 hours a day and 7 days a week.

1.26 The Technical Department and the hospital pharmacist ensure that the Chief of the Department of Anesthesiology or his acting deputy is informed of any work carried out on the medical gas distribution system.

1.27 The Technical Department ensures that the Chief of the Department of Anesthesiology or his acting deputy is informed of any work carried out on the electricity power supply, and on the communication systems.

## PART TWO : SAFETY RECOMMENDATIONS FOR THE PRACTICE OF ANESTHESIA

### Section I : Organizational requirements

2.01 The anesthesiologist takes an active role in setting up the operating list. The interest of the patient is paramount in the compilation of the list.

2.02 The anesthesiologist ensures that the surgical activity is homogeneously spread over the working hours, in order to make the best possible use of anesthesiologists, nurses and operating theatre facilities.

2.03 The anesthesiologist is given and devotes the necessary time for the induction of and the emergence from anesthesia.

### Section II : Preoperative visit – organizational requirements and recommendations

2.04 A preoperative evaluation of the patient in conjunction with the consultation of the patient’s file

is recommended. This can be done in the immediate preoperative period, but, in certain circumstances, a preoperative consultation several days before surgery is encouraged, e.g. should the treatment of the patient need to be modified in preparation to surgery, or should the patient receive any specific preparation deemed necessary for the surgical procedure and the safe management of anesthesia. A screening evaluation using a questionnaire is also feasible, but an anesthesiologist should adequately review each questionnaire and prompt a formal consultation if deemed necessary. Thereafter, the anesthetic procedure can be planned in accordance with the patient's particular problems and needs. All patients should be adequately informed on the anesthetic technique they will receive, and on the common associated risks, and they should sign an informed consent to the proposed technique.

2.05 The anesthesiologist must be informed of the surgery schedule. This information must be given in good time and at the very latest, the day before the operation.

### Section III : Basic controls – organizational requirements

2.06 Basic controls are in accordance with the World Health Organization safe surgery checklist (6), and comprise :

1. Identity of the patient and routine verifications : before starting, the anesthesiologist ascertains the patient's identity, possible allergies, the scheduled operation and, if relevant, the site and side of the operation. The completion of a verification checklist by the anesthesiologist does not discharge the surgeon and nursing staff from their responsibility to do the same control.

2. Drugs : the anesthesiologist verifies the label of all drugs before loading or using the syringe. He/she implements a verification procedure if syringes are not prepared by him/herself. If the anesthesiologist is wearing sterile garments, the drug is shown to him/her in such a way as to allow him/her to read the label.

3. Syringes : each syringe is labelled with the name of the drug and, if possible, the concentration.

4. Perfusions : each bag solution, to which a drug has been added, is clearly labelled with the required information, including ideally the name and concentration of the added medication, date and hour, as well as the name of the person who added the drug.

5. Transfusions : for all preparations supplied by the blood bank, for which the compatibility with the patient needs to be tested, the anesthesiologist

ascertains whether this test has been done. The anesthesiologist notes on the anesthesia record the references of the patient's blood group and those of the blood bank container before transfusion of any blood products.

6. Before starting the first case of the day, the anesthesiologist checks the equipment and completes a checklist made for that purpose. Before starting each anesthesia or sedation, the anesthesiologist checks :

- a. The oxygen supply.
- b. The artificial ventilation systems, means of intubation and suction equipment.
- c. The presence of emergency drugs on the anesthesia trolley.

7. Prior to general anesthesia, all patients are pre-oxygenated, except when this is contraindicated, verification is made that the effects of the inhaled gas are those of oxygen and not of nitrous oxide.

### Section IV : Intraoperative patient surveillance – organizational requirements

2.07 Except in case of vital emergency, or when assisted by an anesthesiologist in training at the conditions described in Part II, Section VI, Point 2.23, **an anesthesiologist should never be responsible for more than one ongoing surgical, interventional, or diagnostic procedure.** Similarly, and at the same conditions, **simultaneous general anesthesia procedures are forbidden** ('simultaneous general anesthesia procedures' means the simultaneous management of general anesthesia in more than one patient by a single anesthesiologist).

2.08 From the beginning of the anesthetic procedure to the transfer of the patient to the PACU or the intensive care unit, **an anesthesiologist attends the patient in close vicinity. This attendance is continuous.** The anesthesiologist continually monitors the patient's condition and tailors anesthesia to the patient's particular needs. The anesthesiologist in charge **may** derogate to this rule and leave the operating theatre where he/she is providing anesthesia to a patient in case of :

1. Vital or critical situation outside his/her operating theater.

2. Initiation of a regional anesthesia technique in another patient at the conditions described in Part II, Section V.

3. Supervision of more than one anesthetic procedure performed by an anesthesiologist in training at the conditions described in Part II, Section VI, Point 2.23.

4. Briefly deal with organizational and occupational responsibilities inherent to his/her clinical duties.

2.09 The continuous attendance of the patient by the anesthesiologist in charge should be interrupted only when the following conditions are met :

1. If time permits, a relay by a colleague has to be asked, and is proven to be impossible.

2. The anesthetic procedure and intervention are in a steady stable phase.

3. The interruption is limited to a brief period of time.

4. The delegation of monitoring the patient's vital functions to a person designated by the anesthesiologist for that specific period is possible, according to the above-defined safety criteria regarding the competencies of the person (Part I, Section III). That person will have the obligation to warn the anesthesiologist of any relevant change of the vital functions or of the monitoring data, and **will ensure this task at the exclusion of any other activity**.

5. Alarms are not deactivated and their limits are adequately set up.

6. The anesthesiologist remains in the operating theatre area, in the immediate vicinity of the operating room where he/she was initially attending the patient.

7. The anesthesiologist is always reachable and, if necessary, capable to return immediately to his/her patient.

8. The monitoring and supervision of the patient remains the sole responsibility of the attending anesthesiologist.

2.10 When several anesthesiologists take care of one patient at the same time, one of them is specifically designated to conduct the anesthetic procedure and to be formally responsible for the patient's safety.

2.11 When primary responsibility for the anesthetic procedure is handed over to another anesthesiologist, that anesthesiologist is made aware of all relevant information concerning the patient, the management of anesthesia and the equipment used. The patient's condition and the proper functioning of the equipment are checked before and after the handover, and this is noted on the anesthesia record.

2.12 Clinical observation by the anesthesiologist is of the utmost importance. To do this, access to some part of the patient's body is required. If, in particular circumstances, this access is not possible, the reasons are noted on the anesthesia record. Other causes making clinical observation impossible are also noted.

2.13 As far as indicated and technically possible, constant clinical monitoring of the patient throughout the anesthetic procedure comprises the observation of :

1. Ventilation : auscultation of breathing sounds is performed when necessary.

2. Circulation : this includes peripheral pulse and heart sounds when necessary.

3. Mucosae, and/or feeling of the skin, including at the extremities.

4. Urinary output if applicable.

5. Surgical field, in order to estimate the progression of the procedure, and the amount of blood loss in the surgical field, in sponges and in the aspiration device.

2.14 Whenever the patient's position is changed, the anesthesiologist proceeds to a complete verification of the equipment and to clinical observation, before allowing surgery to be started or resumed. The anesthesiologist in charge, the surgeon, and the nursing staff share the responsibility for the adequate positioning of the patient at all times, and for the prevention of nerve and skin lesions by compression.

2.15 An «anesthesia» or «anesthetic procedure» also includes level 4 and 5 sedations, defined as follows :

Level 1 : awake and oriented.

Level 2 : slightly drowsy, eyes open.

Level 3 : eyes closed, able to follow verbal command promptly.

Level 4 : eyes closed, only aroused by a firm physical stimulation.

Level 5 : eyes closed, not aroused by a firm physical stimulation (= general anesthesia).

## Section V : Regional anesthesia

2.16 Central neuraxial and peripheral regional anesthesia necessitate the same monitoring as general anesthesia.

2.17 Managing peripheral regional anesthesia in more than one patient at the same time is acceptable. In that respect, two scenarios must be distinguished :

1. The operating theater area disposes of a holding area, where a single anesthesiologist performs all peripheral nerve blocks. In that case, blocks can be performed consecutively on incoming patients, at the following conditions.

a. Each patient is adequately monitored during and after the performance of the block, and a nurse is present to help the anesthesiologist

- and watch the patients **with undivided attention**.
- b. Necessary resuscitation material and drugs are readily available.
  - c. Management and attendance of the patient is taken over by another anesthesiologist once the patient enters the operating theater and undergoes surgery.
  - d. No sedation is administered to any of the patients in the holding area.
  - e. None of the patients in the holding area is in an unstable situation.
2. An equipped holding area dedicated to the performance of peripheral blocks does not exist. In that case, the anesthesiologist in charge of a patient benefiting from a peripheral regional anesthesia for his/her surgery may initiate a peripheral block in another patient at the following conditions :
- a. A relay by a colleague has been asked and is not possible.
  - b. The peripheral nerve block in the first patient is installed and functions properly.
  - c. The first patient is stable, his/her surgery has started and is ongoing smoothly and uneventfully.
  - d. The monitoring of the first patient is delegated to a competent person as defined in Part I, Section III. That person will have the obligation to warn the anesthesiologist of any relevant change of the vital functions or of the monitoring data, and **will ensure this task at the exclusion of any other activity**.
  - e. The initiation of the second block occurs in the close vicinity of the first patient, in a specifically dedicated room that is equipped with the necessary material for the adequate performance of the block and monitoring of the patient.
  - f. Material and drugs that are necessary to treat any occurring complication are readily available.
  - g. None of the two patients are left without an attending person that takes care of their monitoring at any time.
  - h. The anesthesiologist in charge is able, at every moment, to call another anesthesiologist for obtaining help, should a problem occur in both patients.
  - i. The anesthesiologist in charge does not perform more than two simultaneous peripheral regional anesthetic procedures.
  - j. Surgery in the second patient does not start before the one in the first patient is completed.

2.18 Managing one general anesthesia or central neuraxial block in one patient, and one peripheral nerve block in another patient at the same time is acceptable, provided that all the conditions defined in Part II, Section V, Point 2.17, Item 2 are met in terms of stability, absence of complication, available facilities, and delegation of patient surveillance.

2.19 Similarly, preemptively placing an epidural catheter in a patient while another undergoes another anesthetic procedure is acceptable, provided that the same conditions are met (Part II, Section V, Point 2.17, Item 2), and that no medication is administered through the epidural catheter during that period of simultaneous anesthetic procedures.

2.20 The performance of two simultaneous neuraxial central blocks in different patients is forbidden.

2.21 In any case, the anesthesiologist in charge remains the final authority for deciding on the opportunity to manage peripheral regional anesthesia in more than one patient at the same time. His/her decision must take account of the complexity and heaviness of the undergoing cases. He/she must not be submitted to pressure by third parties in making this decision.

2.22 Neuraxial analgesia for labor and delivery is considered a separate category. These procedures are to be performed in an adequate environment where the following monitoring equipment is available : maternal blood pressure, heart rate, and peripheral saturation in oxygen monitoring, as well as fetal monitoring. Adequate resuscitation medications and materials are readily available at all times. An operating room for emergency cesarean section, equipped as defined in Part I, Section IV and V, is also readily available. Adequate relief of the parturient and absence of maternal and fetal complications after the initiation of the block are checked before the performance of another block, or starting a non-urgent cesarean section in another parturient. Monitoring of the patient can thereafter be delegated to midwives who are trained for that purpose.

## **Section VI : Supervision of anesthesiologists in training**

2.23 The supervision of anesthesiologists in training have to meet the following criteria :

1. Supervision of anesthesiologists in training should be the sole responsibility of a licensed/certified anesthesiologist.

2. **Anesthesiologists in training never work without supervision by a certified anesthesiologist.**



As a consequence, a board certified anesthesiologist should always be in the hospital whenever a trainee is on duty, 24 hours a day, 7 days a week.

3. Supervision may concern one or more trainees responsible for ongoing surgical, interventional, or diagnostic procedures, provided that the number of procedures the concerned anesthesiologist has to supervise **reasonably takes account of the experience of the supervised trainees, patient risk, and complexity of the cases.**

4. Supervision/trainee ratios of 1/1 and 1/2 are generally adequate. A ratio of 1/3 is acceptable in uneventful and simple procedures in healthy patients. The ratio between the total number of staff members and trainees working every day in the operating theatre should never be less than 1/2.

5. No anesthesia should be done by a trainee outside the operating theatre without supervision by a staff member.

6. When supervising and teaching anesthesiologists in training, the attending anesthesiologist is not allowed to take additional responsibility for another patient undergoing a surgical, interventional, or diagnostic procedure without the assistance of another trainee, except in case of emergency. Each time this condition is not met, the supervision of the trainee(s) must be switched to another designated and available staff member that is able to ensure the supervision of them all, without any other responsibility elsewhere.

7. Should a problem occur in a patient that is primarily attended by a trainee, global organization of the Department of Anesthesiology should be set up as to allow the possibility of immediate help to the trainee by a certified anesthesiologist at all times.

8. In any case, there should not be external pressure to oblige a certified anesthesiologist to supervise more procedures than he/she feels able to.

9. Supervision is always performed in close vicinity. Operating theaters where multiple supervision occurs should ideally be contiguous, or at least geographically close together.

### Section VII : Transport of the patient

2.24 After general anesthesia, sedation or major regional blocks, transfer of the patient to the PACU or the intensive care unit is made with oxygen administration and if possible with continuous pulse oximetry (SpO<sub>2</sub>), in accordance to the patient's needs and the duration of the journey. If the patient is mechanically ventilated, adequate monitoring and equipment must be used as defined in Part I, Section VI.

### Section VIII : Post-Anesthesia Care Unit (PACU)

2.25 All patients will be admitted to the PACU after an anesthetic procedure. Only ultrashort procedures in an otherwise healthy patient may justify a PACU bypass, a decision that is the sole responsibility of the anesthesiologist in charge of the patient. The responsibility of the PACU belongs to an anesthesiologist, member of the Anesthesia Department. The PACU should ideally be available 24 hours a day, 7 days a week. Supervision of the patient in the PACU is delegated to nurses, properly trained and exclusively assigned to the PACU. Each nurse is assigned a maximum of three patients. An anesthesiologist must be available within a short period of time.

2.26 Discharge from the PACU is done according to clearly defined criteria. Patients will not be discharged from the PACU if not attaining a minimal score on a validated discharge scoring system [for example, the Aldrete score (7)]. Scoring systems should be adapted to the type of anesthetic procedure received by the patient, and be different for general anesthesia, central neuraxial blocks, and peripheral nerve blocks. The minimum time for monitoring patients in the PACU before discharge to the ward or to home are clearly defined by each Anesthesia Department, taking account of the type of anesthetic procedure received, type of intervention, and the known evolution in time of the associated risks of complications thereby. In the case of day surgery, clear written instructions will be given to the patient regarding the delay before being able to drive a vehicle, and the possibility of being alone at home during the day of the procedure and the first night thereafter. Practices in that respect may vary from center to center.

### Section IX : Anesthesia records

2.27 The anesthesiologist records the preoperative consultation and examination, the anesthetic procedure, the intraoperative parameters of the patient, the instructions for postoperative care, and the post-anesthesia evolution of the patient by completing the appropriate printed or digital forms. These anesthesia records are added to the patient's file.

2.28 All documents are clear, as complete as possible, accurate and readable.

2.29 All automated records from monitoring equipment are considered as part of the anesthesia records and are safely stored.

2.30 Circumstances may arise, which prevent the anesthesiologist from completing the records on the spot. Short notes of events and times will then help the anesthesiologist to fully report the case at a later and quieter moment.

2.31 If severe complications occur, the unfolding of events is described with the greatest precision, without stating any responsibility there may be.

### Section X : Continuous quality improvement

2.32 For all cases in which unexpected clinical events have arisen, which could have been or have been harmful to the patient, a complementary report is prepared.

2.33 Such reports, which may be filled anonymously, are discussed during staff-meetings.

2.34 Identified causative factors will lead to preventive strategies.

2.35 The anesthesiologist takes active part in the postoperative follow-up of the patient, and is particularly attentive to providing the patient with adequate analgesia. The anesthesiologist is also entitled to take care of any medical problems that may arise during the postoperative period either in the intensive care unit or on the regular ward. If possible, the patient is ideally seen postoperatively by an anesthesiologist in order to ascertain his/her degree of satisfaction with the anesthetic management and to discuss any side effects he/she may have experienced.

### Section XI : Continuing medical education

2.36 The anesthesiologist takes part in a continuing educational program, for which certification is given. Accreditation according to the national system is strongly recommended. This program involves attendance at national and international meetings, seminars and courses. It may also include periods of practice in an established teaching department.

2.37 Appropriate educational/scientific leave is provided for this purpose, and the hospital administration understands that it is the hospital and ultimately the patients who will be the beneficiaries of this continuing educational program.

2.38 The Scientific Society (SARB) sets up a yearly scientific program allowing to satisfy the annual requirements for national accreditation.

2.39 Acquiring specific knowledge and competencies in a particular domain of anesthesiology may require the completion of fellowships. Anesthesiology departments that offer fellowships satisfy minimum requirements to provide quality fellowship programs. These requirements are defined by a position statement of the SARB and BSAR-APSAR (8), and include professional quality criteria, as well as decent salary conditions.

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