Nursing Handover: Innovative communication for Nurse Anaesthetist. BAVR (Background, Anaesthesia, Variations, Recommendations)

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Problem/Purpose

The simultaneous and interactive transmission of information regarding the patient's situation, from one nurse to another, whether or not they belong to the same department, is called *Handover* (Bulfone et. al, 2012).

Patient care hand-overs occur in many settings across the continuum of care, including admission from primary care, physician sign-out to a covering physician, nursing change-of-shift reporting, nursing report on patient transfer between units or facilities, anaesthesiology reports to post-anaesthesia recovery room staff, emergency department communication with staff at a receiving facility during a patient's transfer, and discharge of the patient back home or to another facility.(WHO, 2007).

While on one hand a large proportion of errors, seem to originate at this point, there is no doubt that assigning priorities, the continuity and the safety of the treatment are based on effective handovers (Anderson et al, 2015).

One way of finding out about, documenting and monitoring the contribution of nursing consists in using an IT system that is well organized, valid and reliable, and also sensitive enough to capture the main aspects of nursing in a powerful and limited set of data (Palese et al, 2013).

When handovers are based on a systematic approach, an effective transfer of data to ensure the continuity of care has been documented (Klim et al, 2013).

The purpose of the research is to develop a reliable and effective tool for the handover between anesthesia nurses in the operating/recovery room.

Literature Review

The research on the literature took place in August 2022 on *PubMed, CINAHL* and the *Cochrane* Library. The key words and MeSH terms *"handover", "handoff", "communication", "operating room", "nurse anaesthetist"* were included and combined using Boolean AND/OR operators, with a time limit of 2002 to 2022. The search terms were also modified and explored in the database in order to guarantee that all possible combinations were taken into consideration. Grey literature was looked for with *Google Scholar* and a manual search on textbooks/articles and websites was carried out. The list of references of the articles found was also analysed in order to identify any further articles to include. In addition to this, the experience and critical analysis of the everyday work in the operating room has also been taken into account.

Research Question

The research question is:
Which is a reliable and effective tool for the handover between anaesthesia nurses in the operating/recovery room?

Methodology

This integrated review of the literature uses *Whittemore & Knafl's* method. Given the lack of evidence at a higher level on this topic, this method was considered the most appropriate one for exploring and defining the current state of the available literature, which comes from various scientific sources and various methodologies.

Data Analysis

After selecting the articles, their titles and abstracts were read carefully and the articles that did not answer the research question were then excluded.

Results

Ten articles from the integrated revision of the literature were analysed. A BAVR tool was developed by combining the *Global care approach* (SBAR) and *Charting by exception*. The items included in the tool (table 1) were those considered essential for reliable and effective communication between anaesthesia nurses in contexts like the operating room and the recovery room.

Table 1. Items BAVR approach.

***Background* (B)**	What is the patient's clinical background?	Name, surname, age, gender, operation, weight, allergies, medical/surgical anamnesis, risk factors.
***Anaesthesia* (A)**	What type of anaesthesia was the patient given?	ASA, Mallampati Score, premedication, type of anaesthesia (local, plexus, TCI, general etc.), drugs (Propofol, opioids, curaries, benzodiazepine etc.), ventilation (pressure control, volume control, Vol. Ctrl. AutoFlow).
***Variation* (V)**	Which parameters vary, deviate from the range?	E.g. - PA, FC, SpO2, TC, EGA etc. Haematocrit, haemoglobin, lactates, glycaemia, blood loss etc.
***Recommendation* (R)**	What has to be done, from one's own point of view?	E.g. - If you need them, there are two bags of blood you can infuse the patient with. - Be careful because when they wake up they could have PONV.

Discussion

There is no *gold standard* system for handovers, however there is the best type of handover for any given setting. When working out the best handover for the context, the following aspects should be taken into consideration:

• Decide how to organise the information in order to make it easy to understand and to remember. In general, it is best to avoid a narrative, unstructured approach. Twenty-four approaches are defined in the mnemonics literature for this purpose.

• Choose the *minimum data set* (MDS) that is most capable of reflecting the routing information that should be conveyed, according to the extent of the patient's issues/risks (Mesaglio et al, 2019).

Errors and adverse events can be prevented or minimised by effective handovers based on:

• A reliable process formed by: (a) two-way face-to-face communication; (b) pre-organised written forms, templates, or checklists able to support clinicians in sharing minimum essential information to develop a common mental framework, and (c) content able to 'intercept intention' so that professionals can share hypotheses and concerns regarding predictive diagnosis of the patient's conditions (foresight), as well as reporting events and concluded tasks (hindsight).

• A minimum data set or structured, consistent formats or tools: standardised or structured tools (e.g., mnemonics tools as SBAR) (Bressan et al, 2019).

The elements of a standard approach include conveying information regarding the patient's condition, drugs administered, treatment plans, instructions, advance directives and any significant change in their state of health (WHO, 2007).

Charting by exception reduces the time needed for documentation, it reduces repetitions and makes it quick to identify important changes in the patient (Bulfone et al, 2012).

Conclusions

The items that make up the tool are in line with what is proposed by the World Health Organisation (WHO), which underlines how the standardisation of handovers is an important communication tool for nurses.
A tool for shift changes between anaesthesia nurses in the operating room and in an assistance setting (operating room-recovery room) has been developed using the BAVR method: *Background* (B), *Anaesthesia* (A), *Variation* (V) and *Recommendation* (R).
This tool contributes to the standardisation of the handovers between anaesthesia nurses and makes communication reliable and effective.

Study Limitations

The tool has to bev alidated so it can be used in clinical practice. Therefore, the next steps in the study will be consultations with experts, the formation of committees consisting of representative specialists or stakeholders, interviews, the Delphi method, data analysis and its application in the operating room by a nursing research panel.
Added to this is the importance developing a *Nursing Minimum Data Set* (NMDS) to be included in the tool.

Perioperative Nursing Implications

The existence of an instrument for the shift change between anaesthesia nurses and/or handing over the patient from the operating room to the recovery room, will make it possible for nurses to carry out this important step in nursing in a standardised way. Standardising the handovers will guarantee the continuity of the care and the patient's safety.

BAVR approach*

Background (B)
Mr. Emidio,
48 years old, 70 kg, 186 cm, surgery for bilateral vlps hernioplasty, blood chemistry tests in range, sinus bradycardia, smoker, she has no other commorbilty.

Anesthesia (A)
Premedicating with 100 mcg of Fentanyl Citrate together with 1 mg of Midazolam, Dr. Menestrina, anesthesiologist who is following the procedure, performs a bilateral ultrasound-guided tap block, with Ropivacaine 0.5%.
In the OR, he is monitored with ECG, SPO2, NIBP, BIS and TOF.
This is continued with administration of additional 100 mcg Fentanyl and 20 mg lidocaine hydrochloride, TIVA-TCI general anesthesia with Propofol 2% Schneider model and Remifentanil 50 y/ml Minto model flowing into 17 gouge caliber venous cannula placed on right arm cephalic vein.
Upon achievement of adequate hypnosis, 40 mg of Rocuronium is administered.
Airway management with size 7.5 endotracheal tube is performed. Mechanical ventilation in volume control 480 TV, 12 RR, 3 Peep.

Variation (V)
HR alarm values were lowered to 40 because the patient stably has a HR of 42-43 bpm.

Recommendation (R)
If the surgery continues much longer, check the TOF at 5-minute intervals and, if necessary, administer a 10-mg booster of Rocuronium. The patient is a sportsman and has a high percentage of lean mass, so it cannot be ruled out that the initial dosage of muscle relaxant was underestimated. Administer antiemetic half an hour before awakening as the patient may have PONV due to the manipulation of bowel loops.
Twenty minutes before awakening, administer postoperative analgesia.
Check the BIS frequently as the CET is set lower than normal and it could happen that the surgeon slips into a surgery area not fully covered by the TAP block and sudden pain could cause intraoperative awareness.

*** BAVR approach during an operating room simulation. Handover by Damiano Brunelli, Nurse Anesthetist.**