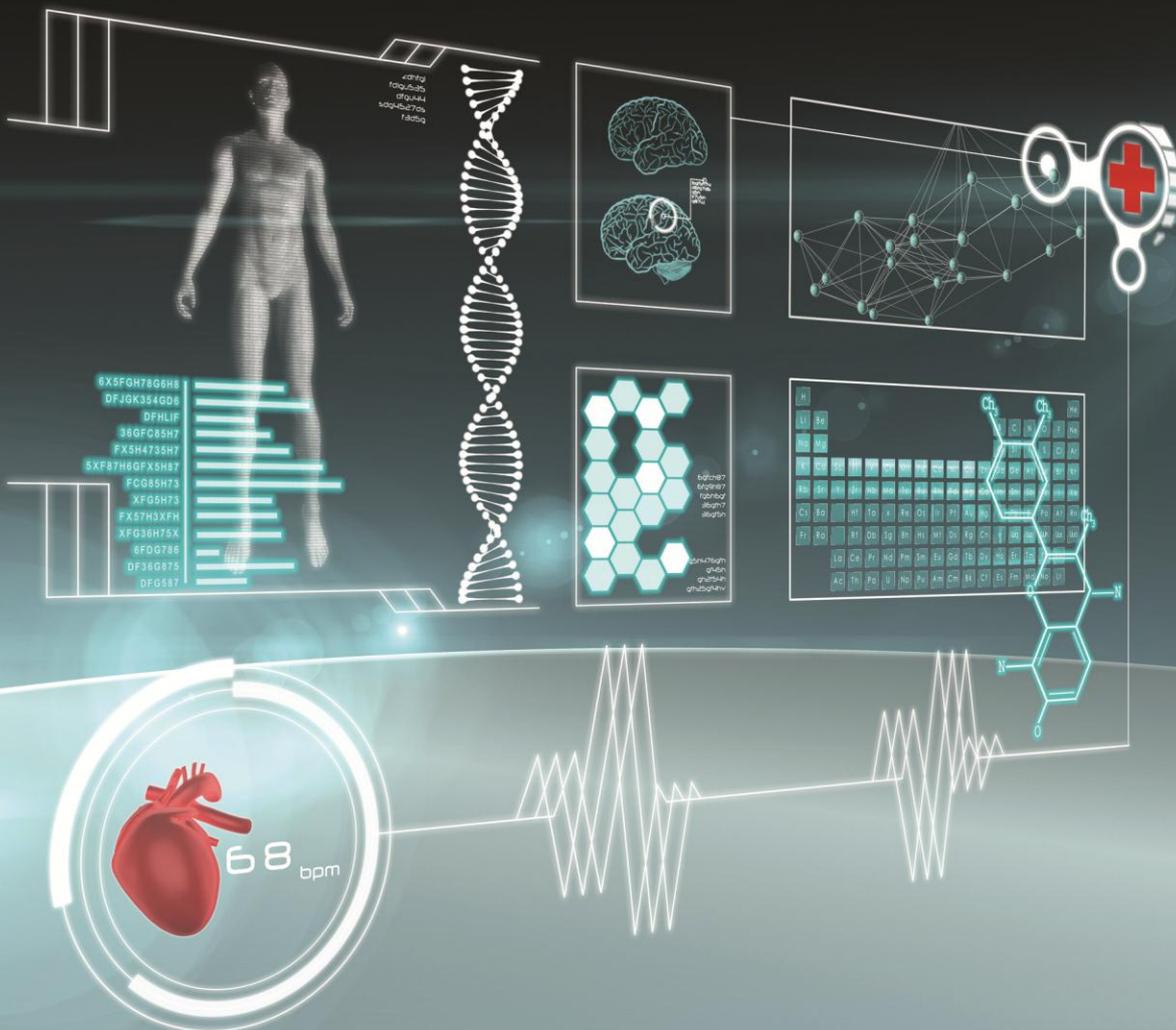


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## Application of Pre-Anesthesia Checklist in Patients Undergoing Operation in Public Hospitals in Sana'a City-Yemen

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### Abstract

**Background:** Checklists and related cognitive aids have become an integral part of health care safety processes. **Aim:** to assess the application of pre-anesthesia checklist in patients undergoing operation in public hospitals in Sana'a City-Yemen. **Methods:** A descriptive, cross-sectional study carried out in public hospital in Sana'a City – Yemen from August to October 2017. The study population were all-elective and emergency surgeries underwent general or regional anesthesia who were operated during the study period. We prospectively collected application of pre-anesthesia checklist data for 100 consecutively enrolled patients. The data was collected through structured checklist which consisted of 6 items covering the preoperative period. **Results:** The majority of study patients (51%) were females and (49%) were males, Most of the patients (41 %) were in the age group of 21–40 year. The most common type of operation was abdominal (44%). As regards 36% of anesthesiologists were assessed drug used by patients follow by allergies 33. 71% of anesthesiologists were assessed the previous operation and anesthetics, 65% of anesthesiologists were given analgesic to the patients, the most common types of physical examination assessed by anesthesiologist was vital signs 100%, 86% of anesthesiologist were assessed CBC test and 96% of anesthesiologists were applied consent form to patient . **Conclusion:** We conclude that, low rate of applied checklist for patients undergoing operation room.

**Keywords:** Patient satisfaction; anaesthesia services; Sana'a city; Yemen.

## Introduction

Application of pre-anesthesia checklists can potentially prevent errors and complications which may occur during surgery or preoperatively. A variety of interventions have shown promise for improving patient safety. The most important component of every anesthetic regimen is the human performance of the anesthetist and its relationship to patient safety. More than 70% of accidents are due to "human factors." Because the performance of the anesthetist embedded in a larger system of care is such a critical and most determining aspect of patient safety, education and training of health care professionals in this area need improvement.<sup>1</sup>

Anesthesia is an intrinsically hazardous undertaking, but as hazardous activities go, its track record is indeed a model of patient safety for the rest of health care. The Institute of Medicine (IOM) asserts: "Anesthesia is an area in which very impressive improvements in safety have been made." However, the theory of organizational safety teaches us that safety is a never-ending process; any patient harmed by an anesthetic is one patient too many (in concert with the "zero vision" statement of the U.S. Anesthesia Patient Safety Foundation [APSF]: "That no patient shall be harmed by anesthesia"). Cooper and Gaba wrote: "Anesthesiologists should remain aware of the hazards they still face, take pride in having been the leaders in patient safety efforts, and stay motivated to continue the pursuit of 'no harm from anesthesia' with the passion it still demands"<sup>2</sup>.

Checklists and related cognitive aids have become an integral part of health care safety processes<sup>3</sup> such as the "surgical time out."<sup>1</sup> There are good data to support the impact of checklists in improving the quality of health care professional's handoffs of care, as well

as adherence to care standards in perioperative crisis situations<sup>4</sup>.

**Aim of the study:** The aim of the study was to assess the application of pre-anesthesia checklist in patients undergoing operation in public hospitals in Sana'a City-Yemen.

## Subjects and methods

A descriptive, cross-sectional study was carried out from August to October 2017 to assess the application of pre-anesthesia checklist in patients undergoing operation in public hospitals in Sana'a City-Yemen. This study was done in two public hospitals (Al-Thawra and Al-Jomhury hospitals), these hospitals are a teaching and referral hospitals in Yemen. It provides primary, secondary and tertiary health care. The study population were all elective and emergency surgery (minor, major) under general or regional anesthesia who were operated during the study period. We targeted recruitment of 100 consecutive cases.

Information on pre anesthesia assessment was obtained through completion of standardized data checklist by the data collectors' team. The checklist was consisted of the following items: Part I: Demographic data of the patients (age, sex and type of operation). Part II: included 6 items covering the preoperative period assessment by anesthesiologist (Types of medical history, types of previous anesthetics, types of physical examination, types of premedication, types of premedication, types of laboratory tests and types of anesthetic plan). All questions with "assess", "Not assess" answer for each statement.

The data were entered and analysed by statistical package for social sciences (SPSS) version 20. After each completed checklist was checked for

errors, completeness. Descriptive statistic (Frequency and percentage) were used to describe the qualitative variables. Ethical approval was obtained from the collage of Medical sciences, Al-Razi University. Letters from collage of Medical sciences, Al-Razi University to hospitals director as well as to the head of surgical wards to approval the study.

Verbal consent was taken from the principles of hospitals before the chick list distribution. Confidentiality was ensured by avoiding personal identifications, keeping questionnaires locked.

### Demographic characteristics of patients

The majority of study subjects 51 (51 %) were females and 49 (49%) were males. Most of the patients 41 (41 %) were in the age group of 21–40 years, and most common type of operation was abdominal 44(44%), head and neck was 23(23%).

### Medical History

The results of the study showed that, 36% of anesthesiologists were assessed drug used by patients follow by allergies 33% and diabetic status of patients 31%. More detailed presenting in table 1.

### Previous anesthetics

Table 2 shows that 71% of anesthesiologists were assessed the previous operation and anesthetics follow by 45% were assessed family history. No one were assessed previous allergies from anesthetic drug. Table 2

### Physical examination

The results of the study showed that, the most common types of physical examination assessed by anesthesiologist was vital signs 100% follow by heart examination 95%, the lungs 93% and airway 68%. Table 3.

### Premedication

The findings of the study showed that 65% of anesthesiologists were given analgesic to the patients follow by anti-anxiety 55% and amnesia drug 40%. More detailed presenting in table 4.

### Laboratory tests

Table 5 shows that 86 (86%) of anesthesiologist were assessed CBC test follow by 82 (82%) assessed creatinine test, 77 (77%) assessed Na test and 73 (73%) assessed K test. Table 5

### Anesthetic plan

The findings of the study showed that 96% of anesthesiologists were applied consent form to patient follow by 94% were anesthetic plan was general anesthesia. More detailed presenting in table 6.

**Table 1: Type of medical history assessed by anesthesiologists**

Type of Medical History	Outcomes	
	Yes	
	F	%
• Allergies	33	33.0
• Intolerances	21	21.0
• Drug use	36	36.0
• Cardiovascular	26	26.0
• Respiratory	13	13.0
• Diabetic	31	31.0
• Neurologic	1	1.0

• Renal	17	17.0
• Hepatic	4	4.0
• Arthritis	14	14.0
• Muscular skeletal	10	10.0

**Table 2: Types of previous anesthetics assessed by anesthesiologists**

Types of previous anesthetics	Outcomes	
	Yes	
	F	%
• Previous operation and anesthetics	71	71.0
• Family history	45	45.0
• Last oral intake	6	6.0
• Previous allergies from anesthetic drug	0	0.0

**Table 3: Types physical examination assessed by anesthesiologists**

Types Physical examination	Outcomes	
	Yes	
	F	%
• Vital signs	100	100.0
• Heart	95	95.0
• Lungs	93	93.0
• Airway	68	68.0
• Extremities	19	19.0
• Neurologic	6	6.0
• Teeth	12	12.0

**Table 4: Types of premedication given by anesthesiologists**

Types premedication	Outcomes	
	Yes	
	F	%
• Anxiety	55	55.0
• Amnesia	40	40.0
• Anti-emetic	28	28.0
• Anti-Acid	14	14.0
• Anti-cholinergic	7	7.0
• Analgesics	65	65.0

**Table 5: Types of laboratory tests assessed by anesthesiologists**

Laboratory tests	Outcomes	
	Yes	
	F	%
• Blood group	39	39.0
• HCT/Hb	52	52.0
• Urine	63	63.0
• CBC	86	86.0
• BT	33	33.0
• PT	30	30.0

• PTT	29	29.0
• Viral Marker	39	39.0
• Na	77	77.0
• K	73	73.0
• Co2	5	5.0
• CI	36	36.0
• Glucose	38	38.0
• Creatinine	82	82.0
• Other	50	50.0
• ECG	65	65.0
• Chest X-Ray	39	39.0

**Table 6: Types of anesthetic plan applied by anesthesiologists**

Anesthetic plan	Outcomes	
	Yes	
	F	%
• General anesthesia	94	94.0
• Regional Anesthesia	7	7.0
• Monitored anesthesia care	7	7.0
• Invasive monitors	4	4.0
• Special techniques	2	2.0
• ASA class	13	13.0
• Patient consent	96	96.0
• Signature of anesthesiologist	5	5.0

## **Discussion**

The history is the most important component of the preoperative evaluation. The history should include a past and current medical history, a surgical history, a family history, a social history (use of tobacco, alcohol and illegal drugs), a history of allergies, current and recent drug therapy, unusual reactions or responses to drugs and any problems or complications associated with previous anesthetics. A family history of adverse reactions associated with anesthesia should also be obtained. In children, the history should also include birth history, focusing on risk factors such as prematurity at birth, perinatal complications and congenital chromosomal or anatomic malformations and history of recent infections, particularly upper and lower respiratory tract infections<sup>5</sup>. The history should include a complete review of systems to look for undiagnosed disease or inadequately controlled chronic disease. Diseases of the cardiovascular and respiratory systems are the most relevant in respect of fitness for anesthesia and surgery. The physical examination should build on the information gathered during the history. At a minimum, a focused pre-anesthesia physical examination includes an assessment of the airway, lungs and heart, with documentation of vital signs<sup>5</sup>. Unexpected abnormal findings on the physical examination should be investigated before elective surgery.

In this study the most significant result we obtain, which is very catastrophic and at the same time is very critical is there are about 68% of the sample have not applied the medical history, because this documentation is too easy and applicable, but it is too vital and cheap way to prevent unwanted events and decrease the morbidity and mortality of Yemeni patients, efforts should be done to reflect this data to all governmental and private hospital to have a law or standers to apply this documentation for all patients. 71% of anesthesiologist were assessed previous operation and anesthetics follow by 45% were assessed family history. The most common types of physical examination were assessed was vital signs 100% follow by heart examination 95%, the lungs 93% . 86% of the anesthesiologists were assessed CBC test follow by 63% were assessed urine test. 65% were analgesic follow by anxiety 55%. 96% the plan of anesthetic was patient consent follow by 94% was geneneral anesthesia<sup>6</sup>. Only 51.3% responded the APSF should give development of the template content for a safety checklist high priority as it will likely enhance patient safety. Whereas 48.7% responded differently, among those who do not believe in chick list there was different answers (6.4% responded "A safety checklist that might be developed from the proposed template content would be burdensome from a time standpoint in an already busy environment and could detract the anesthesia professional from other important patient safety practices").

It is generally accepted that the clinical history and physical examination represent the best method of screening for the presence of disease. Routine laboratory tests in patients who are apparently healthy on clinical examination and history are not beneficial or cost effective. A clinician should consider the risk-benefit ratio of any ordered lab test, when studying a healthy population, 5% of patients will have results, which fall outside the normal range. Lab tests should be ordered based on information obtained from the history and physical exam, the age of the patient and the complexity of the surgical procedure.

## **Conclusion**

We conclude that low proportion of anesthesiologists were complete pre-anesthesia checklist assessed in patients undergoing operation in public hospitals in Sana'a City-Yemen.

### **Recommendations**

Improve basic and continuing education programs for anesthesia on the important of the assessment application of anesthesia checklist in patients undergoing operation.

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