

# Attitude of anaesthetists to intra-operative catastrophes: a questionnaire survey

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## Abstract

**Background:** Although anaesthetic deaths are uncommon, most anaesthetists are likely to be involved with an anaesthetic catastrophe at some point in their careers. This experience may have significant psychological impact on the staff concerned. Formal incident reporting accompanies anaesthetic deaths, and in addition involved personnel frequently need professional counseling. **Objective:** To determine the impact and attitude of Nigerian anaesthetists towards an intra-operative death. **Method:** A structured-questionnaire survey of 65 Nigerian physician anaesthetists, of all grades, attending a National Anaesthetic Scientific forum, was carried out to collect relevant information using a descriptive study design. Nurse anaesthetists were excluded from the study. Data was analysed using simple mathematical correlates. **Results:** The response rate was 86%. Out of a total mortality of 77, 48 (62%) were unanticipated. Emergency procedures accounted for 61 (79%) of these mortalities. Only 32 (41%) of the critical incidents were formally reported. Forty-eighty (86%) of the respondents were psychologically affected by the intra-operative catastrophes reported. In order of frequency of incidence, lingering memories of the event accounted for 38%, depression 28% and cardiac dysrhythmias 2% amongst others. Most of the 49 (88%) respondents that were psychological affected did not have any form of debriefing. **Conclusion:** Critical incident reporting should be encouraged, whilst anaesthetic departments should have departmental guidelines for managing the aftermath of critical incidents, and ensuring psychological support for their practitioners. Trainees should undergo a training module in psychological debriefing following critical incidents as part of their curriculum. Medical Defence Organizations should be established in developing countries with appropriate government legislation.

## Introduction

Intra-operative deaths are generally uncommon but when they occur, they can lead to considerable and disturbing psychological sequelae for the anaesthetist, and indeed other members of the healthcare team involved in the peri-operative care of the patient. Deaths due to anaesthesia have been estimated to be 0.5 – 0.8 per 100,000 anaesthetics in the UK and other developed countries.<sup>1,2</sup> However, reports in the literature from developing countries on intra-operative deaths are very scarce. Despite this relatively low incidence of anaesthetic deaths however, most anaesthetists are likely to experience an anaesthetic catastrophe at some point in their anaesthetic career. In view of the variety of surgeries being undertaken, some of the catastrophes may be anticipated, but many are often unanticipated, and the experience may prove

very traumatic to the anaesthetist.

Anaesthesia is recognized as the leading medical specialty addressing issues of patient safety, thus the anaesthetist is trained in the avoidance of critical incidents.<sup>3</sup> They are, however, not always adequately trained in the management of the crisis that follows, and are unlikely to receive professional or emotional support after such events.

The medical literature in recent times has been inundated with surgeons' comments and reactions to intra-operative deaths.<sup>4-7</sup> There is, however, a paucity of literature from developing countries in this regard. This survey aims to determine the impact, attitude and psychological outcome of anaesthetists in Nigeria after an intra-operative death.

## Method

A structured-questionnaire survey of 65 Nigerian anaesthetists of all grades attending the 13th Annual Nigerian Society of Anaesthetists' Scientific Conference organised in collaboration with the World Federation of Societies of Anaesthesiologists, held in Port-Harcourt, Nigeria in November 2005, was carried out. The questionnaire was designed to determine the impact

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and attitude of Nigerian anaesthetists to intra-operative deaths, enquiring the following: respondents' age, professional specialist grade, years in specialty, number of intra-operative anaesthetic deaths, and whether critical incident reporting was carried out. Psychological effects of the critical incidents on the respondents were noted, as well as information on post-incident psychological debriefing, if any. Nurse anaesthetists that attended the conference were excluded from the study. Data from the returned, completed questionnaires was analyzed using simple mathematical correlates.

**Results**

All the physician anaesthetists who were registered for the conference agreed to participate in the study. Completed questionnaires were received from 56 of the 65 respondents (response rate=86%). Hereafter, when percentages are expressed, the denominator is the number of practitioners that responded, i.e. n=56, except if otherwise stated.

Consultant anaesthetists made up most of the respondents, this number being 25 (45%). Senior residents comprised 19 (34%), whilst 12 (21%) were junior residents (Table 1). The consultant anaesthetists, who were mainly in their 4th decade of life (n=16 out of 25), had 431 years of cumulative experience in the specialty, and a total of 47 mortalities, compared with senior residents who were mainly in their 3rd decade of life (n=14 out of 19), with 91 years of cumulative experience in the specialty, and a total of 24 mortalities. Junior residents with a total of 23 years experience in the specialty had 6 mortalities.

Age (yrs)	M	F	Years in Specialty	No of fatalities
<b>Consultants:</b>				
31-40	11	22	2	26
41-50	7	9	238	
>50	52	171	19	
Total	13	12	431	47
<b>Senior Residents:</b>				
20-30	5	25	6	18
31-40	10	4	66	
41-50	-	-	-	
Total	15	4	91	24
<b>Junior Residents:</b>				
20-30	1	5	6	-
31-40	4	2	17	6
>40	-	-	-	-
Total	5	7	23	6
<b>Grand Total</b>	<b>33</b>	<b>23</b>	<b>545</b>	<b>77</b>

In this survey, out of a total mortality of 77, 29 (38%) were anticipated deaths, whilst 48 (62%) were unanticipated. Emergency procedures accounted for 61(79%) of the mortalities while the remainder, 16 (21%) occurred during elective operations. Only 32 (41%) of the fatal critical incidents were formally reported. 19 (60%) of these resulted in internal departmental inquiries, whilst only 1 went onto civil litigation.

Forty eight (86%) of the respondents were psychologically affected by the catastrophes reported. There were various

psychological manifestations and affectations, but most respondents gave the following complaints in order of decreasing frequency (Table 2): unpleasant memories of the events (38%), depression (28%), sleep disorders (18%), feelings of guilt (10%), feelings of not going back to work (4%) and cardiac dysrhythmias (2%). Finally, respondents were asked if they underwent any form of psychological debriefing. It is noteworthy that 42 (88%) of the respondents who were psychologically affected did not have any form of debriefing following the catastrophic incidents.

Psychological Affectations	Frequency (%)
Unpleasant memories of the event	19 (38)
Depression	14 (28)
Sleep disorders	9 (18)
Feeling of guilt	5 (10)
Feeling of not going back to work	2 (4)
Perceived cardiac dysrhythmias	1 (2)

**Discussion**

Intra-operative critical incidents which inevitably lead to patient mortality are no longer common, but when they do occur, they place an enormous amount of stress on the theatre personnel. The anaesthetist may be adjudged to be the most vulnerable to psychological sequelae because ordinarily, the emphasis of training in anaesthesia centres on prevention, diagnosis and treatment of potentially life-threatening events.

The causes of intra-operative deaths are multi-factorial but may be broadly grouped as human error, equipment failure or patient factors.<sup>8</sup> Human errors that may affect performance during delivery of anaesthesia and lead to intra-operative catastrophes include fatigue, carelessness and lack of attention to detail, especially in the case of unanticipated deaths. All of these may inadvertently cause emotional stress to the anaesthetist involved, irrespective of the deaths being "anticipated" or "unanticipated".

Doctors have been noted to be at increased risk for the development of depression and anxiety.<sup>9</sup> Factors implicated include biological factors such as age, family history, and lack of sleep; psychological factors such as a sense of responsibility and perfectionism, and environmental factors such as patients' demands, occupational hazards and personal life. Firth-Cozens et al<sup>10</sup> considered stress levels in various medical specialties and concluded that whilst stress levels are lowest in surgeons, anaesthetists tend to have much higher levels. Anaesthesia is perceived to be a stressful specialty, with the "middle years" being a danger period.<sup>11</sup> As is demonstrated in this survey, the consultant anaesthetists (67% of respondents), mainly in their 4th decade of life, had a total of 26 mortalities while 74% of the senior residents, mainly in their 3rd decade of life, had a total of 18 mortalities.

According to the Association of Anaesthetists of Great Britain and Ireland (AAGBI), 30% of anaesthetists feel stressed most of the time and stress-related behaviours such as drug abuse and suicide is particularly prevalent among anaesthetists compared with other medical specialties.<sup>12</sup> It is however, noteworthy that the psychological effects of an intra-operative catastrophe on a background of continuing stress may lead to acute psychological manifestations. Following the intra-operative

fatalities, none of the respondents in this survey demonstrated suicidal tendencies as part of the psychological effects.

Most of the respondents (86%) were psychologically affected by the catastrophes reported. Thirty-eight percent of the respondents had lingering unpleasant memories of the event, 28% had depression and very few (2%) had cardiac dysrhythmias. The ability of anaesthetists to cope with these psychological manifestations may vary, as may the diversity of the symptoms that may follow an intra-operative catastrophe. In certain cases, fear of criticism by one's peers or the threat of legal action by relatives, may result in total physical disintegration, leading occasionally to abstinence from professional duties.

In this survey, only 32 (41%) of the critical incidents were formally reported. There is culturally a tendency in some developing countries to assume that deaths caused by whatever means are "acts-of-God". Thus many practitioners may feel inclined to not officially report such critical incidents. This attitude needs to be discouraged, as a valuable source of medical audit is lost in not peer-reviewing such incidents.

In the technologically advanced countries, various approaches have been used to deal with the majority of anaesthetists affected by an intra-operative catastrophe. These include informal approaches such as debriefing, with other members of the operating team, as well as sympathetic peer review, in the form of departmental mortality and morbidity meetings. In addition, there is provision of departmental guidelines on how to deal with catastrophes as part of their risk management strategy.<sup>13</sup> Critical Incident Stress Debriefing (CISD), a formal process of crisis intervention that employs cognitive group psychotherapy, has been previously advocated to manage exposure to emotional stress.<sup>14</sup> However, in most developing countries, as is shown in this survey, these approaches are non-existent, and anaesthetists are left to develop their own coping mechanisms.

Debriefing after an anaesthetic catastrophe has been found to be useful, according to a survey of anaesthetic trainees.<sup>15</sup> Almost half of the trainees in this study reported that they did not feel supported by their anaesthetic department after a negative outcome incident. In the light of this, it is the authors' opinion that anaesthetic departments in developing sub-Saharan countries should have protocol or guidelines on how to deal with catastrophes affecting both consultant and trainee anaesthetists.

Anaesthetic trainees will benefit from having mentors who can either be named consultants or senior residents, who will offer immense assistance and counseling in the event of intra-operative catastrophes. Following the increasing incidence of litigation, there is controversy as to whether the remainder of the operating list during which the mortality occurred, should be continued by a completely new team or abandoned, and if

so, for how long.<sup>6,7,13</sup> In developing countries however, this decision may be difficult, since teams of anaesthetists may be non-existent and most centres have few physician anaesthetists in service. A strong call is being made to incorporate the management of anaesthetic catastrophes into the curriculum of anaesthesia training.

In conclusion, the aftermath of intra-operative catastrophes can be grave, with the anaesthetist manifesting diverse psychological sequelae, which need to be addressed. Critical incident reporting should be encouraged. Anaesthetic trainees should be encouraged to have named consultants as mentors. It is however, important, that anaesthetists support each other following intra-operative catastrophes. Anaesthetists in developing countries would benefit from the establishment of Medical Defence Organizations with appropriate government legislation to assist during litigations.

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