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<b>Serial No</b>	
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<b>Author 2</b>	
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<b>Title</b>	<b>World Anaesthesia</b>
<b>Keywords</b>	
<b>Description</b>	<b>World Anaesthesia</b>
<b>Category</b>	<b>Medicine</b>
<b>Publisher</b>	
<b>Publication Date</b>	
<b>Signature</b>	

Volume 8 Number 2 January 2005 ISSN 1472-8820

# World Anaesthesia

## news

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- Dying to give birth
- Sustainable self-help

### Obstetric anaesthesia in Kenya

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Cambodia Report

News and Information  
Websites to try  
Book review



# WA

WORLD  
ANAESTHESIA

# Welcome to World Anaesthesia News

## Editorial

The World Anaesthesia Society (WAS) was formed in 1985 with the aim of supporting anaesthetists in developing countries. It aimed to do this by providing them with an add-on textbook, "Update" that would be sent to them, free of charge. It also aimed to provide a network for communication between interested anaesthetists in the developed world and those in the developing countries. The former would pay to join the Society and their contributions would fund the work of the Society.

Progress has been made, but at a cost. Thanks to dedicated anaesthetist/translators, Update is now available in five languages, English, French, Spanish, Russian and Mandarin. It is available on CD from TALC ([www.talcuk.org](http://www.talcuk.org)) and is accessible on the web ([www.nda.ox.ac.uk/wfsa](http://www.nda.ox.ac.uk/wfsa)) for the English version. We have recently launched a web site, [www.world-anaesthesia.org](http://www.world-anaesthesia.org) that is constantly being expanded and improved and have transferred our membership database from Exeter to the AAGBI office in Portland Place, London. This latter move is intended to improve our ability to contact our membership and to enable you to contact us at our new permanent postal and email addresses, [was@aagbi.org](mailto:was@aagbi.org).

Unfortunately, the WAS has recently had cash-flow problems (a euphemism for running out of money) and it has been necessary for us to increase our annual subscription. Our members in developing countries pay nothing to join our Society but approximately half of the WAS membership live in the affluent West and it has been necessary to ask them to increase their annual membership donation to £35 (or equivalent). Although this is a significant amount of money, it is probably no more than they would pay for a meal in a reasonable restaurant and we, therefore, hope that they will continue to support us.

As you will read in this issue, our President, Iain Wilson, is continuing to expand the work of the WAS. In his dual role as Chairman of the Publications Committee of the WFSA and President of the WAS, he is proposing the establishment of a book swap scheme and a web-based "Tutorial of the Week." I am sure that you will support both.

I am always grateful for comments on how World Anaesthesia News might be improved and for articles that might be of interest to our growing readership. I hope to hear from you.

Happy New Year.

*William F Casey*

The editor of World Anaesthesia News is:

**Dr W F Casey**

Popes Cottage, Cheltenham Rd,  
Painswick, Glos, GL6 6TS, UK  
Tel: (+44) 01452 814229  
Fax: (+44) 01452 812162  
Email: [wfcasey@doctors.org.uk](mailto:wfcasey@doctors.org.uk)

**Editorial Board**

**Dr Dixon Tembo (Zambia)**

Email: [dctembo@xamnet.zm](mailto:dctembo@xamnet.zm)

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Email: [rob.mcdougal@rch.org.au](mailto:rob.mcdougal@rch.org.au)

**Dr Tom Ruttman (S. Africa)**

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**Dr Iain Wilson (UK)**

Email: [iain.wilson5@virgin.net](mailto:iain.wilson5@virgin.net)

**Dr Jeanne Frossard (UK)**

Email: [frossie@btinternet.com](mailto:frossie@btinternet.com)

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**Dr Roger Eltringham (UK)**

Email: [reltringham@clara.co.uk](mailto:reltringham@clara.co.uk)

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## Intensive Care Unit admissions following anaesthesia-related complications in a Nigerian Teaching Hospital

Dr U.V. Okafor (Consultant)  
Dr P M B Ufoegbunam (Registrar)  
University of Nigeria Teaching Hospital  
Enugu  
Nigeria  
Email: uvkafor@yahoo.com

### Summary

This is a retrospective, observational study of post-operative patients admitted to our general ICU because of anaesthesia-related complications over a two year period between 1<sup>st</sup> January 2002 and 31<sup>st</sup> December 2003. The clinical records (case notes and ICU records) of the patients were used to extract the relevant data.

During the study period, a total of two hundred and fifteen patients (215) were admitted to the ICU. Five (2.8%) of these patients were admitted because of anaesthesia-related complications after 3155 anaesthetics, giving an ICU admission rate of 1:607 anaesthetics. The average age of the patients admitted was 34 years. There were four males and one female, four of whom had presented for elective surgery. None of these patients were booked for post-operative ICU admission. There were three cases (60%) of failed intubation, one case (20%) of endotracheal tube dislodgment and one of post-extubation hypoxia in a patient with a suspected malignant thyroid.

The average duration of stay in the ICU was 7.2 days. One patient (20%) received mechanical ventilation whilst the remaining four (80%)

received oxygen via an intranasal catheter or variable performance facemask.

Four patients (80%) received pressor agents but none was transfused blood.

There were three deaths giving a 60% mortality rate or 1 death in 1052 anaesthetics. This mortality rate is higher than that in the studies reviewed. Morbidity and mortality were due to a combination of human, drug and equipment factors. Closer supervision of resident doctors and procurement of anaesthetic materials will help reverse this trend. Critical incident reporting will help heighten awareness.

### Introduction

Mortality rates for healthy patients presenting for elective surgery are in the range of 1:50,000 to 1:150,000.<sup>1</sup> In 1:2000 cases there may be anaesthesia-related factors associated with death.<sup>2</sup> Anaesthetic mishaps are typically the result of a combination of errors: lapses in vigilance, environmental influences and equipment deficiencies, all of which can combine to delay the prompt detection and correction of a problem. Failed intubation and failure to ventilate occur in about 1 in 10,000 anaesthetics.<sup>3</sup> Patients die from failure to be given adequate oxygen rather than a failure to be intubated.<sup>3</sup>

In the developed world, the ready availability of modern monitors and equipment has greatly reduced the mortality associated with anaesthesia. In the third world, where some of these monitors are not readily available,

looking after a patient under anaesthesia is still an arduous task for the anaesthetist.

Whilst several papers in the Western world and Asia have researched this important topic,<sup>4-6</sup> a review of literature (Medline based) did not reveal a similar study from our country or indeed the entire West African sub-region

### Methods and Material

The clinical records (ICU and case files) of all the patients admitted to our ICU following anaesthetic complications over a two year period (2002-2003) were retrospectively reviewed.

The patients' demographics, anaesthetic techniques/complications, type of surgery performed and duration of stay in the ICU were all noted. Also noted were the need for ventilatory support, pressor agents and blood transfusion. The number of deaths was also recorded.

### Results

A total of two hundred and fifteen patients (215) were admitted to our ICU between January 2002 and December 2003. Five (2.8%) of these patients were admitted to the ICU because of anaesthesia related complications following 3155 anaesthetics.

The average age of the patients was 34 years. There were four males and one female who had presented for four elective and one emergency operation. There were 3 cases (60%) of failed intubation, one case (20%) of endotracheal tube dislodgment and another case (20%) of post-extubation hypoxia

**Table 1: The relationship between the type of surgery, anaesthetic complication, duration of admission to the ICU and mortality.**

Types of surgery	Anaesthetic complication	Duration of admission (days)	Deaths (%)
Thyroidectomy	Failed intubation	7	1 (33.3%)
Laparotomy for intestinal obstruction	Failed intubation	1	---
Open pericardiectomy and biopsy of pericardium	Failed intubation	5	---
Open reduction and immobilization of left mandibular fracture	Intra-operative endotracheal tube dislodgement	19	1 (33.3%)
Attempted thyroidectomy in a patient with suspected malignant thyroid	Post-extubation respiratory distress and hypoxia	4	1 (33.3%)

following attempted thyroidectomy in a patient with suspected malignant thyroid.

Table 1 shows the relationship between the type of surgery, anaesthetic complication, duration of stay in the ICU and mortality.

The average duration of stay in the ICU was 7.2 days. One patient (20%) received mechanical ventilation, while four patients (80%) received oxygen via an intranasal catheter or variable performance facemask. Four patients (80%) received pressor agents for organ support but none received a blood transfusion.

The mortality rate was 60% with three deaths: two deaths were due to anoxic encephalopathy following failed intubation (66.6%) and one death (33.4%) was due to post extubation hypoxia in the patient with suspected malignant thyroid.

A total of 3,155 anaesthetics were given during the review period giving an ICU admission rate of 1:631 anaesthetics and a mortality rate of 1:1052 anaesthetics. The three deaths represented 11.3% of all ICU deaths during the study period.

#### Discussion

Anaesthesia related complications, however undesirable, do occur because as Short has stated "all doctors, however experienced, make mistakes.<sup>7</sup> Nevertheless, our aim should be to prevent mistakes as much as possible.

In this study, the ICU admission rate for anaesthesia related complications was 1 in 631 anaesthetics. There is higher than two reports from Britain that gave ICU admission rates of 1 in 1543 and 1 in 2371 anaesthetics respectively.<sup>8,9</sup> In a six month, prospective study of unplanned admissions to their post-anaesthetic intensive care unit in Thailand, Toomong et al. reported that anaesthesia-related complications were responsible for thirty six (6.9%) of the five hundred and twenty admission during the study period, a higher figure than in this study.<sup>10</sup> Furthermore, a report from Zimbabwe in 2001 gave a high dependency unit admission rate of 1 in 1018 operations.<sup>11</sup>

While there were no anaesthesia-related ICU admissions following obstetric surgery in this study, Imarengiaye et al. from Benin, Nigeria, reported in 2001 an ICU admission rate of 1

in 179 parturients following anaesthesia-related problems during caesarean delivery.<sup>12</sup> Stephens, from Australia however, in 1991, reported an ICU admission rate of 1 in 1510 anaesthetics for anaesthesia-related obstetric complications.<sup>13</sup>

The mortality rate in this study was 1 death in 1052 anaesthetics or a 60% mortality rate amongst the patients admitted to the ICU for anaesthesia related complications. Cooper et al and Leigh et al. reported mortality rates of 17% and 15.2% in their respective studies in the U.K.<sup>8,9</sup> Imarengiaye et al reported a 27.3% mortality rate in their study.<sup>12</sup>

The high mortality rate in this study was due to a combination of human, drugs and equipment factors. Significantly, all the patients in this study were managed by junior resident doctors. Following these incidents; more anaesthetic materials have been acquired, the need for more consultant supervision emphasised and human errors strongly condemned.

Critical incident reporting enables potentially dangerous situations to be identified and, hopefully, allows preventive measures to be introduced before disasters occur.<sup>14-16</sup>

#### Acknowledgement

Our sincere thanks go to the staff of the records and ICU departments of the University of Nigeria Teaching Hospital (UNTH), Enugu, Nigeria for their cooperation during this study. We also thank Miss Mary Nwodo, who graciously typed this manuscript.

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