In this issue of World Anaesthesia News, Dr Matasha writes from Mwanza in Tanzania about the anaesthetic nurse-training programme that he has run for some fifteen years and that has trained over 110 anaesthetists. Those of us who work or have trained in the UK or countries with a similar system of employing only physician anaesthetists may tend to regard other health care models that use non-physician anaesthetists (NPAs) as second-rate and only to be tolerated until economic and social factors enable NPAs to be replaced with physicians. Can this view be correct?

Serendipitously, in her article on Norwegian anaesthesia, Dr Mellin-Olsen cogently argues the case for nurse anaesthetists. In Norway, one of the most affluent countries in the world where anaesthesia is a popular and highly regarded specialty, nurse anaesthetists are routinely employed. Guidelines on the nurse-doctor relationship have been developed and published and standards exist for training and certification. Doctors, nurses and patients all appear to benefit from this system. Norway is not unique; NPAs are employed in other Scandinavian countries, Holland and the United States to name but a few.

In Norway, some 800-physician anaesthetists serve a population of 4.5 million, a ratio of 1:5,600. In the United States and Japan, the ratios are 1:11,000 and 1:20,000 respectively. In the developing world, things are rather different: in Indonesia the ratio is 1:600,000 whilst in Uganda, nine physician anaesthetists serve a population of 23 million, a ratio of 1 physician anaesthetists to 2.5 million patients! NPAs are going to be an essential fact of life for many years to come and will continue to provide a life-saving role as illustrated by Frederick Gabriel’s case report on page 19. Unfortunately, too often, in developing countries they are under-valued and underpaid, their continuing education totally neglected and their essential role ignored. As physicians, whether we work in the developed or developing countries, it is surely correct that we offer our non-physician colleagues all the support, both moral and practical that we can whilst the Norwegian guidelines can act as a template for better defining their role, responsibilities and training requirements.

I would like to thank Drs Gallagher and Merry and Prof. Fenton for allowing me to reproduce their articles that first appeared in the Proceedings of the 9th World Congress and the International Association for the Study of Pain for permission to reprint the article on Essential Analgesics.

Finally, I would like to thank all those who commented favourably on the new-look World Anaesthesia News. My only regret is that no one spotted the X-ray showing heroin-containing condoms in Dr Mwafongo’s article (page 14) was printed upside down!

William F Casey

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Welcome to World Anaesthesia News

Contents

Feature articles
Practical training in anaesthesia in Tanzania 1
An evidence base for WHO “Essential Analgesics” 3
Practical tips and tricks 5

News from around the world
Primary trauma care in Indonesia 6
Norwegian anaesthesiology – never without nurses 7
Life and anaesthesia during the Fijian Coup 8
A portrait of the Dutch Association of Anaesthesiologists (NVA) 10

Clinical investigations
The peri-operative management of Haemophilia B (IX) in a developing country 12
A survey of the anaesthetic management of emergency trauma at the National Central University Hospital of Cotonou 14

Case Histories
The management of a penetrating chest injury in rural Tanzania 19

Useful information
Anaesthetic websites to try 18

Feature Extra
Research from the developing world: what are the barriers? 21
Dealing with the patient who is a risk to the physician 22
The physician who is a risk to patients 23
Vacancy Announcement 24
Forthcoming Events 25
Obituary – Professor Pascal Adnet 26
Volunteer Opportunities 27
A letter from Chipata, Zambia 27
Fellowship Opportunity
Pediatric Anaesthesia 28
The constitution of World Anaesthesia 28
Join World Anaesthesia 29
Practical Training in Anaesthesia in Tanzania

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Summary

For many years nurse anaesthetists, working independently, have administered all anaesthetics at regional and district hospitals in Tanzania. Many of them were taught at the Bugando Medical Centre School of Anaesthesia. This report reviews the years 1985 – 2000 when 114 students were trained at the school. Of these, 23 were Nurse Midwives, 80 Trained Nurses, 7 Staff Nurses, 2 Clinical Assistants and 2 Clinical Officers. Eighty two were males and 32 females and the majority came from missionary hospitals. Some candidates from government institutions needed external sponsors to fund their training and a few had to sponsor themselves. The important role of the nurse anaesthetist in Tanzania needs to be recognised officially and their work appropriately rewarded.

Introduction

The joint WHO/UNICEF International Conference on Primary Health Care held in Alma-Ata (USSR) in 1978 produced the declaration “Health for all by the year 2000.” It proposed that, by the year 2000, every individual throughout the world should be guaranteed top quality safe health care. To achieve this in anaesthesia, we need drugs, equipment and people capable of using them optimally. Without appropriately trained anaesthetists, drugs and equipment are useless and potentially dangerous. The Bugando Medical Centre (BMC) School of Anaesthesia was established to train safe and competent anaesthetists for Tanzania. After one year of training at BMC, nurse anaesthetists are able to provide excellent and reliable anaesthesia at all District and Regional hospitals as well as at some Teaching and University hospitals in Tanzania. However, if their worth is not recognised and adequately remunerated, we risk losing them and suffering a disastrous decline in the standard of health care services in our country.

Tanzania has an area of 945,000 sq km and an estimated population of 35 million. It has four consultant and teaching hospitals. The Buganda Medical Centre is a Roman Catholic run Teaching Hospital in the north-west of the country. It was built with a generous grant from churches in Germany and Holland and has been operating since December 1971. It has not less than 800 beds and annually about 5,000 surgical procedures are performed. BMC offers general surgery, orthopaedics, urology, ENT, obstetric/gynaecology and ophthalmology services. Orthopaedic procedures are provided by visiting American surgeons through the Health Volunteers Overseas (HVO) programme as we have no local orthopaedic surgeon at BMC at present.

At the time of writing, surgery is undertaken by two general surgeons, one urologist, one ENT – surgeon, four obstetricians/gynaecologists and one ophthalmologist. They work in five spacious operating rooms with good recovery facilities. On Mondays, Wednesdays and Fridays, general surgery, ENT, urology and orthopaedic surgery are undertaken whilst on Tuesdays and Thursdays, obstetrics and gynaecological surgery are performed. Eyes are operated on between Wednesday and Friday.

The anaesthetic staff of BMC consists of two anaesthesiologists (one is an expatriate), one assistant anaesthetic officer, five nurse anaesthetists and two anaesthetic assistants. On a day to day basis, they work in the operating rooms, the recovery room and the four-bedded intensive care unit.

Training Information

At the beginning of each intake of trainees for practical training in anaesthesia at the BMC School of Anaesthesia the following information about each student was obtained:

- previous position,
- sex,
- hospital at which they worked and
- source of sponsorship.

Unfortunately the age was not noted until the year 2000 intake.

The first intake to the training programme was in January 1985 and consisted of three candidates, one medical assistant and two trained nurses, who undertook a six-month training programme. The length of training was subsequently increased to one year. In the fifteen years between the start of training and the year 2000, a total of 114 candidates have successfully undertaken the course. With the apparent exception of two candidates, the majority lacked previous anaesthetic experience. Of the 114, 80 were trained nurses, 23 nurse midwives 7 staff nurses, 2 Rural Medical Aids (Clinical Assistants) and 2 Medical Assistants(Clinical Officers). There were 82 males and 32 females. Where age was recorded it ranged from 24 years to 50 years. Of the 114 trainees, ninety three were financed by their own hospitals while 14 paid their own fees and 7 were financed independently.

During the one-year course the students were taught:

Theory

1. Anatomy, physiology and pharmacology especially as they relate to the respiratory, cardiovascular and autonomic systems
2. Anaesthetic equipment
3. Aspects of physics and clinical measurements
4. Clinical anaesthesia

Practical

1. I.V. Cannulation
2. Intubation and resuscitation
3. Regional techniques especially subarachnoidal block.

Throughout the course there is continuous assessment of the students and towards the end, there is a final examination consisting of multiple choice...
Discussion

I joined the department of anaesthesiology at BMC towards the end of 1984 and have worked there since. Soon after my arrival, I thought about starting a course in anaesthesia for nurses. At that time, there were very few staff using old and badly-maintained Boyle's anaesthetic machines to administer halothane/ether anaesthetics in three operating rooms. Equally discouragingly, some regional techniques, e.g. subarachnoidal block, were seldomly practised and never performed in obstetrics for caesarean sections.

In January 1985, when the training officially commenced, brand new EMO machines were purchased and more and more spinals administered unless the technique was contra-indicated. At present there is an EMO machine in each operating room. Monitoring used during anaesthesia include blood pressure measurement (non-invasively), pulse, ECG, urinary output, skeletal muscle power and pulse oximetry. The monitoring equipment has been obtained through donations as the hospital is not in a position to afford the high purchase costs. It is sad to record that most of the monitors donated by JICA (Japan) in 1986, despite being brand new, are no longer in use and we have no means of repairing them locally. Oxygen is supplied mainly by concentrators (three have been donated) with gas cylinders in reserve.

During the fifteen year training period, the largest intakes were in 1999 and 2000, 14 and 15 trainees respectively, whilst the smallest intakes were in 1988 and 1991, one trainee each. Overall, a gradual increase in the intake has been observed over the years. The trend was interrupted in 1989 when the course was cancelled as the principal trainer was abroad for further studies.

Trained nurses were the largest single group of trainees, 80 candidates out of 114. They were followed by nurse midwives (23), staff nurses/nursing officers (7) and a few rural medical aids (clinical assistants) and medical assistants (clinical officers) (two each). The majority of the candidates were male (82 against 32). The age distribution of the largest group XIX shows that the youngest candidate was 24 years and oldest 50 years and the majority were under 40 years.

Until 1991 the trainees lived outside the hospital and had to find their own accommodation and food. As can be imagined, this made life difficult for them as most came from peripheral mission hospitals. Since then, with generous support from the hospital administration, the trainees have been able to stay in subsidised student hostels on the hospital campus and this has resulted in an annual increase in the number of trainees. As the School has become better known throughout the country, candidates have been attracted from all regions including Zanzibar.

The majority of candidates (93) were sent by their hospitals indicating awareness on their part of the need for safe anaesthesia. During their training, it was discovered that 14 candidates were funding themselves as their hospitals had no money for training and they admired the training so much. Some were promised a partial refund of their training costs after successful completion of the Course through on-call duty payments. The remaining seven candidates received financial assistance from personal friends or non-governmental organizations (NGO's) particularly the Red Cross.

Undoubtedly, the training programme has been extremely beneficial to the country. It has increased the number and quality of nurse anaesthetists in the peripheral district hospitals so that safe anaesthesia can be guaranteed at all times. The trainees are also a tremendously useful asset for the Department of Anaesthesia at Bugando Medical Centre. Their assistance with pre-operative and post-operative visits as well as their work in the operating rooms, recovery room and intensive care unit cannot go unmentioned.

I would like to comment on some of the ups and downs encountered during the training programme. I have already referred to the interruption of the training programme between July 1998 and January 1999 when I was abroad. In January 1990, the length of the course was increased from 6 to 12 months after it became apparent that six months training was inadequate. A shortage of trainers was another obstacle.
Conclusions

- Male nurse anaesthetists are the backbone of anaesthetic practice at regional, district and even consultant and teaching hospitals in Tanzania.
- The missionary District Hospitals in Tanzania are underwriting safer and better quality anaesthesia practice by sending candidates for training.
- Probably many more trained nurses are eager to undertake training in anaesthesia but due to limited hospital/government funds are unable to do so. Therefore, some external sources of sponsorship should be sought.

Recommendations

- Candidates having secondary school education should be given priority for the anaesthesia training.
- The anaesthesia course should be of two years duration.
- Hospitals sending trainees should support them financially. External sponsors may be necessary.
- The training centres (consultant/teaching hospitals) need to assist the trainees with accommodation and food at reasonable cost.
- In future, every qualifying nurse anaesthetist should be provided with an EMO machine (donors are needed).
- It is time that the training and work of nurse anaesthetists in Tanzania is officially recognized by the Ministry of Health.
- An appropriate salary and on-call allowance payments are needed for nurse anaesthetists who provide an excellent service sometimes in very difficult circumstances.
- Those involved in organizing out-reach services eg AMREF should ensure that the anaesthetic department of BMC is routinely involved in the programme. We would be very grateful if the following items are donated to the department:
  - Multipurpose monitors (x 5)
  - Pulse oximeters (x 5)
  - EMO machines (including OMV) (x3)
  - Oxygen concentrators (2)
  - Multipurpose ventilators (2)

Editorial Note:

Tanzania has an area of 945,000 sq km and a population of 35 million. Life expectancy is about 52 years and the infant mortality is 80/1,000 live births. The per capita GDP is $350.

An Evidence Base for WHO “Essential Analgesics”

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Readers familiar with the British Broadcasting Corporation may know of a long-running radio program called “Desert Island Discs”. The program invites celebrities to choose eight records, a book and a luxury item that they would wish to have if they were cast away on a desert island. Castaways give reasons for each choice, and the chosen music is played as part of the program. This program presents a highly romanticized image and assumes an air of fantasy. Worldwide population growth and limited resources make healthcare in many countries analogous to “desert island medicine”.

Many in the world live far from desert islands, yet still face hardships caused by poverty, deprivation, economic mismanagement or disaster, both natural and political. Their healthcare providers must decide upon a core set of inexpensive, available medicines to treat most of the conditions likely to arise in the course of their practice. The potential choices are vast: Martindale’s pharmacopoeia suggests that at least 50,000 licensed and proprietary drug preparations are available. Choosing a select group of effective medications from this huge collection is a difficult task. How then may we rationally select our “desert island” analgesics?

The “essential drugs list” (EDL) was developed from a report to the 28th World Health Assembly in 1975 as a way to extend access to appropriate drugs by populations whose access was limited by the existing supply structure. The plan was to develop lists of essential drugs based on the local health needs of each country. These lists were to be updated periodically with the advice of experts in public health, medicine, pharmacology, pharmacy, and drug formulary management. A resolution at the 1975 WHO annual assembly formally requested the Director General to prepare the initial model list of essential drugs. This model list has undergone regular review at approximately two-yearly intervals; the current (110th) list was published in November/December 1999.

The WHO emphasizes the need for national policy decisions that result in local commitment. Guiding principles for essential drug programmes include:

- The initial EDL should be seen as a starting point.
- Generic names should be used where possible with a cross index to proprietary names.
- Concise and accurate drug information should accompany the list.
- Drug quality, including stability and bioavail-

ability of active contents should be regularly monitored in supplies of essential drugs.

Local policies must specify the level of expertise required for prescribing and distributing drugs on each countries list. Some countries make the entire list available to teaching hospitals, smaller lists for district hospitals and a short list for public health clinics.

Success depends on efficient supply, storage and distribution at every point.

Research is sometimes required to settle the choice of a particular product in the local situation.

The model Essential Drugs List

The model EDL is divided into 27 main sections, listed alphabetically in English. The full list of approximately 300 drugs with the reasons for their selection can be found at the WHO medicines website (www.who.int/medicines). Analgesics on the list are shown in Table 1.

Recommendations are for drugs and preparations. For example, Paracetamol (acetaminophen) appears as tablets in strengths of 100mg to 500mg, suppositories of 100mg and a syrup (125mg/5ml). Certain drugs, marked with an asterisk, are examples of a therapeutic group: other drugs in the same group could serve as alternatives. The list, drawn up by consensus, contains few surprises.
In the last few years, The WHO has moved towards an evidence-based approach. An initiative is under way to define the evidence that supports the EDL. For example, Table 1 demonstrates the areas where randomised controlled trials (RCTs) or systematic reviews exist and highlights areas where further research is needed or where supporting evidence is stronger for one of several similar drugs. These data were gathered from two sources, the Cochrane Library and the Oxford Pain Internet site (www.jr2.ox.ac.uk/bandolier).

Table 1 illustrates the wide variation in the evidence for analgesics on the EDL. Clearly some drugs have made the list without any real portfolio of evidence. Readers are welcome to propose changes to the author or to the WHO together with supporting evidence from RCTs or systematic reviews. The EDL does not include some preparations that many would consider useful such as controlled release morphine. A systematic review of such preparations has yet to be written but is necessary to convince some authorities of their usefulness. Morphine availability is discussed below.

### Systematic Reviews

A clear advantage of systematic reviews is that combined data from trials can be used to estimate the effectiveness of a drug or other intervention with greater precision and accuracy than any single trial would permit. A statistical concept useful for systematic reviews is the “number needed to treat” (NNT). NNT is a measure of effectiveness that goes beyond standard efficacy concepts for licensing and registration of medicines. NNT is defined as the number of people who must receive a given intervention in order that one gains a well-defined benefit. The NNT for a perfectly effective drug would be 1.

The best analgesics have NNTs of 2 or 3. Calculations of NNTs allow one to produce a scorecard or league table of drugs on the EDL (Figure 1) and allow quick comparisons to be made of different doses of the same drug, between drugs of the same class and across drug classes.

### Feature stories

Some practitioners in developing countries believe that the EDL represents the lowest common denominator: a cheap, generic set of drugs intended only for those who cannot afford more modern (usually brand name) medicines. The league table shows that in many instances this belief is not true. Non-steroidal inflammatory drugs (NSAIDs) clearly provide good analgesia in acute pain.

Issues regarding the dissemination of information have been highlighted in a study of pharmaceutical sales representatives in Mumbai (formerly Bombay). An observational study examined medical representatives’ interactions with pharmacies and doctors in a range of neighbourhoods containing a wide mix of social classes. There were approximately 5,000 medical representatives in Mumbai, roughly one representative for every four doctors in the city. The representatives’ salaries varied according to performance incentives and their employing organization with multinationals paying the highest salaries. One medical representative stated: “There are a lot of companies, a lot of competition, a lot of pressure to sell, sell! Medicine in India is all about incentives; incentives to treat the patient well, incentives to doctors to buy your medicines, incentives for us to sell more medicines. Even the patient wants an incentive to buy from...”

#### Table 1 – Analgesics on the WHO essential drug list

<table>
<thead>
<tr>
<th>Essential Drug</th>
<th>Drug</th>
<th>Number of RCT’s</th>
<th>Number of Systematic Reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Anaesthetics</td>
<td>Bupivacaine*</td>
<td>600</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Lidocaine* (Lignocaine)</td>
<td>500</td>
<td>1</td>
</tr>
<tr>
<td>Non-OPoids</td>
<td>Aspirin</td>
<td>300</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Allopurinol</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Indomethacin*</td>
<td>150</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Ibuprofen*</td>
<td>170</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Colchicine</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Acetaminophen</td>
<td>700</td>
<td>1</td>
</tr>
<tr>
<td>Opioid Analgesics</td>
<td>Codeine*</td>
<td>400</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Morphine*</td>
<td>1300</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Meperidine* (Pethidine)</td>
<td>300</td>
<td>0</td>
</tr>
<tr>
<td>Anti-Migraine Drugs (prophylaxis)</td>
<td>Propranolol*</td>
<td>50</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2 – Oxford League Table of Analgesic Efficacy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Total patients in comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibuprofen 800mg</td>
<td>76</td>
</tr>
<tr>
<td>Diclofenac 100mg</td>
<td>308</td>
</tr>
<tr>
<td>Paracetamol 1000mg/Codeine 60mg</td>
<td>127</td>
</tr>
<tr>
<td>Diclofenac 50mg</td>
<td>636</td>
</tr>
<tr>
<td>Naproxen 440mg</td>
<td>217</td>
</tr>
<tr>
<td>Ibuprofen 400mg</td>
<td>222</td>
</tr>
<tr>
<td>Ibuprofen 600mg</td>
<td>279</td>
</tr>
<tr>
<td>Diclofenac 25mg</td>
<td>100</td>
</tr>
<tr>
<td>Dextropropoxyphene HCI 130mg</td>
<td>2698</td>
</tr>
<tr>
<td>Dextropropoxyphene HCI 100mg</td>
<td>364</td>
</tr>
<tr>
<td>Naproxen 220/250mg</td>
<td>183</td>
</tr>
<tr>
<td>Ibuprofen 200mg</td>
<td>726</td>
</tr>
<tr>
<td>Ibuprofen 50mg</td>
<td>108</td>
</tr>
<tr>
<td>Aspirin 1000mg</td>
<td>716</td>
</tr>
<tr>
<td>Dextropropoxyphene HCI 80mg</td>
<td>953</td>
</tr>
<tr>
<td>Dextropropoxyphene HCI 60mg</td>
<td>5001</td>
</tr>
<tr>
<td>Paracetamol 600/650mg</td>
<td>2263</td>
</tr>
<tr>
<td>Paracetamol 1000mg</td>
<td>348</td>
</tr>
<tr>
<td>Paracetamol 1500mg</td>
<td>598</td>
</tr>
<tr>
<td>Aspirin 650mg/Codeine 60mg</td>
<td>1167</td>
</tr>
<tr>
<td>Paracetamol 300mg/Codeine 30mg</td>
<td>442</td>
</tr>
<tr>
<td>Naproxen 220/300mg</td>
<td>1305</td>
</tr>
<tr>
<td>Dextropropoxyphene HCI 30mg</td>
<td>186</td>
</tr>
<tr>
<td>Diclofenac 50mg</td>
<td>649</td>
</tr>
<tr>
<td>Diclofenac 25mg</td>
<td>250</td>
</tr>
</tbody>
</table>

NNT with 95% confidence intervals
Practical tips and tricks

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The use of simple low cost alternatives to conventional equipment, or using a piece of equipment for a purpose for which it was not designed can be life saving in emergencies, or can provide an anaesthesia service where there was none before. In Africa where equipment is generally lacking, innovation is common.

If you devise something unconventional, you had better make sure that it is safe for the patient. Never put the value of your invention above the life of the patient. Also, don’t forget to keep trying to obtain the correct equipment from the usual sources.

The following unconventional techniques have proved effective over many years without a problem. My apologies to those who have described the following already. I do not claim to have thought of them first.

1. **Hole in glove for PEER**. A latex examination glove is tied over the expired gas port of an electric ventilator. Two or three holes are cut in the finger tips to restrict the escape of the expired air. The moving glove is a useful monitor of respiration. Another way is to put cotton wool in a short length of tube, though this doesn’t move and can more easily get blocked.

2. **Ambu valve for IMV**. The expiratory valve leaflet is removed from an E1 valve, or an E2 (resuscitation) valve is used and the patient ventilated in the conventional way using a Y-piece patient circuit. When the patient wants to breathe between ventilator breaths, or perhaps recovers consciousness post operatively, he can breathe room air via the expiratory port, while getting IMV from the Manley. This has an additional safety feature that if there is an unobserved ventilator failure, power cut or gas supply failure in the night, the patient can always breathe room air and cannot be asphyxiated by a failed ventilator.

3. **Manley Ventilator powered by an oxygen concentrator**. Most oxygen concentrators can generate sufficient pressure and flow to work an old Manley, which needs about 35 kPa to drive it.

3a. You can use the compressor in an old concentrator with poor quality oxygen and supplement the percentage of oxygen using a newer model at lower flows when oxygen enrichment is important.

3b. For babies, the use of a disposable T-piece paediatric circuit is very suitable, with added low flow oxygen connected before or after the ventilator.

4. **Draw-Over Anaesthesia in the ICU**. Many procedures need to be done in the ICU, such as airway examinations, burns or wound debridement. Operating theatre time may be in short supply. To be able to bring in detachable vaporisers and attach an oxygen source is a very convenient and safe way to give inhalation anaesthesia for minor procedures.

5. **Intramuscular suxamethonium**. Though not really apparatus, I find this so useful for single-handed paediatric anaesthesia for major cases that I mention it. About 0.4 ml undiluted suxamethonium IM into the deltoid with a 23G or 25G needle as you put on the mask gives a very smooth induction with halothane, reduces regurgitation risk and halves the time before intubation is possible, thereby increasing safety. It is presumed that, as is usual with us, babies arrive in theatre without a drip. Another excellent technique is to give 0.5 ml ketamine IM to put the drip up before induction.

6. **Improved Vaporiser**. Draw-Over vaporisers are no longer readily available and are, in any case, very expensive. Small rural hospitals in Africa with one operating theatre and a few cases a day cannot justify the expense of a continuous flow machine. So, I asked a local workshop to make a draw-over vaporizer. Many are still in use after some years. The problem was to get a non-corroding reservoir that can be replaced after it gets dirty or damaged.

The solution was an aluminium beer or soda can readily available from any bar, cut with a pair of scissors. Safety is assured because it cannot seem to give more than 3% halothane. Also used for Trilene.

7. **Laboratory Grade Trilene** (trichloroethylene). It’s very pure, easily available and very cheap. For those who have not used trilene, I would like to emphasise what an excellent and safe drug it is, though, of course, only in draw-over systems. Don’t use trilene in circle systems as it reacts with soda lime forming a poisonous gas. Also it seems unsafe for patients under 1 year old.

8. **Industrial ether**. This is just the same as anaesthetic ether, only a quarter of the price! It comes in drums so you have to decant or siphon it into bottles.
Primary Trauma Care in Indonesia

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Introduction
The Indonesian Society of Anaesthesiologists and the World Federation of Anaesthesiologists have requested the Dutch Association of Anaesthesiologists to assist in starting a Primary Trauma Course in Indonesia. Both Societies (the Indonesian and the Dutch) have expressed their interest in expanding their already existing good relations by starting such course.

Primary Trauma Course (PTC)
The philosophy underlying Primary Trauma Care is to develop an appropriate model for managing trauma in countries where there are no sophisticated trauma management systems and where the Advanced Trauma Life Support (ATLS) template is both inappropriate and exploitative expensive. PTC seeks to provide a model for teaching trauma management in developing countries. The strength of Primary Trauma Care is that although it is initially organised and funded centrally (by the Primary Trauma Care Foundation in liaison with the WFSA) it becomes the property of those who use it and they can adapt the basic principles of PTC to their own environment. Each country is therefore encouraged to run their own PTC courses as soon as they feel ready. The PTC Foundation will need to carry out audits from time to time to ensure that standards are maintained and that there is global continuity of the basic principles.

PTC courses have been taught throughout the world over the last three years, (the Pacific, East Africa, India); the local participants have then taken over the concepts and developed them to meet their own needs.

Indonesia
The Indonesian Society of Anaesthesiologists is the only organization seeking to coordinate the activities of all anaesthesiologists practicing in Indonesia and to assist them in developing better health care service as well as encouraging academic professionalism through life-long education and affording them legal and financial protection whenever possible. Trauma in Indonesia is currently increasing in both magnitude and complexity. Initially, this was mainly due to an increase in road traffic accidents and rapid industrial development but recently, political unrest has been responsible for many casualties.

“Trauma in Indonesia is currently increasing in both magnitude and complexity. Initially, this was mainly due to an increase in road traffic accidents and rapid industrial development but recently, political unrest has been responsible for many casualties.”

Program in Indonesia
There will be a three-stage programme. The first stage will be a “Train the Trainers” two day course run by Dutch anaesthesiologists, two Indonesian instructors trained in Australia and an instructor appointed by the Primary Trauma Care Foundation. Participants in the first stage will be doctors from teaching centres and the courses will be held in Surabaya and/or Jakarta.

The second stage will begin immediately after the instructors’ course. The newly trained Indonesian instructors, monitored by some members of the original training team, will teach Indonesian anaesthesiologists and residents.

In the third stage, further courses will be held in every teaching centre in the country so that, eventually, every member of the Society will have had the opportunity to be trained in PTC. Indonesian trained staff will undertake this third stage and it is hoped that after completing the course, all participants will be able to manage trauma logically and efficiently. Although there are only 400 specialist anaesthesiologists and 300 trainees/residents in Indonesia to serve a population of over 200 million it is hoped that a kernel of 20 or so trained instructors, if evenly spread throughout the country, will be able to disseminate the PTC programme still further. Evaluation and audit of progress and effectiveness should then be possible.

Activation of first stage
One of the Dutch instructors (who is able to speak the Indonesian language) attended an instructors course in Oxford and two Indonesian anaesthesiologists went to Melbourne to do their instructor training. The PTC teaching slides and manual have been translated into Indonesian and will be available for the first course. A Lescral Airway Management Trainer will also be purchased. The Indonesian Society of Anaesthesiologists is planning to establish two initial centres for teaching PTC for Eastern and Western Indonesia.

The first course will take place in March 2001.
Norwegian anaesthesiology — never without nurses!

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What might Norwegian anaesthesiologists have to share with colleagues in other countries? We did not invent the wheel or the ether mask? We recognise that we are fortunate to be among the 4.5 million inhabitants in one of the richest countries in the world and so, have access to the resources that enable us to practice clinical anaesthesia of the highest quality. Nevertheless, we think that our health system could be better organised and run. As in many other countries, we work longer hours then are necessary until we retire and, perhaps, we could and should do more to offer our older colleagues a smoother path to retirement.

However, we do have some experience that we believe important to share with our colleagues overseas. We have followed the international debate on whether anaesthesia should be provided by doctors only with considerable interest. Some of the arguments against a physician-only service have been a perceived loss of prestige and fear that others might take our place. There is probably no universal answer to this conundrum, as differing historical and cultural factors will play a part in each country, but in our experience most, of these worries are unfounded. We are proud to see that our speciality is one of the most prestigious in medicine in Norway, surpassed only by thoracic- and neuro-surgery. We work very closely with our surgeons and have equal status with them. We practice anaesthesia, intensive care medicine, pain management and acute/emergency medicine and are often asked to assist other colleagues when they feel they are out of their depth. Interestingly, this is despite us working closely with our allies — the nurse anaesthetists.

In the early days of anaesthesia in Norway, anaesthetics were administered by experienced operating theatre nurses. However, as the surgical procedures became more complicated, the nurses themselves wanted assistance and support from doctors. There are many accounts of the relief nurses felt when doctors agreed to supervise their work.

In those early days, some wished that Norway adopted the British model of training sufficient physician anaesthesiologists that there would be no need for nurse anaesthetists. However, insufficient numbers of doctors were interested in anaesthesiology and a dependence on nurses anaesthetists developed. Even today, when doctors have embraced anaesthesiology, this mutual dependency persists. As doctors, we believe that nurse anaesthetists allow us to have a more interesting working day and patient safety is enhanced as there are always two competent persons to hand to deal with complications.

The Norwegian Society of Anaesthesiology has developed guidelines for good clinical practice in anaesthesia (soon to be published in the Acta Anaesthesiologica Scandinavica) as well as intensive care medicine, acute medicine and pain therapy and has arranged consensus conferences (e.g. guidelines for preoperative fasting). We have developed a nation-wide system for recording anaesthetic activity and adverse incidents. One major milestone in the practise of anaesthesia in Norway occurred in 1994, when the first version of the “Guidelines for the Practice of Anaesthesia in Norway” was finalised and ratified by the Norwegian Medical Association. These Guidelines were developed in close co-operation with the nurse anaesthetists, are revised at regular intervals and have become a part of the quality management protocols of all department of anaesthesia in Norwegian hospitals. They are also used to help obtain essential resources for anaesthetic departments and are important in medico-legal cases. The Medical Association’s Intensive Care Medicine guidelines are modelled on those promulgated by the anaesthesiologists.

In the guidelines, the doctor – nurse relationship is described in detail: An anaesthesiologist should be available on-call at all times in hospitals that admit surgical and obstetric emergencies. If there is no
anaesthesiologist available when anaesthesia is administered, the legal responsibility for that anaesthetic rests with the doctor in charge of the patient. Nurses who have completed a specific and defined training in anaesthesia (both theoretical and practical) are permitted to administer general anaesthesia to patients who are fit and well. They are also permitted to monitor patients undergoing regional anaesthesia and control sedation. The anaesthesiologist who is ultimately responsible for the patient decides upon the method and type of anaesthesia. If the course of the anaesthetic deviates from the expected norm, the nurse anaesthetist should immediately inform the anaesthesiologist in charge. The anaesthesiologist or the nurse anaesthetist must stay with the patient at all times. The person administering general or regional anaesthesia should always have a knowledgeable, trained assistant close at hand.

Regulations also exist on the:
- Control and use of bio-medical equipment
- Pre-operative assessment and patient information
- The practice and delivery of anaesthesia
- Surveillance and monitoring during anaesthesia
- Documentation
- Monitoring after anaesthesia
- Day case anaesthesia

Recently, there has been much interest in medical mishaps in Norway. This is particularly important in anaesthesiology where the margins for error are often small and the end result may be death. Systematic problem-recording is a useful tool. We are trying to influence the way such information is recorded so that problems are dealt with constructively. What initially might seem to be human error frequently turn out to be system/organisational errors with considerable scope for improvement.

We recognise that, as elsewhere, the role of anaesthesiologists is not understood or appreciated by the general public. To this end, we have organised several campaigns to highlight the role of the anaesthetist to the Norwegian public.

Since the Norwegian Society of Anaesthesiology was founded in 1948, it has grown to become one of the most active societies within the Norwegian Medical Association. Today the Society has 565 members, of whom 22% are women (lower than the average among Norwegian doctors). Although our speciality is perceived as a prestigious and attractive area of medicine, there has, until recently, been a shortage of anaesthesiologists.

We are disappointed with the small number of Norwegian anaesthesiologists publishing research and the Society is encouraging activity in this area. This does not, however, mean that Norwegians have not contributed to medical advances: in 1873, Dr. Jacob Heiberg described the “Heiberg’s grip”, that is used to maintain a clear airway in an unconscious patient. Kristian Iglesrud was the first to perform a successful open-chest cardiac massage on a human being. He did this in 1901 when a female patient with a uterine tumour suffered a peri-operative cardiac arrest. We are also very proud of the toy factory owner, Åsmund Lærdal, who together with the respected American colleague Peter Safar and the Norwegian Society developed the “Resusci Anne” manikin that is used worldwide in resuscitation training today.

The Norwegian Society also has an international perspective. We share with our neighbours in the Scandinavian Society of Anaesthesiology and Intensive Care Medicine (SSAI) a similar anaesthesiological cultural background. Together, we support efforts for better co-operation within Europe through organisations such as ESA, CENSA, EAA, UEMS and others. We believe there should be fewer but stronger organisations in anaesthesiology. Good contacts and cooperation are the keys to progress and better understanding between anaesthesiology societies.

We also like to show our sympathy and support for colleagues working under conditions that are very different from those in Norway. Ghana, Iraq and Lithuania have been the countries on which we have focussed our efforts so far. We would to contribute more through the WFSA, especially as we have expertise on how to organise anaesthesia, first aid and emergency medicine when doctors are absent. For instance, the Trauma Care Foundation in Tromsø has shown that it is possible to educate hundreds of lay people in rural areas of mine-infested, war torn countries in the immediate management of injured patients when there are only limited resources.

Although the Norwegian Society is small, it has established high standards of practice in Norway, collaborates constructively with nurse anaesthetists and seeks to contribute to improved standards of patient care globally through the Trauma Care Foundation.

Fiji

The Republic of the Fiji Islands is situated in the southwest Pacific, north of New Zealand. It consists of over 300 islands, of which approximately 100 are inhabited. Suva, the capital, has a population of about 160,000 and is situated on the east side of the largest island, Viti Levu.
Fiji’s population is estimated to be 800,000. 50% of the population are indigenous Fijians, and 45% are Indo-Fijians. The Indo-Fijians are descended
from indentured labourers who were brought to Fiji from India at the end of the nineteenth century.

Fiji gained independence from Great Britain in 1970. In 1987, a democratically elected government was overthrown in a bloodless military coup led by Sitiveni Rabuka. There was a second coup later in the same year, also led by Rabuka. The 1987 coups were disastrous for the economy and resulted in the exodus of many professionals including health care workers.

### The 2000 Coup

The late 1990s saw a marked improvement in the economy but many issues relating to race and land ownership continued to cause discontent. In 1999, a government led by Mahendra Chaudhry, an Indo-Fijian, was elected. In May 2000, six weeks after we arrived in Fiji, this government was overthrown and government ministers were held hostage in an armed “civilian” coup led by George Speight, a failed businessman. Speight stated that he wanted to install a government that protected the rights of indigenous Fijians. A large number of shops in central Suva were looted and a State of Emergency was declared. Martial law was imposed ten days later after an unarmed policeman was shot and killed by a rampaging group of rebels. Speight remained in Suva’s parliamentary complex, along with his hostages and a large number of supporters. The situation steadily deteriorated over the next six weeks with sporadic violent incidents and increasingly widespread civil unrest, including rebel takeovers of police posts, an army barracks, several tourist resorts, the main hydroelectric power station, and an entire town north of Suva.

In July 2000, Mahendra Chaudhry and the remaining hostages were released after an accord was signed between Speight and the military. George Speight and many rebel supporters were arrested soon afterwards and are currently awaiting trial on treason charges. There has been an improvement in the general security situation but political tension remains high. In November, a mutiny by rebel soldiers at the main army barracks in Suva resulted in more loss of life but failed to depose the military commander, Commodore Frank Bainimarama.

Currently, a military-appointed interim civilian government is in place and there is doubt whether George Speight or the main perpetrators of the coup will be successfully prosecuted. We are nervously awaiting the outcome of a Court of Appeal case looking at the legality of the military’s actions after the coup and the legality of the current interim government.

### Anaesthesia at CWMH

The Colonial War Memorial Hospital (CWMH) is the region’s largest hospital with approximately 500 beds. The original hospital was built soon after World War I and contains several wards and three operating theatres. The “New Hospital” was built in the early 1990s with the help of Japanese funding and contains inpatient wards, the Accident and Emergency Department, two large outpatient clinics, an eight-bed Intensive Care Unit and four operating theatres. Japan also recently built in the early 1990s with the help of Japanese funding and contains inpatient wards, the Accident and Emergency Department, two large outpatient clinics, an eight-bed Intensive Care Unit and four operating theatres. Japan also recently built

CWMH is well staffed with two part-time Fiji School of Medicine consultants (Dr Sereima Bale and myself), four to five other consultant-level anaesthetists, and a variable number of trainees, currently six.

In general, our anaesthetic and monitoring equipment is very good, although lack of maintenance can sometimes cause problems. We recently acquired three new cardiac monitors and pulse oximetry and capnography are available in almost all theatres. We have a good range of drugs, including halothane, enflurane, thiopentone, ketamine, suxamethonium, atracurium, alcuronium, vecuronium, pancuronium, and local anaesthetics. Drug supply is usually good, although there were interruptions to supply of some drugs soon after the coup, notably thiopentone, lignocaine and chloramphenicol. There have also been intermittent problems with the supply of some disposable items, such as gloves and central lines.

A good range of specialist surgery is performed at CWMH. Patients requiring cardiac or neurosurgery are either sent to Australia or New Zealand or operated upon by visiting surgical teams. Elective surgery was severely disrupted following the coup and a number of visits by overseas specialist surgeons or surgical teams were cancelled. Unfortunately, the annual Pacific Anaesthetic Refresher Course, supported by the WFSA, was also cancelled.

### Casualties Following the Coup

I had not expected to become an expert on gunshot injuries when I started work in Fiji. In contrast to the 1987 coup, the 2000 coup resulted in a significant amount of bloodshed over a number of months. There were several intense gun battles between the military and rebels and the hospital had to manage a large numbers of casualties with injuries not commonly seen in this part of the world. In addition, there were frequent power cuts (because of the takeover of the hydroelectric power station) and a significant number of staff resignations.

Whilst the Fiji conflict was small in world terms, it has had a massive local impact. In the seven months following the coup, CWMH had to deal with over 50 patients with gunshot injuries and many other patients with serious blunt trauma. There were four incidents where 15 or more patients (up to 65) were brought to the hospital in a very short period of time and
several more incidents involving smaller numbers of severely injured patients. During the mutiny, approximately 40 patients were seen, including seven civilians who had been hit by stray bullets fired during an army assault on rebel soldiers at their barracks.

In general, the hospital coped very well. A triage team in the Emergency Department quickly assessed patients, instituted resuscitation, and directed patients to either the Radiology Department, the Outpatients Department for minor treatment and possible discharge, the Acute Surgical Ward or the operating theatres. We were able to open two or three emergency theatres when we had an influx of severely injured patients and the blood bank maintained supplies thanks to donations from a large numbers of medical students.

The whole experience was fascinating from a medical point of view but it was also very sobering. While we were able to cope with sporadic violent incidents, it would have been much more difficult to cope with a prolonged or more widespread conflict. In general, there was enough time between incidents for patients to be treated and for staff to recover. Almost all patients with gunshot injuries required surgery and many required frequent return trips to theatre. We would have found it difficult to simultaneously manage several patients with injuries to the trunk or major vessels who required immediate surgery.

Many nurses and doctors worked long hours without sleep after some of the incidents. Getting to and from work was not always easy because of the curfews and we were acutely aware that all travel might become impossible if the conflict spread. On one occasion, we were told that rebel supporters were planning to invade the hospital after one of their number died in ICU. We also felt very uncomfortable when a large number of heavily armed soldiers entered the hospital to guard injured rebels following the November mutiny.

### Fiji School of Medicine (FSM)

To its credit, the medical school stayed open throughout the crisis. The school has approximately 600 undergraduate medical and paramedical students, and the vast majority of these students completed their year successfully. Unfortunately, the coup had a greater impact on the postgraduate training programme: 16 out of 57 trainees (including one senior anaesthesia trainee) withdrew from the programme. Three FSM staff members resigned soon after the coup and several others did not renew their contracts at the end of the year. 2001 has begun on a much more positive note despite the ongoing political uncertainty. All the regional medical students have re-enrolled and 48 trainees are enrolled in the postgraduate programme. Anaesthesia currently has one Fijian Master’s trainee and four Diploma trainees (from Fiji, Palau, American Samoa and Tonga).

### The Future

The short to medium term future for Fiji remains very uncertain. The coup has had a devastating effect on the country’s economy with tourism being badly affected and many people have lost their jobs. The reasons for the coup remain obscure but appear to be more related to the self-interest of a few rather than a real attempt to advance the rights of indigenous Fijians. There has been a steady exodus of trained professionals and skilled managers with many more people treading water and waiting to see what happens next. Nurses have been actively recruited by overseas organisations resulting in a serious shortage in the wards and theatres.

In many ways, Fiji is a very “developed” developing country with a sound health infrastructure and good health statistics (for example, Fiji’s infant mortality is 18 per 1000). The last year has shown how fragile this development can be. Most analysts believe that it will be some time before the full economic and social impact of the coup becomes apparent and there is concern that more political instability lies ahead. From a medical point of view, the last year has been fascinating but also depressing and there is an urgent need for Fiji to find long-lasting solutions to its political problems.

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**Primary Trauma Care**

Primary Trauma Care (PTC) is a course run by the PTC Foundation. It is a Trauma Management Course aimed at training doctors and other health workers who treat trauma victims in district and remote locations.

PTC is supported and funded primarily by the WFSA, with additional support from the Royal College of Anaesthetists, and Aus Aid.

The objectives of the PTC course are to train local health professionals in the prevention and early management of trauma, and to encourage decentralization of trauma training to the local district hospitals.

The PTC courses have been run in Africa, India and South East Asia, South Pacific and South America.

The PTC Foundation organised a PTC Instructors Course on the 18th/19th May 2001. Further courses will run later in the year.

The Instructors Course is open to all doctors, especially surgeons and anaesthetists, who are involved in trauma management and training.

Suitable instructors need to have a desire to work in conjunction with medical services in district and remote locations to enhance trauma prevention and early treatment of trauma victims.

The PTC manual can be found on the Internet site: [http://www.nda.ox.ac.uk.wfsa/dl](http://www.nda.ox.ac.uk.wfsa/dl)

**REGISTRATION FEE**: £100.00

Application forms and enquiry’s from PTC Head Office, Outeniqua House 313 Woodstock Road Oxford OX2 7NY UK
A Portrait of the Dutch Association of Anaesthesiologists (NVA)

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On the 9th of September 1955, at the end of the “World Congress of Anaesthesiologists” held at Scheveningen in the Netherlands, the foundation of the World Federation of Societies of Anaesthesiologists (WFSA) was announced. This close association between the Dutch Association for Anaesthesiologists (NVA) and the WFSA was further strengthened when the NVA organised the 10th World Congress of Anaesthesiologists in The Hague in 1992.

After the Second World War, interest in anaesthetics increased in the Netherlands as elsewhere. As a result, the Universities of Amsterdam and Utrecht started their training programmes in anaesthetics for doctors. Both Universities were able to employ fully qualified anaesthetists from the UK (Dr. D.M.E. Vermeulen-Cranch and Dr. F.W. Roberts) who took charge of the initial 3 year training programs. On 24th January 1948, the two lecturers and a group of ten doctors in training and/or interested in anaesthetics founded the “Nederlandse Vereniging voor Anaesthesiologie” (NVA) with the objectives of:

- stimulating the study and knowledge of anaesthetics
- promoting activities in the interest of its members and
- encouraging co-operation and friendship between anaesthetists.

To achieve these objectives the NVA:

- makes regulations for the training of doctors in anaesthesia
- encourages education in anaesthesia
- organises scientific meetings
- stimulates the exchange of ideas, papers and scientific work with other societies
- controls medication and technical equipment in relation to anaesthetics
- facilitates communication between specialists and the management of hospitals, the Ministry of Health and health insurance companies and assists in mutual agreements between specialists.

Currently, the Association has about 1300 members.

On the 12th of July 1948 the specialty of Anaesthesia was officially recognised by the Dutch Medical Board. Soon, other Universities (Groningen and Leiden) started training programs in Anaesthesia and at present (2000) there are nine anaesthetic training centres (eight university and one non-university) from which each year approximately 30 doctors qualify as anaesthesiologists.

“...there are nine anaesthetic training centres from which each year approximately 30 doctors qualify as anaesthesiologists”

New developments in Anaesthesia led to the development of new scientific sections of the Association. Thoracic-anaesthesia, neuro-anaesthesia, developments in critical care medicines, trauma management and acute and chronic pain treatment are all fields that have attracted the interest of members of the Association to which they have made significant contributions. At the same time, this division into specialist sections was a threat for the cohesion of the Association as a whole. Therefore in 1998, a two day conference, “de Anaesthesiologen dagen”, was started which annually allows all members to come together and discuss new developments in Anaesthesia as a whole. These Conferences are a great success and are attended by more than 50% of all registered specialists and trainees.

To further the goal of the World Federation of Societies of Anaesthesiologists: “to make available the highest standards of anaesthesia to all peoples of the world” the Dutch Association of Anaesthesiologists decided to establish the “Commissie Internationale Betrekkingen (CIB)” (Committee for International Relations) in September 1998. The committee will try to support efforts to improve the quality of anaesthetic care in less affluent countries and is determined that its activities should never lead to dependency nor undermine local anaesthetic activities. To this end, the committee doesn’t intend to play any role in providing direct anaesthetic care in third world countries.

Nevertheless, all members of the Dutch Association of Anaesthesiologists are encouraged to participate in activities initiated by the CIB. Involvement in recent WFSA anaesthetic refresher courses held in Nigeria, Zimbabwe and Uganda and the renewal of links between the Indonesian Society of Anaesthesiologists and the Dutch Association are the initial steps already taken by the Committee for International Relations.
The peri-operative management of Haemophilia B (IX) in a developing country

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Summary
Haemophilia B is a rare disease associated with a high risk of peri-operative bleeding. Maintaining normal levels of factor IX ensures patient safety during this period. In developing countries there are limited facilities for measuring factor IX concentrations and there is a shortage of concentrated blood products. A case report is presented of the management of a child with haemophilia B. Transfusing fresh frozen plasma (FFP) before surgery and daily until healing occurred provided good quality clinical haemostasis even though the factor IX levels were below recommended levels. The use of FFP is limited because of the risk of volume overload.

Introduction
Haemophilia is due to a decrease in the level of coagulation factors, factor VIII in haemophilia A and factor IX in haemophilia B. Haemophilia is associated with an increased risk of haemorrhage during surgery and in the peri-operative period.

Haemophilia is a hereditary disease only affecting males and is due to an abnormality carried on the X chromosome. Females carry the relevant gene and can, in two circumstances, be true haemophiliacs:
- If they are homozygous for the defect: the daughters of a haemophilic father and a mother who is a carrier
- The daughters of a mother with Turner's syndrome (XO) and a haemophilic father.

The disease is rare, affecting 1/5000-10,000 male neonates. We propose to discuss the problems encountered by anaesthetists and intensivists managing haemophiliacs in third world countries such as Madagascar by describing a case that we managed in our service.

Background
This is a report on a ten-year-old boy (weighing 10 Kg) who was admitted to hospital with a dull pain of spontaneous onset in the left iliac fossa. The pain did not radiate but was exacerbated by movement. He also had pain in the left psoas region. Neurological examination was normal. It was noted that he had previously had problems with haemostasis:
- Persistent ooze for one week after circumcision
- Gingival bleeding and repeated nose bleeds
- The patient had not apparently, received any blood transfusions.
- X-rays of the abdomen, spine and hip were normal but an abdominal ultrasound showed a fluid collection that was indicative of a psoas haematoma. A full blood count showed a leucocytosis: which was predominantly a neutrophilia. The results of coagulation studies were as follows:
  - The bleeding time was normal: 120 secs (normal: 120-240 secs)
  - The platelet count was 604 x 10^9/l
  - The prothrombin time was 100%
  - The activated cephalin time was prolonged at 145 secs (normal: 34.5 secs)
  - Factor VIII was 100%
  - Factor IX was low at 5% of normal

After a transfusion of factor IX, under general anaesthesia and with assisted ventilation a 200ml haematoma was drained through an extra-peritoneal incision. The operation lasted 90 minutes as the use of diathermy was kept to a minimum.

We provided the factor IX by:
- Transfusing 3 bags (600mls) of fresh frozen plasma during the 2 hours preceding the procedure
- Administering 350ml of whole blood during the procedure
- Transfusing a further 2 bags of fresh frozen plasma (400mls) every day for 9 days until the stitches were removed

Our laboratory required 48 hours to measure factor IX levels and so haemostasis had to be assessed clinically by observing the operative field, the drapes and the colour of the urine (absence of haematuria). Haemostasis was clinically satisfactory even when the level of factor IX was only 16% of normal on the first post-operative day. There were no complications and an ultrasound on day 20 was normal.

Discussion
The diagnosis and the peri-operative management

Investigations of haemostasis should be undertaken as soon as a previous history of bleeding problems is discovered on the pre-anaesthetic visit. A prolonged activated cephalin time with a normal bleeding time and prothrombin time should raise suspicion of haemophilia which can be confirmed by measuring the levels of factors VIII and IX.

Haemophilia B is classified according to the degree of factor IX deficit
- Severe when the deficit is total: less than 1% factor IX
- Moderate when the level is between 1 and 4%
- Mild when the level is between 5 and 30%

Our patient presented with a history of bleeding after circumcision and a spontaneous non-traumatic psoas haematoma that is characteristic of severe haemophilia.

The level of factor IX should be measured before transfusion. This is difficult in a country such as ours because of the cost and lack...
Haemophilias are best managed in the peri-operative period by a multidisciplinary team with the aim of avoiding accidental injury and minimising risk.

- Rectal temperature measurement is not recommended.
- Cannula insertion on the inner aspect of the forearm is contraindicated because of the risk of precipitating Volkmann’s syndrome.
- Manual compression of venepuncture sites must continue for 10 minutes even in the case of failure as there is a risk of late haematoma formation.
- Central venous catheterisation, arterial puncture and intramuscular injections are contraindicated unless essential.
- Intubation should be as atraumatic as possible to prevent the formation of oro-pharyngeal haematomas that may cause asphyxia or problems with swallowing after extubation.
- Over transfusion with crystalloids may increase the risk of peri-operative haemorrhage by diluting the coagulation factors.
- The surgeon must use diathermy sparingly as it may lead to haemorrhage if the eschar is disturbed.
- Maintaining adequate concentrations of factor IX best prevents peri-operative bleeding.

**With what?**

In our hospital fresh frozen plasma is available. The volumes that may need to be transfused limit its use. In affluent countries, factor IX concentrate is used. Recombinant preparations do not pose a risk of infection but may be associated with a higher rates of inhibitor antibody development than fractionated plasma products.

**How?**

The missing factor is given intravenously before and for several days after the operation. Authorities suggest the best way to normalize the concentration is to inject a bolus of the required factor 30-60 minutes before induction of anaesthesia. In our opinion, because of the volume of fresh frozen plasma needed, this time interval is too short. We, therefore, transfused our patient two hours before induction of anaesthesia and watched carefully for signs of fluid overload.

Two methods have been recommended for giving replacement therapy in the post-operative period: intermittent or continuous treatment. In the first method, the factor is given at intervals depending on its half-life: every 12 hours in the case of factor IX. In the second method, the factor is delivered as a constant infusion from a syringe driver. The volume injected is calculated using the following formula:

\[
\text{Speed of injection} = \text{clearance} \times \text{expected concentration}
\]

For patients undergoing abdominal surgery, we continue the treatment until the sutures are removed or about day 9.

**What dose?**

The therapeutic goal is to obtain a sufficient plasma concentration of the deficient factor to reduce the risk of haemorrhage. Ideally, the level of factor IX should be between 50-80% at the time of surgery and between 20-80% in the post-operative period. These levels can be achieved by:

- In the pre-operative period by injecting 50-80 U/kg of factor IX
- Post-operatively by giving 20-40 U/kg 1-2 times a day

Fresh frozen plasma may be used but large volumes are needed as its factor IX activity is only 0.5-1U/ml.

If one assumes that fresh frozen plasma has 1U/ml, as our patient weighed 10 kg, he should have had a minimum of 500mls pre-operatively and 200 mls once or twice a day in the post-operative period.

We gave 600mls before the procedure and then 400 mls a day post-operatively. Despite these volumes we only achieved a factor IX level of 16% on day 1. It would, therefore, seem necessary to give much more FFP to ensure adequate levels are obtained.

**Conclusion**

Haemophilia is a rare coagulopathy that can cause haemorrhage in the peri-operative period. Making the diagnosis, managing the peri-operative period, initiating definitive treatment and taking appropriate precautions to minimize the risk of haemorrhage are all challenges for the anaesthetist. In developing countries such as Madagascar, where factor concentrates are not available we have to use fresh frozen plasma with its attendant risks of fluid overload and, as factor levels are not easily measured, monitor coagulation by clinical observation. Nevertheless, it is possible to manage patients safely during this critical period.

**Table 1: Replacement treatment for Haemophilia B**

<table>
<thead>
<tr>
<th>Pre-operative expected level (%) (Dose U/kg)</th>
<th>Post-operative maintenance level (%) (Dose U/kg)</th>
<th>Duration of replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental extraction</td>
<td>50-60% (50-60)</td>
<td>20-80% (30-40)</td>
</tr>
<tr>
<td>Tonsillectomy</td>
<td>50-60% (50-60)</td>
<td>30-40% (30-40)</td>
</tr>
<tr>
<td>Minor surgery e.g. arthroscopy</td>
<td>30-40% (30-40)</td>
<td>20-30% (30-40)</td>
</tr>
<tr>
<td>Abdominal surgery</td>
<td>50-80% (50-80)</td>
<td>20-80% (30-40)</td>
</tr>
<tr>
<td>Orthopaedic surgery</td>
<td>80-100% (80-100)</td>
<td>40-80% (30-50)</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>80-100% (80-100)</td>
<td>40-80% (30-50)</td>
</tr>
</tbody>
</table>

Editorial Note. Madagascar lies of the East coast of Africa and has an area of 118,500 sq km and a population of 15.5 million. Life expectancy is 55 years and the infant mortality is 85/1,000 live births. The per capita GDP is $780.
A survey of the anaesthetic management of emergency trauma surgery at the National Central University Hospital of Cotonou, Benin

Aguemon AR*, Diallo AT*, Padonou JL**, Atchade D*
*Service Polyvalent d’Anæsthesie et Réanimation
**Clinique Universitaire de Traumatologie, d’Orthopédie et de Rééducation fonctionelle
Centre National Hospitalier et Universitaire
06 BP 416 Akpakpa-PK3
Cotonou
Benin

Summary
The management of road traffic accidents is a major problem in developing countries and mortality is increased due to a lack of resources. Although we are often faced with a patient with a full stomach, general anaesthesia with ketamine as the drug of choice is our preferred technique. Over a 30-month period, our results have been broadly satisfactory in 69% of cases although 46% of our patients had severe haemodynamic disturbances.

Introduction
Trauma victims pose many problems in their pre-hospital management, their initial resuscitation on arrival in hospital, their anaesthetic and surgical management and their post-operative care. In our developing country, long pre-hospital delays, the lack of a dedicated resuscitation room in the Casualty department and a shortage of physical and above all, human resources (especially anaesthetic personnel) are among the factors that greatly influence the mortality rate. Good, safe anaesthetic practice is an essential component of the optimal management of trauma in hospital.

Although, anaesthesia is generally safe, the unexpected can occur and cause complications that compromise the outcome of treatment and the recovery of the patient. Because of the increasing number of trauma victims presenting at the National Central University Hospital of Cotonou (CNHU-C) we decided to undertake a survey of anaesthetic activity for emergency trauma surgery over a period of 30 months. Our aim was to evaluate the quality and the reliability of anaesthesia for trauma victims admitted as emergencies to our hospital.

To this end, we decided to
- Audit the number of patients admitted to the service and identify trauma victims undergoing surgical intervention
- Review the anaesthetic techniques used
- Monitor outcome and look at the risk/benefits of surgery.

Patients and methods
All trauma patients admitted as emergencies and operated on at the emergency centre were potentially included in the study which was retrospective and reviewed the thirty month period from the 1st January 1995 to the 30th June 1997.

Inclusion criteria
1. Trauma victims admitted as emergencies to the service
2. Patients that were going to undergo surgery
3. Patients in an unstable haemodynamic state or in shock

Exclusion criteria
1. Victims not requiring surgery
2. Normovolaemic patients

This study was undertaken in three stages:
- To study the anaesthetic techniques used for trauma surgery
- To determine patient outcome
- To evaluate the risk/benefit of surgery

The patients were classified as:
1. Mild haemodynamic instability with a systolic BP >100 but <120, pulse rate >95 and normothermic
2. Severe haemodynamic instability with a systolic BP <100 and/or a pulse rate > or = 120

Results
During the 30-month study period, 3118 patients were admitted to the service, 539 were injured (17.5%) and 88 underwent surgery (2.8%). (Table 1).

Discussion
The choice of anaesthetic technique to be used for managing patients with trauma must consider the type of injury, the clinical state of the patient and the resources available to the anaesthetist. In addition, many patients with trauma have a full stomach. Some types of trauma inevitably carry a bad prognosis: in an earlier study undertaken in the Central Hospital in Cotonou on 219 patients with severe head injuries, the mortality was 31%. In our present study, half of head injured patients who underwent surgery died and they accounted for 17% of our total mortality. This number is similar to that reported by Albanese. This raises the question “does surgical intervention improve the prognosis of patients with head injuries?”

Abdominal injuries were common and were the primary injury in 68% of the patients in our study. They resulted in rupture of the spleen (45), rupture of the bladder (4), rupture of the liver (2) and rupture of the bowel (2). They were responsible for 58% of the deaths in our review.

The reported incidence of traumatic ruptured spleen varies widely in the African literature from a little over 1% to 47% of patients requiring laparotomy. Few patients with liver trauma in
Africa appear to survive long enough to come to surgery. Regardless of the anaesthetic technique used, haemoperitoneum was associated with a high mortality in our series.

General anaesthesia was universally used for our emergency operations. We used halothane most frequently (47.7%) with ketamine being only used as the sole agent for 14.7% of our patients and a combination of both being used in the remainder (37.7%). Each agent has its advantages and disadvantages.

Intravenous agents allow a rapid and pleasant induction of anaesthesia. Administration is easy and, in addition, ketamine maintains the systolic blood pressure making it the agent of choice in emergency situations. It was used less then might be expected due to a lack of supplies.

The depth and duration of anaesthesia provided by volatile agents is easy to control and their excretion is largely independent of hepatic and renal function. However they require more sophisticated equipment for their safe use. The use of ketamine followed by a volatile agent provides haemodynamic stability with a rapid onset of surgical anaesthesia. This combination was used in 33 of our patients (37.7%) and was associated with the lowest mortality rate (15.1%) compared with ketamine (30.8%) or halothane (19%) when used alone.

**Conclusion**

In this series we found:
- the highest mortality rate was found in the group of patients with haemoperitoneum whatever the anaesthetic technique (ketamine, halothane or a combination of the two)
- general anaesthesia was inevitably used for emergency surgery
- ketamine is our drug of choice
- outcome was satisfactory with 80% of patients who underwent surgery surviving despite 46% initially being significantly haemodynamically unstable.

**Editorial Note.**

Benin is one of the smaller countries in West Africa with an area of 112,600 sq km and a population of 6.4 million. Life expectancy is 50 years and the infant mortality is 90/1,080 live births. The per capita GDP is $1,300.

<table>
<thead>
<tr>
<th>Year</th>
<th>Patients admitted to emergency service</th>
<th>Trauma patients admitted</th>
<th>Trauma patients undergoing surgery</th>
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<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>1995</td>
<td>1163</td>
<td>230</td>
<td>19.8%</td>
</tr>
<tr>
<td>1996</td>
<td>1309</td>
<td>215</td>
<td>16.4%</td>
</tr>
<tr>
<td>1997</td>
<td>646</td>
<td>94</td>
<td>14.6%</td>
</tr>
<tr>
<td>Total</td>
<td>3118</td>
<td>539</td>
<td>17.3%</td>
</tr>
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**Table 2:** Distribution of age and sex of patients undergoing surgery

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age (years)</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>0-9</td>
<td>4</td>
<td>6.7%</td>
<td>5</td>
<td>17.9%</td>
<td>9</td>
<td>10.2%</td>
</tr>
<tr>
<td>Female</td>
<td>10-19</td>
<td>11</td>
<td>18.3%</td>
<td>13</td>
<td>46.6%</td>
<td>24</td>
<td>27.3%</td>
</tr>
<tr>
<td></td>
<td>20-29</td>
<td>24</td>
<td>40%</td>
<td>3</td>
<td>10.7%</td>
<td>27</td>
<td>30.7%</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>12</td>
<td>20%</td>
<td>4</td>
<td>14.3%</td>
<td>16</td>
<td>18.2%</td>
</tr>
<tr>
<td></td>
<td>40-49</td>
<td>4</td>
<td>6.7%</td>
<td>2</td>
<td>7.1%</td>
<td>6</td>
<td>6.8%</td>
</tr>
<tr>
<td></td>
<td>&gt; 50</td>
<td>5</td>
<td>8.3%</td>
<td>1</td>
<td>3.6%</td>
<td>6</td>
<td>6.8%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100%</td>
<td>28</td>
<td>100%</td>
<td>88</td>
<td>100%</td>
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**Table 3:** Distribution of patients according to indication for surgery and outcome

<table>
<thead>
<tr>
<th>Alive</th>
<th>Dead</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Ruptured Spleen</td>
<td>38</td>
<td>7</td>
</tr>
<tr>
<td>Ruptured Liver</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Ruptured Bladder</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Ruptured Intestine</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Penetrating abdominal injury</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Retro-peritoneal haematoma</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Haemorrhage</td>
<td>14</td>
<td>20%</td>
</tr>
<tr>
<td>Multiple trauma</td>
<td>6</td>
<td>8%</td>
</tr>
<tr>
<td>Extra-dural haematoma</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Depressed skull fracture</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Brain abscess</td>
<td>0</td>
<td>100%</td>
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**Table 4:** Distribution of patients according to clinical status on admission and anaesthetic agents used

<table>
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<tr>
<th>Clinical status</th>
<th>Ketamine</th>
<th>Anaesthetic Agent</th>
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</thead>
<tbody>
<tr>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Mild haemodynamic instability</td>
<td>Alive</td>
<td>3</td>
</tr>
<tr>
<td>Dead</td>
<td>2</td>
<td>15.4%</td>
</tr>
<tr>
<td>Severe haemodynamic instability</td>
<td>Alive</td>
<td>6</td>
</tr>
<tr>
<td>Dead</td>
<td>2</td>
<td>15.4%</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table 5:** Follow-up of patients

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favourable</td>
<td>71</td>
<td>80%</td>
</tr>
<tr>
<td>Dead</td>
<td>17</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>100%</td>
</tr>
</tbody>
</table>
Useful Information

World Federation of Societies of Anaesthesiologists (WFSA)
8th Floor, Imperial house
15-19 Kingsway
London WC2B 6TH, United Kingdom
Tel: (+44) 020 7836 5652
Fax: (+44) 020 7836 5616
Email: wfsa@compuserve.com
Web site: www.wfsa.org.uk

Courses in Anaesthesia for the developing world.
Oxford: July (annually).
Contact: Dr. M. Dobson
Department of Anaesthesia
John Radcliffe Hospital
Headley Way
Headington,
Oxford OX3 9DU, UK
Tel: (+44) 01865 221589.
E-mail: michael.dobson@ndm.ox.ac.uk

Bristol: December (annually).
Contact: Dr. Claire Jewkes
Department of Anaesthesia
Frenchay Hospital
Bristol BS16 1LE, UK
Tel: (+44) 01179 701212.

Equipment collection and distribution to the developing world
Contact: ECHO
Ullswater Crescent
Coulsdon
Surrey CR3 2HR, UK
Tel: (+44) 020 8660 2220

Carelift International Inc.
185 Walnut Street (Floor 22)
Philadelphia P. A. 19103 USA
Tel: (+1) 215 535 3590.
Dr. William Rosenblatt
REMEDY
Dept. of Anaesthesia
Yale University School of Medicine
333 Cedar Street
New Haven
CT 06510, USA

Book Aid International
39-41 Coldharbour Lane
Camberwell
London SE5 9NR. UK
Tel: (+44) 020 7733 3577

The organisation is interested in receiving recent complete sets of journals and newish text books. These are collected free and distributed by Rotarians.

The TOKTEN Project
Expatriate nationals returning to their country of origin are invited to apply for the post of project expert. Each project is sponsored by the United Nations who would meet the cost of international travel and pay a subsistence allowance ($90/day).

Applications should be made to the Minister of Health of the host developing nation.

Technical Assistance at Low Cost (TALC)
Contact: David Moreley
Institute of Child Health
Guilford Street
London WCIN 1EH, UK

The International Committee of the Red Cross (ICRC)
The ICRC acts to help all victims of war and internal violence, attempting to ensure implementation of humanitarian rules restricting armed violence.

Contact: ICRC, Recruitment Division
19 Ave. de la Paix
CH-1202
Geneva, Switzerland or your local society.
Email: http://www.icrc.ch

Overseas Doctors Training Scheme (UK)
Anaesthetists seeking recognised training posts in the UK should apply to the
Bernard Johnson Adviser
Royal College of Anaesthetists
8 Russell Square
London WC1 B 4JX, UK
Tel: (+44) 020 7637 4104

The SOROS Foundation
will consider applications from anaesthetists in Eastern and Central Europe for support for limited periods of study in the UK. Applications should be made in advance to the branch office of their country of origin whose address may be obtained from:

The Soros Foundation
400 West 59th Street
New York
NY 10019, USA
Tel: (+1) 212 548 0600
Fax: (+1) 212 548 4600.
E-mail: osnews@sorosny.org

Teaching Videos:
The following titles are available at £5 each:
1. Servicing the EMO & Tri-Service vapourisers.
2. The oxygen concentrator
3. The Manley multivent/Glostavent
4. Servicing the anaesthetic machine

Contact:
Dr. R Eltringham
Gloucestershire Royal Hospital
Gloucester GLI 3NN, UK
Tel: (+44) 01452 394786/394194
Fax: (+44) 01452 394485
E-mail: 106147.2366@compuserve.com

Job opportunities in the developing world
These are listed in a bimonthly magazine produced by the International Health Exchange.

Contact:
Ms Isobel McConnan
8-10, Dryden Street
London WC2E 9NA. UK
Tel: (+44) 020 7836 5833
Fax: (+44)020 7379 1239
E-mail: health exchange@compuserve.com

US volunteers wishing to spend periods working in developing countries
Contact: Dr. Lena Dohlman
Health Volunteers Overseas
c/o Washington Station
PO. Box 65157
Washington DC 20035-5157, USA
Tel: (+1) 202 296 0928.
Fax: (+1) 202 296 8018.

Committee Chair
Overseas Teaching Program
American Society of Anesthesiologists
520 N. Northwest Highway
Park Ridge, IL 60068-2573, USA
World Anaesthesia
This organisation works to improve standards of anaesthesia throughout the world. In conjunction with the WFSA, it produces two publications, World Anaesthesia News and Update in Anaesthesia* (an add-on textbook) published twice-yearly. The annual subscription is £20. For further information
Contact: Dr. Douglas Wilkinson
Nuffield Department of Anaesthesia
The John Radcliffe Hospital
Headley Way
Oxford OX3 9DU, UK
Tel: (+44) 01865 221589
Fax: (+44) 01865 221593
Email: douglas.wilkinson@nda.ox.ac.uk
* also available on:
http://www.nda.ox.ac.uk/wfsa

Courses on Anaesthetic Equipment Maintenance
One week residential courses for anaesthetic technicians are organised at the NHS training and conference centre.
Applications should be sent to:
Geoffrey Dillow
Conference Centre
Wotton under Edge
Glos GL12 8DA. UK.

Association for International Development of Anaesthesia (A.I.D.A.)
Contact: Professor Stanley Samuels
Department of Anaesthesia
Stanford University Medical Centre
Stanford
California. USA
Tel: (+1) 415 723 6411.
Fax: (+1) 415 723 8544.
Email: Samuels@leland.stanford.edu

Commonwealth Medical Awards
Available to citizens of Commonwealth countries for limited periods of postgraduate study within the UK. Applications should be addressed to the Medical Awards Administrator
Commonwealth Scholarship Commission
36 Gordon Square
London WC1H 1PE, UK

Medecins Sans Frontieres (MSF)
offers assistance to populations in distress, to victims of natural and man-made disasters and to victims of armed conflict. They require volunteers for both long and short-term projects. If you are interested in obtaining more information, contact them at:
MSF
124-132 Clerkenwell Road
London EC1R 5DL, UK
Tel: (+44) 020 7713 5600
Fax: (+44) 020 7713 5004.

Douleurs Sans Frontieres (DSF)
To participate, to create or to encourage any structure involved in the relief of pain and suffering (cancer pain, AIDS, acute pain, etc).
To search for therapeutic methods, to provide training and to propagate about pain and suffering especially in developing countries.
For further information contact:
Docteur Alain Serrie
Hôpital Lariboisière
2, rue Ambroise Paré
75010 Paris, France
Tel: (+33) 1 49 95 81 77
Fax: (+33) 1 49 95 69 98
Email: alain.serrie@lrb.a

If you wish to advertise your organisation on this page (free-of-charge), please contact:
The Editor Dr W F Casey
Pope's Cottage, Cheltenham Rd. Painswick,
Glos. GL6 6TS, UK
Tel: (+44) 01452 814229.
Fax: (+44) 01452 812162.
Email: wfcasey@doctors.org.uk

Electronic Publication of “Update in Anaesthesia”
- “Update in Anaesthesia” is an education journal produced by “World Anaesthesia”, widely distributed and acclaimed in many developing countries.
- An electronic version of “Update” including back issues is now available - you can read it on your computer screen (using suitable free software), and download and/or print all or part of it for reference.
- If you have an Internet connection you can access “Update” at http://www.nda.ox.ac.uk/wfsa It can be viewed with either a graphical browser (looks prettier) such as Netscape or a text-only browser such as Lynx.
- If you don’t have Internet access but do have a computer, we can post you the same material on floppy disk with instructions on use. (N.B. This only applies to developing countries.)
- You do not need the latest and most expensive computer to make use of Electronic Update: a 286-PC should be adequate. If you need technical advice, please write to Dr Mike Dobson, Nuffield Department of Anaesthetics, John Radcliffe Hospital, Oxford, OX3 9DU, UK, or send an Email request to: michael.dobson@ndm.ox.ac.uk
- An electronic version of “World Anaesthesia Newsletter” (incorporating “Anaesthesia Worldwide”) including back issues in similar format is also now available at the same Internet site.
### Anaesthetic web sites to try

<table>
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<tr>
<th>Resources</th>
<th>Anaesthesia &amp; Critical Care Resources on the Internet</th>
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<tr>
<td><a href="http://www.eur.nl/cgi-bin/accri.pl">AACRI</a></td>
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<tr>
<td>Audio Digest Foundation</td>
<td><a href="http://www.audio-digest.org">http://www.audio-digest.org</a></td>
</tr>
<tr>
<td>Bandolier (Evidence-based medicine)</td>
<td><a href="http://www.jr2.ac.uk/Bandolier">http://www.jr2.ac.uk/Bandolier</a></td>
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<tr>
<td>Echocardiography</td>
<td><a href="http://www2.umdnj.edu/shindler/echo.html">http://www2.umdnj.edu/shindler/echo.html</a></td>
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<tr>
<td>Gaseous anomaly</td>
<td><a href="http://www.anesthesia.ml.org">http://www.anesthesia.ml.org</a></td>
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<td>GASNet Anesthesiology Home Page</td>
<td><a href="http://gasnet.med.vale.edu">http://gasnet.med.vale.edu</a></td>
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<tr>
<td>International Anesthesia Research Society</td>
<td><a href="http://www.iars.org">http://www.iars.org</a></td>
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<td>Illustrated regional anesthesia</td>
<td><a href="http://weber.u.washington.edu/~aelizaga/regional/welcome">http://weber.u.washington.edu/~aelizaga/regional/welcome</a></td>
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<tr>
<td>Medical World Search</td>
<td><a href="http://mwsearch.com/">http://mwsearch.com</a></td>
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<td>Primary Internet resources for anaesthetists</td>
<td><a href="http://gasnet.dundee.ac.uk:1081/mirror/vat/MajRes.html">http://gasnet.dundee.ac.uk:1081/mirror/vat/MajRes.html</a></td>
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<td>Primary Trauma Care Foundation</td>
<td><a href="http://www.nda.ox.ac.uk/wfsa/dl/html/pages/ptc.htm">http://www.nda.ox.ac.uk/wfsa/dl/html/pages/ptc.htm</a></td>
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<td>The Trauma Organisation</td>
<td><a href="http://www.trauma.org/">http://www.trauma.org/</a></td>
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<td>University of Chicago</td>
<td><a href="http://www.airway.bsd.uchicago.edu">http://www.airway.bsd.uchicago.edu</a></td>
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<td>Virtual Museum of Anesthesiology</td>
<td><a href="http://umdas.med.miami.edu/aha/vma">http://umdas.med.miami.edu/aha/vma</a></td>
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<td><a href="http://www.nda.ox.ac.uk/wfsa">http://www.nda.ox.ac.uk/wfsa</a></td>
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### Journals:

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<tr>
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<td>Anaesthesia and Analgesia</td>
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<td>British Journal of Anaesthesia</td>
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<td>NEJM</td>
<td><a href="http://www.nejm-org/content/index.asp">http://www.nejm-org/content/index.asp</a></td>
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<td>The Internet Journal of Anaesthesia</td>
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### Associations:

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<th><a href="http://www.ars.ac.uk">http://www.ars.ac.uk</a></th>
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<tr>
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<td>Royal College of Anaesthetists</td>
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<td>Society for Ambulatory Anaesthesia</td>
<td><a href="http://www.sambahq.org">http://www.sambahq.org</a></td>
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The Management of a Penetrating Chest Injury in Rural Tanzania

Mr Frederick Gabriel
St Gaspar Hospital
PO Box 12, Igiti
Singida
Tanzania

Introduction
A report is presented of the management of penetrating chest trauma. The patient was a 38-year-old male weighing approximately 60kg. It was a cattle herder and a member of the Barbaig tribe (Mang’atì in Swahili).

History
The patient was brought to St Gaspar’s Hospital from Saranda, a distance of 70km, after being shot in the right side of his chest with a traditional metal-tipped arrow some 30 hours earlier. The shooting occurred when he came upon thieves stealing his cattle. When he tried to recapture the animals, he was shot with the arrow entering his chest between the 5th and 6th ribs posteriorly.

Examination
On examination, the patient was conscious, in pain and coughing up blood. Although he looked pale, his haemoglobin was 16g/dl. His blood pressure was 90/70 and the heart rate was 120bpm. He was resuscitated with intravenous fluids and given analgesics and antibiotics.

Examination of the chest showed the wound to have been loosely packed with blood soaked gauze. When this was removed, the last 2cm of the arrow was seen protruding from it and moving rhythmically with the heart beats.

Examination of the chest provoked further haemorrhage so the wound was repacked.

Blood was taken for haemoglobin estimation and for grouping and cross-matching. A chest X-ray was taken and oxygen administered. The chest X-ray showed the arrow to be in the right chest cavity but the position of its tip could not be clearly seen. The right lung was collapsed. An ultrasound examination of the chest was performed to try to determine the position of the arrow tip but it was unhelpful. An urgent thoracotomy was considered necessary.

It was planned to induce anaesthesia with ketamine, our only intravenous induction agent, to intubate the patient and proceed with intermittent positive pressure ventilation. Two large bore intravenous cannulae had been inserted and 2 litres of Ringer Lactate was transfused rapidly. Three units of fresh blood were cross-matched and oxygen was continued with the patient in an upright position.

Dilemmas
Because the arrow has protruding form the posterior chest, I could not lie the patient supine for intubation.

We feared that the arrow tip might be lodged in the heart and its removal might precipitate catastrophic haemorrhage.

Ideally we would have liked to transfer the patient to a centre with cardio-thoracic surgical treatment facilities, but the patient was continuing to bleed and was unfit for a prolonged transfer.

We considered one-lung anaesthesia but do not routinely practice it at St Gaspar’s hospital. We, therefore, thought it would be unduly time-consuming and unhelpful.

Procedure
Following discussion with the surgeon, the patient was taken to theatre and I proceeded as follows:

The patient was placed 45° head-up and on his side with a small pillow behind his chest.

Following pre-oxygenation, the patient was given atropine 1mg, diazepam 10mg and ketamine 120mg intravenously. The latter doses were chosen because the patient was a heavy drinker of the local brew.

Suxamethonium 100mg was given and the patient ventilated easily with an Ambu bag. The first two attempts at intubation were unsuccessful but the third was successful.

The blood pressure fell to a low of 50/30 but responded to further fluids, ephedrine and a dopamine infusion.

Following muscle relaxation with pancuronium, a thoracotomy was performed. The arrow was found to have passed through the whole of the lung and its tip had come to rest just posterior to the heart. It was removed and a surgical repair performed. Frequent bronchial suction was necessary to clear blood from the endotracheal tube. An underwater drain was inserted and the operation concluded. Estimated in-theatre blood loss was 1.5 litres.
Case History

Following atropine and neostigmine, the patient was able to breathe spontaneously with good air entry to the left and upper part of the right lung. He was extubated and given oxygen via nasal catheters. He remained cardiovascularly stable with the assistance of a dopamine drip and was able to return to the surgical ward one hour after extubation.

The following day (12-18 hours after surgery), the patient was completely awake and able to sit up in bed. The dopamine infusion was discontinued and the chest drain continued to function well.

On day 3, the patient was noted to be pale and his haemoglobin found to be 6.2g/dl. He was transfused a further unit of blood. Analgesics and antibiotics were continued and physiotherapy started. This included encouraging the patient to blow up a balloon. He continued to make good progress over the following days until his discharge. Follow up has not been possible as the Barbaig are nomads.

Conclusion

The Barbaig are a nomadic people who lead a primitive life depending for their survival on herding cattle and hunting. They live in simple huts in the forest in the Singida, Dodoma and Arusha regions of central Tanzania. They believe that all the cows in the world belong to the Barbaig and that cows found in other regions or countries were all stolen from them at some time in the past and that it is their right and responsibility to recapture them by any means. To this end, they are always armed with sticks, arrows and knives. The Barbaig are also very reluctant to act as blood donors believing that blood donation leads to an early death so our patient was transfused less than the ideal amount of blood.

Despite the limited facilities available to us, we did the best we could to ensure the patient’s survival. Trauma, however, remains a major cause of death and disability in Tanzania and all medical personnel need further training in its appropriate management.

I would welcome any comments or suggestions on how this patient could have been better managed. They can be sent to me at the above address.

Book Review

Save Lives, Save Limbs
Hans Husum, Mads Gilbert, Torben Wisborg
ISBN 983-9747-42-8
Price: US $40 (North), US $10 (South)

This soft-cover book is written by three Norwegian doctors, two anaesthesiologists and a surgeon, with many years experience working in conflict zones such as Afghanistan, Burma, Cambodia, Kurdistan and Angola. Their particular interest and expertise is in the management of victims of mine injuries. Drawing on their experience, they have written a unique book that is not only aimed at doctors and professional health-care workers but also aims to empower rural communities, the potential victims of mine injuries, to initiate basic and subsequently, sophisticated treatment of the injured.

The book is in six sections. The first combines information on the different types of mines that may be encountered and the injuries they can cause with a tutorial on basic physiology and the body’s response to injury. The second section is on basic life support: airway, breathing, circulation and has sections on the management of burns and multiple casualties. In the third section, more advanced life support techniques are illustrated including endotracheal intubation, chest drain insertion, limb fasciotomy and damage control laparotomy. The use of tourniquets is condemned as is “ideal” but too extensive amputation. The importance of keeping victims warm and orally rehydrating and feeding them is repeatedly stressed.

Subsequent sections contain a series of fascinating case reports illustrating the management of injured patients by their peers with minimal equipment in difficult circumstances and the concepts of the “chain of survival” and the “Village University.” The authors develop their thesis that primary trauma management should and must be provided by those most at risk of injury. They describe in detail how villagers can be taught basic and subsequently sophisticated life support techniques. The latter are taught using anaesthetised animals that can subsequently be eaten!

Copious practical advice on suitable drugs, fluid replacement, feeding, surgical techniques and improvisation is given and reflects the authors’ own extensive experience. Examples of charts that can be used to record details of injuries and their management are shown and their subsequent use to audit the effectiveness of treatment are given.

The book is comprehensively illustrated with photographs taken in combat zones as well as line drawings and, where appropriate, X-rays. It is well-written and easy to read although the use of English is occasionally a little idiosyncratic: inlet and outlet wounds rather than the more usual entry and exit. I was a little surprised to find no mention of the inter-osseous route of access to the circulation in the section on venous access in children and that a two rather than four compartment method of lower limb fasciotomy was described. I assume this is a reflection of the authors’ practical experience in the field.

I have no reservations about commending this book to all doctors and health-care workers who are involved in teaching or practising resuscitation either in the developed or the developing world. It is well written, well illustrated, reasonably priced and I am sure everyone will learn much from reading it.

William F Casey
Research from the developing world: what are the barriers?

Dr JAL Pittman FRCA
Visiting Associate,
Duke University Medical Centre
North Carolina
USA

The editors of biomedical journals have probably paid little attention to the barriers, real and perceived, that face scientists from the less-developed countries who wish to publish in journals based in Europe and the USA. Research from such countries is conspicuously absent in most journals. I asked the editors of several international journals to comment on this issue and would like to thank them for their opinions and time in responding to my survey. Their comments have been shortened for this article.

Anaesthesiology

“Articles from the developing world make up a small fraction of our submissions (less than 10%)....the reject rate is, however, very high. I make a sincere effort to treat all manuscripts equally, regardless of their country of origin. The problem seems to relate to a lack of understanding on the part of the authors regarding the general standards for papers in our journal..... Many articles are case series and in general we don’t publish case series. I very much like the idea of epidemiology as a focus: it takes manpower but not fancy technology. The unique practice situations in other countries make it possible to do studies there that cannot be done easily in the US. Let the practitioners in the developing world define the basic questions that need addressing and then work with experienced researchers in the west (or east) toward answering those questions.”

M.Todd MD, Editor.

Anaesthesiology and Intensive Care

“This is a consideration for the World Federation of Societies of Anaesthesiologists to which we provide a great deal of support and educational material. ... little is published for the very obvious reason that little or nothing is received.”

J Roberts, Chief Editor

British Medical Journal

“The BMJ is interested to publish as much research as possible from the developing world. The vast majority of sickness and premature death is in the developing world, and in many ways it’s a scandal that more research is not conducted in the developing world. It is another example of the inverse care law. The BMJ in the past has experimented with applying different standards for research from the developing world, but in the end we decided this was a patronising approach. ...Thus we use exactly the same standards for all research .... We would hope to publish more, and to this end we regularly conduct workshops on publishing papers in the developing world.”

R Smith, Editor.

The Lancet

“The Lancet receives in the region of 1 - 2 thousand articles from the developing world each year. The journal has a very strong interest in international health and we try to bridge the divide between often very different research cultures. It is our job as editors to set the reading and thinking agenda.....to steer our content into developing world issues. Our view is that research standards are high and certainly no worse than much of what is received from the so-called developed world. In the developing world, where there are fewer resources, if one does embark on a research project often one does so having thought about it a great deal more. One might even say the standards are higher in the developing world.”

Richard Horton, Editor.

British Journal of Anaesthesia

“The pressures of the clinical workload make it difficult to do detailed research in the developing world. Yet these developing countries often want to do their own research.....often have more enthusiasm and drive......do not want us to do it for them. Nobody can do fruitful research, however, unless educated by experienced researchers in the basics of good research protocol. Funding of doctors from developing countries to gain experience in recognised academic centres in the western world is necessary.....and sufficient facilities and time for them to instigate research in their own countries. Only when clinical researchers have achieved this experience can they hope to produce recognised work that is suitable for publication in peer-reviewed international anaesthetic journals. The challenge for these is immense.”

J Hunter, Editor.

Anaesthesia

“We have published some papers from Africa in the last year or so and I am happy to publish more. The problem is that we do not receive many articles and most are ‘me too’ studies on drugs that have already been thoroughly investigated. What would be most interesting would be epidemiological studies from areas where practice is so different to Western World Practice.”

M Harmer, Editor

Anaesthesia and Analgesia

“We are very anxious to publish research form the developing world for the benefit of all. I think that articles from these countries do have an academic informative value which is why we try very hard to publish there articles including helping authors with their English, if this is not their first language. If the question that is being asked is highly relevant, then we will work very hard to make it publishable.”

D Miller MD, Editor-in-Chief

World Anaesthesia News

“Throughout the developing world the heroic efforts of anaesthetists go largely unnoticed as they have few opportunities to publish their work..... They amass a wealth of experience, which would be of great interest .... Although most countries have Societies of Anaesthesia, many of these Societies do not produce a journal. World Anaesthesia

Feature Extra
Research from the developing world: what are the barriers continued

News, produced by the WFSA, is received by anaesthetists in over 100 countries. The editorial team is willing to offer advice on the preparation of articles in a form suitable for publication. In the current edition there are scientific papers from Cameroon and Mali. Volunteers are required to assist in the editorial work and anyone wishing to help should contact the editor. In particular we would welcome assistance from individuals who can translate French into English."

Dr W Casey, Editor

In summary, it appears that the editors of medical journals have decided to apply the same general editorial standards to all articles that are submitted. Careful study design and the application of appropriate statistical analysis needs to be a priority for academics anywhere in the world. The editors seem generally interested in publishing more from the developing world but currently little is submitted. Language should not be a barrier to publication in any of these journals. The editors appear to prefer that questions and answers come from local anaesthetists rather than be driven by Western academic input. It is however appreciated that research needs resources and these are often more available if western countries are involved. One way of overcoming this is to study epidemiological aspects of anaesthesia. This probably requires fewer resources and was suggested by several editors. Case studies are deemed less appropriate. In general, efforts to advise and guide researchers do remain limited but some are available. Members of World Anaesthesia, and particularly the editorial team of ‘Update in Anaesthesia’, would be delighted to give advice if requested. In addition, the Editorial board of ‘Update in Anaesthesia’ and World Anaesthesia News would welcome your views and comments or any relevant personnel experiences that you have on this subject.

Dealing with patient who is a risk to the physician

Dr T Gallagher,
Consultant Anaesthetist
Royal Surrey Country Hospital,
Surrey
U.K.

The problem posed by the patient who is a risk to the physician is not new. Earlier generations of physicians encountered considerable risk to their health when plague and pestilence were prevalent. A physician in the sixteenth century confronted with the need to care for victims of the plague, confessed, “I, to avoid infamy, did not dare remove myself but with continuous fear preserved myself as best I could”.

For the greater part of the 20th century, occupational risks to physicians’ health were tolerated but in the 1980s the onset of new illnesses, especially those related to the Human Immune Deficiency Virus (HIV) appeared to pose a new threat to physicians. The spread of HIV has triggered widespread debate about how much risk to the physician is acceptable in caring for patients. It is convenient to discuss this issue in relation to patients with HIV but similar considerations apply to patients who threaten the physician’s well being in other ways.

Historically, physicians’ obligations arose from the concept of medicine as a profession. The moral aspects of the relationship between physicians and society were recognised and governed by the Hippocratic School of Ethics. This provided a moral framework for ethical decision making in medicine for almost 2,500 years. Although it described a duty of beneficence and non-maleficence amongst many moral precepts, it now seems inadequate to deal with the complex ethical problems arising from new developments in medicine and in the delivery of health care.

Modern medical ethics are more patient-centred and are based on four prima facie principles of ethics as expressed by Beauchamp and Childress:

- respect for autonomy,
- justice,
- beneficence and
- non-maleficence.

Although these principles may have limitations, they provide some guidance in determining issues arising from the doctor-patient relationship.

The physician owes his patient these basic moral considerations but the relationship must be balanced and both participants need to demonstrate mutual benefit and respect for each other’s autonomy. If the patient threatens the physician’s well being, the latter’s autonomy is compromised and the entire professional relationship may be jeopardised. If the patient makes the delivery of health care dangerous, is the physician obliged to treat him or has the patient forfeited his rights?

To address this question it is useful to review some historical precedents. In 166 AD Galen fled Rome when plague struck the City and in 1665 Sydenham fled London with the outbreak of bubonic plague. However, many physicians in Europe and North America have remained with their patients during various epidemics although their motivation was not always based on moral considerations: sometimes the illness presented an opportunity to improve status and income.

In 1847, the American Medical Association (AMA) stated “when pestilence prevails, it is the physicians’ duty to continue their labours for the alleviation of suffering, even at the jeopardy of their own lives”. With the onset of HIV infections in the 1980s physicians sought guidance on their role in treating these patients. The AMA reaffirmed the duty to treat. Similarly, professional bodies in various countries declared that it would be unethical to refuse treatment to patients infected with HIV.

Thus there appears to be global support for the view that physicians have a
The physician who is a risk to patients

Dr Alan Merry
Green Lane Hospital, and University of Auckland,
Auckland,
New Zealand.

“Primum non nocere,” that one should “First, do no harm” has been a fundamental tenet of medicine since the time of Hippocrates. Given that avoidable harm caused by medical treatment amounts to a health problem of considerable magnitude it is surprising that the overwhelming impetus of research, training, and continuing education in medical practice continues to be directed towards extending the ability of doctors to do good, while far less effort is aimed at reducing or limiting their potential to cause harm. It is easy to ascribe the problems caused by doctors to a minority of high-risk physicians, namely “the ill”, “the bad” and “the incompetent” – but does this approach really bear scrutiny?

The group classically thought to pose a risk to patients: problem doctors

The typical list of problem doctors begins with doctors with infectious diseases. There has been considerable public anxiety over HIV in particular. Ironically, the risk of a doctor’s acquiring HIV from a patient may be reasonably high in some countries, but the risk to patients from doctors with HIV is very low indeed (e.g. 1 per 42,000 to 1 per 420,000 surgical procedures), notwithstanding a small number of high profile cases including a dentist in Florida, an obstetrician/gynaecologist in Britain, and an orthopaedic surgeon in France. In contrast, the risk of transmitting infection by doctors who are HBeAg or HBV DNA positive is much higher (e.g. 1 in 420 to 1 in 4,200 procedures). Numerous other communicable diseases (e.g. rubella, chickenpox, tuberculosis, methicillin resistant staphylococcus aureus) may also be transmitted from doctors to patients, but these receive much less public attention.

A more significant risk to patients arises from doctors impaired by physical illness (e.g. Parkinson’s disease, cerebrovascular accidents, dementia), psychiatric disorders (depression, schizophrenia, temporary stress reactions), the side effects of medications used to treat such conditions, and even the long term cognitive effects of major surgery. Denial is common, particularly if financial security or prestige are at stake. In dementia, the onset may be insidious, insight may be limited and reduced intellectual capacity may only be identified after considerable harm has occurred.

There are numerous categories of “bad” or “incompetent” doctors. Doctors cannot expect to perform as competently in their sixties as they did in their forties, particularly in emergencies. Conversely, high profile cases involving inadequately supervised junior doctors brings the problem of inexperience into focus. Over-treatment may be commercially motivated or simply a response to the severity of a patient’s pain or illness. Sexual impropriety ranges from the injudicious and inappropriate to the criminal. Fraud in research may emanate from highly prestigious units sometimes with far-reaching consequences.

Isolation is clearly a risk factor: it may be geographical, social or cultural. Appointing an immigrant doctor to a remote hospital without a period of appropriate assessment and re-orientation is a formula for disaster.

Fatigue is typically considered a problem of junior doctors but some consultant anaesthetists in New Zealand report working more than 100 hours per week. No doubt this reflects denial, typical of many older doctors, of the evidence supporting the detrimental influence on performance of fatigue, compounded by circadian factors. Fatigue may contribute to failures to attend to the routine - a common cause of disciplinary actions. In anaesthesia, fatigue may affect vigilance during prolonged monitoring as well as performance during crises.

Substance abuse may be a particular problem for anaesthetists who have easy access to opioid and other mood altering drugs. Alcohol abuse is generally the most
common problem and may pose significant risks to patients – notwithstanding the view of an Australian judge who dismissed any contribution of two glasses of red wine, a "tiny amount" of port and a small cognac to a fatal oesophageal intubation.

**The group which actually poses a risk to patients: all doctors**

The iatrogenic harm caused by the categories of doctor described above is important, but is only the tip of the iceberg. In the Harvard Medical Study, adverse events occurred in 3.7% of admissions ("hospitalisations") and 27.6% of these were attributed to negligence. Of the adverse events, 2.6% caused permanently disabling injuries and 13.6% led to death. These results were extrapolated to suggest that 27,179 injuries, including 6895 deaths and 877 cases of permanent disability resulted from negligent medical care in New York State alone in 1984. The results of the "Quality in Australian Health Care Study 2" were essentially similar. It is by no means obvious that a minority of doctors who are in a general sense ‘bad’, ‘ill’ or ‘incompetent’ causes much of this harm. On the contrary, the evidence suggests that, as in any activity, most doctors make mistakes.

**Safeguarding patients from their doctors**

It is unacceptable for patients to be placed at risk by ‘impaired’, ‘infectious’ or ‘dishonest’ doctors – but care is needed in assessing individual cases. Mandatory requirements to report impaired colleagues contrast with the recently well-publicised difficulties faced by whistle-blowers as well as lying uncomfortably with notions of natural justice. It is one thing to suspect a colleague’s (?competitor’s) competence, another to establish it.

Attempts to shift the problem from one of limiting harm to one of informed consent are misguided, but the issues are inter-related. It would be reasonable for a patient to ask about a doctor’s HIV status, provided HIV status was material to the treatment being proposed – but should patients be put into a position in which the HIV status of the doctor creates a material risk in the first place? Conversely, should a doctor be prevented from working if the risk is ‘trivial’? But then, who defines trivial? Legal opinion on informed consent has moved from the Bolam or “reasonable doctor” test towards a test based on what the “reasonable patient” would want to know in the circumstance. In New Zealand and elsewhere, HIV or HepB positive doctors are banned from “exposure-prone procedures” and the Medical Council tells doctors who perform such procedures that they “have a responsibility to know their Hep B, Hep C and HIV status.” However, little if anything is done proactively to promote this responsibility. Hospital credentialing is also often token, at least in New Zealand. However, the assessment of a practitioner’s performance on an on-going basis is far from simple. Statistical approaches to monitoring performance require considerable expertise.

The view taken of the rights and needs in the doctor-patient relationship is often very one sided. Of course the balance of power is unequal, but the traditional view of doctors as indefatigable, selfless, wise, and error-free super-beings simply propagates the systematic failure within medicine to address the needs, rights and fallibility of doctors as people. The challenge for senior doctors is to promote a new role model – one based on reality rather than denial. Personal responsibility on the part of doctors is very important, but should the whole burden of responsibility be placed on the individual?

Appropriate behaviour (including regular testing, limits on hours worked, and frankness about mistakes, ill-health, and communicable diseases) is best engendered in a culture that is acknowledging and supportive. The problem must be seen as ‘ours’, to be managed, rather than ‘theirs’, to be eliminated. Most countries have policies concerning infectious diseases and healthcare workers and a number, notably Canada, have innovative approaches to dealing with competency and impairment. In New Zealand, patients or colleagues can now register concern about competency as an alternative to a formal complaint. A competence programme is constructed for the practitioner and re-review undertaken after its completion.

Reduction of the risk to patients posed by doctors will, in the end, be dependent on better systems. Clinical governance and risk management are concepts that recognise the reality of iatrogenic harm. The challenge is to translate these concepts into effective action and reduced risk to patients. The situation has been expressed by Atul Gawande in the New Yorker: "The real problem isn’t how to stop bad doctors from harming, even killing their patients. It’s how to prevent good doctors from doing so.”

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**ANNOUNCEMENT**

**Dili, East Timor**

**Physician, Paediatrician and Anaesthetist**

**National Hospital**

Applications are invited for the above positions. Candidates should be registered Medical practitioners and possess the relevant post-graduate qualifications. Fluency in English, Portuguese or Bahasa Indonesia is required for this challenging appointment. Experience in developing economies is preferred.

The positions will be for a period of 1-2 years, beginning July 1, 2001 or as near as possible thereafter. They will be subject to review and satisfactory performance after an initial 3-month short-term consultancy. The term may be extended subsequently, subject to funding and clinical need.

The International Committee of the Red Cross manages the Dili Hospital until June 30, 2001. East Timorese medical staff perform on-call duties after hours. International specialists offer emergency back-up on a 1:2 or 1:3 arrangement. Regular working hours are 0830 – 1730hrs. The anaesthetist will be on call 1:2 for surgical and obstetric emergencies only.

Remuneration will be USD2000-4000 per month, with annual return airfare and accommodation included.

Timor Loro Sa’e has a population of 860,000, the majority of which live in remote locations. Thus, the successful candidate will play a leading role in establishing a national system of clinical education and capacity building through the Dili Hospital and the National Centre for Health Education and Training.

A fundamental priority in the Timor Loro Sa’e health strategy is to achieve access for all to an integrated and economically sustainable health service. Thus the successful applicant must be committed to the design and provision of affordable clinical services.

Applications or inquiries are to be directed to timorhealth@hotmail.com as soon as possible. Please provide details of medical education, qualification and recognized further/specialist qualification, current Medical Board membership, medical malpractice indemnity insurance and five professional/peer references.
Forthcoming Meetings:

**2nd All African Anaesthetic Congress**  
**plus pre- and post-Congress satellite meetings**  
International Conference Centre, Durban, South Africa  
23-26th September 2001

Further information from:  
Prof T Rocke  
Email: mailiti@med.und.ac.za  

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**7th Pan Arab Congress of Anaesthesia, Intensive Care, Pain Control, Emergency and Disaster Medicine.**  
Algiers, Algeria  
3-6 November 2001

Contact: Prof Mohamed DRIF  
Service de Reanimation Polyvalent  
CHU Mustapha Alger, Algeria  
Tel/Fax: + 213 2 23 60 89  
Email: drifm@yahoo.fr

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**12th ASEAN Congress of Anaesthesiologists**  
Shangri-La Mactan Island Resort Hotel  
Cebu, Philippines  
13-17 November 2001

Chairman: Dr Ludivino G de Guzman  
Secretary General: Dr Florian R Nuevo  
Philippine Society of Anaesthesiologists  
PO Box 1314  
QCPO, Philippines

Tel: + 63 2 455 8263/8264  
Fax: + 63 2 929 5852  
Email: aca2001@i-manila.com.ph  
psa@i-manila.com.ph

Registration Fee:  
Delegate: Before 15 July 2001 US $ 200  
After 15 July 2001 US $ 225  
Accompanying Person: US $ 150  
Trainee: US $ 150

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**The Second All African Anaesthetic Congress**  
23rd-26th September 2001  
at the  
International Conference Centre, Durban, South Africa

For further information please contact  
Professor Tony Rocke  
Email: mailiti@med.und.ac.za  
Forthcoming Meetings

4th Meeting of the Asian Society of Cardiothoracic Anaesthesia (ASCA)
12-13 November 2001
Shangri-La Mactan Resort Hotel, Cebu, Philippines
Chairman: Dr Theresa C Menor
Secretary: Dr Florian R Nuevo
Suite 102, PMA Building, North Avenue, Diliman, Quezon City, Philippines
Tel: + 63 2 455 8263/64
Fax: + 63 2 929 5852, 63 2 927 7643
Email: aca2001@i-manila.com.ph

3rd Conference of Jordan Society of Anaesthesia
President: Dr Abdel Al Aziz Amre
Secretary General: Dr Ibrahim Khaswneh
Chairman, Scientific Committee: Dr Mohamed Saleh
Chairman, Financial Committee: Dr Abed El Karim Saleh
Contact: Thyrya Husseini
PO Box 925087
Amman 11119, Jordan
Tel: + 962 6 566 4916
Fax: + 962 6 568 3439
Email: lawrence@go.com.jo

Oblatory – Professor Pascal Adnet

Pascal Adnet died suddenly on October 17th 2000 in Cotonou, Benin. He was 43 years old. At the time of his death, he was fulfilling a commitment as a Visiting Professor for the Education Committee of the WFSA.

Pascal Adnet was professor of Anaesthesiology at the University of Lille, France. He had a great passion for Africa and had organised many courses in French-speaking Africa. He travelled widely especially in Vietnam and Africa. In addition to his clinical activities in the Emergency Unit at Lille and his research in the field of malignant hyperthermia, he contributed much to improving the standards of anaesthesia and intensive care in developing countries.

He is survived by his wife, Catherine and their three children, Gabriel, Nicolas and Camille to whom we convey our sincere sympathy.

Philippe Schepereel

International Ventilation Conference
10-12 September 2001
Experts from the UK, USA, Europe, South Africa, India and Taiwan will address all aspects of ventilation, in its broadest sense, from neonates to adulthood.

The organisers would like to invite colleagues working in developing countries to attend at subsidised prices. Suitable, reasonably priced accommodation can be arranged.

For further details contact: Sue Hubbard
Hull Royal Infirmary, Analby Rd, Hull HU3 2JZ
Phone: (+44) 1482 674007
Fax: (+44) 1482 586587
Email: suehermec@hotmail.com
Website: www.christurner.co.uk/ventilation

2001 Annual CLASA Meeting
3-6 October 2001
Radisson Plaza Hotel, El Salvador, San Salvador
Further information from the Secretary of CLASA:
Prof Dr Alfredo Portelia, Sociedad Brasileira de Anestesiologia
Rua Professor Alfredo Gomez
36 Botafogo CEP 22251-080, Rio de Janeiro, Brasil
Tel: +55 21 537 8100
Fax: +55 21 537 8188
Email: sba2000@openlink.co.br
A letter from Chipata, Zambia

S K Chiromo
Principal Clinical Anaesthetic Officer
Chipata General Hospital
PO Box 10119
Zambia

Chipata General Hospital is situated in rural Zambia, some 580 kilometres east of Lusaka the capital city. The town is close to the border with Malawi and has a population of about 300,000. The hospital is a referral centre and receives patients from Chama and Lundazi about 300 and 170 kilometres away to the north on a rough gravel road. To the south, Chadiza is about 70 kilometres also on a rough gravel road while Kamoto about 100 kilometres to the west.

These bad roads mean that patients who are referred to Chipata General Hospital have to travel for many hours to reach us. I believe that most if not all general hospitals in Zambia are in a similar situation with the exception of those along the railway.

At present, Chipata General Hospital has competent surgeons and experienced anaesthetists who are able to perform major surgical procedures. However, the present anaesthetic equipment (Boyle's type) cannot function without oxygen, which comes in cylinders. I was privileged to work at St Francis Hospital in Katete last year where Oxford Miniature Vaporisers (OMVs) are in use in combination with an oxygen concentrator. I discovered that the cost of anaesthesia was much lower than when using a Boyle's machine with oxygen from cylinders. Furthermore, I did not observe operations cancelled or postponed due to lack of oxygen. It is for this reason that I am fighting to introduce the draw over system at Chipata General Hospital. Once I have succeeded, Chipata General Hospital could be an example for other hospitals in rural Zambia.

The apparent prestige of using sophisticated Boyle's machines in certain not for us in developing countries. We need to face the reality of our situation if we are to survive in our current economic climate and use appropriate technology. An OMV vaporizer costs approximately US $1200 from ECHO and with the necessary bellows, tubing and paediatric attachments, the total cost is approximately $3-4,000 per theatre. This is a lot of money for us to find but a small cost to enable us to practice safe and efficient anaesthesia in the 21st century.

I, my colleagues and our patients here in Chipata would be extremely grateful for any financial assistance that the readers of World Anaesthesia might be able to offer us in acquiring new or used draw-over anaesthetic equipment.

Volunteer Opportunities with Health Volunteers Overseas

Health Volunteers Overseas is a private, non-profit, non-sectarian organization dedicated to improving the availability and quality of health care in developing countries through teaching and training programs. Established in 1986, HVO currently operates 45 training programs in 25 developing countries, placing volunteer health care professionals specializing in anesthesia, dentistry, internal medicine, nursing, oral and maxillofacial surgery, orthopaedics, pediatrics and physical therapy.

The opportunities for volunteer anesthesiologists are located in India, Peru, St. Lucia, Tanzania and Vietnam. Programs vary according to the needs of the countries in which they are located, and are run in collaboration with local universities, clinics and hospitals. Volunteers are responsible for their travel and living expenses, although the expenses incurred at the site tend to be quite modest. The anesthesia programs require volunteers to commit to between one and four weeks of their time, depending on the program. There are opportunities for longer placements if a volunteer has the time available.

Volunteers to HVO programs must be fully-trained professionals with valid licenses. They must have completed their training in the US, Australia, Canada, Ireland or the UK and speak English as a first language.

Volunteering overseas is more than a teaching experience or a travel adventure. Volunteering in a training environment allows for an intensive exchange of skills and knowledge that could not take place in the physician's usual environment. It is an opportunity to broaden one's awareness of global health issues, as well as learn from innovative solutions devised by doctors working in lower-tech environments. A volunteer assignment with HVO also develops teaching talents and promotes exposure to different cultures and customs. HVO volunteers experience different cultures in a way tourists cannot.

If you are interested in sharing your skills and knowledge with colleagues in developing countries, consider volunteering with Health Volunteers Overseas. For more information about HVO, visit the web site at www.hvousa.org or call the office at +1 (202) 296-0928.
The Division of Anesthesia at St. Jude Children's Research Hospital is accepting applications for a Pediatric Anesthesia Fellowship position. St. Jude Children’s Research Hospital, located in Memphis, Tennessee, USA is one of the world’s premier research centers for research and treatment of catastrophic diseases in children, primarily pediatric cancers.

Eligible candidates will have completed an anesthesia residency program. Foreign graduate candidates will have passed the USMLE Part 1 and Part II and be able to communicate in English.

The successful applicant will be trained in all areas of pediatric anesthesia care and pain management. The fellowship program will be tailored to the needs of the candidate, but will include clinical training in the care of children with a variety of childhood malignancies as well as experience in clinical and basic science research.

The Fellowship will be for one year with an option to gain additional laboratory or clinical research experience during a second year. The Fellowship year will be divided half-time at St. Jude Children’s Research Hospital, an institution with a pediatric cancer surgical load of 5,000 cases per year and half-time at LeBonheur Children’s Medical Center where 10,000 cases per year are performed and where all pediatric surgical specialties are represented. Qualified candidates should send a completed application for application materials, please visit our website (www.stjude.org) see Research and Science: Education and Training, a curriculum vitae, a brief description of research interests and three letters of reference to:

Alberto J. de Armendi, MD, AM
Chief of Anesthesia
St. Jude Children’s Research Hospital
332 North Lauderdale
Memphis, TN 38105-2794
USA
Tel: 901-495-4032

Aims and Objectives

- World Anaesthesia is a world-wide society whose aims include:
- Support for colleagues in developing countries, by the development of appropriate training, materials, and equipment, and when requested, by speaking on their behalf to governments, non-governmental organisations, pharmaceutical companies, equipment manufacturers and others.
- Liaison with the many other agencies whose activities may impinge on anaesthesia & resuscitation
- Provision of a network of appropriately trained and experienced people able to assist on request.

The Executive is elected by members present at the Annual General Meeting.

- Chairman – elected for 3 years, re-electable for one further term
- Honorary Secretary elected for 3 years, re-electable for one further term
- Treasurer elected for 3 years, re-electable for one further term
- The executive will work for the Society through the Organising Committee. The Executive will appoint members to the organising committee. The membership of the committee is listed below but other members may be co-opted at the discretion of the Chairman.

The Organising Committee is composed of the following members (some of whom perform 2 or more tasks):

- Meetings co-ordinator – organiser of regular World Anaesthesia meetings
- Publications member – edits Newsletter and sits on editorial board of Update
- Liaison member – liases with Specialist Societies
- Publicity member – responsible for organising publicity at major meetings
- Linkman member – responsible for maintaining links between members in different countries and organising a database of information about different locations
- WFSA linkman – liases with the WFSA
- Association linkman – liases with AAGBI
- Adviser for those planning to work overseas

Membership of World Anaesthesia is open to anyone involved with the provision of anaesthesia. An annual subscription is set at the AGM but members in developing countries are exempt from payment.

The activities of World Anaesthesia are mainly educational and include:
- Annual meeting in UK
- Overseas meetings with other Societies
- Preparation and distribution of educational materials
- Preparation and publication of Newsletter
- Advice for those planning to work in another country

“to make available the highest standards of anaesthesia and resuscitation to all peoples in the world”.

St. Jude Children’s Research Hospital
Fellowship Opportunity
Pediatric Anaesthesia

The Constitution of World Anaesthesia

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Why not join World Anaesthesia today for the modest fee of £20 (or equivalent) if you work in a first world country? Membership is free to those working in developing countries. Just complete the form below and forward it to the Secretary with your cheque.

Name: ........................................................................................................................................................................................................

Address: ........................................................................................................................................................................................................
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Institution: ...........................................................................................................................................................................................................

Telephone: Work: ........................................................................................................................................................................................................

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Fax: ........................................................................................................................................................................................................

E-mail address: ........................................................................................................................................................................................................

Job Title: ........................................................................................................................................................................................................

Speciality: ........................................................................................................................................................................................................

Grade: ........................................................................................................................................................................................................

Age: ........................................................................................................................................................................................................

Male □ Female □

Experience overseas:

Please list the countries where you have worked (other than your home country). Please add: the places in those countries, the dates and the type of work you were engaged in. (e.g. Disaster Relief, Support for refugees, Area of War/Conflict, Longer term medical missionary or secular relief agency work). Continue on a separate sheet if necessary:

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World Anaesthesia Database continued

**Particular interests:**
(e.g. subspecialities of anaesthesia/care of the critically ill, education, distance learning, appropriate research writing, disaster relief, conflict situations, medical missionary, long term secular:

Languages spoken: ....................................................................................................................................................................................................................

**Availability:**
Are you happy to answer enquiries relevant to your experience/expertise?  □ Yes  □ No
Are you able to write for WA publications?  □ Yes  □ No
Are you available for working visits abroad?  □ < 1 month  □ 1 to 6 months
How much notice do you require?  □ 2 weeks  □ 2 months  □ 6 months  □ > 6

Any comments: .................................................................................................................................................................................................

Please complete this form as accurately as possible and return to:
Dr. C. Collins, Secretary, World Anaesthesia
Dept. Anaesthesia, Royal Devon and Exeter Hospital (Wonford), Barrack Road, Exeter, Devon EX2 5DW
United Kingdom  Tel: (+44) 01392 411611