

World Anaesthesia

news



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Welcome

to World Anaesthesia News

I have always been told never to start with an apology but, in this case, I feel I should apologise for the late appearance of this issue of World Anaesthesia News. Articles were slow to arrive but, I think, the wait has been worthwhile.

It is always invidious to single out article for special mention but, I feel, two deserve to be drawn to your attention: on eis that by James DeCourcy in which he describes his and his colleagues experiences in running the first Primary Trauma Care course in Gaza, surely one of the most deprived areas on the planet in the midst of a sea of plenty. If you have the time, check the references for objective comments on the situation in Gaza.

The second is that by Paul Fenton, the emeritus professor of Anaesthesia in Blantyre, Malawi in which, in characteristic forthright terms, he writes about maternal mortality in Africa and describes his developing anaesthetic machine for use in emerging countries where servicing and spare parts are rarely available. Serendipitously, there is also a profile of Prof. Fenton in this issue: you will see that, among his many other achievements, he has a background in engineering.

The other profile, in this issue, is that of Dr Mike Dobson from Oxford who, over many years, has made a tremendous contribution to anaesthetic services in the developing world. If you would be interested in joining him on one of his courses in Oxford/Kampala, you can contact him at michael.dobson@nda.ox.ac.uk.

This will probably be the last issue of World Anaesthesia News that I edit. As I get older and greyer, I think it is time that I past on the baton. My successor will be Dr Mike Size from Exeter who previously worked in Malawi (everyone who is anyone seems to have worked there). I wish him well and I hope you will support him with articles about your activities.

Many thanks for your support over the years.

Bill Casey

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Report on Primary Trauma Care (PTC) Courses at the Directorate General of Human Resources Development Department/MOH Gaza (14th – 18th November 2009)

James de Courcy
PTC Course Director
December 2009

Introduction

This is a brief report on the recent two PTC courses and instructor course held in the HRDD/MOH, Gaza, in conjunction with Medical Aid for Palestinians.

Background

I quote, with his permission, from the report written on his visit by Dr Andy Ferguson, who accompanied the PTC team:

The Gaza Strip (GS) consists of five provinces with a population of approximately 1.4 million, of whom some 70% are refugees. The population is concentrated in seven towns, 10 villages and eight camps, with a total area of only 360 sq. km.

Much of the economic deterioration in recent years is due to the military siege and resulting isolation of the population. Since the start of the second Intifada in 2000, the per capita income has sharply and consistently declined and the unemployment rate has climbed to 48%. This has resulted in a substantial increase in the number of families falling below the poverty line, reflected by the fact that 80% of the population now receive food assistance, either from UNRWA (the UN agency providing services for registered Palestinian refugees) or the World Food Programme (WFP).

Health care in GS is delivered by four main providers: the government (complicated since 2007 by the schism between the Palestinian Ministry of Health (MoH), created in 1994 following the establishment of the Palestinian National Authority, and the Hamas led “de-facto” health authority in Gaza); UNRWA; NGOs (local and international); and the private sector.

In spite of significant financial and operational constraints the Palestinian health sector has shown great resilience over the years, particularly in continuing to provide reasonably comprehensive primary health care services. Unfortunately the improvement in health services largely ended with the second Intifada, following which donor and provider attention shifted from development to crisis management. This situation has been compounded by the increase in violence in early 2009 yet the increase in traumatic injuries and damage to the infrastructure should not divert attention from the need for continuing development and the care of those with chronic illness and non-traumatic physical disabilities.

Primary health care centres are staffed by a variable mix of doctors, nurses, female health workers, pharmacists, dentists and laboratory technicians (numbers varying according to size and catchment population). The government of Gaza is the major provider of secondary health care, and the bed occupancy in the eight

government hospitals in GS is much higher than in the alternative NGO facilities.

Many health professionals are trained outside the region, courtesy of educational scholarships, with a subsequent need for uniform recruitment and licensing criteria. A brain drain and high attrition rate contribute to a general lack of appropriately qualified clinical staff.



The current situation in Gaza and the Occupied Territories will not be explored in detail here: it is well described in other publications, including the report by the UN Special Rapporteur Richard Falk, reports by Amnesty International and a recent report on the current situation published by Oxfam and other organisations in December 2009. Since the Israeli incursions and attack in December 2008/January 2009, there has been a continuing blockade which has further exacerbated the situation. Indeed prior to this, the situation had already been very challenging, as a result of the blockade since 2007, the closure of the border with Egypt and the preceding factional conflict within Gaza.



The conflict, over 22 days in December 2008 and January 2009, resulted in huge numbers of casualties and destruction of infrastructure, further outlined in various publications. In the initial air strikes on 27 December 2008, approximately 600 people were killed and 2000 people were injured. By the 29th January 2009, there were 1308 dead and 5335 wounded. Casualties included four hundred and eleven children under the age of 18 and one hundred and six women. Sixteen health officials died on duty, these were mostly ambulance drivers or health care professionals going to

or from work. Thirty-three primary health care centres were damaged of which two were completely destroyed. Nine hospitals were damaged, of which the AlQuds hospital was the most severely affected. Investigations have found that the overwhelming majority of the fatalities were not involved in the fighting.

Various unusual munitions such as white phosphorus and DIME bombs added to the trauma to which the population was exposed.

Current situation

The population density in Gaza is some 4,200 people per square kilometre. The refugee camps have one of the highest population densities in the world. For example, over 82,000 refugees live in al-Shati (Beach) camp, which is less than one square kilometre in size

There has been a recent report from 12 aid organisations which outlines the current issues and situation in detail.

The Israeli Human Rights organisation Btselem comments that: "As a result of the siege, the stocks of imported food products in Gaza are dwindling, driving their prices sky-high, while fruit and vegetables that were intended for export are being sold in Gazan markets at a loss. Many families cannot afford to buy them, however, due to the high poverty rate in Gaza. 80 percent of Gazan households now live below the poverty line, subsisting on less than 2,300 shekels a month for a family of six. Households in deep poverty, living on less than 1,837 shekels a month, currently comprise 66.7 percent of the population. 80 percent of all Gazan families would literally starve without food aid from international agencies." (100 Israeli shekels = US\$ 27= GB£ 16)

Healthcare

There are about 2000 hospital beds in Gaza: 1500 in 13 MoH hospitals and 500 in 14 private hospitals .

The Health sector in Gaza is still severely affected by the aftermath of the war and the continuing blockade, as outlined in WHO assessments and other reports – notably the recently published multi-agency one .

There are also problems with selectivity of exit permits from Gaza for more complex medical treatment – currently estimates are that between 51% (ref 6) and 70% of those applying to travel are allowed to leave Gaza for complex treatment and many face long delays while their applications are processed .

Drugs and equipment

Before the 27th of December 2008, there was a severe shortage of medical drugs. One hundred and five drugs out of a list of one hundred and eighty essential drugs were unavailable (105/180; over 50% shortage). Of consumables, 250 out of a list of approximately 1000 were out of stock (25%); additionally, there is a list of 70 essential laboratory materials currently unavailable in Gaza.

A review performed this year by Dr José Felix Hoyo for MDM-Spain showed results similar to those described to the PTC team by the local Gazan medical staff: that provisions for the reception of casualties at the major hospitals is limited, with insufficient space (exacerbated by the fact that patients come in accompanied by large numbers of family members). Although some protocols for care and triage, etc do exist these are normally not adhered to and have not been updated. The local staff felt that

changing this was a priority. There was apparently no specific general disaster plan. Patient documentation was felt to be limited and inadequate.

Medical staff in the Emergency Department rotate from other departments and there are very few staff with a specialist knowledge of trauma management, thus implying a need for trauma training to extend to cover all those who rotate through the Emergency Departments. There are very few permanent medical staff; we were informed that most senior medical staff are primarily involved in administration. Space for waiting and triage was very limited.

THE PTC COURSE

Organisers and pre-course liaison

Sir Terence English and Professor John Beavis made a preliminary visit at the end of August 2009, organised in conjunction with Medical Aid for Palestinians (MAP) during which they met with representatives from the various hospitals, and performed invaluable preparatory ground-work for the main course. Their report on this visit is included as Appendix 1 to this report.

Following this a PTC team was formed, consisting of Sir Terence and Prof. Beavis, with Dr James de Courcy, designated as Course Director, and Miss Sheena Tranter, Dr Jeanne Frossard and Mr Graeme Groom as instructors. Dr Andy Ferguson accompanied the group on behalf of IDEALS and in addition Graeme, for IDEALS, was keen to investigate potential links for limb reconstructive surgery.

PTC Instructors

- Dr James de Courcy, Consultant Anaesthetist, Cheltenham, UK (Course director)
- Dr Jeanne Frossard, Consultant Anaesthetist, UCLH, London
- Miss Sheena Tranter, Consultant GI surgeon, Bristol Royal Infirmary
- Mr Graeme Groom, Consultant Orthopaedic Surgeon, Kings College Hospital
- Professor John Beavis, Consultant Orthopaedic and Trauma surgeon
- Sir Terence English, Patron of PTC Foundation

After the establishment of the PTC faculty, there was extensive liaison between the team with Fikr Shaltoot and Kathy Al'Jubeh, MAP staff members in Gaza and Ramallah respectively, and entrance permits for the Gaza Strip were successfully sought by MAP from the Israeli Defence Forces. The PTC course slides and Instructor slides, as well as the course manual and instructor manual, were translated into Arabic by Dr Malek Qutteina prior to the course, the plan being that these will be used in future courses taught in Arabic by the Gaza faculty.

The Course

John Beavis, together with his IDEALS colleague Andy Ferguson, travelled out to Gaza several days in advance of the main group thus enabling him to check and confirm the available facilities and arrangements. This was valuable. Andy accompanied the team although he was also involved in various work and meetings regarding Public Health projects for IDEALS and MAP and was not directly involved in teaching on the course.



The remaining faculty team arrived a day before the course was due to start to allow them to meet together and with the local MAP co-ordinator, Fikr Shaltoot, and to see the location where the course would be taught and to set up and prepare for it. This was in the Directorate General of Human Resources Department /MOH.

Fikr had, in conjunction with Mr Sami Jabr, the Director of Health Research in the HRDD and former supervisor at the IC units in the MOH sourced an excellent range of equipment for the course and had arranged for the use of an excellent training hall at HRDD premises, MOH. This was of ample size not only for the lectures, but had space for skill stations, scenarios or discussion groups during the course.

A good range of equipment was made available, and for each of the two courses a goat was freshly slaughtered, ensuring preservation of the larynx and the intact skinned



thorax and forelimbs were used for teaching chest drain insertion, pericardiocentesis (and to an extent intraosseous venous access). The larynx was separated and used for surgical airway teaching (by demonstration). It became evident that with forward planning for future courses and liaison with abattoirs it would be likely that considerably larger numbers of larynxes could be available which would considerably improve hands on training for the surgical airway (Halal slaughtering, unless modified in anatomical location, normally renders the larynx unsuitable for airway teaching).

Accommodation for the visiting Faculty was provided in a Hotel quite close to the HRDD premises.

Course Programme and Notes

The first course was designed principally for more senior Surgical,

Emergency and Anaesthetic medical staff and attracted 22 participants. The second course had 24 participants including a number of senior nurses with an impressive array of post-graduate qualifications. Some unforeseen issues were revealed during the first course including the need for the timing of breaks to be adjusted to take account of the prayer times at 1130 and 1430 when many of the participants needed to leave the course to pray. For this reason the timings were adjusted for the rest of the first course and the second course, and are given on the next page.

As will be discussed below, the participants felt that there might beneficially be alteration of day 1 workshops to incorporate triage scenarios, etc. Blast injuries and course discussion were substituted for paediatrics.

The first day on each course started a little later than planned due to delays in all the participants arriving, but it proved possible on each day to catch up by the end of the morning. The second course was also videoed to provide a lasting resource for the Gaza faculty.

Instructor Course Participants

Introductory theory talks were given by the faculty as listed. Overall, the timings for the morning session worked well. The candidates had been informed both at the end of day 2 of the first two courses, and at the beginning of the instructor day, about their potential micro-teaching assignments for the afternoon. This allowed them time to think about and plan these.

Following these sessions a discussion about the future of PTC in Gaza

ensued, particularly the potential locations of courses – although the eventual aim will be to have PTC training delivered throughout the Strip, the distances involved are such that it was felt it would initially be best to consolidate the teaching at a central location, probably at the MoH HRDD.

The participants felt that it will be best to have a small executive steering committee with representation from the various areas and interested organisations. Dr Nasser, the Director General of HRDD and senior Laparoscopic surgeon in the MOH, was felt by all to be an ideal person to chair this group and he has kindly agreed to do this.

POST-COURSE FEEDBACK AND EVALUATION

Thoughts from discussions

Duration – It was generally felt that in Gaza, courses of three days would be better, and the candidates thought that this would be manageable in the local medical environment. Several even thought that five days would be appropriate.

Documentation was a recurring issue about which the participants felt very strongly: major incident forms, proformas for ambulance staff, prehospital protocols and guidelines, head injury proformas will be developed.

The workshops were generally enjoyed, and we had discussions about the best use of these. It was felt that this session would be a good opportunity to introduce triage and major incident scenarios, which the participants felt were very much needed.

TIME		TOPIC	INSTRUCTOR
DAY 1			
8.30	15'	Welcome and Introduction	James
8.45	30'	PTC overview	James
9.15	30'	Local trauma perspective and MCQ	MAP/John/Terence
9.45	30'	ABCDE of Trauma and Primary survey	James
10.15	10'	BREAK	
10.25	45'	Airway and Breathing	Jeanne
11.10	45'	Circulation and Shock	Sheena
11.55	15'	Prayers	
12.10	30'	Chest Injuries	Graeme
12.40	40'	LUNCH BREAK	
13.20		Skill stations	
	(40')	<i>Basic / Advanced Airway</i>	James/Jeanne
	(20')	<i>Cervical spine / Logroll</i>	John/Graeme
	(20')	<i>Chest drains</i>	Sheena/Terence
14.40	15'	BREAK and PRAYERS	
14.55	15'	Demonstration Scenario	all
15.10	45'	Scenario Practice (in groups)	all
15.55	40'	Abdominal and Limb injuries	John
16.35	5'	Overview and summary	James
DAY 2			
8.30	30'	Head and Spinal injuries	Graeme
9.00	30'	Trauma in Children and Pregnancy	James
9.30	30'	Burns	James/John
10.00	15'	BREAK	
10.15	80'	Workshops <i>Analgesia</i>	Jeanne
		<i>Transportation</i>	Sheena
		<i>Blast Injuries and course discussion</i>	James
		<i>Neurological assessment</i>	John/Graeme
11.35	15'	PRAYERS	
11.40	30'	Secondary survey (demonstration/discussion)	John/Sheena/all
12.10	40'	LUNCH BREAK	
12.50	30'	Disaster management	John/MAP/all
13.20	80'	Scenarios (in groups)	all
14.30	15'	BREAK and PRAYERS	
14.45	15'	Multiple choice paper review	all
15.00	40'	Summary, Feedback and Evaluation	all
15.40	15'	Certificates and close	all

Instructor Day – 3rd October 2008

0830	5 minutes	Introduction	James
0835	15 minutes	How adults learn	James
0850	15 minutes	Asking questions	Sheena
0905	25 minutes	Feedback	Sheena
0930	40 minutes	<i>How to give presentations</i> <i>General introduction</i> <i>Lecture</i>	James
1010	15 minutes	BREAK	
1025	60 minutes	Discussion group <i>Teaching a skill</i> <i>Scenario</i>	
1525	15 minutes	Language issues	Jeanne
1125	15 minutes	PRAYERS	
1140	40+40 minutes	Workshops 1 (see sheet)	
1300	50 minutes	LUNCH BREAK	
1350	40+40 minutes	Workshops 2 (see sheet)	
1510	15 minutes	BREAK and PRAYERS	
1540	60 minutes	Running PTC Courses and discussion about future courses Where to go from here (Discussion group)	
1640		Evaluation and Feedback, finish	



Evaluation of the course was done at brainstorming sessions involving the participants and faculty at the end of both courses. The results of these were all encouraging with positive comments on the structure, delivery and content of the course and instructor day.

Collated feedback from post course brainstorming

Good

- Enthusiasm for the course
- PTC System
- Adaptable to pre- and intra-hospital settings
- Adaptable to limited resources/equipment
- Good interaction between trainers and doctors
- Commitment from the team to those in Gaza
- Variety of lectures
- Different teaching styles
- Clear teaching on concepts
- New skills and knowledge learnt
- More equipped for quick decisions in stressful trauma situations
- Friendly atmosphere
- Scenarios
- Workshops
- Well planned and organised
- Organisation (room etc) and facilities
- Good teamwork and multidisciplinary course
- Triage (? work towards disaster plan)
- Thorough
- Timing
- Layout/equipment

Room for improvement

- More scenario time
- Separate post-course MCQ paper
- More than two days – suggestions varied from three to five
- Potential for PTC uniform (T shirts?)
- Incorporate medical emergencies, drowning, more on war injuries
- Use a live goat(!). More larynxes
- Language, speed and clarity
- Timings to take into account prayer breaks (first course – sorted for day 2 and second course)
- More workshops
- Filmed skill stations on the web or otherwise available
- More anaesthetists on the course



Impact on the future and potential for PTC to influence, e.g., availability of Interosseous needles, head injury protocols, workbooks on injury types, weapons, etc. Development of transfer protocols. Education of public, paramedic training. Development of training centre in the HRDD /MOH to maintain education.

Following the Instructor Day a ceremony was held at the Orient House Hotel for presentation of course certificates, as well as trauma packs that had been made up for the participants and donated by MAP. In addition each participant was given a CD containing all the relevant course materials including the Arabic translations of the slides and manual.

Further developments

Dr Nasser has very kindly agreed to chair the PTC Committee and to aid and advise with the setting up of courses. In addition John Beavis is due to return to Gaza early in 2010 with Dr Jeanne Frossard to conduct a "Practice Course" during which the new instructors will run the course for their instructor colleagues, as a dry run, also incorporating some further new participants, with coaching and guidance from John and Jeanne. A further return trip is planned for February 2010 by Prof Beavis with Drs Debbie Harris, Ruth Spencer and Eamon McCoy to help the Gaza Faculty to run courses. With the February course, a small symposium on Anaesthesia and Pain will be undertaken in order to, hopefully, attract more anasthetists to the PTC training. It is hoped that a similar programme can be set up in the West Bank – with the current isolation of Gaza it would sadly seem

most unlikely that cross-fertilisation by Gaza instructors would be possible and so a similar “plant” to the one in Gaza would be necessary.

Acknowledgements

I would like to take the opportunity to thank my fellow instructors for forming such a good team, to MAP and in particular Fikr Shaloot, Kathy Al’Jubeh, Hanan Khalaf and Nawraz Abu Libdeh; and also to Sami Jabr and Raohea Solyman for their hard work in supporting the course and to the participant group for their interest and great enthusiasm. I would also like to thank Dr Malek Qutteina for his hard work in translating the course materials into Arabic.

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Maternal deaths and anaesthesia technology in the 21st Century

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Malawi, Africa 1986-2001

Here is an interesting bit of market research: in 2008, two thirds of the world's population bought just 4% by value of the global output of anaesthesia machines. The balance 96% of mainstream production cannot even be used in most of the places where those 4.5 billion people live.

Compressed oxygen from fractional distillation of liquid air, pressurized pipeline systems needing regulators, cylinders, transport, and now computerized gas flow, have become so inseparable from hospital construction and equipment manufacture, at such vast cost and regulatory complexity, that 'Western' anaesthesia is now placed well out of reach of poor countries. Elaborate safeguards are mandatory to counter the inherent dangers – not of anaesthesia so much, but of the systems themselves. Mishaps involving pressurized gas and oxygen systems are surprisingly common. The more complex is any system, the more safeguards and regulations that are needed. But big companies favour complex regulation, even if it

is ineffective: small companies cannot afford to comply with it and go to the wall.

So it is with anaesthesia; except that for 'go to the wall' read 'human death', not corporate collapse.

GE (with 43% of global market share) and Drager (35%) dominate this half-billion dollar market which has an annual growth of 4-5%. Over several decades they have ensured that only their types of machine comply with the International Standards Organisation (ISO) safety regulations; machines that are unusable by half the planet because the support infrastructure is lacking. For this half of humanity there is currently no standard machine specified or available.

Is there no machine with a simple bag to inflate the lungs using a volatile agent and oxygen? It should be such an easy thing, but there is not. 'There is no market' they will tell you. Is that not a challenge for a simple minded gasman? But researchers in this field have long gone: I was once told by an expert that everything was electronic these days and my devices would be better used for inflating air beds.

Meanwhile, far removed from the strictures of market forces, the politicians and health

developers have agreed that reduction of maternal mortality is important and have created Millennium Development Goal 5 (MDG#5). In 1995 the target was unrealistic. Today it's just silly. Of all the MDGs, #5 will fail the most spectacularly in 2015, in the very places it was supposed to make a difference. Rather tongue-in-cheek reports say, in South Asia it might be met in 2076¹, in Zimbabwe by 3033², in the rest of sub Saharan Africa: never. India has 22% of all maternal deaths worldwide, while Africa has the most crippling burden of complicated labour, much of which needs surgical intervention.

But somehow anaesthesia and surgery got left out of the debate³ about what to do. For over three decades a mindset has existed that technical advances in medical science are treatments for western populations while the same problems in poor countries need a preventive, public health solution.

Gasping on the floor, having fallen between these two widely separated, unsupportive stools we find World Anaesthesia.

Why was MDG#5 so unrealistic?

30 years ago it was still the Space Age. People believed

that improved health, like technology, would just flow around the world, as have computers and mobile phones. It did happen in many places but few people – only science fiction writers - anticipated the extremes of wealth and poverty that we have come to accept today.

By the late 80s, two changes were clear: an economic free-for-all was in full swing and health had become monetised. Meanwhile the job of improving health in poor countries, mainly Africa, had become a professional management career whereas before it had been the realm of clinicians, amateurs and missionaries. People making hard-nosed decisions based on a mythical ‘cost recovery’ (i.e. an economic return on improved health) said they would get it done, replacing ideology and scientific interest. Statistics with little validity assumed biblical importance. Clinical medicine was subordinated to Accountancy. I remember, even in 1977, the mystified faces of those interviewing me for a job as a General Duties Medical Officer in the New Hebrides, now Vanuatu, at my proposed medical career in the tropics. “Is he mad?” they were thinking.

The MDG#5 target of reducing 1990 Maternal Mortality Rates (MMRs) by 75% by 2015 puzzled health

workers in the field, who knew the obstacles involved. They noted the strategies for the success of MDG #5 differed little from those proposed in 1978 (HFA 2000), 1987 (the SMI), 2002 (G8 Kananaskis) or 2008 (Countdown to maternal survival). There has been no result.

I know there is still nothing happening; a recent WHO-sponsored study of deliveries in Africa, involving 7 pages of individuals reporting data, set out to show that caesarean delivery was a bad thing, corrupting the health service and harmful to mothers. It reached no conclusions on maternal outcome, did not count how many births or caesarean sections (c/s) took place, how many mothers died, why or where. The authors were so removed from African reality they had missed the point that the areas they examined did not have a health service to corrupt.

It is in this way that MDG#5 has become a box-ticking leper with no new ideas, no cure in sight.

What are the soluble problems?

Sri Lanka reduced its MMR from 555/100,000 to 30 in 20 years. Cote d'Ivoire with the same GDP remains stuck on 830⁴. Three things made it happen: reliable audit, midwives (+ a functional referral system for

complications) and hospital based training and equipment. An effective anaesthesia service scores 2½ out of these three.

The most recent call is for ‘task shifting’, that is the transfer of emergency care away from doctors to paramedics, making services more available. Good, but not new. It has been practised all over the world for decades. Without all the emphasis on a preventive solution it would have been the world standard by now, but it needs technology, as well as people to shift tasks to.

Technical solutions are deemed expensive, mysterious, elitist, not maintained and prone to break down; a consumer product, sold for profit, unsustainable, without cost recovery, someone has to buy it, then it gets abused or stolen by the private sector. The decision makers don't trust or understand it. 10 years ago, the British Government gave £100,000 to buy anaesthesia machines. The money was wasted.

But the original problems persist: poor people want operations; a service solution is still needed, multiplied by three to treat another failure of prevention: population growth. Maybe cheap technology that does not break down or get stolen can be developed and can spread as widely as the mobile phone.

That technology seems to have no problem.

The rate of caesarean section (c/s) in sub-Saharan Africa is about 1-1.5% of deliveries. Every day, countless thousands of labouring mothers obstruct or suffer haemorrhage, die or sustain injury because nothing is done. The ideal rate of c/s has regional differences but is around 5-10% in an adequately supervised, not-for-profit labour. This 'medicalisation' of the natural process of childbirth is anathema to many (it exercises the usual commentators more than does the lack of a health service) but c/s is life-saving for those mothers who need it, especially in Africa: in Malawi it has been shown that not performing the operation, even at the current rate of only 1.2%, would quadruple the MMR3.

One c/s can cost as little as US\$30 of which the anaesthesia comprises US\$5. With the right methods and technology, intervention in childbirth can be cheap.

Methods of giving anaesthesia

In the West, general anaesthesia for c/s has given way to spinal anaesthesia. But in poor countries, especially in Africa, because of the frequency of pre-operative complications, resuscitation followed by general anaesthesia remains an important choice to optimise

outcome in high risk cases. 5

In one recent study⁶ almost 10% of mothers were in a shocked state coming to the OR after prolonged labour. Mortality in this group was 8.2% compared to 1% overall. Spinal anaesthesia would be deemed unsuitable for such cases in the West and so it is in the South.

'Let them eat Ketamine'

Many hospitals lack adequate manpower and equipment even to give a spinal and use only a 'ketamine-and-stand-back' technique. No one knows how many ketamine-only hospitals there are in the world; they don't issue a lot of reports.

Some claim that this is good enough, until the mythical Space Age anaesthesia arrives. No comparison of patient outcome has ever been made between 'ketamine only' and 'proper' anaesthesia, nor ever will be, but even surgeons would agree that to complement ketamine the availability of airway and fluid resuscitation skills, equipment to give oxygen, hand-assisted ventilation and inhalation anaesthesia all given by a trained paramedic is essential management, avoids predictable complications and saves life. Just giving ketamine is not good enough.

Anaesthesia machines

Total intravenous anaesthesia (TIVA) with a syringe

driver can be dismissed in a paragraph: without elaborate monitoring, any theoretical convenience or saving is outweighed by the risk of overdose or disconnection. And you still need oxygen, a bellows and a trolley so you may as well add a more robust vapouriser which safely links depth of anaesthesia to a more easily monitored function: respiration.

There are many cheap continuous flow anaesthetic machines available, but they must have cylinders of compressed oxygen to work. Most places in the world do not have compressed oxygen. Machines that need it – donated or misguidedly bought - make a large contribution to the famous 'high tech graveyards' of junk that are to be found hidden away round the back of hospitals in every developing country.

More advanced machines have electronic gas flow-meters and other features that further limit their usefulness outside well funded centres. Their cost is far higher and even high tech centres have problems as everything is dependent on software and delicate circuit boards which easily malfunction. But manufacturers like these features which commit the purchaser to service contracts and upgrades.

While continuous flow machines will not work where they are needed, the original, robust, table-top draw-over anaesthesia systems (that will) are defunct in 2010; abandoned as loss-making by their makers who are not interested in developing anything new when it won't sell. The necessary components are hardly made anymore and are poor value for money. (Cost of a military PAC vaporiser plus bag: US\$6,146. It's unavailable.)

Anyway, developing country anaesthesiologists don't want draw-over; it's Stone Age, unpopular in major hospitals because of theatre pollution (scavenging is difficult), wastefulness (no recycling is possible) and hand ventilation is obligatory (no ventilator). An inflating valve must be close to the airway, which makes the fitting of a bacterial filter impractical and is unacceptable for surgery round the head. Standard paediatric breathing circuits cannot be connected. There is not enough oxygen for pre-oxygenation before anaesthesia, when you need high flows for a few minutes.

This causes a second equipment divide within poor countries, between urban and rural, making it impossible to have a universal system that could be used all over the country, as is the case in the West. In most countries you

find inefficient 'gas guzzlers' in town and any old cobbled together junk in the country. And the twain do not meet.

Introducing the Universal Anaesthesia Machine: what problem does it solve?

The UAM started as a design in 1999 in Malawi, Africa, using improvised materials in order to put incompatible donated continuous flow machines into service using an oxygen concentrator. The 2010 UAM combines continuous flow and draw-over; it uses a modern patient breathing circuit with system monitoring that is acceptable to all users yet still able to work in remote areas without gas or electric supplies. It costs the same as a cheap continuous flow machine. It is also an attractive product that buyers might choose in the market place, rather than being a donated item foisted on a reluctant recipient as 'some contraption suitable for developing countries'.

Because it can be used nationwide and has a high output oxygen concentrator, the UAM avoids the need for sourcing compressed oxygen. Production and transport of oxygen is expensive and environmentally damaging. The eventual aim is to do away with all compressed gas supplies. It thus introduces the concept of low cost, environmentally friendly anaesthesia while allowing modern bacterial filters, gas recycling and scavenging and other features legally required in some places.

How is the UAM design different from other anaesthesia machines?

The design has undergone many changes in 10 years. Advances in oxygen concentrator technology have greatly reduced prices and increased output and reliability, but no major manufacturer has yet used a concentrator in an anaesthetic machine.



The current model provides a continuous flow of up to 10 litres/min oxygen feeding into a demand flow patient breathing system with a newly designed draw-over vaporiser for halothane or isoflurane. A reservoir bag and valves for over and under pressure allow for flow and pressure differences between the two.

A combined oxygen and pressure touch screen sensor operated by a rechargeable battery shows FiO₂ and informs the user about excessive fresh gas flow, patient apnoea and air entry into the system. A hand operated bellows resembles traditional draw-over and a new balloon operated inflating valve is located on the machine, not

at the patient's head. This balloon valve differs uniquely from standard inflating valves in that it cannot get jammed when continuous pressure is applied and has no component that needs to be upstream from the patient.

Early versions of the balloon valve have been used in Malawi, Africa from 2001. The latex rubber did not last and was replaced by silicone in 2009. There is a recorded total of over 24,000 cases anaesthetised in six locations using the balloon valve breathing system, some under conditions of extreme heat, dust and humidity. Apart from the latex perishing, no problem has yet been recorded with this type of valve.

The UAM thus has the best of both systems: the useful features of continuous flow, including circle system recycling and gas scavenging, while retaining all the safety features and simplicity of draw-over, and it can use any oxygen source at any pressure, allowing room air to enter through the vaporiser if all else fails. Hypoxic fail-safes are built in. Nitrous oxide is offered as an option, with a separate hypoxic failsafe cut off.

A ventilator is planned as well as a back up power supply and an electronic audit system for monitoring the location and performance of the machine, and collection of patient data.



The UAM is robustly made of corrosion-resistant high quality materials, with a long-life silicone bellows for adult and paediatric use. The standard Ayre's T-piece paediatric system can also be used. It is ideally suited to remote locations, but can also be used for everyday anaesthesia and training in central hospitals, replacing sophisticated machines and giving lower running and servicing costs as well as allowing anaesthetists deployed to remote locations to continue to use a machine they were trained on and understand. It is easy for these users to carry out essential servicing.

Conclusion/Summary

In 2015, MDG#5 will mark 37 years of the failure of a preventive, primary health care focussed effort to reduce maternal deaths in the poorest countries.

A new approach is needed, to include surgical and anaesthetic services, making them more widely available at low cost.

Lack of suitable anaesthesia equipment significantly

limits the performance of life saving surgery in developing countries which contributes to morbidity and mortality for all surgical patients but especially for those suffering the complications of childbirth.

The Universal Anaesthesia Machine is a low cost, trolley-based workstation providing inhalation anaesthesia using an oxygen concentrator if there is electricity or, if not, using any external source of oxygen or even room air. System monitoring fail-safes to Western standards are integral.

The high performance concentrator replaces oxygen cylinders and dependence on environmentally damaging industrial oxygen production. The first UAM prototype has been developed in 2009/10 with ISO and CE compliance. It will be evaluated in selected UK sites and launched later this year.

The design is by the author and OES Medical, Abingdon, anaesthesia equipment manufacturer. All the research and development costs have been funded by a private

foundation which continues to support the project.

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IET Seminar on Appropriate Technologies in Developing Countries

The 6th IET International Seminar on “Appropriate Healthcare Technologies for Developing Countries” AHT2010 will be held, in collaboration with WHO Patient Safety and IPEM, at The Institution of Engineering and Technology (IET), Savoy Place, 2 Savoy Place, London WC2R 0BL on Thursday 13 May 2010.

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Detailed information on the seminar, including the programme, can be found at www.theiet.org/aht2010

The deadline for submission of Abstracts is Friday 15 January 2010. However, there could be some flexibility in the deadline for submitting abstracts for anyone who really wants to submit one. More information about abstracts can be found under the heading “Abstracts” on the website. Two prize paper authors will be invited to attend the seminar. The prizes will include funding towards the cost of travel to the UK and accommodation.

The format of the seminar will be different from AHT seminars of previous years. The event will be launched by Sir Liam Donaldson, Chair, WHO Patient Safety and Chief Medical Officer for England who will give the Keynote Speech addressing the question “Does ‘Appropriate’ Compromise Patient Safety?”. A biography of Sir Liam can be found on the website.

All papers will be available through the IET website.

There will be a “Question and Answer” session hosted by the INFRATECH electronic discussion group. The INFRATECH email list is sponsored by WHO and PAHO. For instructions on how to subscribe or unsubscribe to the list refer to http://infratechonline.net/?page_id=38

All African Anaesthetic Congress, Nairobi, 2009

Equipment Workshop Report by Chantal Murekatete (Kigali, Rwanda) and Kenneth Kapatuka (Blantyre, Malawi).

Introduction

A two hour workshop on anaesthesia equipment was held during the All Africa Anaesthesia Congress in Nairobi in September 2009 and was attended by approximately forty delegates from Ghana, Nigeria, Kenya, Malawi, Uganda, Tanzania, Rwanda and the UK.

In conjunction with the workshop, a questionnaire (see appendix) was circulated amongst the congress delegates and the workshop attendees to enable opinions from a wide range of countries to be expressed and analysed.

Equipment failure is recognised as a cause of fatality during anaesthesia which is avoidable. The aim of the workshop was to explore some of the causes of equipment failure, and seek the opinion of experienced anaesthetists from different backgrounds as to how the incidence can be reduced.

The workshop took the form of a panel discussion under the co-chairmanship of Roger Eltringham and Robert Neighbour (UK). The panellists were; Frank Boni (Ghana), Peter Chika (Kenya), Kenneth Kapatuka (Malawi), Chantelle Murekatete (Rwanda) and Steve Okelo (Kenya).

In order to provide a structure to the workshop the session was divided into three important sub sections related to equipment failure.

1. The appropriate equipment is not present
2. It is present but not functioning
3. It is present and functioning but is not being used correctly

The desired outcomes of the session were two-fold. Firstly to share ideas and best practice between those present and secondly to reach a consensus as to the issues surrounding the specification, purchase, supply, operation, and maintenance of anaesthetic equipment and consumables for the challenging environments found in many African countries. It is hoped that any insights provided can be used to direct assistance and training to those individuals working in anaesthesiology in challenging circumstances.

Section 1 - The Appropriate Equipment Is Not Present

Some of the biggest problems originate from the use of equipment which has not been designed for the prevailing conditions. Modern sophisticated anaesthetic machines with full electronic monitoring are ideal in wealthy European hospitals with full facilities. However, in hospitals where the supply of oxygen and electricity is unreliable and where there are no engineers with the necessary specialized training for maintaining, servicing and repairing them, they are totally unsuitable.

It was of interest to learn from the survey that the presence of an oxygen concentrator and the ability of the anaesthetic machine to be serviced locally were the two commonest requirements of those completing the questionnaire.

Only those anaesthetists who have actually worked in these conditions can fully appreciate the extent of the additional problems that have to be

overcome, but it was pointed out that the selection of anaesthesia machines is seldom made by them. In fact it seems that anaesthetists are rarely even asked what equipment they need and are usually simply told what they are going to get.

This situation was universally condemned by all present as being both dangerous and wasteful and it was felt of paramount importance that the anaesthetists should be represented on purchasing panels.

The various breathing systems were discussed from the position of suitability, ease of use and maintenance. Those using the circle system expressed difficulty with sterilization particularly when there is limited availability of patient filters. A common practice with circle systems is to use flows of at least 4 litres/minute in order to overcome the deficiencies in the available monitoring and the probability of leaks in the equipment. However it was pointed out that with fresh gas flows of 4 litres/min or more the circle system is not economical and offers no advantages.

Further issues highlighted included the availability and efficacy of soda lime and the consistency of oxygen concentrations in those hospitals serviced by central oxygen supplies.

It was reported that some batches of soda lime did not change colour, presumably due to it having expired before being received at the hospital. It was suggested that the guiding principle should be that "if it did not generate heat it was not working".

The survey showed that the draw-

over and Mapleson F systems were preferred to the circle system by the majority of respondents.

In those locations fortunate enough to have central oxygen supplies, the issue of purity was discussed. Some delegates were unaware that a poorly performing oxygen generating system may only be providing 70% oxygen. It was also stated that very little consideration had been given to the possible losses in leaking central supply systems.

The presence of a mechanical ventilator that could also be used for long term ventilation was regarded as an important component of an anaesthetic machine with simplicity and reliability considered more important than sophisticated gadgetry.

Airway equipment and the re-use of single use items such as endotracheal tubes and LMA's was discussed with a variety of situations described. One delegate suggested deliberately destroying tubes after use but this was widely considered to be unworkable as many people would not be able to replace them. It was generally accepted that the most appropriate solution was to wash them in warm soapy water, test the cuffs and leave them to dry. They could then be re-used continually until the cuffs or balloons failed.

Calibration of equipment such as vaporisers and ventilators did not appear to be carried out locally. In many cases this would require a return to the manufacturers which was rarely possible. Methods of self calibration were being practiced by some delegates and they were invited

to describe this in detail in a future article for wider distribution via this journal.

The most common inhalational agent being used by far was Halothane with Isoflurane as the second. These were generally regarded as satisfactory for all occasions and were readily available. Sevoflurane was occasionally used but only in a few central hospitals and scored even less than ether in the survey. Issues relating to the appropriate storage of anaesthetic agents and other commonly used drugs to avoid degradation were also highlighted as a problem.

Donated and second hand equipment was regarded as indispensable in many areas but the importance of prior consultation with the recipient was stressed in order to ensure that it was appropriate. It was also emphasized that equipment must be fully serviced and in good working order before dispatch since any repairs required are unlikely to be possible locally.

Section 2 - Equipment Is Present But Is Not Functioni

Equipment under this category is either unable to function properly due to lack of servicing, consumables or, in the case of new equipment, adequate commissioning. Alternatively it may be equipment that has developed faults that cannot be repaired locally and where there is no access to servicing from manufacturers.

In the worst case, new equipment fails to work on arrival. A recent report from WHO suggested that as much as 70% of medical equipment

supplied to sub-Saharan Africa failed to work when it arrived at its destination. The standard generally used for medical equipment provides a testing requirement to avoid this type of failure; however, the standard does not take account of the likely transport conditions prevailing on the African continent and the possibility of damage en route.

New equipment should not be signed off as having been received until the authorities are satisfied that it is properly commissioned and functioning normally. Guarantees and service contracts are preferred; however these must be realistic and workable. If equipment has to be returned at great expense to a manufacturer thousands of miles away in order to carry out maintenance or calibration it may be completely worthless.

Many of those attending the workshop were acutely aware that if local technicians attempted to repair equipment, the manufacturer's warranty would be voided. Yet great difficulties were reported in persuading manufacturers or their representatives to respond quickly to problems. The ability to carry out servicing locally scored very highly in the section in the questionnaire on anaesthetic equipment, second only to the desirability of oxygen concentrators.

The servicing of anaesthetic equipment provoked considerable discussion. It was universally felt that all hospitals should have access to workshop facilities for repair and servicing together with suitably trained technician staff to carry out that work. It was also recommended

that hospitals should have an inventory of all equipment and records of servicing and repair and the causes of failure in order that common faults can be identified. It was generally agreed that there should be a basic maintenance schedule and service book with each anaesthetic machine. It was stressed that routine maintenance at regular intervals was essential even when equipment was apparently functioning correctly.

It was suggested that a formal checklist should be used by each anaesthetist prior to the use of any anaesthetic equipment in order to ensure that it was functioning correctly and that this should be recorded on each occasion. These checks will only require a few minutes but would avoid possible disaster during a procedure. If faults are found there should be clear instruction as to how this should be reported and to whom. It was generally agreed that anaesthetists should not attempt to repair equipment themselves except in exceptional circumstances or if they have been trained to do so.

Section 3 - The Equipment Is Not Being Used Correctly

Just as a pilot would not be expected to take off in a plane unless they were familiar with the controls, so an anaesthetist should never administer an anaesthetic unless they are familiar with the equipment and therefore able to respond in an emergency.

Unfortunately there are many examples of this situation causing fatalities. For example, breathing circuits have been connected incorrectly, recommended flow rates have been ignored, alarms have been

turned off or muted, hypoxic mixtures have been administered and soda lime has been used when completely exhausted.

There was general agreement that no anaesthetist should use an anaesthetic machine until they had received adequate instruction and that they should be required to sign a document confirming this before being allowed to use a particular machine.

It was felt that the head of the anaesthetic department or a named deputy should have the responsibility of ensuring that adequate instruction had been given and understood, if necessary by way of an examination.

It was accepted that full electronic monitoring of all parameters was an unrealistic expectation at the present time, mainly due to problems of servicing, maintenance, calibration and training. The opinion was expressed that sound clinical monitoring was preferable to the use of monitors which were not regularly serviced and may be giving inaccurate or unreliable information.

Of the various monitors on the market it was felt that the oximeter was the single most useful, followed by the capnograph and electrocardiogram.

The importance of regular teaching sessions was expressed including departmental morbidity and mortality (M & M) conferences at which critical incidents could be reviewed. Outside help in the form of literature, visiting lecturers, refresher courses and regional congresses were appreciated. They were felt to be essential in ensuring that progress was being made and that even the

most isolated hospitals could benefit from the advances in equipment and techniques designed for their circumstances.

Summary

The following recommendations were made following the equipment workshop. It was felt that these simple measures, that cost nothing would reduce the incidence of equipment failure as a cause of mortality during anaesthesia

1. Only equipment designed to cope with local conditions over and above those stated in general standards should be used.
2. Each item of equipment should be formally commissioned and shown to be functioning normally before it is accepted by the department of anaesthesia
3. An anaesthetist should not use equipment until shown how to and has demonstrated competence to do so.
4. Before commencing an anaesthetic the anaesthetist must complete a formal check list.
5. A maintenance schedule and service book should accompany every anaesthetic machine,
6. A named individual should be responsible for the maintenance of anaesthetic equipment, including servicing and repair.
7. Regular morbidity and mortality conferences should be held so that critical incidents could be reviewed.

These recommendations are very much in line with the guidelines recently set down by the AAGBI

Appendix

Questionnaire Results

During the congress a questionnaire was completed by 47 unselected delegates from eleven African countries. Respondents were asked to select twelve features from a list of thirty that they would most like to have on their anaesthetic machine. The results were as follows;

1. Which features would you like to see on the machine?

Anaesthetic Machine

Oxygen concentrator	86%
Nitrous oxide	8%
Compressed Air	22%
Oxygen Flush	58%
Scavenging	19%
Simple servicing	67%

2. Which breathing circuits would you like to use?

Breathing Circuit

Magill Circuit	25%
Bain Circuit	11%
Circle system	25%
Draw over system	56%
Mapleson F Paediatric	53%

3. What features of a mechanical ventilator would you most like to see?

Mechanical Ventilation

Gas driven	67%
Electrically driven	14%
Trigger mechanism	0%
PEEP facility	8%
Low pressure alarm	53%
High pressure alarm	7%
Humidifier	14%
Suitability for long term ventilation	44%

4. Which volatile agents would you like available?

Vaporiser

Halothane	92%
Isoflurane	47%
Sevoflurane	8%
Ether	11%
Other	

5. Which monitors would you like to have available?

Monitors

EKG	42%
Oximeter	92%
Capnograph	44%
Oxygen analyser	19%
Agent Monitor	8%

6. Which other features would you like to see?

Miscellaneous

Emergency lighting	31%
Suction	67%
Recharger for laryngoscope	11%
UPS	53%
Spirometer	8%
Solar power	3%

A Visit to Addis...

At the end of 2007 an email popped into my inbox entitled 'volunteers needed for Ethiopian Nurse Anaesthetists Conference'. It particularly caught my eye as I had already been to Ethiopia 13 years previously on my 'medical elective' and I still had very fond and vivid memories of the country.

After putting my hand up promptly for this trip, the reality of it started to sink in. This was no medical student trip, where I was along for a fun ride, being an 'observer' and helping out where possible, slipping in a few adventure travels around the country while I was about it. No, this time I would actually have to prepare for a talk and give a presentation (or 2...) to a group of Nurse anaesthetists,

and a few doctors too, on a topic I can't really say I'm an expert on – Paediatric Anaesthesia and cleft lip/palate repair. What level to pitch it too? What information do they want to know? I can describe how we do it in our Hospital in Sydney, but I know that Sevoflurane and Remifentanyl are still but words in Africa.

Luckily help was available in the form of Dr. Keith Streatfeild, an Australian who happened to live just up the road from me – in Australian terms – in Newcastle. Keith had spent 7 years working as an anaesthetist in Addis Ababa and with his particular interest in education, he had helped to set up the Anaesthetic training scheme that is in operation today. After a few phone calls and the typical ozzie attitude of 'you'll be right', I managed to plan my talk accordingly. A rather futuristic DVD from

our cleft palate surgeon at work added the gloss to the talk, but I also went armed with laptop, back up discs, USB sticks and old-fashioned acetates and pens, hoping to be prepared for whatever might be.

A few weeks before departure I received an email from Keith, who had decided to come along to the conference as well. For him, it was going to be a chance to catch up with old friends and give a presentation or two himself.

I had had some correspondence from Dr. Leulayehu Akalu, President of the Ethiopian Nurse Anaesthetist Association, and arrangements were made for us to all meet up at the Ethiopian Hotel. There would be myself, Keith and Dr. Ahmed from Egypt. It was upon arrival at the Hotel that I realized that I had met Keith before, and not only that, he had been one of the earliest influences in my choice of anaesthesia as a career! It had all happened one afternoon at the Fistula Hospital in Addis. My fellow medical student colleague, Harriet Miles, and myself were spending a few days at the fistula hospital. Most of the procedures were done under Spinal Block, but occasionally a general anaesthetic was required. At the time we were there, a visiting urological surgeon from the US was working at the fistula hospital, and a few



other operations over and above the fistula operation were being performed. On this particular day a young woman was having an operation to remove a large bladder stone, and 'Dr Keith' had been called over from the main hospital in Addis (The Black Lion) to administer the anaesthetic. It was all foreign to me then, but I remember the Ether, the finger on the pulse as the monitoring and the occasional BP being taken by one of the nurses who, wheelchair bound, would wheel in every now and then with the sphygmomanometer. All was proceeding well until the lamp used to throw some light onto the operating table started to spark. Before the patient and all those around her went up in a puff of smoke, the lamp was quickly switched off and the surgeon carried on unruffled in semi darkness. Keith seemed very unruffled too, and I remember thinking how I wanted to be like that, and perhaps a career in anaesthetics would get me over my fear of emergency situations. His obvious passion for his job and his natural ability to teach also rubbed off on me on that afternoon, and so it was a delight to meet him again all these years later!

The conference was held at the Global Hotel, about a 15minute drive from our hotel in the centre of town. This conference was the 7th to be held, and it is held alternate years. It was obvious straight away how important it was for the nurse anaesthetists. Many of them work in incredibly isolated conditions – I now laugh when a viva candidate talks about for example, the MRI scanner being a 'remote' environment'. They have limited access to drugs, equipment, books and educational material. These conferences provide an important time for them to download with colleagues, discuss cases, problem solve, form new relationships and meet up with old friends, many of whom they haven't seen since the last conference two years previously. They also actually get to have some time off work, and visit family and friends in Addis. It made me reflect on just how lucky I was. Not only do I work in

a huge and very supportive department, but I also have access to so much continuing education, not to mention regular time off work to pursue these educational goals, along with plenty of holiday to rest and recuperate, from what is, no matter where you work, a job that has it fair share of stress.

I'm not a great one for public speaking and usually when I have been roped into it in my home country I've vowed 'this will be the last time'. But, this time it was different. It was like the feeling one gets when you work with a really keen and able registrar. Ones' enthusiasm for the job and specialty is reinvigorated.

The conference was held over three days, during which time Keith gave some talks on Thoracics and Trauma, Dr. Ahmed talked on Difficult Airway Management, and I gave my talks on Paediatrics. Several of the local nurses gave presentations too, of which

one of the most memorable was from Kibrit. Kibrit had trained as a nurse anaesthetist, but had decided to embark on the goal of setting up an ambulance service in Addis Ababa. Incredibly, this country of 80million people, has no ambulance service.



When there is a trauma (and Ethiopia has one of the highest road tolls in the world), one has to rely on someone sticking you in the back of a car and being driven to the hospital. None of the policemen have first aid or trauma training, so one can only imagine the number of lives lost and morbidity that occurs due to this. So far Kibrit has managed to lobby government to introduce compulsory third party insurance for vehicles – money raised from this will help fund the service. He also has raised enough money to import two ambulances from Dubai. His goals now are to establish a training scheme for paramedics/policeman and firemen.

The ‘sponsors’ of the conference gave other presentations. Rather amusingly the sponsors were manufacturers of nitrous oxide! Just as the rest of the world is fading out its use or at least limiting its use considerably, here it was being introduced as the next best thing. Amusing on the one hand, but also slightly worrying perhaps. With limited monitoring facilities, and perhaps limited awareness of the dangers in its use, I hope that its potential introduction doesn’t lead to disaster...

Addis Ababa is a huge and crowded city. Although no stranger to developing

countries when I had visited in 1994, it had surely been the poorest country I had been too. There is of course still a desperate amount of poverty for this country so often at war with its neighbours, but I got the impression that things were slightly better, for some people at least, since my last visit.

In the evenings, Keith, Dr. Ahmed and I would have a drink opposite our hotel in the square or ‘piazza’. Groups of young folk would be hanging out, enjoying a coke or a tea in the evening sunshine. I don’t remember these sights before. The cars on the road, on average, were in slightly better condition and the funny old covered 8 person vans that use to be used for local transport have been replaced with more modern minivans. I also didn’t have to step through a herd of sheep this time around, trying to get into the central bank to change some money!

After the conference I had a few more days to spend in Ethiopia. I arranged to visit Jimma Hospital– a University town to the south west of Addis Ababa. I also revisited the Fistula Hospital. It has grown and changed substantially since my last visit, but the main ward block / operating area was still recognizable from my previous visit. It was a pleasure to meet Catherine Hamlin again who is still very much involved in

the ward rounds and activities of the hospital. Zenbaba, the nurse anaesthetist who took me on the visit, showed me around theatres, but unfortunately for me, it was a holiday in Addis that day, and so no operations were being performed.

I did spot however a whole mound of tape clinging to the halothane vaporizer. It was explained that the halothane connectors required to fill up the vaporizers were almost perished and it was incredible difficult to get a good seal between the two. On my return to Sydney I ventured into our old equipment store. Sure enough, as nothing gets thrown away, I found 5 connectors, all in very good condition and these were posted off in haste to the Fistula hospital. A few weeks later I received a wonderful letter back from Zenbaba. He was so thrilled and explained that they had had to almost give up giving anaesthetics with volatiles, so the connectors I had sent had arrived in the nick of time.

Over a year has passed now since my trip. Although brief, it was a highly memorable and personally rewarding trip for me. I can only hope that in some small way my contribution to the conference helped to make it a memorable, educational and rewarding experience for all the nurse anaesthetists who attended.

What inspired me to become an anaesthetist

Philip Etukon

Newly qualified nurse anaesthetist, Kenya

In the summer of 1991, when I was an 18 year old student, I was out walking beside a river near my home in Northern Kenya when I heard some shouting. As I approached I could see someone struggling in the water and calling for help. Although there were several children around they all ran off so I quickly stripped off and dived into the water and brought him to the bank. I realized there were no signs of life so I turned him on his side and compressed his belly and saw a lot of water coming out of his mouth.

I attempted mouth to mouth respirations and chest compressions but was unsure of the rate to use so I did the best I could, based on the first aid teaching I had received as a scout. I continued this without interruption for about fifteen minutes

before he made any response. Then he suddenly coughed several times, regained consciousness and sat up. He seemed to be about ten years old. He kept coughing up water and eventually struggled to his feet with my assistance. He was very confused and worried but I re-assured him.

I helped him back to his home and explained the incident to his parents who thanked me for saving the life of their child. They took him to the local hospital where he was given antibiotics and discharged home the following day. Earlier this year I met his parents again and they told me he made a complete recovery and is now married with two children of his own.

This episode convinced me that I should study nursing and I was subsequently trained by Dr Alexandra Bojarska on a mission with the ICRC in Northern Kenya. She saw that I was



Philip Etukon

interested in anaesthesia and arranged sponsorship through the education committee of the WFSA under Dr Angela Enright and Dr Jannicke Mellin-Olson so that I could train as an anaesthetist at the Queen Elizabeth Central Hospital (QECH) in Blantyre, Malawi.

I completed my training recently and am due to graduate as an anaesthetist in November 2009. I am currently working in Kenya where I have become especially interested in the care and maintenance of anaesthetic equipment. My aim is to follow in the footsteps of Kenneth Kapatuka and his colleagues at the QECH and eventually supervise an anaesthetic equipment workshop in Kenya based on the one at the QECH.

Diamedica Portable Anaesthesia Machine (DPA 01)

Clinical use Rwanda/Uganda October 2008

Isabeau Walker

Consultant Paediatric Anaesthetist
Great Ormond Street Hospital
NHS Trust
isabeauwalker@mac.com

The Diamedica Portable Anaesthesia Machine (DPA 01) was used to provide anaesthesia during a surgical camp to Gahini Hospital in Rwanda and Kisiizi Hospital in Uganda in October 2008.

Background: hospital facilities
Gahini Hospital Rwanda and Kisiizi Hospital Uganda are both mission hospitals that provide surgical services for the local population, including emergency obstetric care. In addition, there is a surgeon performing eye surgery in Gahini.

Essential services were present at both hospitals (running water, mains electricity), although both hospitals suffered power cuts during the visits.

Drawover anaesthesia was used as standard in both hospitals. Oxygen was supplied by oxygen concentrators in both hospitals: although a J sized oxygen cylinder was present in each hospital, they were both empty. Refills were possible at the nearest large towns, Kigali or Mbarara but they were 1-3 hours distant. The UNFPA donated a Chinese manufactured anaesthesia machine to Gahini hospital that included a circle system and mechanical ventilator. There was no means to attach the anaesthesia machine to the oxygen cylinder and no soda lime available in Rwanda.

Anaesthesia techniques

Anaesthesia was administered via the DPA 01 for all patients, using a high flow oxygen concentrator (8l/min) as a source of oxygen. Anaesthesia was induced by inhalational induction using halothane in oxygen, intravenous induction with propofol or by intramuscular injection with ketamine. Suxamethonium was used to facilitate intubation. Anaesthesia was maintained using halothane in oxygen, ventilating by hand or using spontaneous ventilation. Analgesia was provided using intravenous ketamine or local anaesthetic blocks.

There were no opiates available in either hospital. Postoperative analgesia was provided using oral paracetamol and ibuprofen.

All patients were monitored using a precordial stethoscope and GE integrated anaesthesia monitor, including ECG, NIBP, SpO₂ and ETCO₂.

RESULTS

Assembly and transport

The DPA 01 was easily transported in the carrying case, although it drew the attention of the security guards at each airport (carried on plane as hand luggage)!



The details of the patients anaesthetised are shown in the table:

Age (median, range)	4yrs (5 weeks – 66yrs)
Weight (kg) (median, range)	19 (3 - 54)
Duration of surgery (minutes) (median, range)	95 (25 - 355)

The anaesthesia kit was easily assembled using the clear instructions provided. The anaesthesia tubing was lightweight and easy to use.

Patients

A total of 20 patients were anaesthetised for 21 operations, including 16 children under 16 years of age. There were 15 plastic surgical procedures (including 3 children and one adult for cleft lip repair, and one child for cleft lip and palate repair), 2 patients for burns contracture release, and three patients for general surgical procedures.

Six children and one adult with a predicted difficult airway were induced using halothane. The Ayre's T-piece was used for induction and maintenance in these 6 children. In the remaining children, anaesthesia was induced using ketamine or propofol and maintained using the self-inflating bag and the Laerdal valve. This was light weight and easy to use, even in children <10kg.

The DPA 01 was used for a total of 34 hours 40 minutes. The position of Laerdal valve kinked the tracheal tube on one occasion (south facing Rae tube); this was rapidly detected from a change in compliance using the self-inflating bag. Water vapour

from the anaesthesia system blocked the ETCO₂ sampling port on one occasion (no filters used). There were no other complications relating to the anaesthesia equipment.

Vaporiser

The vaporiser was stable, and easy to fill (although a maximum filling line would have been useful – overfilled twice). The large capacity and stability of the vaporiser was a distinct advantage over the OMV vaporiser. It was not possible to measure vapour concentrations, but the vaporiser appeared to deliver halothane concentrations in the expected clinical range.

Inspired oxygen concentrations

Inspired oxygen concentrations were in the range of 86%-90% using the high flow oxygen from the oxygen concentrator. When the electricity supply failed, the FiO₂ reduced to 0.21 over a period of a few minutes.

Carbon dioxide clearance

As expected with the design of the anaesthesia circuit, it was very difficult to eliminate rebreathing during IPPV using the Ayre's T-piece, particularly in the children 10-20kg. One child developed ventricular ectopics during ventilation with a T-piece, possibly related to CO₂ retention in the presence

of halothane and injected adrenaline. The ectopics resolved after increasing the minute volume and reducing the inspired halothane concentration.

There was no rebreathing using the self-inflating bag. Our preferred technique for children <10 kg was to perform a gas induction using halothane in oxygen using the T-piece, then to change to IPPV using the self inflating bag during maintenance of anaesthesia. A novice anaesthetist accompanied us and found the T-piece difficult to use; the self-inflating bag was comfortable to use for IPPV by hand, even for the case lasting 5 hours 55 minutes!

Conclusion

The DPA 01 performed well in the clinical environment for both adult and paediatric practice, using the high flow oxygen concentrator as a source of oxygen. I would highly recommend its use in resource-limited environments.

For paediatric practice, the Ayre's T-piece is useful for performing an inhalational induction, but for ease, comfort and safety of use, I would recommend the use of the self-inflating bag and Laerdal valve, including for children <10kg.



Profile of Paul Magellan Fenton

Paul Magellan Fenton. What a character; a competent anaesthetist, yes, but also researcher, teacher, lecturer, international speaker, author, fund raiser, engineer, designer, intrepid traveller, fluent in several languages and with medical experience in four continents. Where do you begin? At the beginning I suppose.

Paul was born in Oxford, England, the son of a general practitioner. He was the scion of an Anglo-Irish family. When Ireland's economy collapsed around 1860 four of the family, all doctors, moved to Chile. Paul's great grandfather joined the Chilean Navy, was decorated for bravery and awarded lands in the Magellan Straits. Hence Magellan became a family name. With that background one is not surprised that Paul turns up in many parts of the world.

After doing a course in Aero- and Auto-engineering, Paul settled down to qualifying in Medicine at Guy's Hospital, London. He did the statutory intern year, a course in tropical medicine and then married. Then, in 1978, at a stage in his career when most of us are terrified to give an anaesthetic unsupervised, Paul took a job in the New Hebrides, giving anaesthetics and coping with the full gamut

of medicine with inadequate help and resources. In 1980 New Hebrides became the independent Vanuatu. There was a rebellion with added risks and work for the few doctors.

Returning to England in 1980, Paul studied anaesthetics at King's College Hospital. In 1986 he moved to Blantyre, Malawi, and soon was setting up Anaesthetic teaching. He arrived at the right time, as a predecessor, John Pederson, had arranged with Danish Aid for oxygen concentrators with technical back up to be supplied to all the Malawian hospitals. These, connected to a modified Boyle's machine became the "Malawi Anaesthetic Machine". It was far from ideal, but a great improvement on the basic Boyle's machines with failing supplies of gases. Paul saw at once that it was no use trying to establish medically trained anaesthetists at the District Hospitals even though a Medical College was being established in Blantyre. So he set up training in anaesthesia for Clinical Officers and within three or four years, unlike in much of the rest of sub Saharan Africa, safe anaesthesia was available throughout the country. The trainees were visited in their District Hospitals on a regular basis.

Paul used these visits to collect data on what was actually being done, and with



Paul Magellan Fenton

what results, in both rural and urban hospitals. Now a Professor in the Malawi College of Medicine, he produced about 20 papers. He found that 86% of surgery in rural hospitals was performed for obstetric related conditions, but even so, the number of Caesarean Sections was way below the number estimated to be needed. The study on preventable factors in early maternal and neonatal deaths following Caesarean Section with F. Reynolds and C. Whitty, published in the British Medical Journal in 2003, could well be one of the most important papers for those working on implementing the Millennium Goals in this field. Paul wrote two textbooks and presented many papers at Anaesthetic Meetings, always to a full house.

Perhaps his writings that most of us remember are the "Tales from the Back Line" on the back page of Anaesthesia

Profile of Michael Dobson

News. I well remember his great bit of advice on Fund Raising. Don't tidy everything up before the possible donors visit. Show them the worst - two to a bed in the TB ward, 'and the last paint over the fungus blackened walls had been applied in the colonial era'. As the visitors stood in the doorway "a man obligingly shuffled off his mortal coil" and a great wail of grief went up.' The donors had done their 'needs assessment' and were taken quickly to lunch.

Paul left Malawi in 2001 having trained his successor, Cyril Goddia, in whose capable hands the department has continued to flourish. Back in Britain he did a few locums, set up a home in France, and designed a new anaesthetic machine for under resourced countries. But in 2007 he was back in the Third World this time working in Asia writing training manuals for Kathmandu in Nepal.

So having worked in Australasia, Europe, Africa and the Indian Subcontinent one assumes we will probably hear of him next in South America probably working somewhere near the Magellan Straits.

Dr Ruth Hutchinson
Harare, Zimbabwe

Dr Jeanne Frossard

London, UK

Mike Dobson is very well known through out the world of anaesthesia in both the UK and in developing countries. He was born and educated in the United Kingdom and is a senior anaesthetist at the Nuffield Department of Anaesthesia at the John Radcliffe Hospital in Oxford: the oldest and largest anaesthetic department in the UK. His current practice includes obstetric anaesthesia and analgesia, lower GI and major vascular surgery, but has included difficult airway management and thirteen years as an intensivist (what doesn't the man do?).

In 1980 he decided to set up a course on "Anaesthesia in Developing Countries" which has been running annually ever since and has attracted participants from all parts of the globe. It was through these courses that "World Anaesthesia" has been set up and which gained a membership (under his chairmanship for the first ten years) of around 1300 spread over 100 countries.

The course has been a great success and seeded further courses in Bristol and Hobart, Tasmania. However three years ago Mike announced that the course was moving to Uganda and, helped by Sarah Hodges who is an anaesthetist in Kampala, Uganda, it became even more popular and gives confidence and encouragement



Michael Dobson

to anaesthetists who would like to work abroad.

Feeling that he still had much time to spare(!) he helped set up Primary Trauma Care (PTC), a trauma training programme for developing countries which has, so far, been introduced into thirty three countries. He took a particular interest in introducing PTC to Africa.

Like many anaesthetists, he likes tinkering with equipment and this interest led him to promote oxygen concentrators in the developing world and organise a field trial of these in Egypt in 1992. He really is an expert and so became a member of the WHO expert panel on District Surgical procedures and services and is the liaison officer between the WHO and the WFSA. In 1995 he set up and ran the first WFSA technical training course for anaesthetists in Africa (Tanzania).

Education in the developing world has always been close to his heart and, in conjunction with the WHO, WFSA and the Nuffield Department of

BOOK REVIEW

The Structured Oral Examination in Clinical Anaesthesia: Practice Examination Papers

Cyprian Mendonca, Carl Hillermann, Josephine James, GS Anil Kumar
tfm Publishing Limited First Edition May 2009

Anaesthesia he has developed an electronic publishing system for educational teaching materials. This has resulted in the distribution of nearly 80,000 CD ROM's carrying training materials to hospitals throughout the developing world.

All this hard work has had recognition as he was made an honorary member of the Australian Society of Anaesthetists in 1994. In 1996 he was awarded the Pask Certificate of Honour by the AAGBI "in recognition of outstanding contributions to the work of the Association and to education in anaesthesia in the Developing World.

He has published many articles related to anaesthesia in the developing world and his book "Anaesthesia in the District Hospital" has achieved a "highly commended award in the 2001 BMA Medical Book competition.

Mike and his wife Shirley live in Oxford and have three sons who have long left home. Shirley is a teacher and they frequently travel together to run trauma or education courses and make a great team.

Mike is a constant source of knowledge, inspiration and encouragement to anaesthetists involved with developing countries and his contributions are outstanding. He rises to all the challenges that are thrown at him and takes them all one with a smile and a sense of humour.

The search for the book that covers the breadth and depth of the Final FRCA examination is not over, but this book should certainly be placed on the essential book list.

The book is based on the current format of the Final FRCA structured oral examination. The cases are a reflection of questions fed back from previous candidates. The viva consists of one long case, three short clinical cases and four questions on clinical sciences.

There are ten complete questions. The nature of the questions and the structure of the answers provide an understanding of what is expected from the candidate. The content is comprehensive but not overwhelming. Each chapter concludes with additional learning points, references to relevant trials, key points and further reading. The radiographs and electrocardiograms are interpreted fully and the accompanying illustrations are useful.

The book is useful for self-examination and mock viva practice. On initial viewing, ten questions were not felt to be enough to improve the chances of passing the examination, but by the end of the book a good proportion of the syllabus had been covered. The format can be reproduced for any potential scenario.

Having passed the examination, we will keep the book for future reference and grilling of junior colleagues but no longer for bedtime reading.

We congratulate the authors for this commendable examination aid.

Deedy Elmissiry

FRCA Specialist Registrar

Sheffield and South Yorkshire School of Anaesthesia

Juliette Fraser

FRCA Specialist Registrar

Letter to the Editor

Thanks must go to Dr Fenton for his interesting 'Epitaph for Di-ethyl Ether' (WAN vol 11 No 1 July 2009). It seems a fitting tribute for a once widely used anaesthetic agent. However, I am delighted to report that this anaesthetic is not taking its final gasps in '...remotest Gulu, Uganda...' but is actually very much alive and well in Uganda's capital city, Kampala, where I saw it being used at Mengo Hospital.

Halothane is the agent of choice in the general operating theatres at this Christian mission hospital founded in 1897 by Sir Albert Cook, a British doctor. However as Dr Fenton alluded to, ether

still has a leading role in the obstetric operating theatre. While spinal anaesthetics are common, I can personally vouch for the sterling work that ether continues to do, several times a week, in a unit which delivers in excess of 1000 mothers by caesarean section each year. I attach some photographs taken in July 2009 as proof! Note especially the E.M.O. vaporiser, other anaesthetic apparatus and brown bottles of 'Anaesthetic Ether' in the drug and suture cupboard.

Ether is popular in obstetrics as, unlike halothane, it does not overly relax the uterus.

The hospital obtains its ether from the Uganda Joint Medical Stores and it costs approximately 28,000 US\$ per litre. Halothane costs approximately 43,000 US\$ for 250ml and is thus, some six times more expensive (3000 US\$ = £1)

I am hopeful these will not be the last photographs of ether in action.

John Dalton
 Friends of Mengo
 Hospital UK
 Foundation Year 1
 House Officer
 York Hospitals NHS Trust
 York, UK



The World Federation of Societies of Anaesthesiologists

The World Federation of Societies of Anaesthesiologists (WFSA) was founded in Scheveningen in the Netherlands in 1955 at the 1st World Congress of Anaesthesiologists with 28 founding societies. It now has 122 member societies. Its primary objective is to make available the highest standards of anaesthesia, pain treatment, trauma management and resuscitation to the peoples of the world.

These goals are achieved through the work of the WFSA's permanent committees: Education, Publications and Safety and Quality of Practice. Subspecialties committees on Obstetric Anaesthesia, Paediatric Anaesthesia, Pain Relief and Resuscitation provide input on their areas of expertise. There are also working parties on Primary Trauma Care, Manpower and Professional Wellbeing.

The WFSA is a non-profit organisation and national anaesthetic societies pay an annual subscription based on the size of their membership. The WFSA has five regional sections: the European Society, the African Regional Section, the

Asian/Australasian Regional Section, the Confederation of Latin –American Societies and the Pan Arab Regional Section. Delegates from the national societies, assigned on a proportional basis, form the final decision-making body of the WFSA at the General Assemblies that are held every four years at the World Congresses of Anaesthesiologists.

To ensure global representation the WFSA divides the world into 6 geographical regions which are represented by at least one of the 12 elected "members at large" on the Executive Committee. They are 1 Africa and the Middle East, 2 Asia, 3 Australia, New Zealand and the Pacific Islands, 4 Europe, 5 South and Central America, Mexico and the Caribbean Islands and 6 North America

The Education Committee's major focus is to develop training programmes where young anaesthetists from less affluent countries can acquire further training in anaesthesia. This is offered as close to their home country as possible so as to be relevant to the environment where they will return to practice.

A wide range of other educational activities are also supported including visiting teachers, refresher course lectures, assistance

with national and regional meetings, examination preparation and equipment repair and maintenance courses. Currently, anaesthesia training programmes are in place in Chile, Colombia, Hong Kong, India, Israel, Romania, Singapore, South Africa, Thailand and Tunisia.

One of the longest running training programmes is in Bangkok, Thailand and is run by Professor Thara Tritrakarn and his colleagues. Over the past twelve years, 46 anaesthesiologists have graduated from the programme and returned to work and teach in Mongolia, Cambodia, Laos, Vietnam, Myanmar (Burma) and Bhutan.

In Santiago, Chile, 16 fellows from Bolivia, Ecuador, Guatemala, Honduras, Paraguay, Peru and Venezuela have been trained in Paediatric Anaesthesia by Dr Slivana Cavallieri. A similar successful programme in Colombia, under the direction of Dr Mauricio Vasco has been training fellows in Obstetric Anaesthesia.

In countries where there are few physician anaesthetists, mostly in Africa and in rural areas, the WFSA supports training and refresher courses for Anaesthetic Officers and Nurse Anaesthetists.

The Publications Committee supplies educational material to physicians to support their anaesthesia training. This is particularly important in less affluent areas where such material is not easily available. In addition the Committee produces

1. ***Update in Anaesthesia***, the educational journal of the WFSA, which features concise and clinically relevant articles of anaesthesiologists working in situations with limited resources. 12,000 copies are distributed in English, Russian, Mandarin, Spanish and French. A Portuguese edition is planned in the near future.
2. ***Anaesthesia Tutorial of the Week*** which is web-based, peer-reviewed tutorial. If you wish to receive it by email, please send your name, hospital, country and email address to worldanaesthesia@mac.com

You can download any issue of Update or Anaesthesia Tutorial of the Week, free of charge from the WFSA website under “Educational Resources.”

The **Safety and Quality of Practice Committee** is involved in incident reporting, drug labelling, crisis management, the virtual anaesthesia machine and the revision of the Internal Standards for Safe Anaesthesia. The Global Oximetry Project (GO) started in collaboration with the AAGBI and GE Healthcare, to develop a cheap and reliable oximeter and promote the use of oximetry globally, has become the Committee’s most important activity. Pilot projects have been completed in Uganda, the Philippines, Vietnam and India. Now the WFSA is working with the WHO to advance the idea of global oximetry as part of their “Safe Surgery Saves Lives” initiative. This should lead to improved patient safety around the world.

A **World Congress of Anaesthesiologists (WCA)** is held by the WFSA every 4 years and is hosted by a member Society from one of the 6 geographical regions. The next WCA will be held in Buenos Aires in 2012 and will be followed by Hong Kong in 2016. The WCA affords a unique chance to learn about the practice of

anaesthesia from a global perspective, ranging from the state of the art practice in the affluent world to the difficulties and realities of practice in less affluent areas. This is combined with a superb opportunity for social interaction with colleagues from all over the world.

The **WFSA Foundation** is mandated to raise money and direct all the funds to WFSA programmes to improve education and care worldwide. Unfortunately in many less affluent countries, patients have limited access to even the most basic anaesthetic service and this leads to unnecessary suffering and death. Physician anaesthetists are often unable to get the help they need to upgrade their training and improve the standard of anaesthesia practice in their areas. The WFSA is trying to change this. Please consider making a donation which is easy to do on the WFSA website. 100% of all donations go towards our training programmes.

If you choose to, you can specify which one you wish to support. Further information can be obtained by emailing wfsahq@anaesthesiologists.org

www.anaesthesiologists.org

Useful Information

World Federation of Societies of Anaesthesiologists (WFSA)

21 Portland Place, London,
W1B 1PY
United Kingdom

Tel: (+44) 0207 631 8880

Fax: (+44) 0207 631 8882

E-mail: wfsahq@anaesthesiologists.org

Website: www.anaesthesiologist.org

Courses in Anaesthesia for the Developing World

Oxford (UK): July (annually).

Contact: Dr. M. Dobson

Department of Anaesthesia

John Radcliffe Hospital

Headley Way

Headington,

Oxford OX3 9DU

United Kingdom

Tel: (+44) 01865 221589

E-mail: michael.dobson@nda.ox.ac.uk

Bristol (UK): December (annually).

Contact: Dr. James Rogers

Department of Anaesthesia

Frenchay Hospital

Bristol BS16 1LE

United Kingdom

Tel: (+44) 01179 701212

E-mail: james.rogers@nbt.nhs.uk

'Global Outreach Course'

Nova Scotia

Canada

For more information contact

Dr Tim Coonan at tjcoonan@gmail.com

• Remote Situations, Difficult Circumstances, Developing Country Anaesthesia

• Hobart or Launceston (alternate years), Tasmania, Australia

• Contact: Dr Haydn Perndt

• Royal Hobart Hospital

• GPO Box 1061-L

• Hobart, TAS 7001

• Australia

• **E-mail: haydn.perndt@utas.edu.au**

• Primary Trauma Care Foundation

• An organisation training doctors and nurses in the management of severely injured patients in the District Hospital.

• Contact: PTC Foundation

• Outeniqua House

• 313 Woodstock Rd

• Oxford, OX2 7NW

• United Kingdom

• **E-mail: ptc@nda.ox.ac.uk**

• PTC Chairman:

• Dr Douglas Wilkinson

• (douglas.wilkinson@nda.ox.ac.uk)

• PTC Administrator: Annette Clack

• (admin@primarytraumacare.org)

• Durbin plc

• This organisation has bought ECHO and now supplies drugs and equipment to developing countries.

• Contact: Durbin plc

• Durbin House

• 180 Northolt Rd

• South Harrow

• Middx. HA2 0LT

• United Kingdom

• **E-mail: www.durbin.co.uk**

• Equipment collection and distribution to the developing world

• 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

• United Kingdom

• **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.

• Society for Education in Anesthesia

• International members are invited to join this Society that promotes techniques and excellence in the teaching of Anesthesia.

• 520N Northwest Highway

• Park Ridge, Illinois 60069-2573

• USA

• **Tel: (847) 825 5586**

• **Fax: (847) 825 5658**

• **E-mail: sea@asahq.org**

• **Web: www.seahq.org**

Useful Information continued

Technical Assistance at Low Cost (TALC)

A unique charity that supplies low-cost healthcare, training and teaching material to raise the standard of healthcare and reduce poverty worldwide.

Contact: David Moreley
Institute of Child Health
Guilford Street
London WC1N 1EH
United Kingdom

Web: www.talcuk.org

Doleurs san Frontieres (DSF).

Goals:

- To participate, to create or to encourage any structure involved in the treatment of pain and suffering (cancer pain, AIDS, acute pain, etc..)
- To search for therapeutic methods, to provide training and to propagate knowledge about pain and suffering especially in developing countries.

For further information contact:

Doleurs sans Frontieres
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

E-mail: alain.serrie@lrb.ap-hop-paris.fr

or

Docteur Jacques Meynadier
Centre Oscar Lambret
BP 307 - 59020 Lille cedex, France

Tel: (+33) 3 20 29 59 89

Fax: (+33) 3 20 29 59 97

E-mail: j-meynadier@o-lambret.fr

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.

International Anesthesia Research Society (IARS)

- 2 Summit Park Drive 140
Cleveland, Ohio 44131
USA
Tel: 216 642 1124

- Fax: 216 642 1127
E-mail: amaggiore@iars.org

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.
E-mail: <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 WCB 4JX.
United Kingdom
Tel: (+44) 020 7637 4104
E-mail: odts@rcoa.ac.uk

- 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:

- Servicing the EMO & Tri-Service vaporisers.
- The oxygen concentrator
- The Manley multivent/
Glostavent
- Servicing the anaesthetic machine

Contact:

Dr. R Eltringham
Gloucestershire Royal Hospital
Gloucester GL1 3NN
United Kingdom

Tel: (+44) 01452 394786 / 394194

Fax: (+44) 01452 394485

E-mail: reltringham@btinternet.com

Job opportunities in the developing world

These are listed in a bimonthly magazine produced by the International Health Exchange and on its website.

Contact:

IHE / RedR
1 Great George St.
London SW1P 3AA
United Kingdom
www.ihe.org.uk

Useful Information continued

US volunteers wishing to spend periods working in developing countries

Contact either:

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

or

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 £35, €50 or \$60. For further information

Contact:

Mrs Busola Adesanya-Yusuf

World Anaesthesia Society

Association of Anaesthetists of Great Britain & Ireland

21 Portland Place

London W1B 1PY

United Kingdom

E-mail: busola@aagbi.org

or

E-mail: carol@world-anaesthesia.org

Website: www.world-anaesthesia.org

* also available at:

www.nda.ox.ac.uk/wfsa

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 IPE

• United Kingdom

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

• 64-74 Saffron Hill

• London EC1N 8QX

• United Kingdom

Tel: (+44) 020 7404 6600

E-mail: office-ldn@london.msf.org

• or

• 11 East 26th St.

• Suite 1904

• New York NY 10010

• USA

Tel: (+1) 212 679 6800.

E-mail: www.msf.org or www.uk.msf.org

WHO Liaison Officer

• Dr M Dobson

• Nuffield Department of Anaesthetics

• The John Radcliffe Hospital

• Headley Way

• Headington

• Oxford OX3 9DU

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Anaesthetic websites to try

Resources

Anaesthesia & Critical Care Resources on the Internet	www2.eur.nl/cgi-bin/accrri.pl
Anaesthesia UK	www.anaesthesiauk.com
Anaesthesia Web	www.anaesthesiaweb.com/
Anaesthesia International	www.geocities.com/anestint
Armenian Society of Anaesthesiologists	http://freenet.am/~armanest
Ask Medline	http://askmedline.nlm.nih.gov
Bandolier (Evidence-based Medicine)	www.jr2.ox.ac.uk/Bandolier
Cyber Medical College	www.cybermedicalcollege.com
Developing Anaesthesia (Australia)	www.developinganaesthesia.org
Gasboys (& gasgirls)	http://gasboys.net
Illustrated Regional Anaesthesia	www.nysora.com or http://depts.washington.edu/anesth/regional/welcome/html
Indian Anaesthetists Forum	www.theiaforum.org
Primary Trauma Care Foundation	www.primarytraumacare.org
Society for Education in Anaesthesia	www.seahq.org
The National Library of Medicine	www.pubmedcentral.nih.gov
The Trauma Organisation	www.trauma.org/
Virtual Anaesthetic Machine	www.vam.anest.ufl.edu
Virtual Anaesthesia Textbook	www.virtual.anaesthesia-textbook.com
Virtual Libraries and Museums	www.www.nda.ox.ac.uk/Pages/BooksFrame.html
World Anaesthesia Online	www.world.anaesthesia.org

Journals:

Anaesthesia	www.blackwell-science.com/ana
Anaesthesia and Analgesia	www.anesthesia-analgesia.org
Anaesthesia and Intensive Care	www.aaic.net.au
Anesthesiology	www.anesthesiology.org
British Journal of Anaesthesia	www.bja.oupjournals.org
British Medical Journal	www.bmj.com
NEJM	www.contents/nejm.org

Journals published by Blackwell, the publishers of numerous anaesthetic and pain journals including the BJA and Acta Anaesthesiologica Scandinavica are available free of charge to those working in developing countries at www.blackwell-science.com/anaesthesia.asp

Associations:

American Society of Anesthesiologists (ASA)	www.asahq.org
Association of Anaesthetists of Great Britain & Ireland	www.aagbi.org
Australian Society of Anesthetists	www.asa.org.au
Douleurs Sans Frontieres	www.douleurs-sans-frontieres.org
European Academy of Anaesthesiology	www.eaa.euro-anaesthesiology.org/
International Anesthesia Research Society	www.iars.org
International Society for Anesthetic Pharmacology (ISAP)	www.isaponline.org
International Society for the Study of Pain	www.iasp-pain.org
International Trauma Anaesthesia & Critical Care Society	www.itaccs.com
National Confidential Enquiry into Patient Outcome and Death	www.ncepod.org.uk
Obstetric Anaesthetists Association	www.oaa-anaes.ac.uk
Royal College of Anaesthetists	www.rcoa.ac.uk/
Society for Ambulatory Anaesthesia	www.sambahq.org
Society for Critical Care Medicine	www.sccm.org
Society for Computing and Technology in Anaesthesia	www.scata.org.uk
South African Society of Anaesthesiologists	www.sasaweb.com
World Federation of Societies of Anaesthesiologists	www.anaesthesiologists.org

World Anaesthesia Society

Application Form

WAS aims to:

- Support anaesthesia and the education of anaesthetists in the developing world through training, material and equipment.
- Act as an advocate in dealings with governments and agencies involved in anaesthesia and resuscitation overseas.
- Maintain a network of appropriately trained and experienced anaesthetists in order to assist members and advise those intending to work in the developing world.

The current subscription is £35 per annum (\$60, €50) and we encourage all our UK based members to pay by direct debit. Direct debit forms can be downloaded from the WAS website (www.worldanaesthesia.org). Members based outside the UK should please complete the credit card form.

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