Providing an obstetric teaching programme in a resource poor country

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Key content
• A practical template for a structured approach when planning a voluntary, obstetric teaching programme in low and middle-income countries.
• How to establish common, obtainable learning objectives that meet the needs of both participants and recipients.
• Examples of teaching programmes and practical educational resources.
• Discussion of cultural differences in medical practice and how to break down barriers.
• Demonstrate that teaching programmes can be mutually beneficial.
• Strategies for providing continuation of the educational link programme.

Learning objectives
• To provide readers with a template for a structured approach when planning a voluntary, obstetric teaching programme in a resource poor country.
• Methods to optimise time and resources in order to benefit the recipients of such a programme.
• To understand the benefits of a cooperative approach between participants and recipients when developing and implementing a teaching strategy.
• To avoid common pitfalls when planning and implementing an obstetric teaching programme in a low and middle-income country (LMIC).

Ethical issues
• Are short-term, voluntary, teaching-focused visits to resource poor countries sustainable?
• How does the provision of teaching programmes benefit the recipients in the long-term?

Keywords: education / link programme / low and middle-income country / obstetric emergencies / teaching / voluntary

Introduction
Improving global women’s health has always been at the heart of the Royal College of Obstetricians and Gynaecologists’ (RCOG) objectives. In recent years the RCOG has facilitated more opportunities for trainees to undertake clinical placements in resource-poor countries with the advent of fellowships, grants and international link projects.1

With the annual global maternal mortality rate currently standing at 287 000 and 99% of these deaths occurring in developing countries,2 it is clear that there are huge inequalities in health across the globe. The United Nation’s Millennium Development Goal (MDG) number 5 of reducing by 75% the maternal mortality ratio between 1990 and 2015, was designed to combat this unacceptably high death rate, stating that:
• All pregnant women should have access to contraception to avoid unintended pregnancies.
• All pregnant women should have access to skilled care at the time of birth.
• All those with complications should have timely access to quality emergency obstetric care.3

This MDG is sadly currently falling short of its target,4 with a suboptimal global decline in maternal mortality of 47% to date.

While Europe has 10 health workers per 1000 population, Sub-Saharan Africa has only 1 per 1000 population.5 Highly functioning healthcare professionals working in effective healthcare systems would be an essential prerequisite for reducing maternal mortality in resource poor areas, but it is an unfortunate fact that the hurdles of difficult working conditions, low motivation, limited awareness of potential obstetric complications and meagre salaries are currently preventing improvements to global maternal health.

One reason for poor motivation among healthcare workers in the developing world is the lack of access to training and
education. The concept of 'brain drain' – the emigration of healthcare workers from low- and middle-income countries (LMICs) to high-income countries (HICs) – further exacerbates the elevated maternal mortality rates in LMICs, and providing effective training programmes is one incentive that may discourage health workers to leave their home country. There is evidence that simple, one-day practical training results in improvement in health worker’s practices. Training of health workers is known to reduce mortality in developing countries; a recent study showed that neonatal deaths were reduced following the delivery of the WHO’s Essential Newborn Care Course to Midwives in Zambia. Furthermore, in a study involving over 19,000 pregnant women, training of traditional birth attendants in Pakistan resulted in a 26% decrease in maternal mortality, with an odds ratio of 0.74.

It is therefore clear that training health workers results in reductions in perinatal and maternal mortality in resource-poor countries. It is therefore of utmost importance that obstetricians and gynaecologists based in resource-rich countries continue to interact with colleagues in resource-poor areas, by engaging in supportive efforts to develop training programmes.

In this article, the authors aim to share their experience of delivering a highly successful teaching programme in Mbarara Regional Referral Hospital, Uganda and to provide the reader with a step-by-step guide for the development of training programmes in resource-poor settings.

Pre-departure planning

Selection of the team

Choosing the correct team is an essential requirement to ensure the project (which will encounter many hurdles and setbacks during the course of its delivery) is successful. There must be a variety of personality types within the team, and the Belbin model of team structure is an appropriate tool to use. It would be beneficial to incorporate roles such as a ‘plant’ (who is highly creative and good at solving problems in unconventional ways) an ‘implementer’ (to plan a practical, workable strategy and carry it out as efficiently as possible) and a ‘shaper’ (to provide the necessary drive to ensure that the team keep moving and not lose focus or momentum). Interviewing potential team members prior to departure would help ensure realistic expectations and allow consideration of the Belbin team roles likely to be held by each member.

A varied, multidisciplinary team is ideal, as this allows the organisation of multi-professional teaching sessions. For example, a team containing a consultant obstetrician/gynaecologist, 2–3 specialty trainees or non-training grade doctors, an anaesthetist and 1–2 midwives would be ideal when visiting a large, regional referral hospital.

When the visit is part of a long-term link programme, it is beneficial if someone in the outgoing team has previously visited the host hospital, and can act as team leader. This is logistically useful, but it also aids the building of relationships and team development between the hosts and the visiting team. Because clinical scenarios may be complex and challenging, seniority of the team is helpful and trainees of ST4 or above are desirable.

Study leave

This should be organised in a timely fashion and for trainees it should be negotiated with the Deanery. When organising our 3-week visit, our leave was composed of 10 days of study leave and 5 days annual leave.

Budget

Usually the outgoing team will need to be self-funding, however the Deanery may have financial resources available. This is worth investigating pre-departure. Many different bursaries, travel grants or sponsorship opportunities are available. For example, the RCOG’s Marcus Filshie Fellowship is due to commence in July 2014. The RCOG also offers grants to international fellows or members wishing to undertake further training in the UK. This may facilitate a return visit by the host doctors from an LMIC.

Further hidden costs such as visas and vaccinations should be considered before departure. Vaccinations are considerably cheaper if purchased privately.

Personal safety

Many developing countries are politically unstable and troubled frequently by natural disasters or outbreaks of infectious diseases such as ebola. Conditions change rapidly, and current travel advice should be sought prior to departure. Up-to-date international disease outbreak alerts can be found at http://www.promedmail.org. Contemporaneous information regarding vaccination requirements can be sought at http://www.masta-travel-health.com.

Consider the need for malaria prophylaxis, DEET, mosquito nets and appropriate clothing that covers legs and arms. Malaria prevention is better than cure and so it is best to avoid getting bitten in the first instance.

The availability of post exposure prophylaxis (PEP) for HIV exposure is essential. The occupational health department in the base hospital may be able to provide a supply of this to an outgoing team.

A simple medical kit is useful and is composed of oral rehydration solutions, broad spectrum antibiotics, analgesics, plasters and sunscreen.

Ensure all team members have comprehensive travel insurance prior to departure.
Road safety poses perhaps the greatest threat to personal safety. The WHO statistics state that in 2010 in Uganda 9655 deaths were caused by road traffic accidents (RTAs) and in 41% of cases pedestrians were killed. This gives a mortality rate of 28.9/100 000, which although high, is significantly lower than the maternal mortality rate 310/100 000.¹³

**Travel**

Generally cheaper fares can be obtained if booked in advance. Some airlines offer discounts for those involved in charity work. For example, the British Airways charity fare allows excess baggage for medical equipment. Information about these fares is not on their website, but can be discussed over the telephone.

‘Key travel’ is a travel agent specialising in obtaining the most economical fares for those in the non-profit making sector. Their helpful website is http://www.keytravel.com.

**Equipment**

Although it is tempting to transport out-of-date NHS supplies to the host hospital, this may not be necessary or useful to the hosts, and it is preferable to liaise with the hosts pre-departure to discover what equipment would be useful and what is available to buy locally.

Sterile services may have surgical instruments (such as needle holders and scissors) that they can no longer use and are often happy to donate them to a charitable cause.

Pharmaceutical companies may have equipment or pharmaceuticals to donate, and enquiries can be made through local company representatives. A particularly useful drug is misoprostol for postpartum haemorrhage management, as it does not require refrigerated storage.

If the visiting team intends to donate a substantial gift to the host department (for example a projector to facilitate teaching sessions), it is advisable to ‘hand-over’ the gift formally. We donated a projector to the head of department in an official ceremony at the morning departmental meeting. Our hosts later explained that this was significant because the department had witnessed the ‘hand-over’ of the gift, and it could therefore not be removed from the department.

**Pre-departure communication with host hospital**

Identify the lead person in the host department who will be the main point of contact for all communication. This will usually be the most senior doctor.

Specific topics for pre-departure discussion (via email or ‘Skype’) with the hosts include:

- The timing of the visit: Planning a mutually convenient time. For example, we coordinated our visit with the new cohort of obstetrics and gynaecology trainees and medical students at the beginning of their academic year. Avoiding overlap with another visiting group is important to prevent saturating the host department.
- The provisional timetable: Ask the hosts for their objectives and requests for teaching topics, rather than blindly imposing a schedule. Enquire who will be receiving the teaching (for example midwives, medical students, doctors), in order to pitch the training at the appropriate level. Health workers in a LMIC have a huge burden of clinical commitments so agreeing a specific timetable (for example before the start of the working day or during lunch time) will increase the likelihood of health workers being able to attend sessions. Aim to identify mutual goals and ensure these are both realistic and achievable within the timeframe.
- Accommodation and hospital transport: Ensure there is adequate accommodation for the party and if not, seek advice on arranging private accommodation. Hospital transport may be available and is often safer than transport arranged at the airport.
- Teaching plan: Once mutual goals have been established the team can start planning the lectures and practical sessions to be delivered. Tasks can be divided between all members of the group, and a wide range of online teaching resources are available to facilitate this (see section on teaching resources).

Internet access can be sporadic and access to printers problematic, therefore it is advisable to print out journal club articles, feedback forms, certificates, pre- and post- course assessments pre-departure.

**The teaching programme**

Upon arrival the host will usually arrange a ‘welcome meeting’ with the dean or hospital director. It is not uncommon for this to be a large, long meeting; however this is a necessary formality, which forms an important component of the host hospital’s culture. Following this ceremony, effective communication and further collaboration will be much facilitated.

Key facilitators (usually senior midwives and obstetricians) should be identified during the departmental introductions, and they should be approached when trying to implement the teaching sessions. We found that gaining rapport with a few key facilitators allowed our subsequent integration into the whole department. An example of an obstetric skills teaching programme can be found in Box 1.

**Communication**

Good communication is essential to optimise the time available. Mobile phones are omnipresent in most LMICs and the best approach is to buy a cheap, unlocked mobile
Box 1. Example of an obstetric skills teaching programme

| Neonatal resuscitation                  |
| Management of vaginal, breech delivery  |
| Shoulder dystocia and cord prolapse management |
| Postpartum haemorrhage                  |
| Eclampsia and pre-eclampsia             |
| Maternal sepsis                         |
| Caesarean section – safe surgical technique |
| Recognising and managing the sick patient |
| Identification and management of obstructed labour |
| Basic obstetric ultrasound: fetal viability, presentation and placental location |

telephone before departing and buying a SIM card in the LMIC in order to contact students and colleagues easily. Email is less reliable as the internet connections can be sporadic.

**Appreciation of cultural differences**

With limited available time it may be tempting to start teaching immediately, however this is not conducive with the working atmosphere in a resource-poor health system, and this approach will start visitors off on the wrong foot. Good working relationships are more likely to be forged by initially visiting the department in a student and observer role, to learn how the department works.

The initial assessment of the new culture is often the most insightful during the first few weeks, so it may be beneficial to note down striking differences and initial impressions of how practices could be improved; then revisiting and re-evaluating these notes once the ‘culture shock’ has worn off.

Take time to assess the social and academic climate of the host department, assess access to resources and then identify the target health workers for teaching. Identify specific training needs and set out learning objectives. Once these have been established, plan teaching sessions that are mutually convenient to cover the agreed syllabus.

Flexibility is key, particularly as the local health workers will have many clinical commitments. It was our experience that reproducing the same lecture or practical workshop at different times during the week allowed maximal attendance from many different health workers. An ‘open-door’ policy of encouraging anyone to attend regardless of their background knowledge is best and if rapport is established at all levels then multidisciplinary sessions can be started. However this is often an unfamiliar approach because midwives and doctors from LMICs traditionally learn separately, but is best managed with a sense of humour!

Pre-course assessment via a short MCQ paper may be helpful to assess baseline knowledge and to target teaching at the appropriate level. It can then be compared with a post-course assessment to gauge the success of the teaching package.

It was our experience that culminating the 3-week teaching programme with each student undertaking a ‘mega-delivery’ clinical exam, resulting in the award of a certificate, was an extremely successful approach. A mega-delivery may take the form of a vaginal breech delivery, which is complicated by a maternal cardiac arrest following a postpartum haemorrhage and the requirement for neonatal resuscitation.

Teaching sessions can come in many guises and a mixture of formal lectures, journal clubs, practical, small group sessions, opportunistic, bed-side teaching and one-to-one basic obstetric ultrasound sessions was highly successful. Flexibility and adaptation of the course structure and content is essential in conjunction with students’ requests. It was our experience that this flexibility helps establish a rapport, which then forms the foundation for an ongoing educational link.

Finally, it is desirable to identify potential trainers locally and train these trainers to facilitate regular, obstetric emergency drills following the departure of the visiting party.

**Feedback**

Contemporaneous post course feedback is easy to collect and is useful when planning subsequent visits.

**Teaching and learning theories**

It is important to be aware of a number of learning theories when preparing a teaching programme. The most fundamental to consider is the 20th century psychologist Maslow’s theory of human motivation, that states that man has a hierarchy of needs, often depicted as a pyramid, whereby lower needs must be fulfilled before needs on the upper tiers can be entertained. It is only once the essential physiological needs (air, food and water) and safety needs (health, employment and shelter) are met that learning and education can be attained. Educational learning is part of the more advanced need of self-actualisation or the attainment of one’s full potential, which is located at the top of Maslow’s pyramid.

The VARK (visual, auditory, reading, and kinesthetic) model of learning is a useful model when planning teaching resources. Conceived by the New Zealand teacher Neil Fleming, he stated that people differ in their learning methods: visual learners gain knowledge best through aids such as pictures and diagrams; auditory learners prefer lectures and discussions; readers learn best via handouts and books; and kinesthetic learners benefit most from tactile activity such as hands-on practical sessions. Therefore to engage the whole audience, a teaching session should encompass all four modalities.

The students will be adults; they are independent and self-directed learners who already have a great deal of experience. Because adults are goal-orientated and value
learning that relates to their everyday life, delivering obstetric emergency skills and ultrasound training via ‘active learning’ in the form of hands-on practical sessions will be successful.\textsuperscript{16}

Another useful educational concept by which adult students learn is David Kolb’s experimental learning model.\textsuperscript{17} This model states that knowledge is gained through a repeating cycle of concrete experience (for example, undertaking a vaginal breech delivery), reflective observation (watching a teacher demonstrate how to perform vaginal breech delivery), abstract conceptualisation (repeating a vaginal breech delivery with new intellectual understanding), and active experimentation (becoming highly skilled at vaginal breech delivery through repetition).

### Teaching resources

Although resources may be poor, internet access is usually available and Box 2 provides links to useful websites with a wealth of resources that will facilitate a teaching programme.

### Post-programme follow-up

Following the implementation of a teaching programme in a LMIC, follow-up communication between the head of the host department and lead person on the visiting team is necessary to ensure that the link is sustained and that the newly attained skills and higher standards of care are maintained. Any resultant improvement in maternal morbidity/mortality can be audited (for example as a medical student project with subsequent email communication between student and visiting trainer) and can provide evidence that the visit is part of the ‘long game’ towards improving women’s health globally.

Some methods of programme follow-up and onward future planning are below.

#### Box 2. Online teaching resources

<table>
<thead>
<tr>
<th>Website</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.promptmaternity.org">www.promptmaternity.org</a></td>
<td>Practical obstetric multi-professional training website where courses and training manuals adapted for use in LMICs are available to purchase.</td>
</tr>
<tr>
<td><a href="http://www.who.int/topics/maternal_health/en/">www.who.int/topics/maternal_health/en/</a></td>
<td>This branch of the World Health Organization website focuses on maternal health, providing links to robust data, statistics by country and relevant, recent publications.</td>
</tr>
<tr>
<td><a href="http://www.plos.org/publications/journals/">www.plos.org/publications/journals/</a></td>
<td>This is the home of open access, peer reviewed journals which is a useful resource when working in LMICs.</td>
</tr>
<tr>
<td><a href="http://www.freebooks4doctors.com/">www.freebooks4doctors.com/</a></td>
<td>This website has unrestricted access to the contents of many medical textbooks and journals. Again vital for encouraging good study skills in LMICs.</td>
</tr>
<tr>
<td><a href="http://www.freemedicaljournals.com/">www.freemedicaljournals.com/</a></td>
<td>Free access to many of the best medical journals including NEJM, BMJ and Obstetrics &amp; Gynecology.</td>
</tr>
<tr>
<td><a href="http://www.talcuk.org/">www.talcuk.org/</a></td>
<td>Free and low-cost healthcare books and accessories available to order.</td>
</tr>
<tr>
<td><a href="http://www.hesperian.org">www.hesperian.org</a></td>
<td>Hesperian is a non-profit making provider of health information/education resources that are easy to read and available in many different languages. These can be useful when planning an educational visit to a LMIC.</td>
</tr>
<tr>
<td><a href="http://www.research4life.org">www.research4life.org</a></td>
<td>A great resource providing free access to peer reviewed medical literature for those working towards achieving the MDGs.</td>
</tr>
</tbody>
</table>

#### Box 3. Commonly encountered obstacles to delivering a successful teaching programme

- Mismatched objectives and goals between the host and visiting team
- Unrealistic expectations or targets
- Didactic teaching approach
- Unidirectional learning
- Inappropriate paternalism
- Disillusioned team, resulting in a dysfunctional team

- Disseminate information about the trip by giving talks at local or regional meetings. This will encourage other trainees to volunteer and continue the teaching link.
- Establish ongoing educational links with your host, for example, using monthly educational Skype sessions to share journal clubs, PowerPoint presentations and videos of local teaching sessions with the resource-poor hospital.
- Organise a reciprocal placement for some of the host obstetricians and gynaecologists in the UK department. This facilitates bi-directional learning and reinforces the link. Consideration should be given to funding, visa requirements, accommodation and clearance with human resources.
- Start planning a future visit, while the returning team are motivated.

Commonly encountered obstacles to delivering a successful teaching programme are listed in Box 3.

### Conclusion

If delivered well, the provision of a teaching session in an LMIC is not only a rewarding experience for both parties; it can also form the foundations of a mutually beneficial forum for continuous professional development between the host and visiting party.
For maximal impact, the learning experience should be bi-directional, with the outgoing team from the HIC subsequently hosting healthcare professionals from the LMIC in a clinical placement. Whilst this may be limited to a clinical observership (through difficulties obtaining GMC registration), it would nonetheless result in both parties experiencing a 360° view of clinical practice in obstetrics and gynaecology, and thereby optimise clinical knowledge.

References

4. MDG Monitor. Improve maternal health [http://www.mdgmonitor.org/goal5.cfm].
Maternal Health Programme, Health Policy Unit, London School of Hygiene and Tropical Medicine, London, UK. This paper outlines the practical steps involved in setting up and running multi-professional, in-depth case reviews of 'near miss' obstetrical complications. It draws on lessons learned in 12 referral hospitals in Benin, Côte d'Ivoire, Ghana and Morocco. A range of feasibility indicators are presented which measured the implementation and frequency of audit activities, the quality of participation, adherence to the planned protocol for the near-miss audits, the quality of In many poor countries, however, the state does not fulfill this obligation. The government may not have the resources to provide a free education for all, either because there is a large, untaxed shadow economy and the tax base is small, or because tax administration and collection are ineffective. And, in many countries (often the same ones), the state does a poor job with the resources it has. But completion of primary school is no guarantee that children have acquired basic academic skills. Surveys in a number of low-income countries document that many adults who have received some schooling (five-six years or less) are functionally illiterate and innumerate. Equally disheartening are the disparities in educational attainment between different groups within countries and regions.