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DFID KNOWLEDGE PROGRAMME on Effective Services, Effective Policies: new knowledge for safer motherhood in poor counties

Lead Organisation:
London School of Hygiene & Tropical Medicine
and Panos

Final Report

1999 – 2005

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1. Achievement of the Research Project Objectives

The **goal** of our programme, *Effective Services, Effective Policies: New Knowledge for Safer Motherhood in Poor Countries,* is to undertake research to address maternal health problems of women in poor countries. Its **purpose** was to help create more effective services by developing new interventions or better service content; to inform effective deployment of resources by beginning to elucidate maternal health policy & health system issues; to monitor & evaluate progress achieved by maternal health programmes; and to build a partnership of collaborators who could conduct such research, communicate findings effectively, and influence policy. The advent of the Health Systems Knowledge Programme, with its considerable maternal health emphasis, led us to drop the health systems component, but otherwise our goal and purpose remained unchanged throughout our programme. With DFID agreement, our **scientific objectives** evolved over time. Following the Triennial Review these were to:

A. Generate new knowledge on:
   1. new treatments in maternal health
   2. enhancing the quality of skilled attendance
   3. what programmes and policies work best
   4. monitoring & evaluation strategies for assessing progress in Safe Motherhood
B. Strengthen maternal & perinatal health research capacity in developing countries
C. Contribute to improving policy, practice and research through work with research and implementation partners and through other dissemination vehicles

These differed from our initial objectives in that research on how best to package and deliver maternity care services was dropped (we found we were not well placed to undertake this type of research); some work on the feasibility of consumer health advocacy was concluded and the rest moved under the "quality of care" rubric (A2); several previous objectives were subsumed within "what programmes and policies work best" (A3), and the relative attention given to demonstrating effectiveness of programmes (part of A4) was reduced. The latter had been a Programme strength, but with the launch of IMMPAct, we attempted to channel these activities through that partnership. Also, our programme was designed before DFID requested Programmes to work through a limited number of developing country partners. After the Triennial Review we consolidated to have greater depth in the two poorest world regions, Asia and Sub-Saharan Africa, although we maintained successful partnerships in other regions that produced important outputs with relatively little input from our side.

The objectives of our programme were achieved. The new knowledge (Objectives A1-A4) generated has appeared in over 125 publications (Programme Outputs 1999-1005: Annex1; Abstracts 2004-5, Project Titles2004-5, Project Outlines 2004-5 and other Activities 2004-5: Annex 2). We also produced findings in other formats such as reports, and have presented at over 100 meetings. New research, with over £16 million in multiplier funding, was made possible by the programme (Annex 3). We strengthened capacity of our collaborators in over 20 sites, largely in sub-Saharan Africa and Asia, but to a lesser extent in Latin America and the Middle East (Section 5). We also aimed to generate and disseminate relevant new knowledge in such a way as to maximise its impact on national and international policy and practice (Section 4).

Achievements against objectives

Objective A(1) Programme staff concentrated on high quality research to support appropriate and effective treatments, particularly those that might be implemented without high resource demands. A major activity is the *ObaapaVitA* trial, conducted with the

Kintampo Health Research Centre (KHRC), Ghana Ministry of Health (A1.a). Over 150,000 women in four districts have been randomised to receive Vitamin A or placebo weekly, until late 2008. All districts are operational, the research team is at strength, and data collection, entry and managements systems are working very well. A Programme member took over as Trial Director in Ghana. Other members increased technical support to the trial. The trial steering committee met in February 2005 and feedback was very positive. Sub-studies held in abeyance due to the complexity of the trial and the death of the Ghanaian PI have resumed. If expectations of 40% reduction in maternal mortality are substantiated, we expect to have a major effect on policy in many developing countries; otherwise, this will prevent resources being wasted on an ineffective intervention.

A pragmatic trial of sulfadoxine-pyrimethamine (SP) and other interventions for malaria and severe anaemia researched early on in the Programme proved effective (39% reduction of severe anaemia with SP) and pragmatic. These were consequently adopted and disseminated by the Malaria Programme, Roll-Back Malaria and USAID. A new project modelling the potential impact of an antenatal "polypill" (via a systematic review on mass treatments in pregnancy) showed a 5-27% impact, with plans underway to look at feasibility of a trial (A.1.b).

Objective A(2) Increasing delivery by skilled attendants is one of two MDG targets set for maternal health. Interventions are needed both to increase access and to improve the quality of skilled attendance. Our work on the latter included literature reviews, new tools to document quality of care, and tests of new interventions to improved quality. We completed a major research intervention project on near-miss audits in Ghana, Benin, Ivory Coast & Morocco (A2.1). The audit tools developed proved useful, though not altogether straightforward to adopt. A further research agenda on this intervention was developed, with work underway in Brazil, and a cluster randomised control trial (RCT) on the effectiveness of patient-centred audits versus guidelines was resubmitted to the EU (A.2.1b).

Programme research showed that giving women appointments was associated with greater uptake of care and that it was feasible to develop emergency drills with "actor patients" to test facility preparedness for obstetric emergencies (A2.1).

Our policy brief on *Birth Rights* generated interest in using an empowerment approach to improve quality. We also investigated improving quality via clients and communities (A2.2). Our early workshop to identify NGO partners to work on improving maternity care was not successful, although groups linked to the White Ribbon Alliance have made headway with this approach. Our RCT of written information in the postpartum in Lebanon showed that information to women improved satisfaction and uptake of services. An RCT using women to advocate for evidence-based practices is underway.

Objective A(3) We also moved beyond the technical aspects of maternal health to address the wider picture. We developed a framework of looking at where and with whom women deliver (A3.1), and conducted widely-quoted case studies of developing countries where maternal mortality is relatively low. This was followed-up with a World Bank volume on countries with general and targeted approaches (Honduras, Yunnan (China), Bolivia, Indonesia, Jamaica and Egypt) as well as a setting where mortality increased (Zimbabwe). These approaches informed many agencies and were adapted to look at perinatal health. We supplemented these with data on the cost-effectiveness of home versus health centre based births with midwives Bangladesh (A.3.1.b), and the costs of various delivery options in Nepal. We also described the role of private sector provision of maternity services in India, Egypt and Indonesia and showed that private delivery care is increasing rapidly (A.3.1.a). We demonstrated problems with regulation of the private sector, and the widespread adoption of harmful practices by skilled attendants.

We also started to describe differences in service use by poverty status. Substantial increases in skilled birth attendance were documented, particularly among the poor, but these were not paralleled by improvements in access to emergency care. Bangladesh provided a unique opportunity to examine poor-rich gaps in the context of free and geographically-accessible basic obstetric care and showed the least poor were three times more likely to seek delivery care from a trained midwife than the poorest.

Key research issues on costing were identified (A3.2) and data collected on the costs of different elements of maternity care services: publicly-funded maternity services in Argentina; home versus facility-based midwifery care in Bangladesh; life-saving skills training in Indonesia; audit in West Africa; and episiotomy in Argentina. Costs to women and families were also assessed, including costs of emergency care in Benin and of the household costs of delivery care in Nepal. Tools were developed to calculate willingness to pay for skilled attendant care. A financing review was produced.

A proposal on how maternal health evidence is translated into policy was initiated (A3.3) and a PhD using a historical perspective to examine how the shifting public health agenda influenced the safe motherhood field was begun.

Research establishing women/communities' perspectives on access and acceptability of services, and identifying opportunities to intervene at this level was delivered or is underway (A.3.4). This included an ethnographic analysis of how women needing emergency care define quality of care and how it can be improved by accounting for women's views. The importance and feasibility of having a family member or friend in attendance to negotiate better quality of care was also identified. Similarly, the impact of user-fees for obstetric emergencies on delays in providing care, reduced quality of care, increased tension between hospital staff and patients, hospital exploitation of higher-income families, and lowered accountability of clinical staff was described. The long-lasting effects of debts incurred by families were also described as were their impacts on marital relations, women's autonomy and social status, and general post-partum well-being.

An enablement framework was developed to analyse how the reproductive health and rights paradigm developed at ICPD can be applied to develop new avenues for making maternity services more women friendly and more accountable to users. This incorporated an emphasis on rights based care and on promoting women's agency in addition to the conventional elements of quality of care (evidence-based, patient-centred and systemically oriented).

The Programme achieved a better epidemiological understanding of the levels and causes of maternal and perinatal ill-health (A3.5), with implications for policy, service provision and measurement. We documented the levels and causes of maternal mortality in Senegal, Indonesia and Egypt, began to do so in Turkey, and looked at the feasibility of such work in Pakistan. We also demonstrated the impact of indirect causes (HIV, malaria, violence and all-cause) on maternal mortality and explored the long-term effects of poor nutrition and childbearing on mortality.

Studies were conducted on the incidence of severe morbidity in West Africa; the incidence of intra and postpartum morbidity in India and Lebanon; and the contribution of anaemia. We supported a PhD research project on causes and risk factors for maternal morbidity and mortality in Uganda and started to look at clinically diagnosed morbidity in the *ObaapaVitA* Trial in Ghana. A cohort study initiated in Benin following up women with a near-miss complication and/or stillbirth will be completed at the end of 2005. Work on perinatal mortality in Bangladesh, Egypt, Brazil and Kenya was published.

Objective A(4) To monitor and evaluating strategies for assessing progress in safe motherhood, the programme developed and tested methods to measure maternal mortality and morbidity (health outcome indicators) and to measure childbirth in a safe environment (process indicators); these are recognised internationally. We partnered in the IMMPAct project to further develop this area. We lead working groups on process indicators and quality of life, and are the main link to Indonesia activities.

Surveillance studies in Gambia, Guinea Bissau, Senegal, Ghana and Bangladesh, Ramos studies in Egypt and Turkey, facility-based studies in Uganda and Lebanon, and a review of use of the Census all informed our understanding of different approaches of measurement of maternal mortality. Where we could look at cause of death, these studies complemented our research on audit. Methodological work on severe obstetric morbidity was also prepared. Research on methods of measuring process indicators included an illustration of using met need for obstetric care and work on interpreting results from different data sources.

Objective B Programme members had a variety of interactions with institutions and individuals in developing countries that have built partnerships; some long-term, others occasional. These strengthened capacity through joint research/'on-the-job' enhancement or formal academic training. We are proud of our overseas capacity strengthening, which was facilitated by supplementary funds from other donors. Section 5, Research Capacity Strengthening, summarizes last year's achievements and provides illustrative examples.

Objective C We aimed to contribute to improving policy, practice and research through work with research and implementation partners and through other dissemination vehicles. We continued using the dissemination strategy described previously (Annex 4). This differed by the type of result and the target audience. Definitive intervention-related information was disseminated via high-profile international journals, conferences and personal contact. Synthesising of results from many studies or experience cumulated over time led to briefing notes or documents for wide dissemination. For context-specific descriptive research, we involved national policy-makers in research planning and in-country dissemination workshops. Links to international policy makers and donors involved in project implementation enabled us to have direct input to international programme direction via discussion. Programme staff were represented at important international meetings. The programme website was developed and updated and received over 15,000 hits per reporting period.

We have evidence that we informed policy, practice and research through our work with research and implementation partners and through our dissemination vehicles. Use of our results is elaborated in Section 4, Policy Relevance, below.

The success of our programme in part stems from long-term funding by DFID (over 10 years) which has contributed to the Maternal Health Group being able to retain high calibre staff and consolidate itself as a specialist Maternal Health Group. We have been able to build good links over a period of several years with a variety of collaborators and to harness complementary skills in other research groups.

2. Summary of Research Work

The scientific literature details many treatments for preventing or managing complications that cause maternal death. Living in a developed country with access to modern maternity services and skilled attendants who can deliver these interventions is 99% effective in reducing maternal mortality. The question for poor countries, where women mostly deliver at home with lay birth attendants, is whether emulating this developed-country model is the best route for reducing maternal mortality, and which elements of this package are critical. We researched alternative interventions ("silver bullets") that were low-tech, inexpensive, and

could be implemented at the grassroots without skilled attendants. Nevertheless a key safe motherhood research priority is to produce evidence to inform the current strategies of skilled attendants and emergency obstetric care, and to improve quality of care. Data to better understand the burden and nature of maternal disease and to monitor and evaluate programmes are also essential. Research was undertaken by the Programme at all these different levels.

Better interventions:

- A trial of sulfadoxine-pyrimethamine via routine antenatal care showed a 39% reduction in severe anaemia. This intervention was adopted by Roll-Back malaria and others in malaria prevention.
- A randomized controlled trial of over 150,000 women to confirm previous work showing 43% reduction in pregnancy-related mortality. If validated this could have a major impact on women's health.
- An antenatal "polypill" (mass treatment in pregnancy) showed a theoretical impact of 5-27%.

Better quality of care:

- Near-miss audits in Ghana, Benin, Ivory Coast & Morocco showed audit tools were useful, though not altogether straightforward to adopt. They were incorporated in WHO's *Beyond the Numbers* guidelines and widely disseminated, generating much interest.
- A pragmatic tool to document quality of facility care was developed in Lebanon, and adopted in Russia, Syria and the West Bank. It identified widespread non-beneficial practices (e.g. routine augmentation with oxytocin) and low prevalence of beneficial practices (e.g. companionship during labour and delivery). Cost data on episiotomy in Argentina showed that non-evidence based practices are costly (up to ¼ million dollars per district).

Better strategies:

- A framework looking at where and with whom women deliver was developed and applied to countries with low maternal mortality (Honduras, China, Bolivia, Indonesia, Jamaica and Egypt). These widely quoted case-studies support the need for skilled attendance, have informed many agencies, and were adapted by others to perinatal health.
- Studies in India, Egypt and Indonesia showed private delivery care is increasing rapidly. In Indonesia, substantial increases in births with skilled attendants among the poor were not paralleled by access to emergency care. In Bangladesh, the richest are three times more likely to seek care from a trained midwife than the poorest.
- Counter-intuitive findings were produced on costs of delivery in Bangladesh and Nepal. Costs of facility and home births by midwives were similar in Bangladesh; efficiencies in health centres were offset by higher equipment costs. In Nepal, costs to women of home delivery care with TBAs or midwives were similar. Transport costs made facility births expensive for normal delivery, while hospital charges increased costs of complicated deliveries. Beninese families spent a third of their annual household income on complications. Nepal adopted a national policy of cash incentives to women and midwives to offset transport costs, and of fee waiver in poor districts.
- Ethnographic analysis of women's views of quality showed the importance of family members in negotiating quality.

Better understanding of disease burden and better monitoring & evaluation

- Methods for measuring maternal mortality and morbidity (health outcome indicators) and process indicators were developed and tested, including levels and causes of maternal mortality in Senegal, Indonesia and Egypt, and Uganda; incidence of severe morbidity in West Africa, and of intra and postpartum morbidity in India. Methods included census, surveillance, Ramos, and facility based studies, and verbal autopsy.
- The contribution of HIV, malaria and violence on maternal mortality was estimated and research on process indicators illustrated the use of "met need for obstetric care".

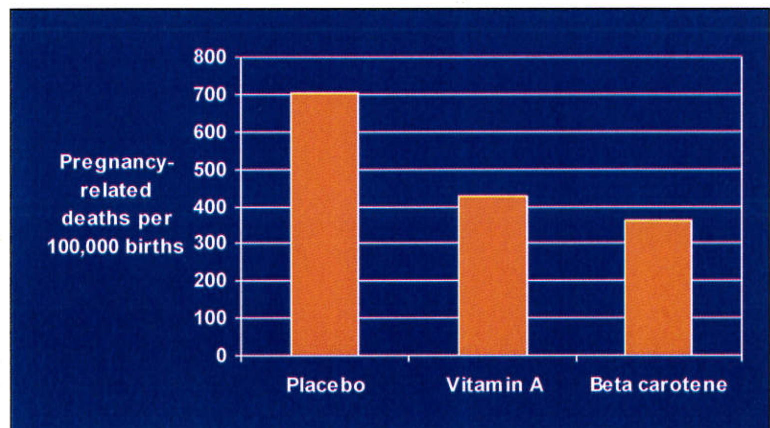
3. Results of the Research Project

Annex 1 lists over 100 peer-reviewed journal articles and Annex 2 has abstracts of 28 research papers produced in the last year of the Programme (2004-5). It is not possible to do justice to this range of new knowledge in a few paragraphs. We selected a few visual representations of recent findings to highlight some of the programme outputs described in Section 2 above.

Better Interventions: The benefits of sulfadoxine-pyriethamine for maternal health are quoted in WHO's 2004 *A Strategic Framework* ***for Malaria*** *Prevention and Control During Pregnancy in the Africa Region.* The effect of Vitamin A on pregnancy-related mortality (not our Programme results) that we are validating in ObaapaVitA

Box 3
Successful intermittent preventive treatment in east and southern Africa

Studies in Kenya and Malawi have shown that intermittent preventive treatment (IPT) with sulfadoxine-pyrimethamine (SP) has a beneficial impact on maternal and infant health. IPT with SP, when delivered as part of antenatal care, significantly reduces the prevalence of maternal anaemia and placental parasitaemia and the incidence of low birth weight [2, 45–47]. No significant adverse reactions to SP in either mother or infant have been detected.



Better Quality of Care: Results derived from the near-miss audits and from a tool assessing facility practices for normal birth

Audit results for woman with placenta praevia who arrived in shock

Identification of good practice:
Very good initial resuscitation
→ Staff praised during audit meeting

Identification of a deficiency at initial assessment:
Vaginal examination in a woman suspected of placenta praevia could provoke massive haemorrhage
→ reasons: person in attendance uncertain about diagnosis; senior staff in theatre
→ solution: special session on diagnosis and management of patients suspected of placenta praevia planned for the following week

Table 5. Percent distribution of forms of care likely to be ineffective or harmful as observed in the hospital in Egypt and as reported by hospitals in Lebanon, Syria and the West Bank.

Practices	Egypt	Lebanon	Syria	West Bank
Routine enema	3%	77% empty lower bowel	9%	50%
Routine pubic shaving	1%	92%	56%	32%
Routine lithotomy position during the second stage	100%	100%	93%	96%
Routine or liberal use of episiotomy	93% for primiparas	56% routine; 44% doctor decides	95%	78% for primiparas

Better strategies: Findings from a framework that looks at where women deliver and who delivers them, and the resulting maternal mortality ratios (MMRs) and approaches tapping into women and their families resources

Case studies: main findings

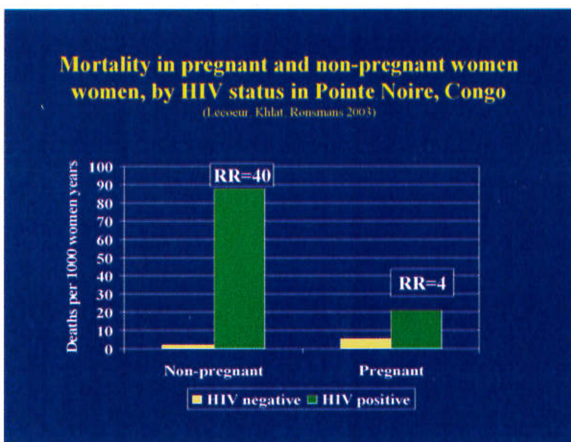
- Where non-professionals carry out home deliveries, MMRs are often between 500-1000 per 100,000
- Some successes with home delivery by non-professional but no evidence of MMRs <100 per 100,000
- Models with professional attendants and strong referral mechanisms have MMRs around 50 or below irrespective of where birth takes place
- Hospital births with professional does not necessarily bring MMRs below 100

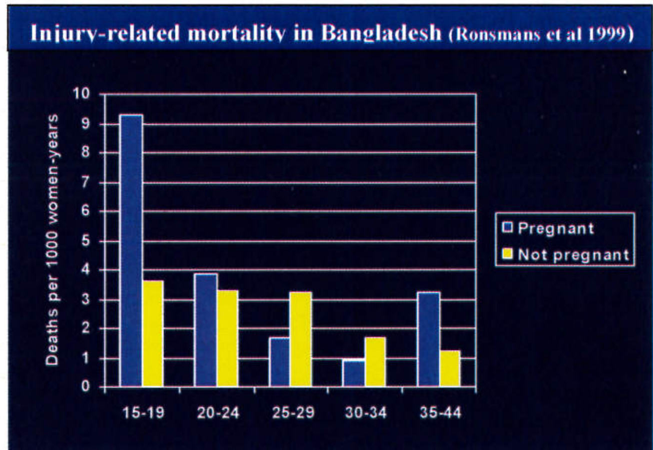
What factors enable women to engage with QoC?

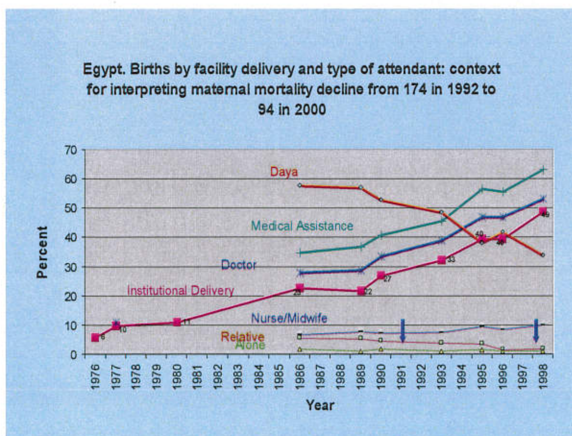
- Family's social status: marginalization from the health care system
  - Economic status, husbands reproductive status, late arrivals in hospitals
- Family support and *the garde-malade*: the importance of an "inside" advocate
  - Advocate, care-taker, supporter, surrogate nurse, confronts staff authority & makes specific clinical demands, change care-giving practices

Most women can count on someone
Completely alone – 07 (13%)
Husband primarily – 19 (36%)
Female kin/family – 27 (51%)

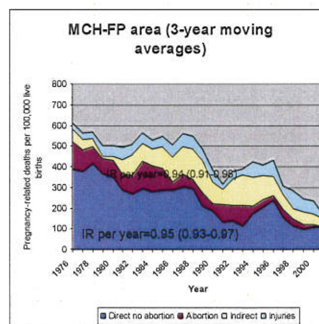
Better understanding of disease burden and better monitoring and evaluation: Results showing the contribution of pregnancy to mortality in HIV positive and negative women and of injury to deaths by age and pregnancy status. Examples of use of trends in process and mortality indicators to understand influences on mortality.

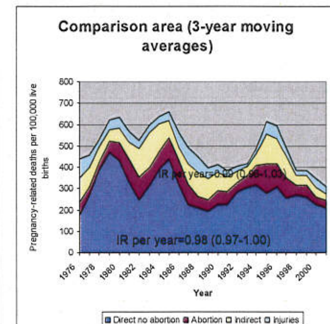






Pregnancy-related mortality by cause
(Matlab 1976-2001) MCH-FP & Comparison area





4. Policy relevance

Programme research is directed at strategic policy makers at international and national level and at programme managers in the public sector. Many new health initiatives originate at international fora and are then promulgated in developing countries. The programme manager audience is important because most problems and solutions are context-specific. Objectives A1, A3, and A4 are largely relevant to the first audience and objective A2 to the second.

Below we cite evidence that our research outputs are relevant to policy and programmes, and that many have already made an impact:

- Interventions for malaria and severe anaemia adopted by malaria control programmes
- Negotiations are underway with the Ghana MoH to ensure Vitamin A supplementation policy is evidence-based rather than jumping on the supplementation bandwagon.
- Near-miss audit work influenced WHO recommendations. It contributed to national implementation of audit in Morocco and Ghana, and there is interest in Brazil, Algeria and Niger. Training of trainers has been conducted in two WHO regions. Other quality of care tools have been used nationally (Syria & the West Bank).
- Work on country case-studies generated enormous interest among international policy makers and was replicated by the World Bank and now Saving New-born Lives.
- Costing work in Nepal work led to national policy to offset transport costs for midwives and women, and to cover maternity care service costs in the poorest districts.
- A Review of Financing mechanisms fed into *The World Health Report 2005 – Make Every Mother and Child Count*
- Measurement lessons learnt are widely cited and used and methodological work informed new monitoring and evaluation proposals (IMMPAct).
- Materials developed have been used for policy briefs by others (PANOS; Population Reference Bureau). Formal training materials, such as the WHO manual "Social sciences methods for research on reproductive health", authored by programme staff, are widely used. The latter is in its second printing and has been translated into Chinese and Spanish. The more recent WHO manual featuring our work "Beyond the Numbers" has been in heavy demand.
- We have been instrumental in developing new areas of research that have been picked up in other Programmes and by other researchers.
- Finally, the body of worked produced during the Programme was instrumental in allowing us to argue for a Lancet series on maternal health.

Our main recommendation to get research findings into policy and practice at the international level is to participate in relevant technical and advisory groups. Context-specific results require liaison with national programme decision-makers often via donors or local collaborators.

5. Research Capacity Strengthening

The major components of our capacity strengthening activities are shown in the figure below. In most cases we believe capacity enhancement has been sustained and many collaborative activities are being maintained beyond this current Programme. Four of our partners joined us successfully as bidders in the new *Towards 4&5* consortium and others had obtained their own funds to support maternal health research programmes (from Wellcome Trust, WHO and the Brazilian national government). We also participated in wider capacity

strengthening activities with policy makers (in developing countries and international agencies) to interpret research findings.

For example, the near-miss obstetric morbidity study included partners in four West African and two EU countries. Direct one-on one contact and training workshops (in country and at the LSHTM) enhanced individual capacities, while the approach to institutionalizing the research activity supported the institutions conducting the research and ensured that national policy makers could interpret findings. Once guidelines on our approach were produced, programme members were involved in regional workshops in West Africa and in the WHO Euro Region to train trainers on these. By contrast, links to the Wellcome-funded Middle East regional network occured by mentoring on how to manage a research network and identification of resource people for workshop support, most recently on the conduct of clinical trials. Our long-term Ghana/LSHTM links included opportunities for on-the-job training in a variety of skills, and visits/training at the London School and elsewhere. Most recently, a Ghanaian PhD student with anthropology/sociology skills was encouraged to undertake field work in Kintampo, resulting in mutual enhancement of research capacity.

Capacity strengthening also derived from the formal training we did in Masters, Diploma and short courses at LSHTM, and occasional teaching elsewhere (ICH; Antwerp; Karolinska). Staff members of developing country institutions do PhDs or MScs in London, and PhD students from the UK work in developing countries. These contacts "snowball" into continuing research collaborations. WHO, British Council and Wellcome Trust academic links have led to developing joint research proposals, proposal development workshops and training, paper writing workshops, and training in advanced epidemiological methods. Our own group's capacity was also enhanced by maintaining a critical mass that allows us to work as a group and attract and maintain a large portfolio of work. Without the work programme, we would not have anywhere near the current capacity to work in the area of maternal health.

Capacity building & collaborations with partners (2004-05)

Collaborators/Partners	Level & nature of collaboration	Impact on capacity
Long term research partnerships		
Kintampo Research Centre Health Services Research Unit MoH, Ghana	Collaborative study on vitamin A and maternal mortality	Very considerable skill enhancement in designing and managing large field trials. Postgraduate training; GIS and qualitative data collection and analysis; quantitative data collection & management. Staff moved there.
International Centre for Diarrhoeal Research , Bangladesh	Research partner in a project entitled "Strategies to reduce maternal mortality"	Considerable skill enhancement in design of studies, quantitative data collection, analysis and writing up
Centre de Recherche en Reproduction Humaine et en Demographie (CERRHUD), Benin	Research partner in a project entitled "health and psychosocial consequences of severe, near-miss obstetric morbidity in Benin"	Considerable skill enhancement in design of studies, quantitative and qualitative collection, analysis and writing up
University of Indonesia	Extensive collaboration via IMMPAct	Considerable skill enhancement in participating in large-scale evaluation. Help with ethics review, design, data collection, analysis and paper-writing. Close links with Ministry of Health (MOH), capacity strengthening of MOH staff through workshops and short course training
American University of Beirut, Lebanon & Regional Project in West Bank Palestine, Egypt, and Syria	Visits for proposal development, fieldwork, analysis, paper writing, workshop planning. Secondment of LSHTM staff	Considerable skill enhancement, international contacts, new research direction, major funding, new projects, (including joint PhD project), expansion to region, dissemination efforts

Capacity building & collaborations with partners (2004-05)		
Collaborators/Partners	**Level & nature of collaboration**	**Impact on capacity**
Africa Centre for Health and Population Studies, Durban, South Africa	Develop joint proposal	Skill enhancement, possibility for future collaborative research
Centre Muraz, Burkina Faso	IMMPAct site	Skill enhancement in research tool development, data analysis and participation in large-scale evaluation
Noguchi Memorial Institute for Medical Research, Ghana	IMMPAct site	Some skill enhancement in research tool development, data analysis and participation in large-scale evaluation
Makerere University, Uganda	Study supported, reporting underway	Considerable skill enhancement and PhD completed
MIRA (Mother and Infant Research Activites)	Economic evaluation of a community-based maternal and neonatal health intervention in rural Nepal. (With the Institute of Child Health)	Considerable skill enhancement in health economics
Department of Social Medicine, Federal University of Pelotas, Brazil	Research collaboration on ongoing 1982 birth cohort study	Skills enhancement, one PhD and one MSc degree underway (in Brazilian institutions), future research collaboration likely
University of Campinas (UNICAMP) and Sao Paulo State MOH	Use of alternative indicators in Brazil to improve maternal health	Previous MSc. WHO fellow/University academic to develop proposal. Considerable skill enhancement in teaching and research methods. Project awarded funding
SEARCH, Gadchiroli, India	Writing project findings on maternal morbidity	Some enhancement in analyzing maternal morbidity and commentary regarding safe motherhood strategies
Ministry of Health, Egypt	Epidemiologic studies of maternal mortality, stillbirths and maternal mortality	Work with MoH employees trained in field epidemiology by CDC, USA. Some skill enhancement
Ministry of Health Uzbekistan (with WHO-EURO)	Proposal development on patient-centred case reviews	Skill enhancement, development of implementation and evaluation programme for facility-based case reviews of life-threatening obstetric complications.
Ministry of Health, Turkey	Trained over 80 MoH staff in measurement of maternal mortality & trained over 10,000 village headmen to collect information on deaths	Skill enhancement, development of approach which could be sustained as a form of vital registration
Global Partnership for Maternal and Newborn Health	Participated in Technical meetings	Contributed to guiding strategy
Formal training		
LSHTM LSHTM	MSc teaching; short course teaching Study Unit "Current Issues in Safe Motherhood and Perinatal Health"	Over 160 students; Public health Lecture series on Maternal Health 41 Students
Institute of Tropical Medicine, Antwerp, Belgium	MSc teaching	
European Course in Tropical Epidemiology	Short course teaching	

6. Work Outstanding

Our 2004/5 logframe demonstrates that most key outputs have been produced, and most key objectives achieved. We remain committed to our partners and our research. Incomplete activities will continue with non-DFID KP funds, and some, together with new activities, will continue within the newly awarded DFID consortium, *Towards 4&5.*

7. Intellectual Property Rights

None.

8. Financial Summary

Following.

9. Links with DFID

Over the past 5 years, we have had contacts with many DFID staff; our programme staff have briefed or collaborated with DFID on numerous occasions. We have had some links with other DFID Knowledge programmes including *Malaria, Health Economics, Health Systems* and *Reproductive Health* (all at LSHTM) and with *Reproductive Health* at Southampton and *Child Health* at the Institute of Child Health.

DFID-UK Advisors and Field Offices:

Links with DFID UK Advisors have been made through individual meetings, DFID Programme meetings and consultation/expert-group meetings on Maternal Health-related topics. Many of our historic partnerships were not in countries with DFID field offices. Links with DFID field-office staff have been forged primarily through project-related work, particularly in Bangladesh.

DFID's management approach to the knowledge programmes is much appreciated; the flexibility has allowed us to make initiate and develop research in important areas and sustain long standing partnerships. In the middle years of the programme, we found the turnover of link advisors difficult, but communication was improved. The annual reviews of progress were especially useful. We would welcome more contact with DFID bilateral programes and field offices; we see them as an opportunity to understand and respond to research needs grounded in countries' realities.

Future DFID seminars: three areas for inclusion

1. The importance of project/programme design demonstrating health impact
2. Tools and approaches for measuring and improving quality of care in maternity services
3. What is the evidence for the skilled attendant strategy in safe motherhood and how does it mesh with strategies being proposed for the neonate.

These relate to the main objectives of our research programme but also address topics of future relevance where DFID field offices may be able to make a difference.

Logframe 2004 – 2005

LOGICAL FRAMEWORK: APRIL 2004 TO MARCH 2005

NARRATIVE SUMMARY	ACTIVITIES	VERIFIABLE INDICATORS	STATUS
A1. Generate knowledge on new treatments in maternal health			
a. Vitamin A	a. Continue inputs to implementing field trial on whether vitamin A supplementation significantly reduces maternal mortality (continuing monitoring field procedures and quality of data collection on maternal outcomes)	a. Increased budget; procedures for monitoring quality of maternal outcomes data; adequacy of procedures; field reports on data quality	a. DFID have approved the increased budget, with funding agreed until 2009. The trial steering committee met in Ghana February 2005 and feedback from the meeting has been very positive; suggested improvements will be implemented during 2005
b. Polypill	b. Conduct modelling on potential impact of integrated package of interventions	b. Literature collected	b. 134 articles reviewed, two papers submitted
A2. Generate knowledge on enhancing the quality of skilled attendance			
A.2.1 Via audits and tools for providers			
	a. Get near-miss audit research into policy and practice in partnership with WHO by: (i) continuing to support WHO's audit dissemination activities; (ii) assisting WHO in evaluating the impact of the 'training of trainers' regional workshop activities; (iii) developing 'how to do' guidelines on case review through an experts meeting; and (iv) organising a scientific meeting on facility-based clinical audits in poor resource countries	a. Participation in dissemination workshops; meetings and workshop proceedings; 'how to do' case review guidelines; interviews with audit implementers	a.(i)Training material on near-miss case reviews developed; audits implementers interviewed; (ii) participation in 4 Training of Trainers workshops; (iii)not done as not cost effective, however "How to do" training materials prepared; (iv) not done as no funding identified
	b. Continue research activities exploring the effectiveness of audits in improving the quality of obstetric care (RCT of effectiveness of patient-centred audit) and other quality assurance interventions	b. Proposal funded by EU for starting time in 2004; proposals prepared with the Wellcome Trust Population and Reproductive Health Regional Programmes	b. Proposal prepared and accepted scientifically, but changes in set-up of consortium and budget requested. To be resubmitted Sep 2005
A.2.2 Via clients and communities			
	a. Establish potential contribution of including women's perspectives in the process of clinical audits	a. Paper written	a. Analysis conducted, draft paper has been written
A.3 Generate knowledge on what programmes and policies work best			
A.3.1 Establish where and with whom women should deliver			
	a. Disseminate new knowledge on how use of skilled attendants for maternity care, including private sector care, has been evolving in India and Egypt	a. Papers submitted and presented	a. Draft proposal prepared and conference presentation undertaken

NARRATIVE SUMMARY	ACTIVITIES	VERIFIABLE INDICATORS	STATUS
	b. Finalise project in Bangladesh comparing the cost-effectiveness of skilled delivery care in a health centre with skilled delivery care at home	b. Data analysed, final report written, dissemination workshop organised, draft papers written	b. Data analysed, final report written, dissemination workshop held, two papers have been submitted
	c. Coordinate IMMPACT's activities in Indonesia to determine effective and cost-effective strategies for reducing maternal mortality (including community midwives) d. Establish IMMPACT typology of 'best bet best buys' in safe motherhood e. Continue research activities exploring the cost-effectiveness of skilled attendants at delivery (RCT comparing health centres with and without a professional attendant)	c,d. Annual reports IMMPACT written, meetings attended e. Proposals funded by EU for starting time in 2004, field work started	c. 6-monthly scientific reports written, regular visits to Indonesia ongoing, work programme leader meetings attended d. Participated in Aberdeen meeting to identify typology e. Proposal written and submitted to EU but was not funded
A.3.2 Produce knowledge on costs and financing of safe motherhood services			
a. costs	Get economics research into policy and practice by: a.1 Establishing the cost effectiveness of home compared to facility based delivery in rural Bangladesh a.2 Disseminating the costs of improving QoC using near-miss audit approach a.3.Quantifying household costs, affordability of obstetric care and willingness to pay for these services in Bangladesh and Nepal a.4. Conducting an economic evaluation of 'complex' maternal and newborn health interventions a.5. Writing lessons learnt document from economics research over past years	a.1. Report, conference presentation and article in peer-reviewed journal a.2. Participate in dissemination workshop and write article in peer-reviewed journal. a.3. Report and papers a.4. PhD upgrading, field work and data analysis a.5. Lessons learnt document	a.1 One conference presentation made and one article to be submitted mid-2005 a.2 The workshop has not taken place and the paper has not yet been completed a.3 Completed. Report written, one paper accepted for publication and one in progress a.4 Completed. PhD upgraded, fieldwork undertaken and data analysis conducted. Two papers have been submitted for publication a.5 Rather than a stand alone document, lessons learnt have been incorporated into each of the papers mentioned above and that on financing
b. financing	b.1 Finalise review of financing options for maternal health, including relationship with poverty, for WHO Maternal-Newborn Health and Poverty Project	b.1 Chapter in WHO book on Maternal-Newborn Health and Poverty	b.1 Completed. To be published in the forthcoming months

NARRATIVE SUMMARY	ACTIVITIES	VERIFIABLE INDICATORS	STATUS
A.3.3 Describe how policies influence Maternal Health strategies			
	a. Acquire new ethnographic knowledge on how policy makers, MoH public health specialists and hospital providers prioritise and adapt international recommendations on audit to their own context	a. Funding acquired, interviews, reports and publishable paper	a. Funding acquired, interviews conducted, paper drafted and presented at Mexico Global Health Forum meeting
A.3.4 Establish women/communities' perspectives on access and acceptability of services			
	a. Conclude the first part of a systematic review on effectiveness of interventions to improve women's experience with maternity care	a. Paper prepared	a. Draft paper prepared
A.3.5 Generate knowledge on the burden of disease related to maternal & perinatal health to inform policy making			
a. maternal	a.1 Disseminate new knowledge on: (i) the magnitude and risk factors for severe maternal morbidity in Uganda/ West Africa; (ii) the contribution of indirect causes of death to maternal mortality in Bangladesh; and, (iii) the magnitude of postpartum infection in developing countries	a.1 PhD thesis; present work at collaborating centre in Bangladesh; MPhil thesis; draft papers	a.1 (i) severe maternal morbidity PhD awarded; Uganda papers in preparation (ii) analysis completed, draft paper written. Results presented at the annual conferences of the Population Association of America and British Society of Population Studies in 2004; main results paper to be submitted to a peer-reviewed journal in mid-2005 (iii) MPhil thesis submitted
	a.2 Disseminate / acquire new knowledge (i) on the interaction between HIV/AIDS and maternal health in Congo/Brazzaville, South Africa and Brazil; and (ii) the effect of HIV epidemic on fertility	a.2 Papers submitted (Congo, fertility); analysis in South Africa started; proposal written, initial fieldwork conducted in Brazil	a.2 (i) Paper on Congo published in AIDS; analysis in South Africa not conducted as the researcher did not take up the fellowship for personal reasons (ii) paper published in AIDS
	a.3 Acquire new knowledge on long term health and psycho-social consequences of near-miss and other adverse events in pregnancy on women/children in Benin, Bangladesh, Brazil and IMMPACT focus countries	a.3 Correspondence with WHO/HRP & CERRHUD (Benin study); proposals to Wellcome Trust/other funders (Brazil, Bangladesh); annual reports to IMMPACT; initial analyses	a.3 Correpondence completed, proposals prepared and submitted for funding. Benin and Burkina Faso cohort recruited; fieldwork is about to start in Indonesia; Bangladesh proposal under discussion; quantitative and qualitative data collection has started in Brazil with funding from the Wellcome Trust

NARRATIVE SUMMARY	ACTIVITIES	VERIFIABLE INDICATORS	STATUS
b.1 perinatal	b.1 Disseminate new knowledge on risk factors for perinatal mortality in Egypt and Sao Paolo, Brazil b.2 Disseminate new knowledge on breastfeeding and postpartum health	b.1 Papers written and submitted b.2 Papers written	b.1 Two papers have been published, a further draft has been prepared b.2 Paper prepared
A.4 Generate knowledge on monitoring and evaluation strategies for assessing progress in Safe Motherhood (SM)			
A.4.1 Develop new instruments for measuring and monitoring outcomes, processes of care and quality of life in SM & assess links of processes indicators to maternal and perinatal health outcomes			
	a. Lead (i)process measurement and (ii) post pregnancy outcomes work programmes within IMMPACT b. Get morbidity research into evaluation policy and practice by writing lessons learnt document on use of morbidity for monitoring progress	a. Analysis of secondary data; field activities in focus countries b. Lessons learnt document	a. Analysis of secondary data ongoing, two draft papers written, one paper published in Bull WHO, field activities ongoing in Indonesia, Burkina Faso and Ghana b. document not completed
A.4.2 Contribute to developing methods for rigorously testing organisational interventions in developing countries			
	a. Explore opportunities of methodological cooperation with Cochrane 'Effective Practice and Organisation of Care' group b. Investigate reasons for social, cultural, economic and organisational changes in hospital systems undergoing QoC interventions	a. Correspondence with EPOC b. Paper on Benin near-miss data; Ethnographic methodologies developed for incorporation in an RCT on effectiveness of emergencies audits	a. Paper published b. Proposal contributions written, with new anthropological project on audit technologies being drafted for submission in July 2005

NARRATIVE SUMMARY	ACTIVITIES	VERIFIABLE INDICATORS	STATUS
B Strengthen maternal and perinatal health research capacity in developing countries through the following mechanisms:			
B.1. Long-term research partnerships			
	Continue long-term collaborative research with: ▪ International Centre for Diarrhoeal Diseases Research (Bangladesh); ▪ Centre de Recherche en Reproduction Humaine et en Démographie (Benin); ▪ Kintampo Health Research Centre (Ghana) ▪ University of Indonesia (Indonesia) ▪ Wellcome Trust Middle East Childbirth Research Network (Lebanon, Palestine, Syria, Egypt) ▪ Department of Social Medicine, Federal University of Pelotas, Brazil	Research training through ongoing research projects (designing, conducting and writing up research); professional attachments to LSHTM to conduct interim analyses; professional attachments at the Wellcome Trust MECRN; joint research proposals, reports or papers	ICDDR,B: Regular visits to the ICDDR,B, joint papers have been written, new proposal has been submitted Benini: Collaboration strong with collaborative study underway Kintampo: Long term collaboration involving Vitamin A Trial University of Indonesia: regular visits, development of filed instruments, visits to London for interim analyses Wellcome Trust Middle East: 5-year funding programme secured, research training through research projects ongoing, joint paper prepared and submitted to BJOG. University of Pelotas: collaboration on project funded by The Wellcome Trust
B.2. Occasional research partnerships			
	Initiate or continue occasional collaborative research with: ▪ Africa Centre for Health and Population Studies in South Africa ▪ Centre Muraz in Burkina Faso & Noguchi Memorial Institute for Medical Research (NMIMR) in Ghana (through IMMPACT) ▪ Uganda Makerere University ▪ Ministry of Health, Guinea, and GTZ, Germany ▪ Mother and Infant Research Activities (MIRA), Nepal; ▪ Institute of Population and Social Research of Mahidol University in Thailand ▪ CLAP (Centro Latino Americano de Perinatologia e Desenvolvimento Humano) Montevideo, Uruguay ▪ Brazil-British Council links (Sao Paulo & Receife)		Africa Centre: collaboration has been stopped, as researcher did not take up fellowship for personal reasons Centre Muraz: close collaborator within IMMPACT. regular visits, development of field instruments, joint analyses of DHS data; common research interest in polypill Noguchi: regular visits, development of field instruments Uganda: severe maternal morbidity PhD awarded; papers in preparation MoH Guinea: MSc thesis submitted, paper in preparation, submission of second MsC thesis scheduled for September 2005. MIRA: Economic evaluation is complete, draft paper submitted to the Lancet; Analysis of data on willingness-to-pay is underway Mahidol University: A Wellcome Trust funded study, to evaluate the correpondence of survey questionnaire responses and hospital clinical records related to maternal and child health has been carried out and reported. A cohort study in the same population was not funded. CLAP:Long-term partner for occasional collaboration. Sao Paulo: Research ongoing, researcher visited London, paper being drafted. Receife: Researcher unable to travel to London to develop proposal

NARRATIVE SUMMARY	ACTIVITIES	VERIFIABLE INDICATIORS	STATUS
B3. Formal training			
	Continue curriculum development and teaching at LSHTM (maternal, perinatal & reproductive health, epidemiology and statistics, social science methods, economic evaluation) and at the Institute of Tropical Medicine (ITM) in Antwerp, Belgium (maternal health and statistics) Continue MSc and PhD student supervision	Students taught in relevant topics at LSHTM and ITM; at least 20 MSc and 8 PhD students supervised	Done, including 9 MSc and 12 PhD projects relating specifically to maternal health

NARRATIVE SUMMARY	ACTIVITIES	VERIFIABLE INDICATORS	STATUS
C. Contributions to improving policy, practice and research through advisory/work with research and implementation partners and through other vehicles for dissemination.			
C.1. Work with UK and International research partnerships			
	Work with DFID Knowledge Programmes: Health Systems ; Perinatal Health ; Health Economics ; two Reproductive Health programmes; Work with other research groups: Toolkit, IMMPACT, MEASURE, Wellcome Regional Population & Reproductive Health Programmes (South Africa, Lebanon, Thailand), INDEPTH, EPOC, ; Present at conferences: International Health Economics Association Conference. Review journal articles & proposals	Joint meetings Joint research plans Annual reports	Meetings organised and attended, collaborative research proposals prepared and submitted, contributions made to reports (see Programme Outputs section for details)
C.2. Disseminate to national and international policy-makers and implementers			
	Global: Take advantage of MH interventions planned by bilateral or multilateral organisations active in maternal health field for scientific evaluation by strengthening existing links or establishing new ones Attend workshops with key groups of international policymakers and implementers including AMDD; WHO, SMI, World Bank, Nepal Safe Motherhood Project (Options), Kathmandu	Joint meetings Joint research plans Annual reports	Inter-agency meetings attended, collaborative research proposals prepared and submitted, reports prepared (see Programme Outputs section for details)
	Organise/attend dissemination workshops	Conference & workshop presentations Workshops attended	Conferences and workshops organised, and attended (see Programme Outputs section for details)
C.3. Disseminate through publications newsletters, internet and other vehicles			
	Publish in journals and books. Seek partnerships to better disseminate key information to health policy makers and providers, particularly through ID21, Panos, and PRB by creating newsletters/news media	Papers published. Newsletters; Media coverage; Alternate means of dissemination	Activities disseminated via articles in peer-reviewed journals, book chapters, reports and newsletters attended (see Programme Outputs section for details)
	Maintain revised LSHTM web pages	Improvements to website	Website updated at http://www.lshtm.ac.uk/ideu/mp