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Interventions for Impact in Essential Obstetric and Newborn Care

Asia Regional Meeting | 3–6 May 2012 | Dhaka, Bangladesh
Meeting Report



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Table of Contents

Abbreviations and Acronyms	vii
Acknowledgments	ix
Executive Summary.....	x
Scope and Purpose	x
Overview.....	x
Context.....	xi
Take-Home Messages	xii
Introduction	1
Special Feature: Online Engagement	3
Summary.....	3
Different Media Used	3
Reach and Impact	5
Costs and Savings	6
Lessons Learned	7
Opening Day, 3 May 2012	8
Special Technical Sessions	8
Opening Ceremony	8
Day 1, 4 May 2012	13
Plenaries	13
Plenary 1: Improvements in Maternal Health: The Changing Situation in MNH in Asia.....	13
P-1.1: Maternal Mortality, 1990–2011: Asia and Pacific Stories of Tremendous Successes	13
P-1.2: Afghanistan’s Experience in Reducing Maternal Mortality.....	13
P-1.3: Reducing Maternal Mortality in Nepal	14
P-1.4: Cambodia’s Successful Efforts to Reduce Maternal Mortality and Its Challenges	14
P-1.5: Key Socioeconomic Determinants of Maternal Health.....	15
Plenary 2: Global Evidence and Guidance for PPH Prevention & Treatment	16
P-2.1: 2012 WHO Guidelines for Prevention and Treatment of PPH.....	16
P-2.2: Active Management of the Third Stage of Labor without Controlled Cord Traction: A Randomized Non-Inferiority Controlled Trial (HRP Trial A65554).....	16
P-2.3: The Evidence for Use of Misoprostol in the Prevention and Treatment of Postpartum Hemorrhage	17
P-2.4: Prevention and Management Strategies of Postpartum Hemorrhage at Different Levels of Health System in Bangladesh	18
Plenary 3: Overcoming Barriers and Measuring Success—Implementing PPH Prevention and Management Programs.....	19
P-3.1: Monitoring Program Performance in Maternal and Newborn Health)	19
P-3.2: Community Level Use of Misoprostol for PPH Prevention: What Works and What Is Next? ...	20
P-3.3: Bangladesh Program for the Prevention of Postpartum Hemorrhage: Implementation Experiences.....	21
P-3.4: Nepal: A Pioneer in Community-Based Distribution of Misoprostol for Prevention of PPH at Homebirth	21

Plenary 4: Drugs and Commodities	22
P-4.1: Assessing the Potency of Oxytocin and Methylergometrine in Four Districts of India	22
P-4.2: Quality of Misoprostol Products	23
P-4.3: Quality of Oxytocin Injections: A Case Study in Indonesia	23
P-4.4: Pharmaceutical Management for Maternal Health: Assuring Access to Quality Medicines and Supplies.....	24
Optional Evening Satellites (May 4)	25
OS-1.1: Story of Bangladesh Maternal Mortality Reduction	25
OS-1.2: Exploring Use of Uterotonic Substances at or around Birth in Two States in India ...	26
OS 1.3: Training on PPH Prevention: “Bleeding After Birth” (BAB)	27
OS-1.4: Improving Newborn Survival: Role of Chlorhexidine Application to the Umbilical Stump	28
OS-1.5: Improving Maternal Health with Commodities: How the UN Commission on Life-Saving Commodities for Women and Children Can Transform the Agenda	28
OS-1.6: Respectful Care at Birth: Research and Advocacy.....	30
OS-1.7: Selecting a Rational Mix of Uterotonic Drugs for Presentation and Treatment of PPH.....	32
Day 2, 5 May 2012	34
Plenaries	34
Plenary 5: Midwifery for Reduction of Maternal and Newborn Mortality	34
P-5.1a: State of the World’s Midwifery Report	34
P-5.1b: ICM/UNFPA Investing in Midwives Program: Key Midwifery Achievements in Asia	34
P-5.2: Supporting the Health System by Strengthening Midwifery in Afghanistan	35
P-5.3: ICM Video for 2012 International Day of the Midwife	36
Plenary 6: Evidence for Prevention and Detection of Pre-Eclampsia/Eclampsia (PE/E)	36
P-6.1: 2011 WHO Guidelines for Prevention and Treatment of Pre-Eclampsia and Eclampsia	36
P-6.2: Use of Calcium and Vitamin D for Prevention of Pre-Eclampsia/Eclampsia	37
P-6.3: Quality of Care for Screening and Management of Pre-Eclampsia/Eclampsia: Review of Data from Six Countries	37
P-6.4: Screening and Early Detection of Pre-Eclampsia	38
Plenary 7: Evidence for Decisions in PE/E Management.....	39
P-7.1: Choice of Anticonvulsant for Prevention and Management of Eclamptic Seizures	39
P-7.2: Anti-Hypertensive Therapy for Pre-Eclampsia/Eclampsia Management	39
P-7.3: Induction of Labor Recommendations	40
P-7.4: Management Strategies at Different Levels of the Health System on Pre-Eclampsia/Eclampsia.....	40
Plenary 8: Programs for Pre-Eclampsia/Eclampsia.....	41
P-8.1: Prevention of Pre-Eclampsia and Eclampsia through Community-Level Interventions in Bangladesh	41
P-8.2: Program Considerations for Calcium Supplementation	42
P-8.3: Saving Nigerian Mothers: Magnesium Sulphate for the Treatment of Severe Pre-Eclampsia and Eclampsia	42
P-8.4: Treatment Approaches for Pre-Eclampsia in Low-Resource Settings: The Springfusor® Pump for Delivery of Magnesium Sulfate	43

Skills Sessions	44
SS-1: Low-Tech Methods of BP Measurement/Urine Testing for Detection of Pre-Eclampsia	44
SS-2: Safe Induction of Labor and Use of Misoprostol for Induction	45
SS3: Enhancing Use of MgSO ₄ : A New Teaching Tool	46
SS-4: Additional Technologies for Management of PPH	47
SS-5: Providing Essential Newborn Care.....	48
SS-6: How to Use Kangaroo Mother Care	48
SS-7: MamaNatalie: A New Anatomic Model for Teaching Skills in Obstetric Emergencies...	49
SS-8: Use of Oxytocin in Uniject™ and MgSO ₄ Dilution and Dosing Mobile Phone Application	50
Launching of MNH Brand Ambassadors	51
Country Poster Review Sessions	51
Optional Evening Satellites	52
OS-2.1: mHealth and the MAMA Initiative.....	52
OS-2.2: PPH, PE/E, PFP, and PSE Toolkits.....	53
OS-2.3: Improving Newborn Resuscitation Using HBB Materials	54
OS-2.4: Integration of FP and MNH–Health Approach.....	55
OS-2.5: Improving Newborn Survival through Structured Home Visits	55
OS-2.6: Landscape Mapping of Maternal and Perinatal Infections	57
OS7. Introduction to Uterotonic Selection Tool.....	58
Day 3, 6 May 2012	59
Plenaries	59
Plenary 9: Beyond PPH and PE/E: What Else Must We Do to Save Mothers' Lives?	59
P-9.1: Maternal Sepsis	59
P-9.2: Postabortion Care: The Missing Ingredient in Reducing Maternal Mortality.....	59
P-9.3: Integrating Family Planning within a Community-Based Maternal and Neonatal Health Program in Sylhet, Bangladesh.....	60
P-9.4: Respectful Care at Birth	60
P-9.5: WRA Voices: Changing Lives for Mothers & Newborns.....	61
Plenary 10: Interventions for Newborn Complications.....	62
P-10.1: Technical Updates on Newborn Resuscitation and Home Visits for Newborn Survival	63
P-10.2: Improving Newborn Resuscitation in Bangladesh.....	64
P-10.3: Ensuring Newborns with Infections Get Prompt Treatment: Nepal's Experience.....	64
P-10.4: Scaling Up Kangaroo Mother Care in Vietnam	65
Plenary 11: Implementing MNH Programs	66
P-11.1: National Programs to Prevent and Manage PPH and PE/E: 2012 Multi-Country Analysis of USAID-Supported Countries	66
P-11.2: Revitalizing Maternal Health Care in Seven Districts of Punjab	67
P-11.3: Health Equity Fund Implementation in Cambodia.....	68
P-11.4: New Initiatives for Maternal and Newborn Health under NRHM in India.....	69

Plenary 12: Environment for MNH.....	70
P-12.1: Advocacy for Mothers and Babies: Maternal & Newborn Health as a Global Health Priority.....	70
P-12.2: Going Beyond the MDGs and 2015	70
P-12.3: The Role of Health Professional Organizations for Maternal and Newborn Health: The FIGO Perspective.....	71
P-12.4: Eradicating Preventable Maternal Deaths: Learning from Success Stories and Moving Forward	71
Group Exercise: Interventions for Prevention and Management of Maternal Complications....	72
The Way Forward: Dialogue with the Experts	73
Summary and Closing Ceremony	74
Appendix A: Meeting Agenda	77
Appendix B: Participant List	80
Appendix C: Presenter/Facilitator Biographies	90
Appendix D: Guidance on Implementing Effective Programs to Prevent Pre-Eclampsia and Anemia to Improve Maternal and Newborn Outcomes	102
Appendix E: Orientation to <i>Helping Babies Breathe</i>® Learning Materials.....	116
Appendix F: Results of Group Exercise.....	122
Appendix G: Priority Interventions for Selected Countries	125
Bibliography.....	129

Abbreviations and Acronyms

AAP	American Academy of Pediatrics
AMA	Afghan Midwives Association
AMTSL	active management of the third stage of labor
ANC	antenatal care
ASHA	accredited social health activist
BEmONC	basic emergency obstetric and newborn care
BP	blood pressure
BP/CR	birth preparedness/complication readiness
Ca+	calcium
CBNCP	Community-Based Newborn Care Program
CCT	controlled cord traction
CEmONC	comprehensive emergency obstetric and newborn care
CHARM	Chief Minister's Health Initiative Attainment & Realization of MDGs
CHW	community health worker
CHX	chlorhexidine
EML	essential medicines list
EONC	essential obstetric and newborn care
FAO	Food and Agriculture Organization (FAO)
FCHV	female community health volunteer
FP	family planning
g	gram
GDA	Global Development Alliance
HBB	Helping Babies Breathe®
HEF	health equity fund
HMIS	health management information system
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
ICM	International Confederation of Midwives
ICT	information and communication technologies
IDA	iron-deficiency anemia
IEC	information, education, and communication
IFA	iron-folic acid
IM	intramuscular
IMCI	Integrated Management of Childhood Illness
INACG	International Nutritional Anemia Consultative Group
IPT	intermittent preventive treatment
IT	information technology
ITN	insecticide-treated net
IUCD	intrauterine contraceptive device
IUD	intrauterine contraceptive device
IV	intravenous
JHU	Johns Hopkins University
JSY	Janani Suraksha Yojana
L&D	labor and delivery
KAP	knowledge, attitude, and practice
KMC	Kangaroo Mother Care
mcg	microgram
MDG	Millennium Development Goal
M&E	monitoring and evaluation
mg	milligram
MgSO ₄	magnesium sulfate
MI	Micronutrient Initiative
MINI	Morang Innovative Neonatal Intervention
MIS	management information system
mL	milliliter
MMR	maternal mortality ratio

MNCH	maternal, newborn, and child health
MNH	maternal and newborn health
MOH	ministry of health
MVA	manual vacuum aspiration
NGO	nongovernmental organization
NMR	newborn mortality rate
NRHM	National Rural Health Mission
ob/gyn	obstetrician-gynecologist
OiU	oxytocin in Uniject™
PAC	postabortion care
PACC	Postabortion Care Consortium
PAHO	Pan American Health Organization
PE/E	pre-eclampsia/eclampsia
PNC	postnatal care
PPC	postpartum care
PPFP	postpartum family planning
PPH	postpartum hemorrhage
PPSS	postpartum systematic screening
PPV	positive pressure ventilation
PSE	pre-service education
RDA	recommended daily allowance
RH	reproductive health
RMNCH	reproductive, maternal, newborn, and child health
SBA	skilled birth attendant
SCN	Sub-Committee on Nutrition
SMS	short message service
SOMI	Society of Midwives of India
TBA	traditional birth attendant
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WRA	White Ribbon Alliance

Acknowledgments

The Asia Regional Meeting on *Interventions for Impact in Essential Obstetric and Newborn Care* (May 3–6, 2012) was organized by: the Government of Bangladesh; the United States Agency for International Development’s (USAID) flagship Maternal and Child Health Integrated Program (MCHIP); and the Bill & Melinda Gates Foundation-supported Oxytocin Initiative (OI)—in collaboration with Women Deliver, Venture Strategies Innovations (VSI), the International Federation of Gynecology and Obstetrics (FIGO), and the International Confederation of Midwives (ICM). Additional support was provided by: the American Academy of Pediatrics (AAP); the Laerdal Foundation for Acute Medicine; Alive & Thrive; the Micronutrient Initiative; the Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project; and Beximco Pharma.

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The Maternal and Child Health Integrated Program (MCHIP) is the USAID Bureau for Global Health flagship maternal, neonatal and child health (MNCH) program. MCHIP supports programming in maternal, newborn and child health, immunization, family planning, nutrition, malaria and HIV/AIDS, and strongly encourages opportunities for integration. Cross-cutting technical areas include water, sanitation, hygiene, urban health and health systems strengthening. Visit www.mchip.net to learn more.

Executive Summary

SCOPE AND PURPOSE

Organized by the Government of Bangladesh, USAID's flagship Maternal and Child Health Integrated Program (MCHIP), and the Bill & Melinda Gates Foundation-supported Oxytocin Initiative (OI) in collaboration with others, the Asia Regional Meeting on *Interventions for Impact in Essential Obstetric and Newborn Care* was held in Dhaka, Bangladesh, May 3–6, 2012. The meeting brought together policy leaders, experienced clinicians, and program managers with the goal of supporting accelerated implementation and expansion of maternal and newborn health (MNH) programs in countries throughout Asia, specifically focusing on prevention and management of postpartum hemorrhage (PPH) and pre-eclampsia/eclampsia (PE/E), special care for newborns, and nutrition. (See Appendix A for the complete meeting agenda.) Overall meeting objectives included to:

- Present and discuss global scientific and technical information on prevention, early detection, and management of PPH and PE/E, as well as special care for newborns
- Review/discuss programmatic experiences and progress in the implementation of newborn care and PPH prevention/management programs in Asia/the Middle East
- Review and consider an appropriate programmatic platform for the scale-up of PPH reduction and newborn care programs and the initiation or expansion of PE/E reduction programs that can be implemented at multiple levels of the health system
- Develop knowledge and greater understanding of selected MNH interventions

More than 400 individuals representing over 30 countries attended the meeting, including participants (Appendix B) and presenters (Appendix C) from Algeria, Australia, Canada, Kenya, the Netherlands, New Zealand, Norway, Sierra Leone, South Africa, Spain, Switzerland, the United Kingdom, the United States, and the following countries in Asia/the Middle East:

Afghanistan	India	Nepal	Timor Leste
Bangladesh	Indonesia	Pakistan	Vietnam
Cambodia	Laos	Papua New Guinea	Yemen
Egypt	Malaysia	Philippines	
Fiji	Myanmar	Thailand	

OVERVIEW

The Asia Regional Meeting was designed to help Asian countries understand and embrace key, evidence-based interventions and return to their countries ready to strengthen national programs aiming to improve MNH. The four days focused on an intensive program that included the following:

- **The opening ceremony and dinner on May 3** officially launched the meeting with a focus on context, trends, features, contributing factors, challenges, and the way forward for MNH in the regional context of Asia and the Middle East.
- **The first day of the meeting on May 4** included an overview of global and regional progress to date in the reduction of maternal mortality and an update on new global guidelines for PPH. It engaged participants in a technical discussion on PPH prevention and treatment, including a review of issues related to quality and availability of uterotonics and maternal health supplies.
- **The second and third days on May 5 and 6** allowed time to deliberate on management of PE/E and review PE/E program implementation experience, as well as interventions for newborns—including an entire afternoon devoted to skill-building

sessions and opportunities to explore more deeply some technical issues related to service delivery and training.

- **Additionally, in special technical sessions on May 3**, MCHIP and partners engaged with participants to discuss nutrition (Appendix D) and the Helping Babies Breathe® (HBB) initiative (Appendix E).
 - The full-day pre-meeting technical symposium on nutrition covered maternal anemia control and calcium supplementation—two high-impact interventions that reduce maternal, newborn, and child mortality. The discussion considered existing and emerging evidence that maternal iron-folic acid supplementation reduces maternal and child mortality and the evidence behind the World Health Organization (WHO) recommendation that pregnant women take calcium to prevent PE/E when they are at high risk of PE/E or when they live in countries where calcium intake is low. Best practices for anemia control programming were presented and discussed as applicable for calcium supplementation programming. A mapping exercise helped session participants determine the barriers and facilitating factors for country programs.
 - The half-day pre-meeting session on the HBB initiative—organized by MCHIP and the Laerdal Foundation in collaboration with the American Academy of Pediatrics (AAP)—oriented session participants to a set of training materials and a methodology for improving service providers’ knowledge and skills in newborn resuscitation.

Overall, true to the global perspective, the meeting emphasized PPH, PE/E, and newborn initiatives from the platform of essential obstetric and newborn care and discussed it with respect to the broader MNH context—exploring themes of innovation, scale-up, and measurement.

CONTEXT

The Asia region is making remarkable progress toward achieving the Millennium Development Goal 5 (MDG-5) target of reducing maternal deaths by 75% from 1990 to 2015. While all involved must be congratulated for the marked improvements in maternal and child health services, efforts must be continued and *redoubled* to sustain the improvements achieved thus far. This meeting was expected to assist country programs, donors, and governments in developing and implementing comprehensive and innovative programs to address public health priorities in MNH. It was with this intention that the meeting was conducted with clear “before, during, and after” components.

- **Before:** Engagement of key stakeholders before the meeting helped to ensure an appropriate balance of high-level decision-makers and implementers among participants. Before traveling to Dhaka, country teams met in their home countries to discuss their country context and to frame key issues to be the focus during the meeting. Many countries worked as a team to prepare a status report on their national program activities in MNH. Arrangements were also made to widen participation through online engagement for those unable to attend the meeting in person.
- **During:** The meeting focused on evidence-based interventions to improve MNH. In addition to presentations, plenary discussions, skill demonstrations, and satellite sessions, participants had the opportunity to meet as country teams to reflect on their understanding of what should be priorities for their MNH programs in country.
- **After:** Country teams left the meeting with clear outlines of priority interventions to either introduce or expand in-country, as well as immediate steps to disseminate the information from this meeting to their colleagues. MCHIP is continuing to promote the adoption and expansion of key interventions for maternal and newborn survival through individual follow-up with country teams to support next steps and identify needs for technical assistance.

TAKE-HOME MESSAGES

The key take-home messages that will guide participants in addressing public health priorities in MNH include the following, which are broken down by main themes.

Advocacy and Programmatic Cross-Cutting Issues

- Priority actions needed to address the barriers to the advancement of women include: (1) closing the education gaps, (2) improving access to economic opportunities, (3) increasing female participation in the labor force and in control over resources, (4) increasing women's voice in the political arena, (5) enforcing implementation of existing legislation, and (6) investing in women.
- The United Nations Population Fund (UNFPA) *State of the World's Midwifery Report* has highlighted that: (1) 38 countries have a severe shortage of midwives (nine need to scale up dramatically); (2) education, regulation, and professional associations for midwives must be improved; and (3) policies related to midwifery lack coherence.
- Preliminary analysis of the 2012 MCHIP Multi-Country Analysis on PPH and PE/E (with data from 37 countries) suggests mixed progress on the availability of and national support for increasing drug availability. The availability of oxytocin and magnesium sulfate has increased markedly, but fewer countries reported having misoprostol on the national essential medicine list. Findings also suggest that PPH programs are more robust than PE/E programs.
- In 2000, an evaluation of the impact of user fees on access by the poor in Cambodia revealed that exemption from user fees for poor and indigent patients was functioning relatively well at the health center level—resulting in increases in facility-based birth rates and lower mortality—but not as effectively at the hospital level. There are several schemes for building health equity funds and each is associated with a different level of benefit.
- Advocacy efforts must continue at the global level to ensure that mothers and children remain a priority. Moving forward, beyond 2015, advocacy groups must maintain and strengthen the attention given to MNH. More/new national champions, increased investment, and better data collection, data analysis, and information sharing are required.
- Advocacy efforts in South Asia must focus on four areas: (1) population growth and family planning, (2) youth dynamics, (3) access to skilled care, and (4) political will and sustainability of health system financing.
- Health professional associations have a vital role to play in the promotion of women's health, especially MNH and the achievement of MDGs 4 and 5. Building the capacity of health professional associations at the country level is essential if they are to undertake their roles effectively, especially in low-resource countries where the majority of maternal, newborn, and child mortality and morbidity occur.
- Countries that have made good progress on reducing maternal deaths show what works: (1) strong and sustained political commitment, (2) improved infrastructure, (3) better quality, (4) functioning referral systems, (5) affordable and accessible services, (6) comprehensive reproductive health services, (7) community involvement, and (8) strong data for decision-making and targeting interventions.
- Improvements in access and availability alone are not enough—quality is what is needed.

"To get consistent attention paid to content and quality, we must consistently *monitor and track* content and quality."

—Steve Hodgins

- For major global or regional conferences such as this, online engagement provides a cost-effective method to ensure participation of those who are unable to attend in person due to financial or travel constraints.

Prevention and Management of Postpartum Hemorrhage

- WHO has updated its guidelines on the use of active management of the third stage of labor (AMTSL) to reflect current evidence related to the contribution of each component of the intervention. The use of uterotonics is now the primary intervention, and other interventions were found to add negligible or no benefit in the prevention of hemorrhage during the third stage of labor.
- Emphasis should be focused on ensuring that every woman is offered a uterotonic as a part of routine management of the third stage of labor. Oxytocin is the uterotonic drug of choice for vaginal and cesarean births.
- Because misoprostol is sometimes the only feasible PPH prevention option, it should be recommended for use at home deliveries where injectable oxytocin is not available or not feasible.
- Further research is needed to determine what leads to decreases in oxytocin potency and why some oxytocin preparations have levels of the active pharmaceutical ingredient that are below the acceptable threshold at the point of use. Possible explanations include the quality of manufacturing, inappropriate conditions during transport or storage, and inappropriate conditions during storage at health facilities.
- Procurers of misoprostol should use manufacturers that can demonstrate that the drug is of proven quality, produced with appropriate environmental controls, and packaged appropriately.

Prevention and Management of Pre-Eclampsia/Eclampsia

- WHO released new guidelines in 2011 for prevention and treatment of PE/E to promote the best clinical practices. These include new interventions for high-risk groups such as those with previous pre-eclampsia, chronic hypertension, renal disease, diabetes, autoimmune disease, and multiple pregnancies.
- To eliminate preventable eclampsia, we need to detect pre-eclampsia, which is easily detectable through blood pressure monitoring and urine testing. Thus, blood pressure monitoring and urine testing should be considered essential, not just routine. To increase the numbers of women screened, programs should start with women who attend antenatal care and then determine a simple way to reach women on the periphery. To do this, it is important to take testing for hypertension and proteinuria to women in their homes. The development teams at the Center for Bioengineering Innovation & Design (CBID) at the Johns Hopkins University are working to make screening technologies easier for use at home.
- Stopping the progression of pre-eclampsia to eclampsia is essential for improving outcomes; therefore, the right choice of anticonvulsant is important for optimal care. WHO recommends magnesium sulfate for the prevention of seizures in women with severe pre-eclampsia; magnesium sulfate for the prevention of recurrent seizures as part of the management of women with eclampsia; complete intravenous or intramuscular magnesium sulfate regimens in facilities for the prevention and management of eclampsia; and a magnesium sulfate loading dose followed by immediate transfer to a higher-level facility for women with severe pre-eclampsia and eclampsia in settings where it is not possible to administer the full magnesium sulfate regimen.
- Managing severe PE/E can require administration of an antihypertensive as well as an anticonvulsant. Women with severe hypertension (blood pressure above 160/110 mmHg)

should be treated with antihypertensive therapy. Studies emphasize the importance of this treatment, rather than point to any specific antihypertensive. Hypotension can occur with any agent, so lowering blood pressure in a hypertensive emergency during pregnancy should occur slowly.

- A Springfusor® pump (spring-loaded, controlled pump) can facilitate the intravenous administration of magnesium sulfate. In a recent study, the pump was determined to be a safe and effective alternative that reduced side effects and was highly acceptable to women. Introduction of the Springfusor should be accompanied by staff training on intravenous insertion and maintenance, as well as on expected side effects and signs of toxicity. A standardized protocol for delivery of magnesium sulfate during cesarean sections should also be developed.

Nutrition

- New guidelines from WHO (2011) recommend calcium supplementation during pregnancy in countries where calcium intake is low and women are at high risk of PE/E.
- A recent Cochrane review (2011) revealed a 55% reduction in the average risk of pre-eclampsia associated with calcium supplementation, with the largest effect in women with low calcium intake and those women at high risk for PE.

Newborn Care

- WHO has issued new (2012) neonatal resuscitation guidelines, updating the previous guidelines from 1998.
- HBB is a neonatal resuscitation curriculum and program that works to ensure that every baby is assessed at birth and treated for asphyxia with simple maneuvers and newborn care. Bangladesh provides an example of national scale-up planning, which included capacity-building, quality assurance, and efforts toward sustainability.
- Scale-up of kangaroo mother care is facilitated when people have a keen interest and willingness to support initiation and expansion.

Other MNH Issues

- WHO recommends that: (1) induction of labor should be performed only when indicated and when the benefits outweigh the risks; (2) consideration should be given to the woman's wishes, the status of the cervix, and the effect of induction methods on the woman's condition; (3) caution should be taken to minimize risk and avoid complications; (4) the woman should be monitored and not left unattended if she is given oxytocin or prostaglandin; and (5) if possible, induction of labor should be performed in a facility that can also perform cesarean sections.
- Approaches to prevention of maternal sepsis include, at the facility level, reducing the length of the mother's labor, delaying rupture of membranes, reducing the number of vaginal exams, and implementing infection prevention practices (particularly handwashing). Large percentages of births occur outside the formal health sector in South Asia, presenting an added challenge; even when birth takes place in a facility, the woman is usually home before sepsis-related complications occur. Current approaches at the community level include giving women clean birth kits.
- Unsafe abortion is one of the three leading causes of maternal mortality. Postabortion care (PAC) tends to be neglected in maternal health programs because of the stigma attached to abortions and the women who seek them. As a result, the root causes of unsafe abortion—barriers to obtaining and using contraception, gender issues, and other barriers—go unaddressed. Political will is fundamental to ensuring universal access to PAC.

- Some recommendations for ensuring the incorporation of PAC into maternal health programs are: integrating PAC with language, protocols, programming, budgets, and data collection for maternal health; including PAC in adolescent- and youth-oriented sexual and reproductive health programs; conducting values-clarification and attitude-change exercises at all levels; ensuring on-the-spot availability of high-quality postabortion contraceptive services; working with the government to ensure maximum access to comprehensive PAC services; ensuring access to misoprostol to increase access to PAC; and ensuring access to PAC by young and unmarried women without discrimination.

In addition to reading this report, you may wish to:

- View slide presentations from the meeting at: <http://www.scribd.com/Dhaka2012>.
- See a webcast of the meeting at: <http://www.youtube.com/user/mchipGlobal>.

Introduction

Held from May 3 to 6, 2012, in Dhaka, Bangladesh, the Asia Regional Meeting on *Interventions for Impact in Essential Obstetric and Newborn Care* focused on the two main global causes of maternal death—postpartum hemorrhage (PPH) and pre-eclampsia/eclampsia (PE/E)—and other aspects of maternal and newborn health (MNH). Overall meeting objectives included the following:

- Present and discuss global scientific and technical information on prevention, early detection, and management of PPH and PE/E, as well as special care for newborns
- Review/discuss programmatic experiences and progress in the implementation of newborn care and PPH prevention/management programs in Asia/the Middle East
- Review and consider an appropriate programmatic platform for the scale-up of PPH reduction and newborn care programs and the initiation or expansion of PE/E reduction programs that can be implemented at multiple levels of the health system
- Develop knowledge and greater understanding of selected MNH interventions

Appendices A to C contain the Meeting Agenda, Meeting Roster/Participant List, and Presenter/Facilitator Biographies, respectively.

- **On the day before the meeting's official start**, two special technical sessions were held: a nutrition symposium focusing on the role of supplementation in fighting PPH and PE/E and in the treatment/prevention of anemia; and an orientation to the *Helping Babies Breathe*[®] (HBB) initiative and training methodology. Summary reports of each are presented in Appendices D and E. These sessions were followed by the Opening Day Ceremony.
- **The first day of the meeting** included an overview of global and regional progress to date in the reduction of maternal mortality and an update on new global guidelines for PPH. It engaged participants in a technical discussion on PPH prevention and treatment, including a review of issues related to quality and availability of uterotonics and maternal health supplies.
- **The second and third days** allowed time to deliberate on management of PE/E and review PE/E program implementation experience, as well as interventions for newborns—including an entire afternoon devoted to skill building sessions and opportunities to explore more deeply some technical issues related to service delivery and training.

Overall, true to the global perspective, the meeting emphasized PPH, PE/E, and newborn initiatives from the platform of essential obstetric and newborn care (EONC) and discussed it with respect to the broader MNH context—exploring themes of innovation, scale-up, and measurement.



Watch the Asia Regional Meeting on Interventions
for Impact in Essential Obstetric and Newborn Care

Video of all plenary presentations now available:
www.youtube.com/mchipglobal

Presentations from the conference can
be found on the meeting Scribd page:

www.MCHIP.net/MNHDhaka

Special Feature: Online Engagement

SUMMARY

MCHIP sought to increase participation in the Asia Regional Meeting beyond the registered participants of the conference. By broadcasting the entire plenary of the meeting live on the Internet, and engaging with online viewers via social media and other web-based technologies, those who were unable to attend due to financial or travel constraints were still able to participate. The online engagement was also **a cost-effective course for reaching atypical publics**—such as people outside of the Asia region, students, or people with a more general interest in global health and development—by creating a convenient channel for them to join the discussion.

Those who utilized the various tools for online engagement provided MCHIP with a great deal of positive feedback, particularly regarding the **high quality of the webcast video and the ease of viewing and sharing presentations via the conference Scribd page**. There were also a number of lessons learned from the online activities, which could be applied in future uses of this technology to allow remote participation at conferences and meetings. These points have been documented in “Lessons Learned” below.

DIFFERENT MEDIA USED

Live Webcast

Several approaches were considered for webcasting the meeting, including using typical webinar tools such as Elluminate®, Adobe® Connect™ or Media Site®. However, the anticipated logistical needs and complexities of a conference of this size led organizers to explore other options. The team concluded that hiring a nonprofit organization called OneWorld (www.oneworld.net) would be the best option, particularly as they had provided webcasting services in the conference hotel before.

OneWorld webcast the entire plenary of the Asia Regional Meeting live, and later **uploaded all of the presentations to the MCHIP YouTube page**. This allowed those that were unable to attend to view the conference at their convenience at a later date and time, and also enabled registered conference participants to share the videos with their colleagues and via their own networks. A webcast of the meeting appears at: <http://www.youtube.com/user/mchipGlobal>.

Social Media

The conference was intended to be an interactive experience for both the on-site participants as well as those who viewed the conference via the live webcast. In an effort to allow all participants to share their ideas, comments, and questions from afar, MCHIP utilized a number of social media channels.

The webpage that hosted the live streaming of the conference also included a **live stream of all tweets using the conference’s #MNHDhaka hashtag** (Figure 2). This allowed viewers to see others’ comments and questions, as well as live tweets of those who were on-site at the meeting. Registered conference participants also viewed a stream of the conference tweets on a large screen in the room where morning and afternoon coffee breaks were hosted.

Figure 1. Screenshot of OneWorld webcasting page for Dhaka Meeting



Figure 2. MCHIP Director Koki Agarwal tweets using the conference hashtag



MCHIP also **facilitated discussion about conference topics on the MCHIP Facebook page** (Figure 3) and requested comments or questions via email, for participants who did not use social media. Questions and comments were collected through these channels for the Q&A session following each of the panels, and a member of the MCHIP staff served as the online participants’ “voice on the ground” during these discussions.

Satellite Viewing Sessions

MCHIP offices in India and Pakistan organized satellite viewing parties so that local partners, donors, and office staff could interact in real time with the first panel of the Dhaka meeting. Discussion questions were provided to facilitate a dialogue about the topics covered in the panel following the satellite viewing session. Organizers from each office were also provided with Twitter training so they were able to submit their questions or comments via a Twitter account created for their viewing party (e.g., @MNHIndia, Figure 4). MCHIP India hosted their viewing party in-office, whereas the Pakistan team disseminated information about the viewing online due to space constraints. Both India and Pakistan participants reported that the webcasting quality was excellent.

Figure 3. Photos from the conference were posted to the MCHIP Facebook page on each day of the meeting



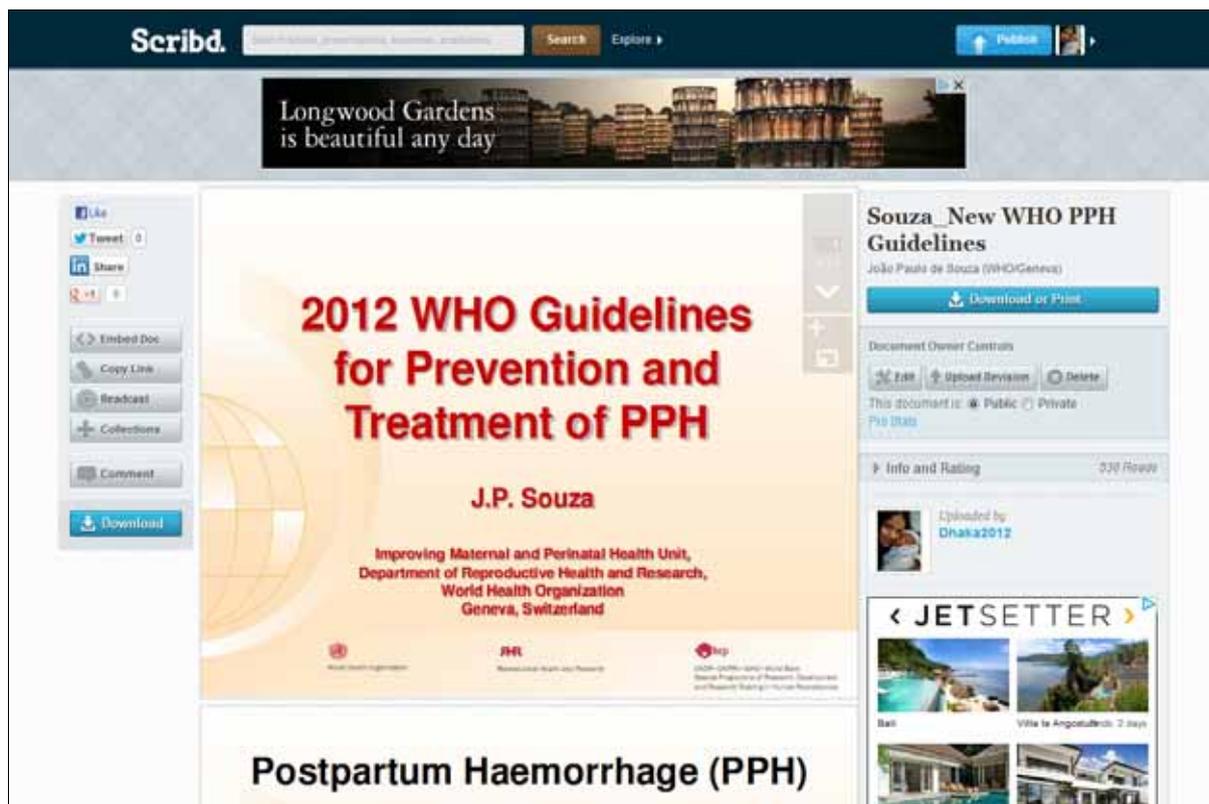
Figure 4. Tweet from the MCHIP India office during their satellite viewing



Scribd

All presentations from the Dhaka meeting were posted to the Internet immediately after each panel was finished. They were shared via the Dhaka2012 page (Figure 5) on the digital document hosting site Scribd. Scribd allowed participants to view the presentations easily and share them with others via emailing, embedding in a website or blog, tweeting, posting on a friend’s or organization’s Facebook wall, or downloading a copy. The presentations were uploaded as pdf files so that they could be viewed but not edited. Slide presentations from the meeting can be accessed at: <http://www.scribd.com/Dhaka2012>.

Figure 5: Screenshot of one of the presentations viewed via the Dhaka2012 Scribd page



Guest Blogger Series

Several of the conference presenters were contacted prior to the meeting and asked if they would like to contribute to the MCHIP blog as part of the Asia Regional Meeting guest blog series. A member of the MCHIP staff worked with interested presenters to draft blog posts that were highlighted on the MCHIP website throughout the conference. This provided yet another opportunity for those who were not able to attend the meeting to be engaged.

REACH AND IMPACT

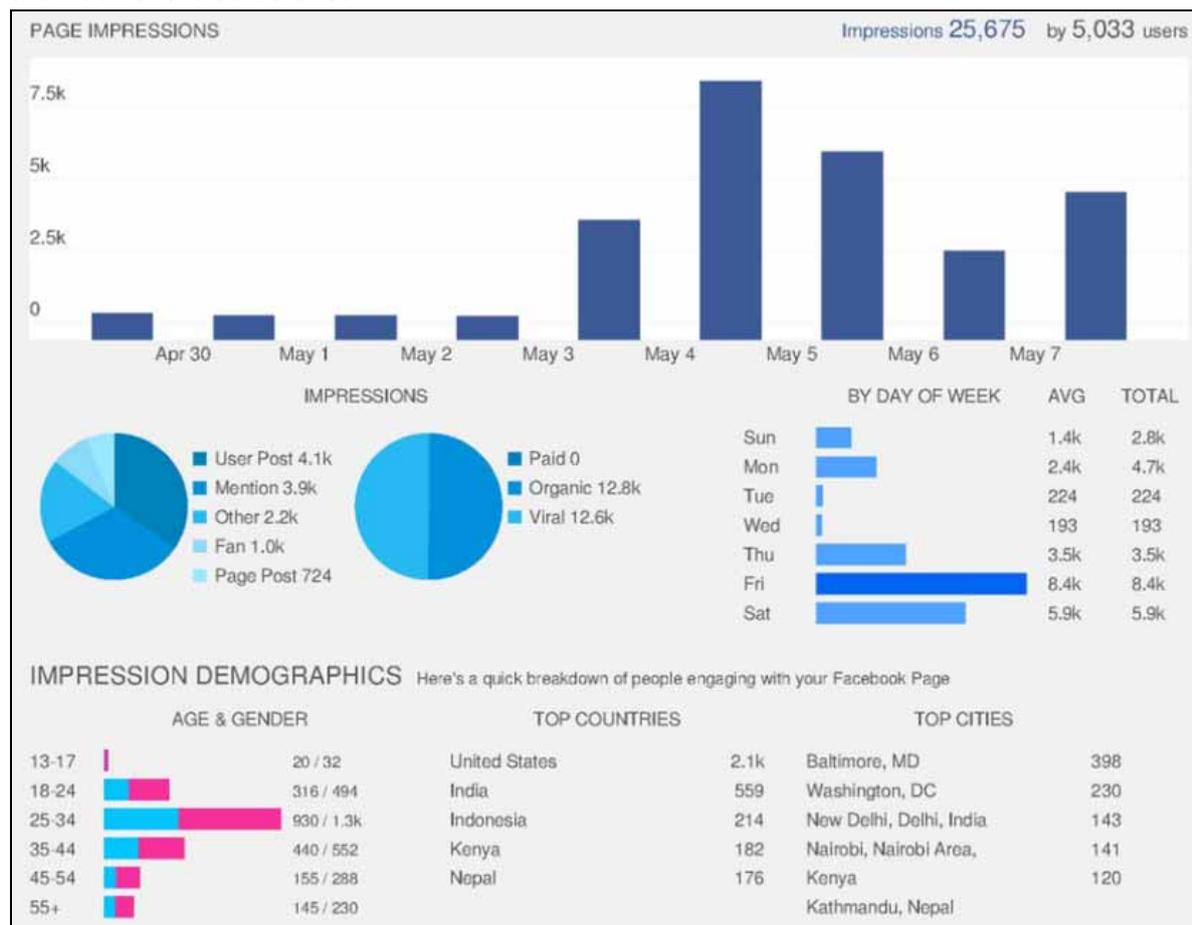
During the conference, the live webcasting netted approximately 1,500¹ views, with the most views coming from the United States, Bangladesh, the UK, Pakistan, India, Indonesia, Canada, Japan, Afghanistan, Kenya, Thailand, Ethiopia, and Cambodia. Nearly 60 videos of the conference presentations were posted to the MCHIP YouTube page and continue to be viewed and shared.

In the two-week span preceding and following the Asia Regional Meeting, MCHIP Twitter followers increased 300%, Facebook fans increased 700%, and incoming messages—a measure of engagement—increased 564%. Figure 6 shows the activity on the MCHIP Facebook page during the conference, as well as the demographics of those who joined the conversation.

Over 70 conference documents were uploaded to the “Dhaka2012” scribd page; once again, these documents continue to be viewed and shared. As of 1 August 2012, nearly three months after the conference, the documents have received approximately 7,750 reads and 83 uploads.

¹ Number of views of the live webcast on the OneWorldGroup.org/mchip page, according to OneWorld.

Figure 6. Engagement and demographics for those visiting the MCHIP Facebook page during the week of the conference



The guest blogs on mchip.net were viewed about 600 times in the month of May alone.

COSTS AND SAVINGS

The value of developing the many additional channels for discussion and engagement surrounding the Asia Regional Meeting is significant, but difficult to measure. The full cost for all online engagement was approximately \$5,000, which covered all of the costs associated with the webcasting (flight, hotel, equipment, etc.). In an effort to monetize the benefits solely for those who attended the viewing parties, the formula represented in the following calculation can be used to determine flight savings.

Roundtrip airfare from Pakistan (Islamabad) to Bangladesh: estimated \$400

Roundtrip airfare from India (Delhi) to Bangladesh: estimated \$563

India staff travel savings: 9 x \$563 = \$5,067

Pakistan staff travel savings: 3 x \$400 = \$1,200

Airfare saving alone for satellite participants: \$6,267

This calculation does not include conference fees or hotel stay for these staff members, but these savings alone illustrate the immense cost savings to the nearly 1,500 people who joined the conference via the web—especially given that they can continue to view, share, and discuss information and materials from the meeting long after it has ended.

LESSONS LEARNED

There are a number of lessons that MCHIP staff can take away from this activity, which can be applied to creating interactive conferences in the future. Important lessons include:

- **Technology**

- Using a professionally managed webcasting service has significant advantages over trying to “do-it-yourself” in terms of ensuring webcasting quality and freeing meeting organizers for other tasks.
- In order to properly evaluate your webcasting, ensure that the webcasting service has the ability to provide a full report of the metrics following the event. The contract with the company should guarantee reporting measurements such as the total number of users who viewed the webcast, which countries the viewership was from, etc.
- It is extremely important to survey the technical capability of the conference location before the event, as requirements such as a stable Internet connection are not always a guarantee, and additional measures may be necessary to avoid interruptions in the online engagement.

- **Facilitation**

- When holding group events at MCHIP country offices, one must take into account the size of the office, Internet connectivity, other large events being held that engage the same audience, and time available from office staff for facilitation. Partnering with a local university, hospital, or another large venue to hold a joint event may be a viable future option. Field offices might need a great deal of support facilitating a remote viewing event, particularly if they have not hosted such an event before.
- Remote participation in an event via social media is still a new idea to many intended participants. Extensive instruction and information about how to use the technology should be widely disseminated to potential online participants. In locations where remote viewing events are held, local “power users” who are familiar with the technology should be identified who can coach others to aid in adoption of these new methods of engagement.
- If online participants are given the opportunity to submit questions during Q&A sessions at the conference, it is important to communicate the importance of timing. Often questions and comments were submitted at the Dhaka meeting, but the Q&A session had closed. It also may be useful to experiment with different ways of soliciting questions, such as allowing those on social media to submit them in advance of the panel to ensure that there is adequate time to address them.

- **Promotion**

- In order for the online engagement to reach the largest audience possible, it is important to begin publicizing the availability of the various channels of communication long before the conference begins. Information about where participants can view the webcast and specific instructions on to how they can engage should be disseminated widely.
- Listservs can be a very useful tool for publicizing the additional channels for engaging remotely.
- In order to keep the conversation going, all channels for online engagement should remain open following the event and they should continue to be promoted. This allows participants to carry on conversations that began at the conference as they continue to connect with their colleagues. It also provides an opportunity for the conference organizer to monitor and guide activities related to conference topics following the meeting.

Opening Day, 3 May 2012

SPECIAL TECHNICAL SESSIONS

On the opening day at the Asia Regional Meeting, before the Opening Ceremony, two special technical sessions were held for attendees who had already arrived.

Nutrition Symposium

“Guidance on Implementing Effective Programs to Prevent Pre-Eclampsia and Anemia to Improve Maternal and Newborn Outcomes”—MCHIP and partners held this special pre-meeting session to discuss maternal anemia control and calcium supplementation, which are two high-impact interventions that reduce maternal, newborn, and child mortality. This session presented the existing and emerging evidence that maternal iron-folic acid supplementation reduces maternal and child mortality and the evidence behind WHO’s recent recommendation for women to take calcium during pregnancy to prevent pre-eclampsia and eclampsia. Program considerations for anemia prevention and calcium supplementation were also presented and discussed. A mapping exercise helped session participants determine the barriers and facilitating factors for country programs. For a report on this session, see Appendix D.

Helping Babies Breathe[®] Orientation

“Orientation on *Helping Babies Breathe* (HBB) Learning Materials”—MCHIP and the Laerdal Foundation, in collaboration with the American Academy of Pediatrics (AAP), conducted this pre-meeting session to orient participants to a set of learning materials designed to improve service providers’ knowledge and skills in newborn resuscitation. Information on this session is presented in Appendix E.



During the HBB Orientation, participants had the opportunity to familiarize themselves with NeoNatalie—newborn resuscitation simulator—and accompanying materials.

OPENING CEREMONY

Welcome Remarks

Richard Greene, Mission Director, USAID Bangladesh (USAID-B). Before the Keynote Speech, Greene welcomed the Asia Regional Meeting attendees (on behalf of Robert Clay, Deputy Assistant Administrator, Global Health Bureau, USAID). When he first arrived in Asia in 1994, Greene recalled, there were 80 deaths per 1,000 live births and 6 million child deaths per year. Asians were struggling—lots of work needed to be done.

Since then, when Asia had the highest numbers of maternal and newborn deaths, it has become the region with the highest rate of decline in child deaths—preventing 18 million in a single generation. And now, given the new demographics and the fact that under-5 deaths are lower, Greene noted, there is a shift in focus to newborn deaths, the highest rates of which occur within the first 7 days of life.



“Family planning remains a big headline for this meeting ... many deaths averted in the Asia region are due to family planning.”

—Richard Greene

There has also been significant progress in reducing maternal deaths, for example: Bangladesh and Nepal have seen a 40% decrease in 10 years; Cambodia, 50% in five years.

In concluding, Greene said that family planning (FP) “remains a big headline for this meeting.” Unmet need for FP has been dramatically reduced within the region, he pointed out; increased access to FP, which “empowers women and their families,” accounts for about half the reduction in maternal mortality ratios (MMRs).

Keynote Speech: “Defying All Barriers: Bangladesh Makes Impressive Progress on Saving Mothers’ Lives.”

Dr. Kanta Jamil, Monitoring and Evaluation Advisor, USAID-B. Dr. Jamil began by sharing that 17 years ago, she became a mother—after presenting with signs/symptoms of pre-eclampsia (including a blood pressure of 200/100 mm Hg) and undergoing a surgical intervention that saved her and her baby’s lives. She was lucky, she acknowledged, having had the option to go to a facility that could manage complications.

Dr. Jamil then congratulated the Asia region in making remarkable progress toward achieving the Millennium Development Goal 5 (MDG-5) target of reducing maternal deaths by 75% from 1990 to 2015—that is, from 574,000 to 173,000, globally. Although countries within the region are in different stages in terms of reaching MDG-5, Jamil pointed out that all are “on the path.” In Bangladesh, the goal for 2015 is in sight: 143 per 1,000 live births, which would be down from estimated MMRs of 194 in 2010 and 322 in 2001.

“We all have passion [and] commitment and [we] labor to ensure that every mother and her baby count... but efforts must be continued to reach MDG-5 and re-doubled to sustain improvements achieved thus far.”

—Dr. Kanta Jamil

Commenting that Bangladesh is “very receptive” to surveys and other components of monitoring and evaluating progress, Dr. Jamil then shifted to factors contributing to the country’s dramatically declining MMR. Key contextual factors identified included:

- The Bangladesh Government’s sustained, consistent commitment to strengthening basic maternal and child health (MCH) services for more than 30 years
- Excellent collaboration and partnerships among government, nongovernmental organizations (NGOs), and others
- Existence of hospitals and satellite clinics since the 1990s
- Sustained FP programming—from the clinic level to field level—since the 1970s
- Establishment of the menstrual regulation program—an alternative to unsafe abortion
- The 42,000 traditional birth attendants (TBAs) trained by 2000
- Broadening social development (e.g., infrastructure, telecommunications)

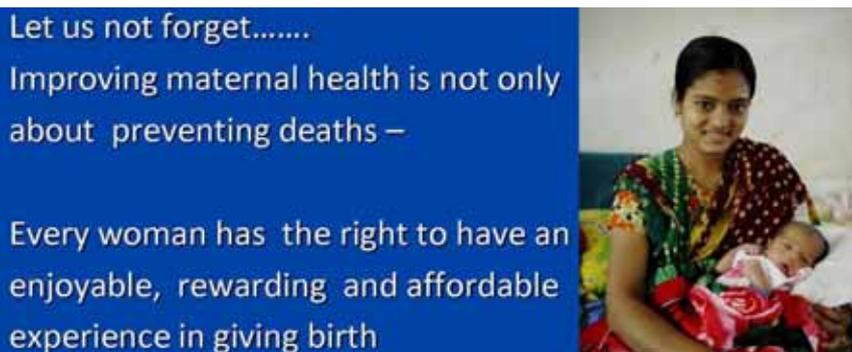
And based on two large surveys conducted—one focusing on the MMR decline in the 1990s, the other on that of the last decade—Jamil discussed a variety of other factors, which are summarized in Table 1.

Table 1. Key factors contributing to decline of MMR in Bangladesh over past two decades

During the 1990s	Within the Last Decade
<ul style="list-style-type: none"> ▪ Facilities upgraded to provide maternal care for complications, but not for provision of general care, since the assumption was that women preferred to deliver at home ▪ Reduction in infections related to childbirth, due to efforts such as tetanus toxoid immunization and increased use of antibiotics ▪ Decline in unsafe abortion: increase in contraceptive prevalence rate from 32% to 54%, increased access to alternatives to unsafe abortion 	<ul style="list-style-type: none"> ▪ The incidence of hemorrhage and eclampsia as the main causes of maternal death have been reduced dramatically—some reasons: <ul style="list-style-type: none"> – National MNCH program – Urban health centers (UHCs) upgraded to provide BEmONC – Training of 6,000 community skilled birth attendants – Demand side financing to promote facility-based deliveries introduced in 2006 – Skilled attendance at delivery has increased from 9% to 23% (facility birth), representing some momentum for change in desire for facility-based births—with the private sector increasing its share from 3% to 11% – Cesarean section rate has increased from 2.6% to 12.2% (noted: women with more education more likely to receive the procedure) ▪ Care-seeking behavior has changed: <ul style="list-style-type: none"> – 28% increase in women seeking care from facilities – Increase from 16% to 29% of women who sought access to health services from facilities – Increase in use of private facilities for maternity services ▪ Increased use of mobile phones: 63% (up from 3%) own mobile phones ▪ Increase in mothers' education level: 45% (up from 15%) have at least some secondary education ▪ Fertility decline from 3.2 to 2.5 births, which has also reduced the number of deaths

Whereas Dr. Jamil reaffirmed that all must be congratulated for the marked improvements in MCH services, she made clear that efforts must be continued to “make it for the last 100 meters” (to reach MDG-5) and *redoubled* to sustain improvements achieved thus far. Specifically, we must work to:

- Ensure that women get proper care and there are enough facilities for those who seek care—especially at the sub-district level
- Provide services of adequate quality, which points to the need to improve staffing
- **Not lose sight of the fact that PPH and PE/E still represent 50% of deaths, pointing to a need for more care at the community level**
- Support the responsiveness of the private sector, while looking at whether some practices may be too expensive or unnecessary (e.g., too many cesarean sections?)
- Take steps to make care-seeking more efficient
- Continue to improve girls' and women's education levels, leading to better care-seeking behaviors
- Provide ongoing support for FP services—echoing a key message of Richard Greene's



Dr. Jamil also spoke of the importance of supporting women in having an enjoyable and positive experience giving birth.

Check out the “Fit for Life” video: In closing, the doctor showed two clips from a documentary ‘Fit for Life’ (<http://www.rockhopper.tv/programmes/187/>), which focuses on the continued dangers faced by women of Bangladesh during childbirth—particularly those living in the slums, giving birth without skilled providers. In the featured episode, two Bangladeshi women experience very different care during pregnancy, childbirth, and the postpartum period—with one receiving support from a traditional caregiver and the other going to a health center. Watching their stories, meeting attendees were again reminded that although good progress has been made, with many women dying in the country each day of pregnancy- or childbirth-related causes, it’s clear that there is still much to do.

Individual Remarks

After the Keynote Speech, several distinguished guests addressed the audience regarding the progress made and the current situation in Asia, as well as the importance of addressing PPH and PE/E—still accounting for half of the maternal deaths within the region. Many shared the belief that the meeting represented a critical, timely effort in reaching MDG-5 and in sustaining progress already achieved. There was a strong sense of hope, as well, and of gratitude toward the enduring commitment of USAID and all others who work tirelessly to save the lives of Asia’s women and children. The following summaries focus on unique messages or new information offered by these guests.

Dr. Capt. (Retd.) Mozibur Rahman Fakir, M.P., Honorable State Minister, Ministry of Health and Family Welfare, Bangladesh. Dr. Fakir emphasized the need to fight malnutrition, including in children under 5 years of age. The meeting, he said, should also address the plans for the Health, Population & Nutrition Sector Development Plan (2011–2016).

Prof. Dr. Syed Modasser Ali, Advisor to the Honorable Prime Minister, Health and Family Welfare and Social Welfare Affairs, Bangladesh. Dr. Ali commented that the socioeconomic factors of Bangladesh are strengthening, and the economy looks more positive. Progress has been due to the efforts of all citizens, he said, including the beneficiaries—in addition to USAID. He expressed the importance of remaining optimistic for future generations and, more specifically, of increasing development and use of community clinics. In closing, Dr. Ali acknowledged the widely held hope that the meeting would yield “new techniques” to help reach MDG-5 by 2015.

“We have only three years left to hit the ‘landmark target’... and USAID Bangladesh is happy to play a significant role in working toward it. We are sure that we will be successful.”

—Prof. Dr. Syed Modasser Ali

Dan W. Mozena, U.S. Ambassador to Bangladesh. Mozena acknowledged the notable achievements in reducing maternal and newborn deaths in Bangladesh, as well as in Nepal, Cambodia, and Afghanistan. But, he said, 20 Bangladeshi mothers still die each day, half from the two leading causes of death, PE/E and PPH; and “75 newborns will die because they cannot take their first breath of air.” The loss of one mother or one baby due to preventable causes, said Mozena, is unacceptable. Then, in a note of hope and encouragement, he emphasized: “The U.S. is your partner and ... remains committed to your efforts to save lives.”



At the Opening Ceremony: Dr. A.F.M. Ruhul Haque, Bangladesh Minister of Health, and Dan W. Mozena, U.S. Ambassador to Bangladesh

Chief Guest: Dr. A.F.M. Ruhul Haque, M.P. Honorable Minister, Ministry of Health and Family Welfare, Bangladesh. Dr. Haque began by identifying mothers and children as his “prime targets” as Minister of Health; he then pointed out that the latest Demographic and Health Survey for the country shows the fertility rate not only declining but approaching “replacement level fertility.” He commended the concentrated effort that has helped advance a constitutional requirement of “health for all” in the country, and underscored the hard work necessary in the provision of “health care for all.” The health focus, he explained, is not only “pro-poor” but “pro-people.” He continued by expressing a dilemma: although the Ministry of Health (MOH) has the capability to save many maternal lives still being lost, the question lies in determining which mothers are in need?

Dr. Haque also emphasized the importance of supporting women who have their babies at home so that it is done “in the best way” possible—given that the facilities do not yet have the capacity to manage all deliveries. “We need to take the help of [information and communication technologies (ICT)] and other technologies and innovations to improve health,” he said, expanding upon this notion as follows:

“Nothing is dearer to me than saving the lives of mothers and newborns.”

—Dr. A.F.M. Ruhul Haque

- The misoprostol program is a good example of innovative programming. Further research on who can administer the loading dose of magnesium sulfate (MgSO₄, used in treating PE/E to prevent convulsions) and where it can be administered should be trialed and, if results are good, scaled up.
- The HBB program is excellent and needs to be expanded. Anyone who performs deliveries should also be trained for newborn resuscitation.
- Family welfare centers should have the capacity to offer normal delivery services to all women; Bangladesh must commit to train 3,000 midwives in the country.

He closed by echoing Dr. Jamil’s sentiments: “...all partners need to redouble their efforts to help ensure that no mother or baby dies during birth.”

Meeting Chair: Md. Humayun Kabir, Senior Secretary, Ministry of Health and Family Welfare, Bangladesh. “We have all heard from the previous guests, what we need to do and also how far that we have come,” Kabir said. “We will now need to go forth and implement new programs.” Kabir closed by thanking meeting organizers.

Vote of Thanks: Dr. Koki Agarwal, Director, Maternal and Child Health Integrated Program (MCHIP). Dr. Agarwal first thanked all of the people on the stage, noting that most were men, for championing the lives of women and babies. Then, in a direct address to the policymakers, reproductive health workers, and community health workers (CHWs) of Bangladesh, she said: “We are making progress and this meeting is another step in continuing the momentum. So, for the more than 400 participants here, we thank you for your work. We appreciate your presence and urge you to take what you learn here back home.”

PLENARIES

Plenary 1: Improvements in Maternal Health: The Changing Situation in MNH in Asia
Moderators: Richard Greene (USAID/Bangladesh) and T.A. Chowdhury (BIRDEM [Bangladesh Institute of Research and Rehabilitation for Diabetes, Endocrine and Metabolic Disorders], Bangladesh)

P-1.1: Maternal Mortality, 1990–2011: Asia and Pacific Stories of Tremendous Successes. Dr. Monir Islam, World Health Organization

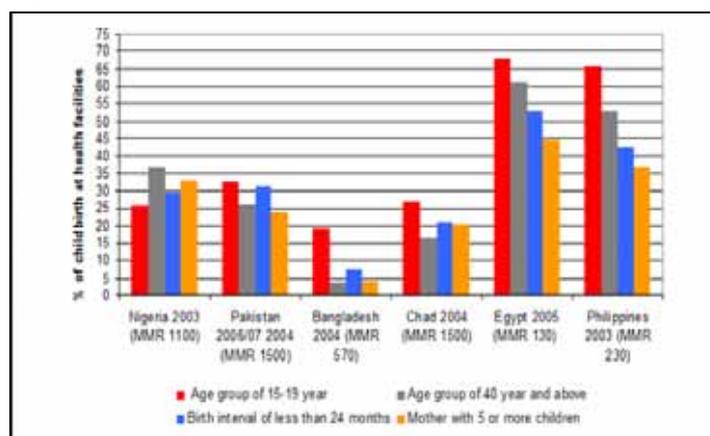
Between 1990 and 2008, maternal mortality declined worldwide by 34%, or an average annual decrease of 2.3% per year. MMRs declined in every WHO region, but progress was much more pronounced in some regions than in others. Because the majority of maternal deaths still occur in the first 24 hours after delivery, the greatest challenge for countries that are not seeing enough reduction in their MMR is to ensure that quality postpartum care is available and accessible and that women receive delivery care and postnatal care at health facilities. Countries with the highest MMRs tend to have low percentages of women, particularly those from vulnerable populations, giving birth in health facilities.

"If we do not monitor, we will not progress."

—Dr. Monir Islam

Bangladesh is a good example of a country that has made great strides toward lowering its MMR but that still needs major improvements. As shown in Figure 7, use of health facilities for childbirth in Bangladesh is particularly low among vulnerable populations (teens, women over 40, women who have five or more children, and women with a birth interval of less than 24 months), and there is great disparity among districts in terms of use of services.

Figure 7. Vulnerable population vs. facility childbirth



Such countries must concentrate not only on increasing demand for services but also on increasing the quality of health facilities. “When there is confidence in the quality of a health facility, people will go to that facility.” Organizational issues, quality, and monitoring the health system will become increasingly important.

P-1.2: Afghanistan’s Experience in Reducing Maternal Mortality. Dr. Sadia Fayeque Ayoubi, Ministry of Public Health, Afghanistan

In 2003, in an effort to reduce its MMR, Afghanistan undertook a comprehensive approach to reforming maternal health services, focusing on: (1) creating a model health system in which services were packaged according to facility type; (2) strengthening midwifery training and supporting the education and deployment of large numbers of qualified and competent midwives to work in underserved areas; and (3) scaling up and strengthening community-based care, including developing a community health nursing education program and generating demand for services. In addition, policies and guidelines were implemented to support best practices and an enabling environment.

Seven years later, when the Afghan Mortality Survey was conducted in 2010, Afghanistan’s MMR had declined to 327 (from 1,600 in 2003). Most other maternal health indicators had also improved significantly. Chief among the factors that contributed to Afghanistan’s success were

the commitment of the government, donors, and health partners and the increase in skilled birth attendance as a result of the community midwifery education initiative.

Afghanistan still has many challenges ahead. Two-thirds of women still give birth at home without a skilled provider. More than half of women under the age of 20 still have no formal education. The women who are at most risk of dying during pregnancy and childbirth are girls who marry early, women with no education, women who live in remote areas with limited access to emergency obstetric care, and women in lower income groups with malnutrition and high fertility.

P-1.3: Reducing Maternal Mortality in Nepal. Dr. Naresh Pratap KC, Ministry of Health and Population, Nepal

Nepal has made great advances in reducing child mortality and improving maternal health. However, neither its newborn mortality rate nor its contraceptive prevalence rate has declined. An estimated 32,000 newborns still die each year, many of them in the first week after birth.

The reduction in Nepal's MMR has largely been the result of interventions and policies implemented since 2001: a successful FP services program, the development of the Birth Preparedness Package, legalization of abortion, an iron intensification and deworming program to address anemia, a skilled birth attendance policy, distribution of misoprostol for home births, an in-service training initiative for skilled birth attendants, and the introduction of the Aama Program. This Program includes a safe delivery incentive, free maternity care, antenatal and prenatal care incentives, birthing centers, a community-based newborn care package, and expanded adolescent-friendly reproductive health services.

A study of the Aama Program found that the program's impact was greatest in the poorest areas of Nepal. Use of services increased more than six-fold in the poorest quadrant of the study population. Nepal must continue to find ways to reach its remote, underserved populations and excluded groups and to address its human resource shortages, especially in remote areas. Other ongoing challenges include motivating and sustaining a large network of female community health volunteers who provide maternal and child care services in the community.

P-1.4: Cambodia's Successful Efforts to Reduce Maternal Mortality and Its Challenges. His Excellency Deputy Prime Minister Chhay Ly, Cambodia

As a result of economic growth, increased political stability, access to education, and improved infrastructure (including health infrastructure) in the first half of the decade, Cambodia had already made improvements in maternal mortality by 2005. After 2005, however, access to and use of health services increased and maternal mortality declined dramatically.

The Cambodian Government's approach to improving the nation's maternal health indicators has included a comprehensive effort to upgrade the status, education, and number of midwives in the country, starting in 2005, and the implementation of its Fast Track Initiative for improving reproductive, maternal, newborn, and child health in 2008.

The purposes of the Fast Track Initiative were to: (1) identify major evidence-based interventions that could dramatically reduce maternal and newborn mortality if scaled up, (2) identify resources needed for rapidly expanding recommended interventions and highlight funding gaps that could inform resource mobilization, and (3) suggest activities for the annual operational plans of implementing units at the national and subnational levels. Seven interventions were identified: emergency obstetric and newborn care, skilled birth attendance, family planning, safe abortions, infrastructure development, increasing gender equity, and increasing education among girls. Data collected in 2011 indicate that by 2010,

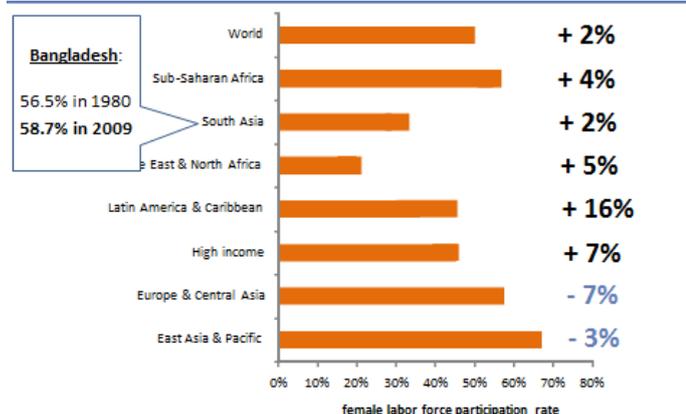
Cambodia had surpassed its MDG targets for maternal mortality, infant mortality, and use of antenatal care (ANC).

P-1.5: Key Socioeconomic Determinants of Maternal Health. Dr. Bushra Binte Alam, World Bank

A number of socioeconomic factors contribute to countries' ability to reduce maternal mortality:

- **Education.** In the last 20 years, university enrollment among women increased seven-fold. In 2009, 51% of college students were women. Nevertheless, 35 million girls are not in school today.

Figure 8. Increasing number of women joining the work force



- **Life expectancy.** Between 1990 and 2009, life expectancy for women throughout the world increased by 17 years, to age 71.

- **Women in the labor force.** An increasing number of women are joining the work force, but this does not necessarily translate to equal opportunity or equal earning (Figure 8).

- **Women in politics.** Women's participation in politics remains relatively low, but where they do participate in the political process, they make important contributions on issues such as health.

- **Legal and human rights.** Although all but six countries have ratified the Convention on the Elimination of All Forms of Discrimination against Women, 510 million women will be abused by their partners in their lifetime.

- **Poverty.** Among the 1.5 billion poorest people in the world, 70% are women. Eliminating employment segregation would increase labor productivity by 25% and improve women's income and decision-making power.

Priority actions needed to address the barriers to the advancement of women include: (1) closing the education gaps, (2) improving access to economic opportunities, (3) increasing female participation in the labor force and in control over resources, (4) increasing women's voice in the political arena, (5) enforcing implementation of existing legislation, and (6) investing in women.

"We must address these barriers because all women count. We must put [forth] resources and effort so that all women count."

—Dr. Bushra Alam

A general discussion that followed the presentations focused on the following questions:

- **What kind of model is needed now for the countries that have made advancements but where more is needed? What are the priority interventions for the way forward?** The presenters noted that what is important now is to take evidence-based practices to scale—for example, community-based distribution of misoprostol to prevent prevention of postpartum hemorrhage in Nepal—and move forward from quantity to quality of services.
- **What is the plan for the newborn in the future? How can newborn health be improved and newborn mortality reduced?** Dr. Monir Islam replied that because approximately 50% of deaths occur during the first 24 hours, these hours are crucial; improvements should be targeted to this window. Given the causes of newborn mortality (e.g., early onset sepsis), if you improve quality of care in delivery, you can reduce newborn mortality.
- **Will a greater focus on facility quality hamper access for women in villages and remote areas? How do we manage this dichotomy?** Dr. Islam noted that a large proportion of women in Bangladesh want to deliver in facilities, so it is important to focus on providing them with quality services.

Plenary 2: Global Evidence and Guidance for PPH Prevention & Treatment

Moderator: André Lalonde (FIGO)

P-2.1: 2012 WHO Guidelines for Prevention and Treatment of PPH. J.P. Souza, World Health Organization

The World Health Organization has updated its guidelines on the use of active management of the third stage of labor (AMTSL) to reflect current evidence related to the contribution of each component of the intervention. The use of uterotonics is now the primary intervention, and other interventions were found to add negligible or no benefit for the reduction of blood loss during the third stage of labor. The guidelines have been revised as follows:

- **All women giving birth should receive uterotonics during the third stage of labor. Oxytocin is the uterotonic drug of choice for vaginal and cesarean births.**
- Administration of misoprostol by CHWs is supported in areas where skilled birth attendants (SBAs) are not present.
- Controlled cord traction (CCT) is optional where SBAs are available; it is contraindicated in settings where SBAs are not available.
- Where uterotonics are used during the third stage of labor, early cord clamping and uterine massage are not essential components.
- CCT is recommended over manual removal for placental delivery in cesarean sections.
- Oxytocin alone is the first choice for treatment of PPH. Uterine massage is recommended as soon as PPH is diagnosed.
- The use of an intrauterine balloon tamponade is recommended for refractory bleeding or if uterotonics are unavailable. If bleeding persists despite interventions, surgery should be performed.
- If the third stage of labor lasts more than 30 minutes, CCT and oxytocin should be used to manage the retained placenta. If there is no bleeding, another 30 minutes may be allowed to pass before manual removal of the placenta is attempted.

The guidelines group also recommended that a specific indicator (i.e., the proportion of women giving birth who receive a uterotonic) should be used for monitoring and evaluating treatment of PPH.

P-2.2: Active Management of the Third Stage of Labor without Controlled Cord Traction: A Randomized Non-Inferiority Controlled Trial (HRP Trial A65554). Justus Hofmeyr, University of the Witwatersrand and Eastern Cape Department of Health, South Africa

This trial was conducted to determine whether the simplified AMTSL package of oxytocin without CCT is not less effective than full AMTSL (with CCT) in reducing blood loss $\geq 1,000$ mL in the third stage of labor. The trial included 25,000 women in facilities in nine countries. The experimental arm of the study received placental delivery **without** CCT, and the control arm received placental delivery **with** CCT. The study found that the risk of PPH was not greater in the group that did not receive CCT.

There was an increased need for manual removal of placenta in the group that received the simplified package, but the increase was clustered in the Philippines, where ergotamine (rather than oxytocin) is widely used for prevention of PPH. When the results from the Philippines were excluded from the analysis, there was no additional risk.

Based on the results, the following recommendations were made:

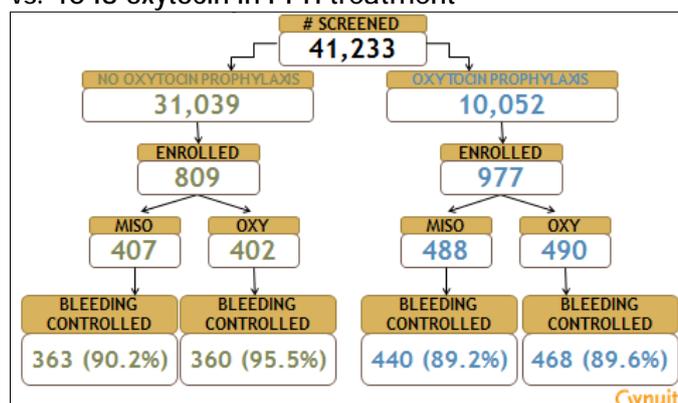
1. **Oxytocin injection after delivery should be regarded as the primary intervention for prevention of PPH. In settings where SBAs are not available and oxytocin is used for prevention of PPH, CCT could be safely omitted during AMTSL.**
2. In settings where SBAs are available and oxytocin is used for prevention of PPH, practicing CCT may shorten the duration of the third stage of labor without additional harm or benefits.
3. Strategies to scale up the use of oxytocin in peripheral levels of the health system as the primary component of AMTSL should be considered.
4. Given that about 6% of women will eventually require CCT (in managing retained placenta), the teaching of CCT for health professionals should continue.

P-2.3: The Evidence for Use of Misoprostol in the Prevention and Treatment of Postpartum Hemorrhage. Rasha Dabash, Gynuity Health Projects

Misoprostol can be used in several ways in the prevention and treatment of PPH: (1) prophylactically; (2) as a first-line treatment after prophylactic uterotonic; (3) as a first-line treatment after no prophylaxis; (4) as an adjunct treatment; and (5) as secondary prevention.

Community-based randomized controlled trials have already shown that using misoprostol prophylactically results in a decrease in severe PPH. To study the use of misoprostol as a first-line treatment for PPH, Gynuity conducted two randomized clinical trials in five countries in which women were given either misoprostol or oxytocin after either receiving or not receiving oxytocin prophylactically in the third stage of labor (Figure 9). The results showed that misoprostol reduced postpartum blood loss. There were no significant differences in effectiveness between misoprostol and oxytocin, but women taking misoprostol experienced a higher rate of side effects.

Figure 9. Efficacy of 800 mcg sublingual misoprostol vs. 40 IU oxytocin in PPH treatment



To determine whether misoprostol is effective as an adjunct treatment for primary PPH, data from four randomized controlled trials were assessed. The data showed no benefit of simultaneous administration of IV oxytocin plus sublingual misoprostol over oxytocin alone, and misoprostol was associated with more side effects.

Because misoprostol is sometimes the only feasible PPH prevention option, it should be recommended for use at home deliveries where injectable oxytocin is not available or not feasible. However, nine out of 10 women who receive prophylaxis do not need it. A simulation for assessment of universal use of misoprostol for prevention versus selective administration for treatment found that selective administration would medicate fewer women, reduce side effects, and potentially reduce costs. Community studies are under way and/or planned in India and Egypt.

P-2.4: Prevention and Management Strategies of Postpartum Hemorrhage at Different Levels of Health System in Bangladesh. Prof. Farhana Dewan, Shaheed Suhrawardy Medical College Hospital

Bangladesh's strategy for prevention of PPH includes the use of AMTSL at the facility level and distribution of misoprostol at the community level. Because AMTSL is the most effective and simple way to prevent PPH in facilities, it is being integrated with the country's training programs for midwives (Figure 10) and community-based SBAs to ensure that all SBAs receive training.

A 2004 assessment of facilities found that AMTSL practices varied widely by region and by AMTSL component and that many providers had misconceptions about AMTSL. When the facilities were followed up, however, the majority of cases of normal labor were being managed with AMTSL.

At the community level, where 71% of deliveries occur at home, misoprostol is considered the best alternative to injectable oxytocin. The misoprostol tablet was approved for PPH prevention by the Bangladeshi Drug Administration and included in the updated essential drug list in 2008. In 2010, agreement was reached on the recommended dose of misoprostol (400 mcg). Phased scale-up began in July 2011, starting in four districts, and NGOs began community implementation.

The Bangladesh Government has incorporated both AMTSL in facility births and the use of misoprostol in communities into the Health Population and Nutrition Sector Development Program and Operation Plans (2011–2016). Plans are under way to scale up community-based misoprostol use nationally.

Figure 8. Glimpse of training in preventing and managing PPH



A general discussion that followed the presentations focused on the following comments and questions:

- **What are the critical components of AMTSL in training given the higher incidence of retained placenta in countries where ergotamine is widely used for AMTSL? It seems that we need clear guidelines and recommendations for the reduced AMTSL package in these settings.** Justus Hofmeyr replied that since it appears that CCT is needed when ergotamine is used as a uterotonic, training on all three components should continue for SBAs in these countries. CCT with oxytocin may be better than with misoprostol, but this is not clear. There is limited evidence on negative outcomes associated with CCT by semi-skilled/unskilled providers in conjunction with misoprostol, which causes stronger uterine contractions.
- **What about settings where uterine massage is all that may be available?** The effectiveness of uterine massage is also not clear. We need a large trial in a setting where availability of other components of AMTSL is limited.
- **In Bangladesh, reduction of the MMR is linked to the private sector. How do you get these interventions into the private sector?** João Souza replied that the private sector is a major player and needs to be regulated through the use of clinic-based audits and process indicators. Farhana Dewan responded that process indicators are integrated with all trainings. In addition, professional organizations play a role as a bridge to the private sector, and because many practitioners bridge both sectors, they too may play a critical role in improving standards in the private sector.
- **Comment:** While the new indicator is a positive step, it does not clearly identify timing or the uterotonic used. It should specify use **after** birth (and before the placenta is delivered), and even then it is vulnerable to misinterpretation.
- **Why was the correct dose of misoprostol for PPH prevention in Bangladesh determined to be 400 mcg?** Dewan replied that the consensus of the panel of experts was that because women in Bangladesh are small in stature, 400 mcg would be similarly effective as and cause fewer side effects than the standard 600 mcg.
- **Why is there no clear recommendation by WHO on the distribution of misoprostol where there are no SBAs (e.g., Asia)?** WHO does have a recommendation for distribution of misoprostol by health workers in settings where there are no SBAs. However, the antenatal distribution of misoprostol for self-administration needs further research. Also, while it has been shown that misoprostol reduces PPH, its effect on mortality is still unclear.

Plenary 3: Overcoming Barriers and Measuring Success—Implementing PPH Prevention and Management Programs

Moderators: Khadijat Mujidi (USAID) and Catharine Taylor (PATH)

P-3.1: Monitoring Program Performance in Maternal and Newborn Health. Steve Hodgins, MCHIP/John Snow, Inc. (JSI)

Program monitoring has two purposes: (1) to provide evidence to MOHs and donors that the program is accomplishing its intended objectives; and (2) to direct program improvement efforts. Among the indicators for MDG-5, skilled birth attendance and ANC coverage are generally the only ones used for tracking overall program performance.

Skilled birth attendance and ANC measure **contact**; they tell us that we've managed to get our target beneficiary in the front door. That's an important first step, but getting the client in the front door won't, by itself, result in better health outcomes. What we really need to know is what happened next. What is the content and quality of the care provided?

"To get consistent attention paid to content and quality we must consistently monitor and track content and quality."

—Steve Hodgins

Over the last two years, WHO and others have been developing a set of additional indicators of content and quality for routine monitoring in health management information systems (HMIS):

- Uterotonic (oxytocin) given during the third stage of labor (immediately after birth)
- Cesarean deliveries, as a proportion of all live births
- Assisted vaginal deliveries, as a proportion of all live births
- Fresh stillbirths, as a proportion of all births
- Proportion of health facilities that do deliveries and that, at some point in the preceding three months, were out of stock for magnesium sulfate

These are limited and imperfect, but the intention is to come up with a very limited set of additional indicators that can be incorporated into routine monitoring without imposing a

significant burden, particularly on service providers. The goal is to shift the focus from mere contact with a provider—getting the client through the front door—to the content and quality of care.

P-3.2: Community Level Use of Misoprostol for PPH Prevention: What Works and What Is Next? Dr. Nuriye Hodoglugil, Venture Strategies Innovations

Misoprostol is used throughout the continuum of care for the management of postpartum hemorrhage (PPH) among other uterotonics, and can be used for PPH prevention at home deliveries and for PPH treatment in facilities. Eighteen countries (and counting) have demonstrated effective, feasible, safe, and acceptable community-based use of misoprostol through research and/or implementation programs with different models of distribution. Community-based distribution enables us to reach women where they are.

In studies from India, Pakistan, and Bangladesh, where misoprostol was given to women by auxiliary midwives, trained TBAs, or CHWs (respectively) for home deliveries, the rate of PPH was reduced significantly, as compared to women in the control groups, who did not receive misoprostol. Based on program data from Bangladesh, misoprostol distribution in clean delivery kits and through CHWs was a feasible and effective strategy for reaching women who deliver at home. Studies in Nepal and Afghanistan have shown that community-based use of misoprostol has made it possible to greatly increase coverage of uterotonics. Furthermore, women who were poor and illiterate, as well as living in remote areas, significantly benefited from misoprostol distribution in Nepal, with higher coverage rates. A study in Afghanistan found a very high level of correct and appropriate use of misoprostol after birth.

Women understand the message that preparing for birth and delivering at a facility are important ways to decrease the risk of dying due to excess bleeding. They also understand how to use misoprostol correctly. Community-based misoprostol use has the added benefit of empowering women and families. (See Figure 11.)

Misoprostol use at the community level is an important tool for addressing inequity and achieving MDG-5. Countries that are considering nationwide scale-up should: (1) consider sources of funding and do a cost-benefit analysis, (2) plan interventions that are scalable and that can be monitored, (3) heed lessons learned from other community-based distribution programs, and (4) ensure a consistent supply of good-quality products.

Figure 9. Job Aid for community-based use of misoprostol



P-3.3: Bangladesh Program for the Prevention of Postpartum Hemorrhage: Implementation Experiences. Dr. Abu Jamil Faisal, EngenderHealth Bangladesh

Bangladesh's two-pronged approach to prevention of PPH focused on the implementation of AMTSL at the facility level and distribution of misoprostol at the community level. Implementation of both strategies involved a number of challenges and lessons that may offer insights for other program planners.

After the AMTSL assessment in 2008, which showed that only 16% of providers were using AMTSL correctly, Bangladesh implemented AMTSL training—for doctors and nurses in 26 districts—in supervision, coaching, and collection of information on AMTSL practices through monthly reports. Challenges in implementing these interventions included ensuring country-wide training of providers, supervision of providers, and correct and consistent use of AMTSL; maintaining the cold chain for oxytocin; consistent reporting through the government reporting system; and the shortage of skilled providers, low institutional delivery rate, and limited availability of facilities offering 24/7 delivery services. **Despite these challenges, post-training AMTSL practice increased from 16% to 85%, and the incidence of PPH in monitored facilities declined by more than 75%.**

Following two large pilot tests of misoprostol in 2008, plans and a budget for national scale-up were incorporated into the Health, Population and Nutrition Sector Development Program (2011–2016). Implementation modalities were developed, training and behavior change communication materials were tested, and plans were made for institutionalizing maternal death audits. Scale-up began in July 2011 in four districts.

Challenges and lessons learned in the implementation of community-based distribution of misoprostol included the following:

- Misoprostol can reduce PPH and can be distributed effectively through field workers.
- Registering all pregnant women, and actually distributing the tablets to them, proved challenging.
- Some effort must be applied to preventing inappropriate use of misoprostol.
- Effective implementation must also include raising community awareness of facility delivery and use of skilled birth attendance.
- Close collaboration with the government increases the chances of developing scalable programs.

P-3.4: Nepal: A Pioneer in Community-Based Distribution of Misoprostol for Prevention of PPH at Homebirth. Dr. Naresh Pratap KC, Ministry of Health and Population, Nepal

Community-based distribution of misoprostol in Nepal was initiated as part of a broader approach to reducing PPH. Nepal's first priority was to increase skilled attendance at birth and institutional deliveries, with an emphasis on institutionalizing AMTSL, training skilled birth attendance, and offering financial incentives for facility deliveries.

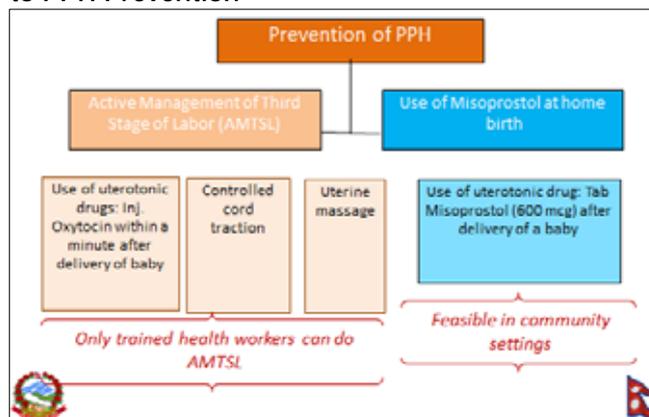
The concept of community-based distribution of misoprostol was initiated in the spring of 2004, and planning and preparation for the pilot program began in 2004–2005. The program was first piloted in Banke. The planned approach involved several elements: modest facility upgrades for delivery sites, refresher clinical training for health workers providing maternity service, and training of female community health volunteers (FCHVs) in antenatal counseling and dispensing misoprostol. (See Figure 12.)

The FCHVs play a pivotal role in the community-based distribution program in Nepal, and theirs was a key role in the pilot test as well. FCHVs provide essential assessment,

counseling, dispensing, and documenting services before, during, and after delivery. They were trained on all aspects of misoprostol use in preparation for the pilot.

Based on the positive results of the pilot in Banke, planning began for nationwide expansion of the program, with a focus on remote areas. In 2010–2011, community distribution of misoprostol was introduced in 21 additional districts, and commitments were obtained for support for expansion in seven additional districts by September 2012. By next year, the program is expected to reach 32 of the 75 districts in the country. Ongoing implementation is dependent on: continued, strong coordination and networking among partners and professional organizations; close collaboration between FCHVs and health facilities and health workers; and the continued involvement of government staff in training, monitoring, and reporting.

Figure 10. Government of Nepal's current approach to PPH Prevention



A general discussion that followed the presentations focused on the following comments and questions:

- Regarding the new WHO indicators, the cesarean section delivery indicator is very complex. Has it been applied and is it practical to implement? Steve Hodgins replied that although he described the indicators in a very simplistic way in his presentation, there are options for different denominators to get different answers.
- Comment: Demand side financing—cost of transport (not the cost of actual care) is prohibiting families from accessing care. Dr. Faisel responded that vouchers are given to families to cover travel costs.
- What is the status of verbal autopsies? Faisel replied that a verbal autopsy questionnaire is under development.
- Is cold chain absolutely necessary for storing oxytocin? Faisel replied that cold chain is not mandatory but that the drug loses potency with heat, so it should be kept cold to keep the potency.
- Why is use of the partogram not on the WHO indicator list? Hodgins replied that the goal was to develop a very limited set of indicators to incorporate into countries' HMIS, not to measure everything we want to know. Initially, there was a partogram indicator, but it was not straightforward.
- How was the Bangladesh Government convinced to use misoprostol given that it's a medical abortion product? Faisel responded that the government was convinced by the icddr,b studies and the fact that the drug was locally manufactured and locally available. Dr. Hodoglugil added that it was important that implementation focused on PPH.
- Do we consider, at the policy level, the nationwide implementation of misoprostol as a temporary strategy? Dr. Naresh Pratap KC noted that institutional delivery and AMTSL are still the goals in Nepal. Misoprostol is Nepal's Plan B.
- Misoprostol is an abortion product. Have there been any studies/experience on its use for abortions? Naresh replied that there are no studies at this point.
- How is compliance in the use of misoprostol ensured? Naresh replied that it is a challenge to ensure compliance when supervision is weak.
- Have birth attendants given any feedback about self-administration? Do women decide when to take the tablet? Or does the birth attendant decide? Naresh replied that in Nepal pregnant women receive counseling and know what to do. Dr. Hodoglugil added that this question is still being asked in Bangladesh but that the main goal is to ensure that women have the tablets at the time of delivery.

Plenary 4: Drugs and Commodities

Moderators: Nahed Matta (USAID/W) and Laura Reichenbach (icddr,b)

P-4.1: Assessing the Potency of Oxytocin and Methylergometrine in Four Districts of India. Cindy Stanton, Oxytocin Initiative/PATH

The purpose of this study was to determine whether uterotonics purchased at pharmacies in India had sufficient potency—that is, if the amount of active ingredient was within the manufacturers' specifications. Mystery clients went to pharmacies near health facilities in four districts in two states in India and asked to purchase one of four uterotonics: oxytocin, methylergometrine, misoprostol, and valetamate bromide. The researchers' goal was to

acquire and test 50 samples each of oxytocin and methylergometrine (ergometrine). In one state (Uttar Pradesh), the drugs were available for purchase at more than 90% of the pharmacies visited, but in the other state (Karnataka) they were available at less than 40% of pharmacies.

Samples were considered to be within the manufacturers' specifications if they contained 90–110% of the active pharmaceutical ingredient. In the two districts in Karnataka, 60% and 67% of the oxytocin samples and 4% and 0% of the methylergometrine samples were within specifications. In the two districts in Uttar Pradesh, 50% and 78% of the oxytocin samples and 46% and 56% of the methylergometrine samples were within specifications. Further research is needed to determine why the uterotonics are below the specifications of the active pharmaceutical ingredient at the point of sale. Possible explanations include the quality of manufacturing, inappropriate conditions during transport or storage, and inappropriate conditions during storage at health facilities.

P-4.2: Quality of Misoprostol Products. Peter Hall, Concept Foundation

Because there has been a proliferation of misoprostol products, a study was undertaken to determine the quality of the drugs being produced and distributed. Seventy-six samples were collected from Argentina, Bangladesh, Cambodia, Egypt, India, Kenya, Mexico, Nigeria, Pakistan, Peru, and Vietnam, and 74 samples were ultimately tested. Of the 74 samples, 34 had less than 90% of the labeled content and eight had less than 20%. One year after manufacture, 19 of 31 samples tested had less than 90% of the labeled content and seven had less than 20%.

The results suggest that the quality of some products degrades rapidly between three months and a year after manufacture. The quality of the product is influenced by how it was manufactured, how it is stored, and the type of packaging used. Evidence that appropriate environmental controls have been implemented at all stages of the manufacturing process (and use of a double-aluminum blister pack) would help prevent degradation of the finished product. The UNFPA has instituted an interim process for product review by a WHO expert review panel. Manufacturers must demonstrate compliance and make a commitment to producing quality drugs. WHO prequalification will help minimize risk and give procurers greater confidence in the products. Procurers of misoprostol should use manufacturers that can demonstrate that the drug is of proven quality, manufactured with appropriate environmental controls, and packaged appropriately.

P-4.3: Quality of Oxytocin Injections: A Case Study in Indonesia. Dr. Victor S. Pribluda, Promoting the Quality of Medicines (PQM), United States Pharmacopeia (USP)

The quality of oxytocin in randomly collected samples was studied to identify constraints for storage that could affect the quality of oxytocin injections and to formulate recommendations for improvement. WHO recommends storage of oxytocin under refrigeration as much as possible to prevent loss of potency. At temperatures of 2–8° Celsius, oxytocin was found to have a shelf life of three years. Random sampling of different brands of oxytocin used at various service levels was undertaken in five regions of Indonesia. The samples were tested for correct labeling and packaging, active pharmaceutical ingredients, and contaminants or strange particle matter. A sample was considered “failed” if its test results did not conform to required specifications.

Nearly 12% of the samples failed, highlighting a serious problem with the quality of oxytocin injections at the sampling sites. There appeared to be a correlation between storage condition and the failure rate, with the failure rate of refrigerated samples at 11.9% and the failure rate of non-refrigerated samples at 15.8%. Storage in a controlled environment was not a common practice, and there did not appear to be specific guidelines for transportation, supply, and distribution of the drug. The results suggest the need to address problems with the manufacturing practices.

P-4.4: Pharmaceutical Management for Maternal Health: Assuring Access to Quality Medicines and Supplies. Beth Yeager, SIAPS, MSH

Pharmaceutical management helps to ensure the accessibility, availability, affordability, and acceptability of high-quality medical products and services through the process of selection, procurement, distribution, and use (Figure 13).

- **Selection** of products is based on the consensus of experts and internationally recognized best practices. Selection criteria include the types of health providers at different levels of the health system, cost, safety and efficacy, quality and stability, registration status, and availability for procurement.
- **Procurement** entails consideration of the quantity needed, quality standards, packaging, storage conditions and capacity, shelf life, supplier performance, and whether distribution will be centralized or decentralized.
- **Distribution** considerations include the network and conditions needed for inventory management, conditions needed for transport and storage, and quality assessment at distribution points. Aspects of **use** of pharmaceuticals that ensure quality include service delivery protocols, job aids, product availability, and dispensing requirements.

Pharmaceutical management support activities that help to ensure quality include standard operating procedures, management information systems, adequate capacitated human resources, financing, and monitoring and supervision. All of this activity occurs within a policy and legal framework that includes standard treatment guidelines and an essential drug list, registration, importation, finance mechanisms, and human resources.

Figure 11. Elements of pharmaceutical management to ensure product quality



A general discussion that followed the presentations focused on the following points and questions:

The moderator(s) began by giving a brief overview of the panel presentations:

- Our focus in this plenary has been on whether we have the drugs we need at the time we need them. We need to make sure that these drugs are present and that they are of good quality. In these presentations, we have heard about studies conducted in Asia on a range of uterotonics and about the prevalence of substandard medicines in many areas. Given how complicated the health system is in many countries, the policy implications and challenges for maternal health drugs are striking. We have heard that drug content is largely inadequate and that packaging, distribution, and transport all play an important role in drug quality. WHO's expert committee on prequalification to improve the standard of production offers promise. In short, if we want a uterotonic drug for every woman giving birth, we need to make sure that it is effective.

Questions and comments for the panelists:

- **How can the WHO AMTSL study results be logical if there is such a variety in quality?** The drugs were purchased by WHO and sent out to the sites.
- **How are relationships between drug prescribers and drug providers/pharmaceutical companies?** Relationships are appropriate to the product. Misoprostol is hydroscopic; it degrades in warm, humid conditions. It is a myth that it is stable. It can be stable if manufactured, packaged, and stored appropriately. The public needs access to these data. Improving the regulatory environment will affect improvements in production.
- **Comment:** The public sector is better able to control the quality of medicines. The private sector has less control.
- **What is the clinical impact of giving a drug with low quality?** The impact is unknown; 65% active ingredient may not mean 65% clinically effective.

OPTIONAL EVENING SATELLITES (MAY 4)

Optional satellite (OS) sessions, held on the evening of May 4 and 5, offered meeting attendees the opportunity to learn more about topics touched on during the day or to explore new areas. In comparison to the large plenary sessions, these optional sessions were held in smaller rooms and attended by smaller groups of up to around 30. Some involved a presentation or demonstration, others a “show and tell” followed by lively and interactive discussion among participants and presenters. Participants could select one satellite session, which lasted 90 minutes.



OS-1.1: Story of Bangladesh Maternal Mortality Reduction

Kanta Jamil (USAID); Shams El Arifeen; Peter Kim Streatfield and Quamrun Nahar (icddr,b)

The session summarized and highlighted insights from Matlab and analyses of national data around skilled birth attendance, quality of care, and PPH and PE/E. Matlab is a district in Bangladesh where extensive data collection was undertaken for many years. The presentation included the following key points:

- Matlab initially took a community-focused approach to managing childbirth, but shifted to a facility-based approach from 1996 on. Bangladesh has experienced an impressive decline in maternal mortality, which started before the increase in skilled attendance at birth.
- Use of ANC services has been increasing, but 4+ ANC visits remains low, lagging far behind the 100% target.
- Contributing factors to adverse outcomes (illustrated by case studies) include: delays in recognizing conditions, seeking care first from informal providers, not going to a facility that could provide needed care, and lifesaving care not rapidly available at the final facility.
- With regard to facility deliveries in relation to wealth quintiles, we see that ratios have been improving (since 2004) but disparities remain.
- PPH and PE/E have been reduced in recent years but are still the lead causes of maternal death in Bangladesh. We need to look at what will be done in the home/community, what more can be done at facilities, and strategies for strengthening the referral system.
- Remaining challenges highlighted by Matlab: healthy system capacity, quality of services, costs and equity, regional disparities/difficult access areas, and increasing 4+ ANC to 100%.
- With regard to increasing coverage and use of services, we need to ensure that the health system is prepared and organized to manage an increase.

“The issue isn’t that people don’t know about [women being treated with disrespect during birth]. They DO know about it. It’s just that they won’t talk about it.”

—Mary Ellen Stanton,
during her session “Respectful Care at Birth...”

Highlights from Discussion

- Possible reasons for decline in MMR before increase in SBA: Decrease in harmful practices like unsafe abortion and increase in antibiotic distribution by community doctors.
- Why focus on increasing coverage of 4+ ANC visits when there is not a demonstrated relationship between 4+ ANC visits and maternal mortality? (It brings women into contact with health services, may contribute to use of SBA during birth.)
- Need to focus not only on quantity but also quality of ANC visits.
- Need 24-hour care facility and adequate staffing; also stabilization before referral—referral can be dangerous.
- Reduction of total fertility likely plays a critical role in reduction of maternal mortality.
- Governments should use transparent processes for decision-making and setting policies/standards for PPH prevention.
- Lots of push-pull before governments change policy; change is slow.
- Population is more willing to seek services. This may be biggest factor.
- Need to look more at task-shifting for maternal health.
- Community-based distribution of misoprostol should be a short-term strategy, while working toward increasing facility-based delivery with skilled attendants.
- Equity of services needs more attention. Although there may have been improved equity in recent years, large disparities in coverage and use still exist.

OS-1.2: Exploring Use of Uterotonic Substances at or around Birth in Two States in India *Nitya Nand Deepak (Oxytocin Initiative)*

Nitya Nand Deepak presented on a study that looked at uterotonic use and distribution in Uttar Pradesh and Karnataka. The objective was to explore knowledge, perceptions, and usage of these drugs among providers and community members and to describe use at health care facilities. The data collection method included in-depth interviews and labor observations.

Key findings from the interviews included the following:

- Providers reported distributing injections during labor.
- Use of uterotonic in the third stage of labor was not routine.
- Uterotonics were provided during first and second stages of labor, to augment labor even if it is progressing normally.²
- At facilities, doctors decide when to administer drug.
- Collaboration among informal providers is common; village doctors often called to give injections in the community.
- Some physicians were concerned about inappropriate use of uterotonic in home deliveries by village doctors, which exposes delivering women to risk.
- Most providers (physicians) in public health settings reported that they had mostly used oxytocin and epidocin to augment labor and methylergometrine to treat PPH.
- Both village midwives and doctors vaguely understood risks associated with uterotonic use, whereas most physicians knew the risks associated with intrapartum uterotonic use.
- Chemists reported that they would not dispense uterotonic drugs without a prescription.

Key concerns:

- Inappropriate use of uterotonic for augmenting labor at lower level facilities
- High demand from family members to provide injections to speed up delivery process

² Editor's note: Inappropriate use of uterotonic regardless of level of health facility is potentially dangerous for both the woman and the fetus.

Key findings from the observations of deliveries included the following:

- Marked diversity of staff assisting with labor in relation to capacity and skills
- Low rates of induction, but extensive use of labor augmentation with multiple uterotonic
- Immediate cord clamping, fundal pressure after delivery of the baby, and cord traction without manual support the norm in many sites
- Oxytocin and methylergometrine often stored incorrectly

At the end of the presentation, Deepak suggested that to understand the situation in their own countries, studies can look at a representative sample of deliveries at district level from public health facilities.

OS 1.3: Training on PPH Prevention: “Bleeding After Birth” (BAB)

Cherrie Evans and Neeta Bhatnagar (Jhpiego)

Using a MamaNatalie birth simulator, BAB Facilitation Guide, and Action Plan, Cherrie Evans and Neeta Bhatnagar demonstrated a normal birth and then a PPH resulting in a “maternal death,” which a viewer described as very motivating. Following the demonstration, attendees did a small group activity, in which they were asked to answer two questions:

- How would you implement “bleeding after birth” programs in your countries?
- What are different cadres allowed to do with regard to prevention/management of PPH?

Results of the activity are presented below (Table 2). It should be noted that participants were very eager to share their experiences and moved on to discussing the training of SBAs and facilitators before being guided back to the main topic. The suggestion was made that more time could have easily spent on this activity.

Table 2. Results of group work on implementing BAB programs in different countries

1: Afghanistan, Bangladesh	2: India	3: Myanmar	4: Mixed	5: Cambodia, Indonesia, the Philippines
<ul style="list-style-type: none"> ▪ Endorse training ▪ Drugs on EML ▪ Everyone can receive training ▪ Integrate with existing packages such as PSE ▪ Link to HBB training ▪ Someone has to fund 	<ul style="list-style-type: none"> ▪ Policy environment in place ▪ Re-emphasize prevention & management of PPH with focus on skills—will advocate for program in India ▪ Consider including with HBB training of “attendants” who are transferring patients ▪ Consider as part of refresher training ▪ Best if it can be done with PE/E 	<ul style="list-style-type: none"> ▪ Scope of practice for midwives (auxiliary and/or community) is limited (cannot give injections) ▪ Roles and responsibilities at different levels of system are clear and seem to be enforced 	<ul style="list-style-type: none"> ▪ Policy—every member of community can participate in policy ▪ Support integrated approach ▪ PPH training in PSE ▪ Ensure regulation 	<ul style="list-style-type: none"> ▪ Misoprostol not on EML ▪ Scope of practice of midwife (limited in Philippines) means team approach needed

OS-1.4: Improving Newborn Survival: Role of Chlorhexidine Application to the Umbilical Stump

Esther Lwanga (USAID); Luke Mullany (JHU); Naresh Pratap KC (MOHP Nepal); and Steve Hodgins (JSI/MCHIP)

Luke Mullany began by providing background on chlorhexidine (CHX). In three studies in countries where newborn mortality is high—Nepal (2002–2006), Bangladesh (2007–2009), Sindh/Pakistan (2008/09)—CHX was shown to be effective. Neonatal mortality was reduced by 24% in Nepal, 20% in Bangladesh, and 38% in Pakistan. As a new intervention, it is not yet well known.

Common **beliefs and myths** regarding CHX:

- Putting CHX on the cord delays separation → **TRUE**. Putting CHX on the cord can delay separation time by an average of about one day.
- Clean-dry cord care would work just as well → **NOT TRUE**. The comparison arms in these studies were exposed to counseling on the importance of clean-dry cord care and had markedly higher mortality.
- Harmful practices associated with cord infection are no longer common → **FALSE**. In Nepal, 58% of mothers applied something to the cord after cutting.
- Alcohol, gentian violet, and iodine are feasible/acceptable alternatives → **FALSE**. For none of these is there evidence of effectiveness in reducing mortality risk.

Naresh Pratap KC discussed the piloting of CHX in four districts in Nepal (Banke, Bhajang, Jumla, and Bara) and plans for national expansion.

Steve Hodgins focused on factors that need to be taken into account in scale-up of CHX:

- It is cheap and can be delivered in various forms, depending on local preferences: liquid, gel, moistened towelettes.
- Cord care recommendations and messaging will need to be somewhat adapted.
- Because trained health workers are not required for its application, there are multiple options for distribution.

OS-1.5: Improving Maternal Health with Commodities: How the UN Commission on Life-Saving Commodities for Women and Children Can Transform the Agenda

Deborah Armbruster (USAID); Wame Baravilala (UNFPA); Dr. Kim Dickson (UNICEF); Kristy Kade, Catharine Taylor, and Rachel Wilson (PATH); Sita Shankar Wunnava (PATH/India)

Sita Shankar Wunnava opened this exceptionally well-attended session by discussing challenges and roadblocks to accessing maternal health supplies in India. Challenges include significant misuse of uterotonics, as illustrated by two stories about two women who were given oxytocin to induce labor with dangerous consequences. Wunnava stated that a strong procurement policy and system could increase the flow of supplies from the central government to individual states. Unfortunately, there is currently no system for tracking or categorizing maternal health medicines.

Wame Baravilala commented that funding for contraception and maternal health supplies has been decreasing while the population increases. He introduced Reproductive Health Commodities Security (RHCS), a project aimed at renewing efforts to attract global funding and target “least developed countries” and high MMR countries—focusing on integrated health plans and strategies. Mongolia, Laos, and Myanmar have been the primary focus because of their unique geographic and other challenges; more than 30 countries in Asia, including Papua New

Guinea and Timor Leste, are now making funding for needed supplies accessible. RHCS has seen some of the poorest countries starting to develop a national RH commodities plan.

Deborah Armbruster said the role of bilateral donors in ensuring access to health supplies is to facilitate the roles of others, to play a leadership role in the areas of funding and procurement. Maternal health drugs are inexpensive, she said; governments should be purchasing them and assisting in the process of increasing access to them.

Earlier this year, PATH, Management Sciences for Health, UNFPA, and USAID developed a report with input from MCHIP—“Medicines for Maternal Health: Key Data and Findings, *prepared for the* United Nations Commission on Commodities for Women and Children’s Health.”³ Dr. Kim Dickson discussed the importance of providing this technical support to the UN commission and making concrete recommendations at the highest level—to help make MCH drugs accessible and affordable. We need to work with high-level officials to move forward, she said, and develop a general, global plan for “commodity security.”

Catharine Taylor focused on the “more granular” logistics of the UN commission. MCH commodities, she said, need to be addressed: “13 lifesaving commodities” including oxytocin, misoprostol, and magnesium sulfate have been identified. Three working groups are currently spearheading the commodities issue: one taking on market shaping/global marketing; another looking at regulatory/policy issues at global and country levels; the third concerned with best practices and innovation, focusing on landscape coverage, quality, and accessibility, as well as development of “outside-the-box” innovations. Amid and around these groups, there is even “talk of the C word”: supply chain *corruption*.

Announcement: Between May and July 2012, PATH brought together more than 130 stakeholders from across Asia, Sub-Saharan Africa, Europe, and North America to participate in five roundtable discussions in Bangladesh (as describe above), Tanzania, and the United States to inform the UN Commission on Life-Saving Commodities for Women and Children—by identifying and prioritizing common challenges and potential solutions to specifically improve the quality of and access to maternal health medicines. “Safeguarding pregnant women with essential medicines: A global agenda to improve quality and access,” a report synthesizing key areas of consensus from these discussions and presenting a targeted agenda for action—for global and national advocates, policymakers, and program implementers—is available at: <http://www.path.org/publications/detail.php?i=2207>. For more information, contact Kristy Kade, Family Health Advocacy Officer, at: kkade@path.org.

³ <http://www.unfpa.org/webdav/site/global/shared/images/publications/2012/Key%20Data%20and%20Findings%20Maternal%20Health%20Medicines-FINAL.pdf>

Highlights from Discussion

- GAVI CSO Board—Countries are provided incentives for immunization. We can do that for contraception. “Get an award!” Centralize market shaping; certain products have more than 30 companies making them. Maybe move to one to three manufacturers so that prices will go down and go through one organization such as UNICEF. This would also allow companies to have an idea of quantities needed.
- Magnesium sulfate is problematic.
- Country-level tracking of supplies for health care (India)—Using IT to track supplies, contraceptives, etc.; text messages sent if health care workers need more supplies, which are then dispatched; transaction stored in software. Thirty districts in state now want to use this for other supplies to show annual need for all supplies.
- Incentives—Saving the lives of mother and child can be pushed as the responsibility of government and policymakers for a procurement plan. But we need to assist them and support them. Supply chains for misoprostol: plan to procure but not distribute through community level. How can we build into the government such a capacity? UNFPA can procure through third party procurement.
- UNFPA, Afghanistan—More than 50% were counterfeit materials. Difficulties in a post-conflict government—can’t procure or help. USAID funding only looks at supply side, not demand side. Is there a global MOU among donors, binding RH commodities? Also, come up with some common policies.
- Misoprostol only comes in generic form, magnesium sulfate too, so there are no profit margins. This leads to problems with local manufacturers and also with international procurement: lack of quality general products procurement; need to purchase from companies that make quality product.
- Two points: (1) Consider hypertension agent to be included in commodities; (2) Magnesium sulfate is more user-friendly—administration tools have allowed standardization of doses, thus avoiding problems associated with variation of amounts and mixing.
- Huge variations of supply access (India)—Southern states have excellent supply (third-party procurement supplies); northern states may not have seen the drugs for two years. Management of PPH IV fluids is another issue.
- Support from national level for facilitation and evaluation to avoid corruption through supply chain.
- International procurement: Price of HIV drugs brought down; no profit with magnesium sulfate. Incentives and global prediction of commodities/quantities needed so that company can produce appropriately and get a better price. Procurement system will help with obtaining commodities but not with shipping/customs.
- Regarding difficulties with RH commodity security, urgent lifesaving drugs are needed in countries with high mortality rates. Look at MOH resources and how the MOF system is working and developing a governmental contribution. Issue of corruption: How do we overcome this? Are we going to wait for a well-developed logistics system? Are mothers going to wait for this? We need a “how to” procedure—to be more practical, not wait for the ideal situation. Also, work in social marketing.
- Two points: (1) Family planning and emergency contraception—cultural note, acceptability (female condom); (2) Decentralized and centralized systems—need the flexibility to cover both types.
- Commodities: Storage is a big issue; consider provision of electricity, refrigerator and generator.
- Calcium should be added to the list.

OS-1.6: Respectful Care at Birth: Research and Advocacy

Mary Ellen Stanton (USAID); Charlotte Warren (Translating Research into Action [TRAction] Project)

After showing a video, prepared by the White Ribbon Alliance, about disrespectful treatment of woman during childbirth (“Breaking the Silence,” <http://db.tt/RSIXgZZQ>), the presenters characterized the problem as a violation of human rights that is truly global—occurring in low-, medium-, and high-income countries. Adding to the problem, there is “no normative standard for respectful care” and little formal research, mainly only anecdotal reports (Table 3).

Table 3. Disrespect and abuse during childbirth—A landscape analysis⁴

Violation	Quote/Behavior	Source/Location
Lack of informed consent	“Providing explanations to less-educated women is not a good use of time, as they just can’t understand.”	Fonn et al. 2001; South Africa
Non-dignified care	“One nurse told me, ‘Lady, can’t you see that you are in the way? Go over there, you aren’t anything but an animal and talking to you is like talking to an animal.’”	Miller et al. 2002; Dominican Republic
Physical abuse	“When a woman goes into the second stage of delivery, you don’t want her to close her legs, so you’re beating her.”	Center for Reproductive Rights and Federation of Women Lawyers, 2007; Kenya
Discrimination	“Being low status leads to discriminatory behavior by health provider... he knows this woman is more likely to accept (bad) treatment... she will accept it and she won’t yell back....”	Interviewee, TRAction Project, 2010
Abandonment of care	“You just call [for the nurse] until you get tired and then you finally deliver by yourself and die. I have... witnessed it myself.”	Family Care International The Skilled Care Initiative, 2005; Kenya
Detention in facilities	“When I got the bill, the doctor said to me, ‘Since you have not paid, we will keep you here.’”	Human Rights Watch, 2010
Normalizing disrespect in facility-based birth	Heard from an older woman: “Women expect too much nowadays... women should be beaten, because that is how it was for the past generation.”	Interviewee, TRAction Project, 2010

To attract people into the discussion, the audience members were asked, is it best to frame the issue as “promoting respectful and compassionate care at birth” or “tackling disrespect and abuse at birth”? The presenter closed by summarizing main points about widespread humiliation/abuse of women in facilities during childbirth, a time of intense vulnerability: it’s become obscured by a “veil of silence” and is “normalized” in many settings, sometimes even accepted by women; and can significantly deter women’s use of facilities, even for emergencies.

The next presenter began by focusing on findings from the Heshima Project in Kenya (http://www.popcouncil.org/projects/334_KenyaDignifiedBirthCare.asp). Comparisons of “midwife researchers” observations and women’s reports of their experiences revealed **various “layers of definitions” and categories of inhumane treatment**, disrespect, and abusive care. One of the many factors discouraging women from seeking SBAs was shown to be poor quality of care, including disrespect and abuse. Most women said they preferred a male provider, explaining that older and less-qualified female providers were the worst. The senior management perception was that “providers are doing the best they can,” whereas 44% of providers felt that professional bodies provide limited or no support.

Within the health system, drivers of disrespect and abuse were found to include: lack of accountability; little understanding of client rights; “normalization” of abuse; inadequate infrastructure, funding, etc.; and **complacency of policymakers toward resolving the issue**. “The presence of legal and policy guidelines does not translate to the enjoyment of those rights,” the presenter pointed out.

Within the community, unequal power dynamics play a role—women were found to be **unaware of their health and human rights**. Communities have also normalized some aspects of disrespectful behavior, and the right to health and dignified care for women during childbirth remains a pipe dream for many.

⁴ Bowser D (Harvard School of Public Health) and Hill K (University Research Corporation, LLC). 2010. *Landscape Analysis: Exploring Evidence for Disrespect and Abuse in Facility-Based Childbirth*. USAID TRAction Project, USAID.

The presenter closed by noting how important it has been to have the MOH on board during the long process of making improvements in this area. The project also kept a **high media profile to stay in the public eye and move the agenda forward**. Finally, although this issue has not been talked about traditionally, the presenter shared a very recent change in this trend: “people in some circles are talking more openly about it now.”

For information on TRAction and the reference report, please visit: www.tractionproject.org

For information on advocacy and the White Ribbon Alliance for Safe Motherhood, please visit: www.whiteribbonalliance.org

Highlights from Discussion

- The audience shared several examples of disrespect/abuse from their experience/observations.
- Behavior of health workers may be falling through the cracks—somewhere between demand and quality of care. Training is being provided by technical types, with no involvement of behavior change experts, in situations where behavior change is most needed.
- The behavioral component must be firmly embedded in mechanisms for accreditation and supervision. People may behave badly when they are not observed.
- What about the other side of the story? In a similar project in Brazil, we started by respecting the health providers, and then checked with the women and found that they were being treated better too.
- In my country, our doctors and ob/gyns are taught bioethics; we also want to teach this to midwives.
- If you mistreat clients, they might not come back. That could be a compelling argument for improving respectful care—more of a business model. The system needs to understand “what’s in it for us.” (Note: Stanton responded by saying we have a lot to learn in these environments ... may be different answers in different environments. Taking the business model approach may work in some environments and not others, which takes us back to the importance of the research.)

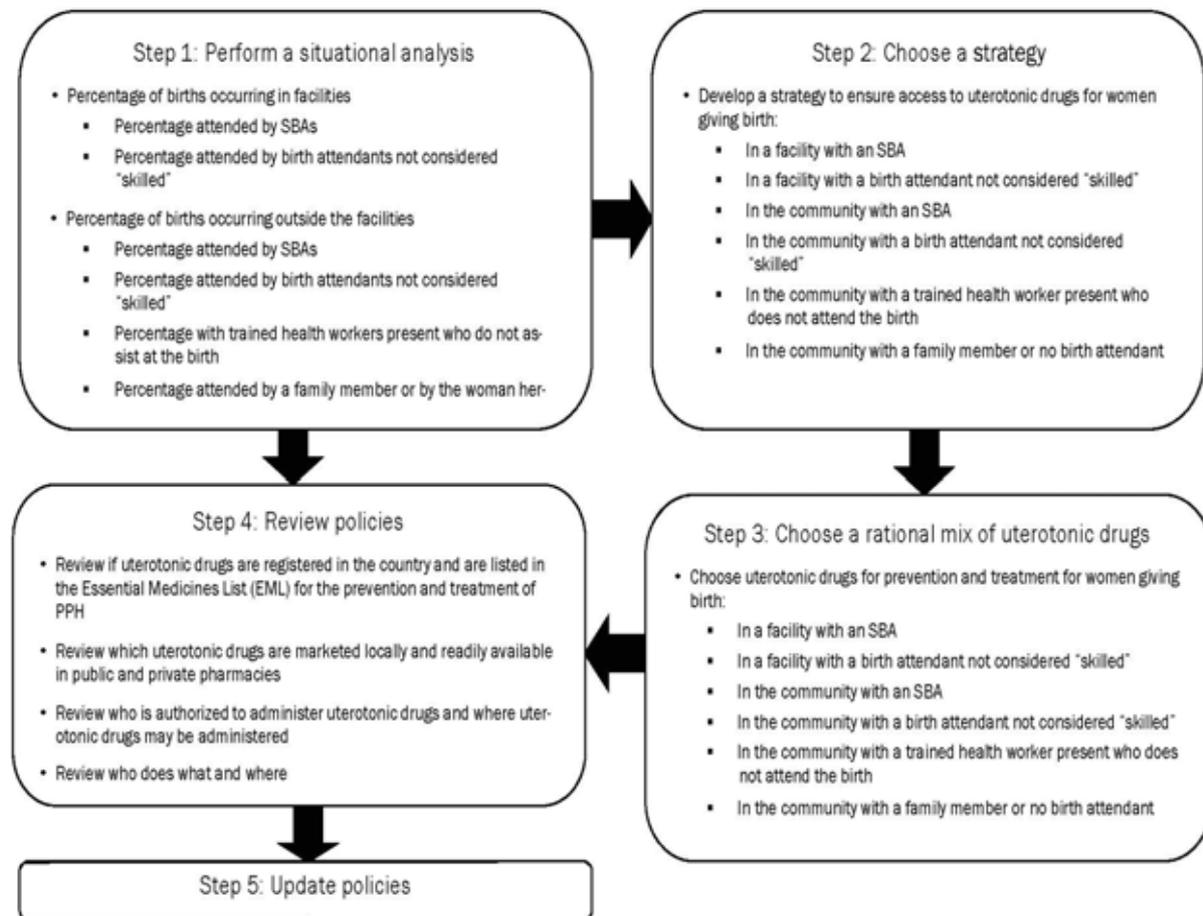
OS-1.7: Selecting a Rational Mix of Uterotonic Drugs for Presentation and Treatment of PPH

Alice Levisay (Oxytocin Initiative)

Introducing a uterotonic-selection tool (Figure 14), Alice Levisay characterized it as a guide to help countries to determine which uterotonic(s) to use at the various levels, depending on a variety of factors. The tool can save lives because when PPH happens, it’s an urgent situation; the tendency is to reach out for whatever drugs are available and some of these choices may be harmful.

To use the tool most effectively, countries should adapt it to their unique circumstances. They should perform a situational analysis of the various levels of the health system with regard to factors such as number of births and provider type (e.g., ob/gyn, midwife), and then choose the appropriate uterotonic(s) to have available based on those factors.

Figure 14. Overview of steps to take when selecting a rational mix of uterotonic drugs for the prevention and treatment of PPH



Source: Engelbrecht S. 2011. *Selecting a Rational Mix of Uterotonic Drugs for Presentation and Treatment of PPH: A Guide for Policymakers, Pharmacy Managers and Ministries of Health*, MCHIP. Access at: <http://www.mchip.net/sites/default/files/Uterotonic%20Policy.pdf>

Recommendations offered included the following:

- Select a mix of uterotonics that increases access and utilization, while maximizing quality and cost-effectiveness and minimizing waste.
- Review country policies, strategies, protocols, standards, and EML; determine whether they support the uterotonic(s) selected (which will help decision-makers identify any changes required, as well as enabling or limiting factors).
- Update policies, strategies, etc., so that they include the provider, level of care, and uterotonics selected (could take a long time).

Highlight from Discussion

- How many people have used this tool and how successful were they at coming up with a country plan? The tool came out last year; presenter didn't know of any country that had used it.

Day 2, 5 May 2012

PLENARIES

Plenary 5: Midwifery for Reduction of Maternal and Newborn Mortality

Moderator: Sue Bree (ICM); Tim Evans (BRAC University)

Moderators' introduction: Midwives are currently marching through the street in Dhaka for this very important day: International Day of the Midwife. For all midwives to reach their potential, they must be well-educated and able to meet the ICM objectives. Many midwives in Asia have a long way to go and need our help.

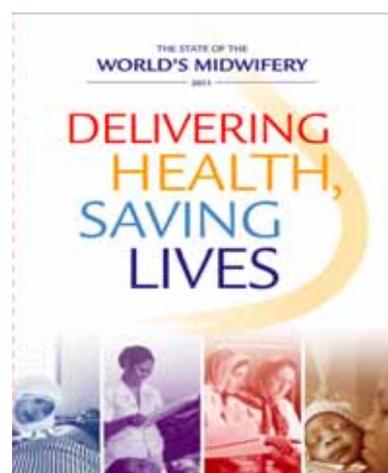


Participants proudly celebrating International Day of the Midwife

P-5.1a: State of the World's Midwifery Report. Geeta Lal, UNFPA

UNFPA began developing its global report in 2010 in collaboration with 30 partners as an advocacy tool to support investments in midwifery programs. The report is based on a survey of 58 countries and is organized in four parts: (1) Midwifery around the World, (2) State of Midwifery, (3) Moving Forward, and (4) Country Profiles. Three main findings emerged from the report: (1) 38 countries have a severe shortage of midwives (nine require dramatic scale-up); (2) education, regulation, and professional associations for midwives must be improved; and (3) policies related to midwifery lack coherence.

Based on these findings, UNFPA and ICM have taken a series of steps to increase the visibility and recognition of midwives by governments, regulatory bodies, educational institutions, professional associations, and global organizations. More than 500 media outlets covered the release of the report. Since publication of the report, there have been 26 national launches of the joint UNFPA-ICM Investing in Midwives program, and 28 countries have made commitments to help midwives. In addition, *The Lancet* will include a series on midwifery in 2013, and Intel has committed to a partnership to increase training access and coverage.



Can be accessed at:
<http://www.unfpa.org/sowmy/resources/en/main.htm>

P-5.1b: ICM/UNFPA Investing in Midwives Program: Key Midwifery Achievements in Asia. Pashtoon Azfar, ICM

The ICM-UNFPA Investing in Midwives program in Asia is being implemented in Afghanistan, Bangladesh, India, Nepal, and Pakistan, and work is under way to involve Timor Leste and Vietnam in the program as well. Several of the countries are in the process of formally establishing midwifery as a distinct profession, increasing the membership of their midwifery associations, and developing or implementing curricula for three-year, direct entry programs. In addition, in **Afghanistan**, the midwifery association is now a formal partner of the Ministry of Public Health. **Bangladesh** is finalizing a road map for training 3,000 midwives. In **India**, membership in the Society of Midwives of India (SOMI) has increased to more than 6,000, and SOMI has submitted a bid to host the 31st ICM Congress. In **Nepal**, the midwifery association has been involved in setting policy on reproductive health and safe

motherhood and in capacity-building for midwives. **Pakistan** has made capacity-building a priority and has established a working group for the development of midwifery.

Recommendations to address Asia’s ongoing challenges—the need for visibility, policy and regulatory support, high-level advocacy, and strong coordination among partners—include: (1) strong partnership and coordination among NGOs, government, and donors; (2) ongoing support and sharing of information at all levels; (3) provision of higher education opportunities and career frameworks for existing midwives; (4) introduction of different models of midwifery care (e.g., midwifery-led birthing centers); and (5) strong advocacy from the highest levels to the grassroots level. The way forward for the countries in Asia includes follow-up studies on the high-burden countries (for maternal deaths) identified in the UNFPA/ICM report; a national midwifery strategic planning workshop in Pakistan; strengthening/initiation of partnerships at the national and regional levels; follow-up of the implementation of action plans by countries based on their gap analysis; planning for joint evaluation in the future; midwifery situational analysis for the new countries like Timor Leste and Vietnam; and the establishment of a regional resource center.

P-5.2: Supporting the Health System by Strengthening Midwifery in Afghanistan. Sabera Turkmani, Afghan Midwives Association

In keeping with midwifery’s three pillars—education, regulation, and association—Afghanistan has been working to improve access to skilled midwifery care by training competent midwives, professionalizing midwifery, and developing an enabling environment for midwives.

Between 2000 and 2011, Afghanistan trained 4,264 midwives and deployed 86% of them. Two types of midwife were trained—one to work in the rural areas (community midwife) and another to work in district, provincial, and regional hospitals (hospital midwife). Afghanistan’s workforce planning approach has been to recruit locally, select midwives based on national guidelines and facilities’ needs, deploy midwives to their place of work, and supervise and support them to work effectively within an enabling environment. The community is an active part of this process, and it must demonstrate support for the student before she begins training.



A community health worker sharing health education with Afghan women

An accreditation board acts as a national educational regulatory body to ensure the sustainability of high-quality midwifery education, uniformity across schools, the certification process, and progress toward international equivalence. The board has developed a supportive supervision system to ensure that graduates have a smooth transition from classroom to health facility. The midwifery education program was evaluated in 2010 and some gaps and strengths were identified. To address the gaps, seven new modules were added (e.g., mental health) to the program and the duration of the program was extended from 18 months to 24 months.

The Afghan Midwives Association (AMA) was established in 2005 to advocate for the profession and maternal health at the policy level, to raise the visibility of the profession, and to act as a catalyst for regulation and education/professional development. The AMA initiated and is leading the development of professional regulation, initiated the concept of the Safe Motherhood Initiative in Afghanistan, initiated the concept of mentorship, and established a mechanism for recognition of midwives who make significant contributions to maternal health.

Midwifery in Afghanistan is not simply training; it is the empowerment of women through education programs. It contributes to household economy, safeguards the health and well-being of families, and supports women in leadership roles. Communities look at midwives as role models. After introduction of the midwifery programs in local communities, more women went outside of their homes. Family restrictions against women's mobility eased for women seeking care at the health facility and even for those attending school. As a result, the number of applicants to midwifery programs increased and many more women are interested in becoming midwives.

"If we can do this in Afghanistan, we can do it anywhere!"

—Sabera Turkmani

P-5.3: ICM Video for 2012 International Day of the Midwife. Sheena Currie, MCHIP

Midwives Reaching Out to Women, a film made by ICM and UNFPA in 2008, was played in celebration of International Day of the Midwife. The film advocates the need for more midwives to prevent maternal and newborn deaths.

A general discussion that followed the presentations focused on the following comments and questions:

- **Comment:** In the Philippines midwives cannot do AMTSL.
- **Bangladesh wants to plan for 2,000 midwives, and they are currently using community-based skilled birth attendants. What should their plan be?** Should they have both? It is not a question of either/or; both are required. Competency and quality are key.
- **Are there any differences between Afghanistan's programs for hospital/clinic midwives versus community midwives?** Both programs are 2–3 years. They are essentially the same regarding competencies and length; the difference is the settings.
- **With all the challenges and so many priorities in Afghanistan, how do you ensure that they are all brought to the political commitment?** The importance is quality.
- **Comments:** Pakistan has over 1,000 members and six chapters in all of the big cities, and has trained more than 800 skilled birth attendants. Midwifery is part of an educational approach, which requires a higher education institution, policy, and someone who can see the midwives through to the end of the program. Local control and local commitment are important.

Plenary 6: Evidence for Prevention and Detection of Pre-Eclampsia/Eclampsia (PE/E) Moderators: Geeta Lal (UNFPA) and Halida Ahkter (E2A)

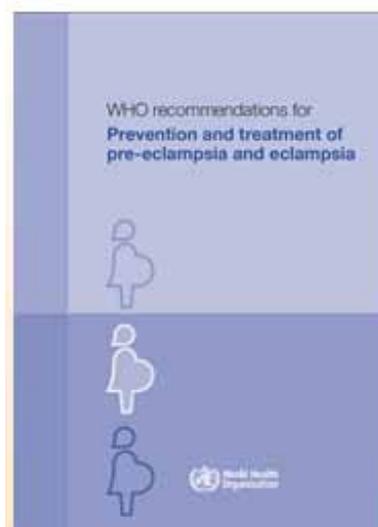
P-6.1: 2011 WHO Guidelines for Prevention and Treatment of Pre-Eclampsia and Eclampsia. J.P. Souza, WHO

WHO's 2011 recommendations were developed to promote the best possible clinical practices for the management of PE/E. They include new interventions for high-risk groups such as women with previous pre-eclampsia, chronic hypertension, renal disease, diabetes, autoimmune disease, and multiple pregnancies.

Calcium supplementation: Based on 13 trials involving 15,730 women, WHO recommends calcium supplementation at doses of 1.5–2 g for all women in areas where calcium intake is low, especially those at high risk.

Antiplatelet agents (aspirin): Based on 60 trials involving 37,720 women, WHO recommends low-dose acetylsalicylic acid (aspirin, 75 mg) for pregnant women at high risk, initiated before 20 weeks.

Antihypertensives: Although data are of low quality, trials are ongoing and nifedipine shows good results. Thus, WHO recommends treatment with antihypertensives (hydralazine,



Can be accessed at:
http://whqlibdoc.who.int/publications/2011/9789241548335_eng.pdf

nifedipine) for women with severe hypertension during pregnancy. Women treated with antihypertensives during the antenatal period and women with severe postpartum hypertension should continue to receive treatment postpartum.

Magnesium sulfate: Based on seven trials comparing magnesium sulfate to diazepam, WHO recommends IV or IM magnesium sulfate for prevention and treatment of eclampsia. Where the full dose is not possible, a loading dose followed by immediate transfer to a higher-level facility is recommended.

Induction of labor: WHO recommends induction for women with severe pre-eclampsia when the fetus is not viable or unlikely to achieve viability within one or two weeks. In women with mild pre-eclampsia or mild gestational hypertension at term, induction is recommended. In women with severe pre-eclampsia at term, early delivery is recommended.

P-6.2: Use of Calcium and Vitamin D for Prevention of Pre-Eclampsia/Eclampsia. Justus Hofmeyr, University of the Witwatersrand and Eastern Cape Department of Health, South Africa

Several observational studies have shown an association between low Vitamin D intake and pre-eclampsia, but reports have been inconsistent. Only six small trials have been conducted on the effect of supplementation on pre-eclampsia during pregnancy, and the numbers are too small for meaningful analysis. A large trial by Bhutta et al. is ongoing and results are expected soon.

Fifty percent of women are thought to have insufficient calcium in their diets. Evidence from 1950s studies by Hamlin suggests low occurrence of pre-eclampsia in areas with a calcium-rich diet. A study published in 1980 postulated that high calcium intake was responsible for the low incidence of pre-eclampsia found in a population in Guatemala. A 1998 Cochrane review showed a large reduction in pre-eclampsia with calcium supplementation in several small studies and suggested a possible correlation with the income status of the countries involved. The 2006 report from a large WHO trial of calcium supplementation reported that calcium supplementation in the second half of pregnancy did not reduce pre-eclampsia but did reduce morbidity. This benefit justifies programs for supplementation for pregnant women with low-calcium diets.

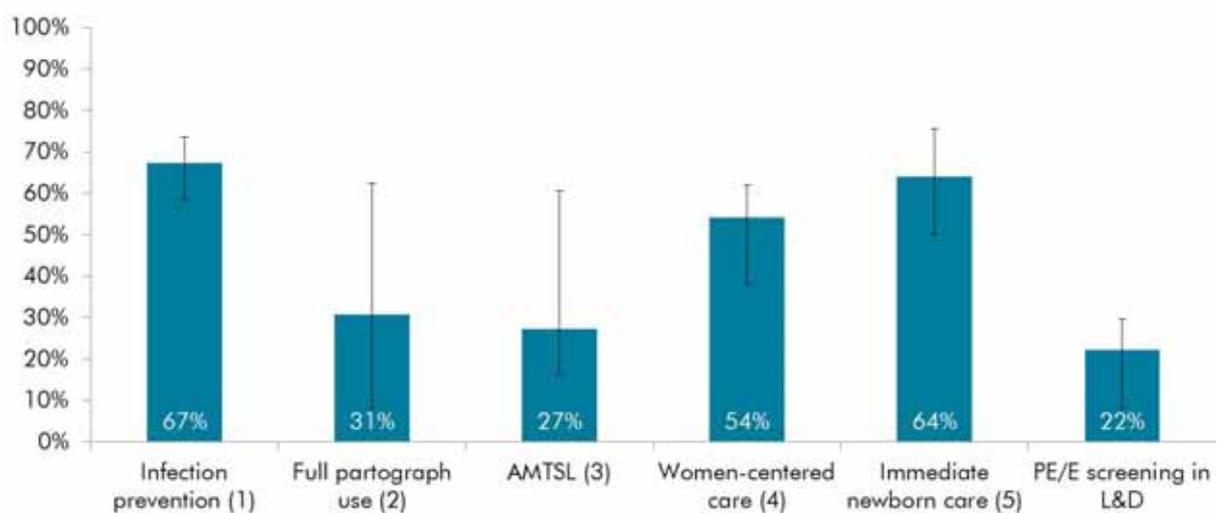
The Calcium and Pre-Eclampsia study is an ongoing trial in which women with previous pre-eclampsia take 500 mg calcium (or placebo) before conception until 20 weeks and then routine calcium in the second half of pregnancy. If the intervention is found to be effective, the next step would be trials of community-level calcium supplementation by food fortification. Food fortification offers several advantages, including improving the overall micronutrient intake of the population and being cost-effective. Supplementation offers other benefits and risks, including reducing hypertension, osteoporosis, and urinary stones, and improving insulin sensitivity in Type 2 diabetes. However, the tablets are somewhat expensive and heavy to transport. Programmatically, supplementation could be introduced at the individual level, population level, or population subset such as women of reproductive age, women at high risk of pre-eclampsia, or all pregnant women.

P-6.3: Quality of Care for Screening and Management of Pre-Eclampsia/Eclampsia: Review of Data from Six Countries. Barbara Rawlins, MCHIP

The Maternal and Newborn Complications Quality of Care assessments were conducted in seven countries in 2010/11. Six of the countries are covered in this presentation: Ethiopia, Kenya, Madagascar, Mozambique, Rwanda, and Tanzania. In the six countries, 643 facilities were assessed, 2,500 deliveries and close to 3,000 ANC consults were observed, and more than 1,000 health workers were interviewed. To assess PE/E screening and management, the study looked at: screening for pre-eclampsia during ANC and labor and delivery (L&D) services, how well-prepared providers and facilities screened for pre-eclampsia and managed severe PE/E, and whether cases of severe PE/E were managed according to WHO standards.

The assessments showed missed opportunities for PE/E screening during ANC and L&D. On average, providers asked the client about danger signs in pregnancy during 39% of the observed visits, took the client's blood pressure in 68% of the observed visits, and performed both screening tasks in 31% of the observed visits. Thirty-one percent of clients were counseled to return if they had a headache or blurred vision, and 24% were counseled to return if they had swelling of the hands or face. Providers asked about signs of PE/E in 27% of L&D consults, performed an initial blood pressure check in 77% consults, and did both screening tasks in 22% of consults. As shown in Figure 15, tasks related to PE/E screening were performed less frequently than all other L&D elements of care (e.g., infection prevention practices, immediate newborn care, woman-centered care). Relevant service delivery guidelines and protocols for PE/E were absent in the ANC and L&D service delivery areas in 50% of the facilities surveyed. The mean score on the knowledge test related to PE/E was 44%, with knowledge related to diagnosis high and knowledge of management of women with convulsions low.

Figure 15. PE/E screening versus other elements of L&D care



Fifty pre-eclampsia and eclampsia cases were observed to identify gaps in quality of care. Antihypertensives were not always administered when indicated. In only some of these cases did women receive magnesium sulfate; others received both magnesium sulfate and diazepam, which is not indicated. Renewed emphasis on history taking and counseling and on training and supervision is needed.

P-6.4: Screening and Early Detection of Pre-Eclampsia. Harshad Sanghvi, Jhpiego

Pre-eclampsia is easily detectable through blood pressure monitoring and urine testing. However, more than 50% of the women in the world do not receive ANC or get blood pressure or urine screening tests. To eliminate preventable eclampsia, we need to detect pre-eclampsia. Thus, blood pressure and urine testing should be considered essential, not just routine. To increase the numbers of women screened, we should start with women who attend ANC and then figure out a simple way to reach women on the periphery. To do this, it is important to take testing for hypertension and for proteinuria to women in their homes.

Blood pressure devices pose problems for use in the field because training is needed to use them properly and they lose calibration. Thus, a blood pressure device for community use must be low-cost, portable, culturally acceptable, capable of being recharged and recalibrated on site, and easy to use and read. Devices for testing for proteinuria pose other problems: the urine dipstick test is expensive and complex (requiring collection of urine in bottles), and the Esbach test takes 24 hours. Thus, a urine protein test for community use must be low-cost, culturally acceptable, as accurate as the dipstick test, capable of retaining its accuracy in harsh environmental conditions, easy to interpret, and able to be used at home.

The development teams at the Center for Bioengineering Innovation & Design at Johns Hopkins University are working to make screening technologies easier for women to use at home. For example, they have developed a “point of care” urine screening test with a modified test strip that yields a sharp color change when there is protein present, so women who use the test at home will be able to interpret the result easily. The new test was validated in Nepal with excellent results.

Plenary 7: Evidence for Decisions in PE/E Management

Moderators: Leslie Mancuso (Jhpiego) and Kaosar Afsana (BRAC)

P-7.1: Choice of Anticonvulsant for Prevention and Management of Eclamptic Seizures.

J.P. Souza, WHO

Stopping the progression of pre-eclampsia to eclampsia is essential for improving outcomes; thus, the right choice of anticonvulsant is important for optimal care. Options for anticonvulsants include magnesium sulfate, diazepam, phenytoin, and a lytic cocktail (usually a combination of chlorpromazine, promethazine, and pethidine).

Based on numerous Cochrane reviews of trials investigating the relative effects of anticonvulsants for prevention of eclampsia, WHO concluded that the evidence supports the use of magnesium sulfate for severe pre-eclampsia to prevent progression to eclampsia; that magnesium sulfate treatment in eclampsia reduces the incidence of further fits; that magnesium sulfate is more effective than diazepam, phenytoin, and lytic cocktail in preventing further eclamptic fits; and that there is not clear evidence as to which magnesium sulfate dosage regimen is best. Most of the trials used clinical monitoring in women undergoing treatment; none used serum monitoring.

Thus, WHO recommends magnesium sulfate for the prevention of eclampsia in women with severe pre-eclampsia; magnesium sulfate for the treatment of women with eclampsia; full IV or IM magnesium sulfate regimens for the prevention and treatment of eclampsia; and a magnesium sulfate loading dose followed by immediate transfer to a higher-level facility for women with severe pre-eclampsia and eclampsia in settings where it is not possible to administer the full magnesium sulfate regimen.

The recommended loading dose schedule for severe pre-eclampsia and eclampsia is 4 g of 20% magnesium sulfate solution IV over 5 minutes, plus 10 g of 50% magnesium sulfate solution IM (5 g in each buttock), for a total loading dose of 14 g. The recommended maintenance dose is 5 g of 50% magnesium sulfate solution IM into alternate buttocks every four hours; if 50% solution is not available, 1 g of 20% magnesium sulfate solution IV should be given every hour by continuous infusion. For recurrent convulsions, the recommendation is for 2 g of 50% magnesium sulfate IV over 5 minutes.

P-7.2: Anti-Hypertensive Therapy for Pre-Eclampsia/Eclampsia Management. Dr. Tabassum Firoz, University of British Columbia

Managing PE/E requires administration of both a magnesium sulfate and an antihypertensive. Numerous studies, guidelines, and Cochrane reviews were assessed to: (1) determine a definition of severe hypertension; (2) understand the relationship between severe hypertension and maternal mortality and morbidity (and perinatal outcomes); and (3) determine the best choice of antihypertensive therapy.

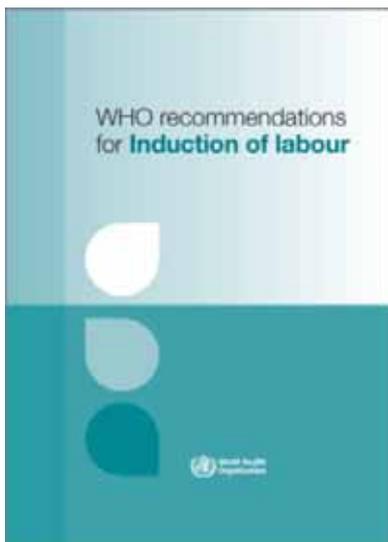
There is consensus that women with severe hypertension (blood pressure of 160–170/110 mmHg) should be treated with antihypertensive therapy. Studies emphasize the importance of treatment, rather than a specific antihypertensive. Hypotension can occur with any agent, so lowering blood pressure during pregnancy should occur slowly.

The most often studied antihypertensive agents are labetalol (IV), hydralazine (IV), and nifedipine (capsules). There are no definitive differences, but hydralazine is not clearly the drug of first choice. For low- and middle-income countries, oral antihypertensive agents such

as nifedipine may be a reasonable option for the treatment of severe hypertension in a facility setting. Essential medicines lists have at least one option available for the treatment of severe hypertension.

P-7.3: Induction of Labor Recommendations. Dr. Narimah Awin, WHO South-East Asia Regional Office (SEARO)

Induction of labor is the process of artificially stimulating the uterus to start labor. Labor can be induced with oxytocin or prostaglandins or by manually rupturing the amniotic membrane. It is most often required when the pregnancy is at 41 weeks or more, when there is a twin pregnancy, when there is a fetal death, when the woman has severe pre-eclampsia or eclampsia, when warranted by the woman's medical condition, or when the fetus is compromised.



Can be accessed at:
http://whqlibdoc.who.int/publications/2011/9789241501156_eng.pdf

Induction of labor is not risk-free, however. It causes discomfort, reduces mobility, requires close monitoring, increases cesarean section rates, and can cause complications such as bleeding and rupture of the uterus. WHO recommends that: (1) induction of labor be performed only when indicated and when the benefits outweigh the risks; (2) consideration should be given to the woman's wishes, the status of the cervix, and the effect of induction methods on the woman's condition; (3) caution should be taken to minimize risk and avoid complications; (4) the woman should be monitored and not left unattended if she is given oxytocin or prostaglandins; and (5) if possible, induction of labor should be performed in a facility that provides cesarean section.

WHO recommends induction of labor in some specific circumstances: in post-term pregnancies of 41 weeks, in cases of pre-labor membrane rupture, and in cases of fetal death. WHO does not recommend induction of labor for fetal macrosomia or before 41 weeks when the woman has gestational diabetes.

Separate guidelines have been developed for induction of labor in cases of pre-eclampsia and eclampsia, because the timing of delivery depends on the severity of disease and whether the pregnancy is at term or preterm. For eclampsia, delivery must occur within 12 hours of the onset of convulsions. All cases of severe pre-eclampsia should be actively managed, and delivery should occur within 24 hours of the onset of symptoms. Mild pre-eclampsia can be treated with expectant management until the 36th week, and labor should be induced after the 37th week. Induction methods include amniotomy (rupture of the membranes); intravenous oxytocin; prostaglandins (orally or vaginally), including misoprostol; and insertion of a balloon catheter in the cervix.

P-7.4: Management Strategies at Different Levels of the Health System on Pre-Eclampsia/Eclampsia. Dwirani Amelia, Jhpiego Indonesia

Indonesia's system for early identification, stabilization, and referral of PE/E involves trained volunteer community health workers who identify women with danger signs during pregnancy and village midwives, midwives, and general practitioners who identify, stabilize, and refer women with hypertensive disorders of pregnancy. Community health workers help to educate the woman's family and promote collaboration with the village midwife, the general practitioner, and the community health center. They are also trained to take blood pressure, so they are the first to see symptoms of pre-eclampsia. The midwives and general practitioners receive training in basic emergency obstetric and newborn care (BEmONC) and have the authority to stabilize prior to referral, especially in emergency conditions.

Primary health centers with the capacity for BEmONC can monitor and manage cases, especially those in which the woman is in labor and her condition is stable. But if the woman's condition is not stable, they refer her promptly to a higher-level facility that has the capacity for comprehensive emergency obstetric and newborn care (CEmONC). Most cases can be handled at a CEmONC facility, but if a case is very severe and more sophisticated care is needed, the client will be referred to a higher-level facility.

The system has some inherent challenges. (1) The number of trained volunteer CHWs is limited, and their skills, knowledge, and attitudes need to be improved in order to motivate concern with the community. (2) Although the village midwives are on the frontline in the provision of health services, they have limited authority to administer medication (particularly IV drugs) in emergency situations. In addition, providers need mastery, not just competence, in clinical skills for managing maternal and neonatal emergencies. (3) Infrastructure and sociocultural issues, including inadequate RH education, inhibit prompt, adequate, and proper referral. (4) Prompt and timely management is impossible without national standards on the management of PE/E, adequate distribution of providers, and hands-on clinical training, monitoring, and supervision of providers.

Strategies to address these challenges include continuing education, mentoring (Figure 16), strengthening community engagement, developing and implementing standard clinical guidelines on PE/E, updating health providers' knowledge and skills in PE/E, strengthening the role of midwives and general practitioners, and strengthening the health care system.

Figure 16. Different avenues for mentoring



A general discussion that followed the presentations focused on the following questions:

- What is the level of education of volunteer CHWs in Indonesia? Ten to twenty years ago, this was an honorable/esteemed position, but it has changed over time. There are no incentives.
- What are the plans for next steps from WHO to encourage countries to implement/follow the recommendations (e.g., adding medicines to the EML)? Dissemination of guidelines, uptake of the recommendations, and review of the recommendations (every five years).

Plenary 8: Programs for Pre-Eclampsia/Eclampsia

Moderators: Deborah Armbruster (USAID/W) and Syed Abu Jafar (DGHS, MOH & FW)

P-8.1: Prevention of Pre-Eclampsia and Eclampsia through Community-Level Interventions in Bangladesh. Prof. Latifa Shamsuddin, Obstetrical and Gynaecological Society of Bangladesh

In Bangladesh, the first trial involving magnesium sulfate for the treatment of eclampsia was conducted at the Dhaka Medical College and Hospital in 1994. Community use of magnesium sulfate began in 2001. Between 1998 and 2001, Bangladesh participated in the Magpie trial, which compared magnesium sulfate with placebo for treatment of pre-eclampsia; in 2003 a follow-up study was conducted to assess the impact on mothers and children up to two years old. The magnesium sulfate regimen that is used currently in Bangladesh differs from the international standard in that the dose used is about half that of the standard regimen.

A community-level study of PE/E was conducted in Madhupur to assess the effectiveness of administration of IV magnesium sulfate before referral in 265 cases of severe PE/E. CHWs were trained in pre-referral magnesium sulfate administration, and a community awareness campaign was conducted to educate families about the danger signs of PE/E. As shown in Figure 17, the study found a statistically significant decrease in deaths and complications in the group of women who received the intervention, which led to the recommendation to include magnesium sulfate in the national protocol.

Bangladesh is currently introducing a decision algorithm for use by community health workers and providers at home and in satellite clinics.

Despite its progress in preventing and treating PE/E, Bangladesh continues to face challenges. Many pregnant women are not registered and many families are transient, making contact with pregnant women difficult. In addition, providers lack confidence in administering magnesium sulfate.

P-8.2: Program Considerations for Calcium Supplementation. Dr. Tahmeed Ahmed, icddr,b

Calcium supplementation is associated with decreased risk of hypertension, pre-eclampsia, and premature labor. There is sufficient evidence of the impact of calcium supplementation on maternal and birth outcomes to support implementation of calcium supplementation in all countries. Important activities and considerations associated with early introduction of calcium supplementation include policy and financing, social and behavior change communication, training, and clinical coverage.

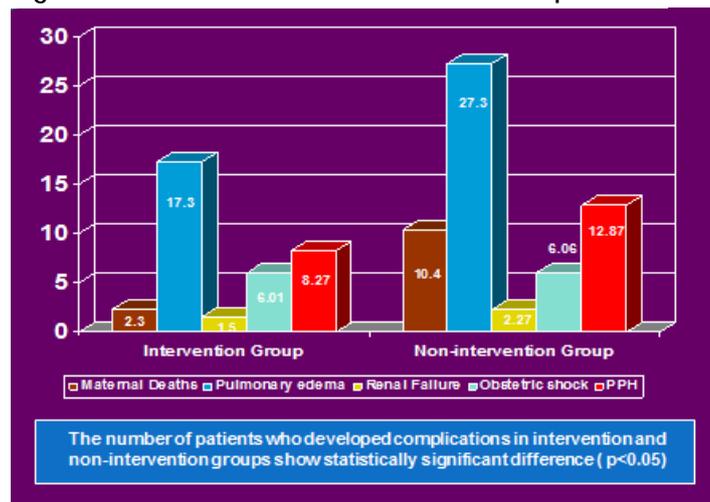
Planners of calcium supplementation programs should consider: (1) using global evidence when advocating with policymakers, and advocating for calcium supplementation as part of an overall strategy to reduce the incidence of PE/E; (2) developing clinical guidelines; (3) looking for an inexpensive way to deliver calcium and working with manufacturers to reduce the cost; (4) training volunteers and raising awareness among health workers; (5) making calcium part of the essential and national drug lists; (6) developing IEC materials that emphasize benefits of supplementation during pregnancy and the lower risk of PE/E; and (7) generating country-specific information/data about calcium deficiency and intake.

Suggestions for topics for studies related to calcium supplementation include formative research on practices and understanding related to PE/E and research on different formulations of calcium, interactions between calcium and iron, and the optimal dose of calcium.

P-8.3: Saving Nigerian Mothers: Magnesium Sulphate for the Treatment of Severe Pre-Eclampsia and Eclampsia. Sharif Mohammed Ismail Hossain, Population Council

Eclampsia is the major cause of maternal deaths in Nigeria. Despite strong evidence that magnesium sulfate prevents the progression of severe pre-eclampsia to eclampsia and reduces maternal deaths, it has not been used universally in Nigeria.

Figure 17. Maternal outcome of the Madhuper



The Saving Nigerian Mothers project developed a clinical protocol for magnesium sulfate and trained master trainers who trained providers in 10 facilities to apply the protocol. These facilities began using the protocol in 2008/09. A comparison of baseline data with post-intervention findings showed that the case fatality rate dropped from 20.9% to 2.3% following the intervention (Figure 18). The findings also showed that being a teenager, being pregnant for the first time, and having low educational attainment were risk factors for developing severe pre-eclampsia and eclampsia.

Figure 18. Comparison of case fatality rates at baseline and during intervention

Period	All SPE/E cases (n)	Fatality due to SPE/E (n)	CFR (95% CI) (%)	RSE (%)
Baseline	1233	258	20.9 (18.7, 23.2)	5.5
Intervention	1045	24	2.3 (1.5, 3.5)	20.2

By the 10th month of the project, the state government took over purchase of the drug and began implementing the intervention in 25 other facilities. Researchers are planning a follow-up project to determine the effectiveness of pre-referral injections of magnesium sulfate. Among the challenges faced in this project were stock-outs of magnesium sulfate and delays in reaching health care facilities.

P-8.4: Treatment Approaches for Pre-Eclampsia in Low-Resource Settings: The Springfusor® Pump for Delivery of Magnesium Sulfate. Hillary Bracken, Gynuity Health Projects

Intramuscular administration of magnesium sulfate requires little equipment and can be provided with minimal training, but it requires repeated injections that can be painful. IV administration is less painful, but electric infusion pumps are expensive and require a dependable power supply, and manual infusion can be erratic and therefore has the potential to cause overdose. This study aimed to document the safety, efficacy, and acceptability of administration of magnesium sulfate with the Springfusor® pump—a spring-loaded, controlled pump (Figure 19). Although the pump had been used for administering antibiotics in outpatient settings, this was the first time it had been used for delivery of magnesium sulfate.

The study had two parts: a randomized trial comparing the use of the Springfusor pump to the globally accepted standard of care (IM/IV administration) with 300 women at two sites in India, and an open-label trial looking at use of the pump with 85 women in two lower-level facilities. The women in the trial required treatment with magnesium sulfate and received it through either the Springfusor pump or the standard of care (IV/IM).

Figure 19. Springfusor pump loaded with magnesium sulfate



The results of the study showed no difference between the two delivery mechanisms, either in the drug delivery rate or in client/provider discontinuation rates. When the pump was discontinued, it was generally because of staff error or preference. The open-label trial was conducted at secondary care centers to examine whether Springfusor could be used effectively outside a tertiary care center. Almost all women completed the full course of treatment, with no excessive dose and no eclamptic seizures. Although maternal outcomes appeared to be better with the Springfusor pump, the sample size was too small to draw definitive conclusions.

Overall, the pump was determined to be a safe and effective alternative, which reduced side effects and was highly acceptable to women. Introduction of the Springfusor should be accompanied by staff training on IV insertion and maintenance, as well as on expected side

effects and signs of toxicity. A standardized protocol for delivery of magnesium sulfate during cesarean sections should also be included.

A general discussion that followed the presentations focused on the following points and questions:

- **What level of care could offer the Springfusor?** Hillary Bracken replied that the pump seemed to work fine in both tertiary and secondary facilities. Lower-level facilities would need staff trained to maintain an IV and to manage PE/E cases for a longer period of time if they were planning to use it for maintenance dosing.
- **What does the Springfusor cost?** Bracken replied that the cost of the pump is \$8, plus \$1 per set of tubing (this is the cost in Australia, where the company markets them). The company is also open to having them available at prices that are appropriate for low-resource settings. If there was sufficient demand and organized procurement, the price might be reduced in some settings.
- **What is the recommended dose for calcium?** Dr. Tahmeed Ahmed replied that the recommended dose is 800 mg, but because calcium is very heavy and bulky, we need more research to find out what lower dose will work.

SKILLS SESSIONS

Skills sessions (SS), held on the afternoon of May 5, offered meeting attendees the opportunity to watch demonstrations or even practice skills linked to topics presented during the plenary sessions. Although smaller than the plenaries, these sessions were held three times during the course of the afternoon to accommodate all interested participants. They typically involved a demonstration and/or interactive activity, followed by discussion among participants and facilitators—as in the satellite sessions.

SS-1: Low-Tech Methods of BP Measurement/Urine Testing for Detection of Pre-Eclampsia

Harshad Sanghvi and Kusum Thapa (Jhpiego)

Facilitators demonstrated and role-played the use of a simplified BP measurement device prototype (from Laerdal) and a proteinuria screening tool (from Jhpiego and JHU Center for Bioengineering Innovation & Design)—along with a screening checklist. All tools were designed specifically for use in low-resource settings where providers may not have the supplies or skills required to screen for elevated BP and proteinuria, two diagnostic criteria for pre-eclampsia. After the demonstration and role play, participants were engaged and actively participated in a discussion that focused on challenges presented by existing BP and urine-testing tools (Box 1).



Harshad Sanghvi discusses BP-testing devices during demonstration by Kusum Thapa.

Box 1. Barriers presented by existing BP and urine-testing tools

For BP-measurement tools:

- Some providers do not have the competencies needed
- Equipment is not available or is not working properly (lots of agreement and discussion on all the things that go wrong with current BP equipment)
- BP devices are never calibrated
- Providers are often too busy to take BP accurately

For proteinuria-testing tools:

- Many had not seen some of the more advanced tests demonstrated
- Tests are expensive
- Procurement and dispensing process is time-consuming
- Product is often expired by the time it reaches the provider

Participants also identified characteristics that would make a BP device most useful:

- Needs to be simple to use, automated, inexpensive, and durable
- Should have a lasting, renewable power source, few parts, and a good display (woman should be able to see her BP reading, in addition to being told)
- Can recalibrate itself or does not need calibration
- The group agreed that \$10 would be a reasonable price.

There was a lot of interest in having the tools, the BP device in particular. Many wanted to know when it would be available. It is currently undergoing extensive field-testing and will possibly be available—although no dates have been set—by 2013.

SS-2: Safe Induction of Labor and Use of Misoprostol for Induction

Blami Dao and Fauzia Assad (Jhpiego)

This session was built around WHO's *Recommendations for Induction of Labour* (2011)⁵ and links to induction of labor in cases of PE/E. During this session, facilitators divided the audience into three groups and had each focus on a different case study of a woman with PE/E, with the objective of making a plan for determining whether to induce labor and which method of inducing labor is appropriate. Plans were then shared with the others and discussed.

Presenters demonstrated how to use 200 mcg tablet of misoprostol orally for induction of labor (Box 2). They also demonstrated the use of a Foley catheter to ripen the cervix on an anatomic model.

The groups' plans generally included: taking a quick history, counseling the patient, simultaneously managing the PE/E, and promptly examining maternal and fetal condition.

Take-home messages from the presenters included the following:

1. There should be a clear indication for induction of labor, such as severe pre-eclampsia.
2. Per recommendations by WHO (2011), there are three main effective methods for inducing labor:
 - a. Misoprostol (oral or vaginal)
 - b. Oxytocin infusion
 - c. Foley catheter
3. Always monitor the condition of the mother and fetus during induction of labor.

Note: Women with eclampsia should be delivered within 12 hours; women with severe PE should be delivered within 24 hours.

Box 2. Oral misoprostol for induction of labor:

- Dissolve a 200 mcg tablet into 80 mL of water
- Take 10 mL (= 2 teaspoons = 25 mcg) of the solution every two hours

Advantages of oral over vaginal route include:

- Safety: less low Apgar score
- Convenience
- Accuracy of dosage



Participants eager to learn more about misoprostol's role in safe induction of labor.

⁵ http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/9789241501156/en/index.html

Participant Discussion/Feedback

- Some countries have 25 mcg tablets for induction of labor only.
- Some additional information on new studies/reviews could have been helpful,
- I have learned a way to overcome the wastage of misoprostol in trying to get 25 mcg from 100/200 mcg, which is widely available.
- About the session itself:
 - Interactive with practical solution to the use of misoprostol orally
 - Drug calculation was excellent
 - Trainers' interference was minimal
 - Excellent participatory session
 - Simple and easy to understand
 - Time too short

SS3: Enhancing Use of MgSO₄: A New Teaching Tool

Jeffrey Smith (MCHIP) and Sabera Turkmani (Afghan Midwives Association)

The session began with a discussion of the many **barriers to using magnesium sulfate (MgSO₄) in developing countries. These include:**

- **Tradition:** Although it has a wide safety profile, many have been told MgSO₄ is terrible, has lots of side effects.
- **Lack of familiarity:** Training can address this, but there is still a hesitation about using MgSO₄. Questions about quantities and dosage persist.
- **Lack of confidence:** Many are reluctant or afraid to use MgSO₄, nervous about initiating it. Some of this comes from the “mixing problem,” making the correct dose from different strengths of available solution.
- **Lack of authority:** Midwives may not have the authority to prescribe the drugs, including MgSO₄.
- **Availability of commodities:** Necessary supplies for using MgSO₄—they are not always there.
- **Importance unrecognized:** MgSO₄ may not be recognized as critical/lifesaving in some settings.

“Students and providers in training learn about MgSO₄ in the classes; they nod their heads and then go back and use diazepam.”

—From Skills Session on Enhancing Use of MgSO₄

The facilitators then introduced an interactive, computer-based tool intended to assist providers in feeling more confident in using MgSO₄ correctly (rather than using diazepam). The tool involves games to give users opportunities to practice preparing MgSO₄ solutions and dosages, as well as self-assessments to see how they are doing. Because the tool is still in development, the facilitators invited feedback.

An entry-point question presented in the tool was, “What percentage solutions do you have?” Based on the percentage, which determines how to make the correct injectable solution, the tool guides the user down an appropriate path. The answers showed a wide range of percentages.

- Bangladesh: 50% and 20%
- The Philippines: 25%
- Indonesia: 40%
- India: Not known (Country just launched Magesta [Glenmark Pharmaceuticals Ltd.], which comes pre-packaged [4 g, 5 g], so the participant was not sure.)
- Afghanistan: 10% and 50%

Using working percentages, participants were guided through the tool to learn how to make the recommended MgSO₄ solution according to WHO. The tool also provided other important information about management of PE/E.

In every country, the facilitators concluded, the situation is different, which is why it is important to use this game to learn the correct amount of solution you should give (cc, g, mL, etc.). You may have a certain percentage in one order, and in the next order, it might be different. This game allows you to choose the MgSO₄ solution you have, choose the amount of mL of saline, and prepare the correct dosage.

Participant Discussion/Feedback

- If a user selects a wrong answer, will the tool indicate that? Yes!
- Tool is really good, but the woman with severe PE (in the tool) looks really happy—maybe change that.
- It would be helpful, when playing the game, to show the calculations also, as you can guess the right answer but it is important that providers truly understand the reason.
- Would like more specificity about where to give/inject the drug.
- It would be good to have a menu at the end so that you can go back to a certain part.
- The knee reflexes are done lying down, holding the back of the leg in some countries.
- Add a soundtrack.
- Would you always use the same bag size? Perhaps we need to adjust to the size of the bag in the calculations as well.
- The loading dose is usually done IV and IM; the maintenance dose is done IM.
- Increase the font.
- Work with PATH about the mobile/Smart phone application.
- Add a summary slide that reflects “beginning to end,” shows the big picture.
- Add a “pause” button, in case you are teaching or need to look at one part longer.
- Regarding the arrows on the game: the bottom arrow needs to make the numbers go down, the top arrows need to make the numbers go up.
- Possibly tailor by country, letting them put in the amount and figure out the answer based on what solution they have.
- Customize for specific target groups.

SS-4: Additional Technologies for Management of PPH

Paul LaBarre (PATH)

The facilitator demonstrated the use of the anti-shock garment and balloon tamponade in management of PPH.

- **The anti-shock garment:** By applying pressure to the lower part of a woman’s body, the garment helps force blood to key organs. This helps the woman survive until she receives appropriate emergency obstetric treatment. (Many participants wanted to try out the garment.)
- **Balloon tamponade:** Inflating a balloon inserted into the uterus can reduce or stop bleeding in atonic PPH. The procedure is considered simple, safe, and inexpensive. Simple tamponades can be made from condoms and urinary catheters.

Participant Discussion

- Several wanted to know about the cleaning of the garment.
- People expressed a desire to use the garment back home.
- They wanted to know if they could still work on a woman if she had the anti-shock garment on.
- For the balloon tamponade, one participant described how an inexpensive version could be made out of a rubber glove and catheter.

SS-5: Providing Essential Newborn Care *Goldy Mazia (MCHIP)*

Beginning the session by asking participants about the “components of essential newborn care,” the facilitator then proceeded to demonstrate the key steps on the NeoNatalie newborn simulator:

1. Handwashing (with soap and water) or cleansing (with alcohol)
2. Drying/wrapping the baby
3. Clean cord-cutting
4. Placing the baby on the mother “skin to skin”
5. Breastfeeding within 1 hour



Anju Puri of the ENC session demonstrates skills on the NeoNatalie newborn simulator.

Other materials the facilitator used in her demonstration included a hat and cloths, the HBB flip chart, water, and tetracycline ointment for the baby’s eyes.

Participant Discussion

- Clamp versus ties? Cotton ties are the best.
- By only washing the hands, 27% infection can be prevented.
- Suction: Only when baby requires it, not routine.
- Skin-to-skin contact: How soon? As soon as possible.
- A single provider should use double gloves. The top pair is removed before cutting the cord at around 1–3 minutes.
- Breastfeeding can be initiated even before cord-cutting.

SS-6: How to Use Kangaroo Mother Care *Joseph de Graft-Johnson and Stella Abwao (MCHIP)*



Before wrapping the “baby,” facilitator Joseph de Graft-Johnson demonstrates the general positioning for KMC.

Kangaroo Mother Care (KMC) is a method of care developed for stable preterm or low birth weight infants to help prevent hypothermia and support their overall well-being, including improved weight gain. KMC can be defined as early, prolonged, and continuous (as allowed by circumstances) skin-to-skin contact between a mother and her diapered, newborn, low birth weight infant.

The purpose of the session was threefold: to (1) define the essential components of KMC (skin-to-skin contact, exclusive breastfeeding, support of parent-baby dyad); (2) demonstrate proper position for KMC (e.g., having the mother recline with the baby on her chest); and (3) encourage participants to practice wrapping the baby “KMC style.”

After a video⁶ and KMC demonstration, participants took turns wrapping each other with “their babies” and being wrapped, while facilitators observed and provided guidance. The session concluded with a discussion on how to contribute to the KMC programs in their countries.

Participant Discussion

- A representative from Pakistan was very interested because the country is about to pilot KMC.
- Participants were interested in knowing how to feed during KMC.
- How often are you supposed to put newborn in KMC? 24 hours per day, until baby reaches what would have been 40 weeks of gestation, anyone (not just the mother) can provide KMC.
- Can the mother feed the baby while in KMC? YES! Breastfeeding is encouraged; if the baby has a poor suck, the baby can be cup fed.
- Video showed a separate room in a facility for KMC. Is that recommended? Yes. During site assessment, you should seek out a separate room since some of the room requirements may be different to implement KMC.
- Challenge: Overcoming cultural constraints in the community, getting mothers-in-law, fathers, and other family members involved in KMC if the mother needs a break.

SS-7: MamaNatalie: A New Anatomic Model for Teaching Skills in Obstetric Emergencies

Sheena Currie (MCHIP) and Ingrid Laerdal, Tor Inge Garvik, Ellen Nelissen, and Ida Neuman (Laerdal)

The session was set up with three stations to demonstrate the use of MamaNatalie, an innovative childbirth simulator. Each station had a chair for the demonstrator in the center (this was the person role-playing the mother, with the MamaNatalie attached) and a semi-circle of chairs all facing the demonstrator. A facilitator or participant wore and operated the MamaNatalie and a participant (mostly midwives) performed the delivery. A male participant wore the MamaNatalie for two deliveries, which was a big hit with the crowd!

The facilitators used the “PPH” feature (one of many such features) in a few of the deliveries to both get the reaction of the participant delivering the baby and demonstrate the versatility and capability of the device.

Participants were very engaged and excited about the model, which is particularly effective for demonstrating upright birth positions and improving respectful care through interpersonal communication with the woman.



Facilitator Sheena Currie guides participants in experimenting with MamaNatalie's special features.

“If we keep training ... with this particular model and training module, I think there is no looking back [and that] we'll definitely be getting to the impact factor that we've been waiting for all these years.”

—Dr. Hema Divakar, President Elect, FOGSI
(<http://www.youtube.com/watch?v=8wuGDWhh9I8>)

By the end of the session, facilitators were able to practice most of the features, especially those related to a “normal birth,” and show the full utility of the simulator as a teaching and training device. Many of the most engaged participants tried the MamaNatalie on to learn how to operate it.

More information is available at <http://www.laerdalglobalhealth.com/>

⁶ “Kangaroo Mother Care” at <http://www.youtube.com/watch?v=kAVMWa6BFPY&feature=share&list=PL68FE6D503647FA2F>

SS-8: Use of Oxytocin in Uniject™ and MgSO₄ Dilution and Dosing Mobile Phone Application

Steve Brooke (PATH)

The facilitator brought along oranges to help demonstrate the ease with which oxytocin in Uniject™ (OiU) is used. After watching the first orange injected with the device, participants practiced on their own oranges. After the OiU demonstration and discussion, the facilitator presented a simple algorithm on how you can determine the correct dose of MgSO₄ to use at any particular time, through a special application on an Android cell phone. He clarified that this is an interactive job aid, not a training device.



Using oranges in place of real clients, participants practice injecting oxytocin in Uniject™.

Participant Discussion about OiU

- Are there any differences between the OiU versus the oxytocin in ampoule? None, the difference is that OiU is easier to work with and more self-contained.
- What is the cost of OiU? Currently \$1.50 in Argentina, but the cost will come down if demand increases.
- How can we ensure that this can be used at the community level without it "going bad"? Try to keep it in the cold chain as long as possible. It can stay out for many days if temperatures are not extremely high.
- Can you freeze OiU? No.
- What is the shelf life of OiU? Usually 2 years from manufacturing date.
- Can OiU be changed from water to oil base, which will make it not so prone to its current sensitivity to heat? Various tests are ongoing to produce different oxytocin products.
- Is there a way that countries in Asia can get this before it is approved here? Where there is a will, there is a way.
- Does one need to recap the Uniject after it has been used? Not if you dispose of it in a sharps box.
- The Uniject device can be used for various vaccines and drugs.
- Any manufacturer of sterile injectables can manufacture Uniject but will need approval, which takes time.
- The Uniject device cuts out the potential risks involved in reusing the syringe.
- Can you cut a blood vessel with OiU? Highly unlikely.
- Where is the OiU given? Thigh.
- Do the Unijects come with a disposable safety box? They could.
- The VVW/TTI is incorporated into the OiU to indicate whether it's been exposed to too much heat. The VVW/TTI is a small widget that indicates if the drug may be unsafe to use.
- The foil pouch protects it from moisture.
- OiU makes more sense and is more cost-effective when used at the community level than at the facility level.

Participant Discussion about the Cell Phone MgSO₄ Application

- Challenges remain because of different dilutions of MgSO₄—issues with which the app can assist.
- What happens if you can't go through all of the steps due to your location or situation? Is it adaptable? These issues to be tested.
- Can we have a Uniject version of MgSO₄? This can be considered if demand is high and cost reasonable.
- Is this being done with only Android phones? Yes, for now, but this may change later so other phones can use the tool.
- This tool will increase providers' confidence in using MgSO₄, will be taken for testing in the field by the end of the year.
- The phone is currently running on pull-down menus, but this can be adapted following field-testing.

LAUNCHING OF MNH BRAND AMBASSADORS

During lunch on Day 2, the Launching of MNH Brand Ambassadors ceremony was led by Areba Panni (MCHIP) and Khadijat L. Mojidi (USAID/Bangladesh). Four Bangladeshi celebrities were selected for this honor based on their commitment to the goals and values of the MNH global public health community.

The event was well-covered by local media. See below for an excerpt of the press release put out by bdnews24.com, Bangladesh's first online newspaper.



Khadijat L. Mojidi introduces three of the MNH brand ambassadors, Bangladeshi celebrities.

Celebrities join hands with USAID

Sat, May 5th, 2012 7:41 pm BdST

A top cricketer, a singer, an actress and a journalist have joined hands with USAID pledging to promote maternal and child health in Bangladesh where more than 7,000 mothers die every year while giving birth and 185,500 children cannot celebrate their fifth birthday.

Bangladesh cricket captain Mohammad Mushfiqur Rahim, popular singer Samina Chowdhury, television actress Shomi Kaiser and senior broadcast journalist Shahnaz Munni took a pledge on the second day of the ongoing Asian regional meeting on maternal and newborn care.

A USAID director Khadijat L Mojidi introduced the brand ambassadors while a community health worker of MaMoni project in Sylhet Lipi Rani Dev pinned the 'white ribbon' symbolising safe motherhood to the ambassadors.

The brand ambassadors signed their 'pledge of commitment', countersigned by Dr. Ishtiaq Mannan, the Chief of Party, Maternal and Child Health Integrated Program (MCHIP), organiser of the mega-meeting.

Speaking on the occasion, Samina said she would like to advocate reduction of maternal and newborn death 'to the best of my ability'. Recounting her traumatic memory of losing her newborn eight years back, Samina said: "When a baby dies, a part of that mother dies too, and she has to live with that loss."

"This is one of the reasons why this issue is so close to my heart," she said expressing her wish to work for mothers and children.

Shahnaz expressed her gratitude for being counted as she said it was her 'long time passion' to work for the cause of mothers and children. "A nation cannot prosper neglecting women and children," she said and hoped that working with USAID would help her mould opinions on the issues.

Shomi said she would put in her best 'to create some impact'. She said she would consider her efforts worthy, if they are able to save 'even a single life'.

Mushfiqur Rahim could not attend the ceremony due to his sudden illness. But he vowed to work for the cause of mothers and children in a video record shown at the function....

To read the whole article, visit <http://www.bdnews24.com/details.php?id=223937&cid=2>.

COUNTRY POSTER REVIEW SESSIONS

On May 5 and 6, facilitators from each of the participating countries within the region had an opportunity to share and conduct an interactive discussion about their country posters, which focused on activities and programs for the prevention and management of PPH and PE/E. At the end of each session, they reflected briefly on the current status of their country programs (where they perceive they are), as well as possible future directions—although an actual plan of action was not developed at the meeting. Afterward, country teams were to identify “priority interventions,” as well as any “immediate steps,” that should be taken and to email this information back to the meeting organizers for inclusion in this report. Appendix G presents the plan outlines submitted by several countries.

OPTIONAL EVENING SATELLITES

Optional satellite (OS) sessions, held on the evening of May 4 and 5, offered meeting attendees the opportunity to learn more about topics touched on during the day or to explore new areas. In comparison to the large plenary sessions, these optional sessions were held in smaller rooms and attended by smaller groups of up to around 30. Some involved a presentation or demonstration, others a “show and tell” followed by lively and interactive discussion among participants and presenters. Participants could select one satellite session, which lasted 90 minutes.

OS-2.1: mHealth and the MAMA Initiative

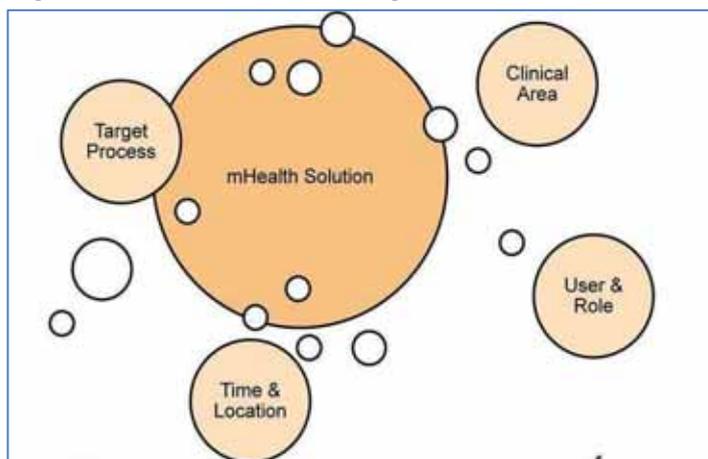
James BonTempo (Jhpiego) and Ananya Raihan (D. Net)

The session began with a basic definition of mHealth (mobile health) as the integration of mobile and wireless information and communication technologies with the fabric of the health system. Mr. BonTempo then refined the definition, explaining that mHealth may be “more about the ability to remove geographic separation and time differences from the health equation than it is about the technology itself.” As such, he suggested, it may enable a sort of freedom from the constraints, or even lack, of physical infrastructure.

Based on Gartner Hype Cycle, which describes the path new technologies follow from introduction to adoption/assimilation, the presenter shared his opinion that we are past the “Peak of Inflated Expectations” with regard to mHealth and beginning our descent into the “Trough of Disillusionment”—“but not because the benefits of mHealth aren’t real.”

Key to moving mHealth through this phase is identifying appropriate challenges and understanding what it can and cannot do. All information and communication technologies (ICTs), mobile or not, have the following functions in common: information (collection, storage, access, and display); computation; and communication. For mHealth to “reach the Plateau of Productivity” (per the Hype Cycle), BonTempo suggested that we need to keep these functions in mind, as well as the following basic considerations for designing mHealth solutions (Figure 20):

Figure 20. Basic mHealth design factors



- Know what process or piece of the health system you are targeting (e.g., routine facility-level health statistics).
- Understand the elements of the process (e.g., the steps in implementing it, who’s involved, what they do, resources required).
- Identify the clinical area in which you are working (e.g., MNH, FP/RH, HIV/AIDS, TB, malaria).
- Understand where and when the mHealth solution will be used.

“One of my favorite mHealth projects, an ART adherence intervention in Kenya, consisted of nothing but a single, one-word text message sent once a week plus a follow-up phone call. Amazingly, this simple solution actually led to significant increases in adherence and, ultimately, a reduction in viral loads.”

—James BonTempo

This level of understanding of the problem should drive our design of appropriate mHealth solutions, rather than trying to find the problems that elaborate technologies might address. The solution may turn out to be surprisingly simple.

Using the basic considerations and design approaches outlined by BonTempo, participants worked to come up with their own “mHealth solutions,” which were then shared and discussed.

In Bangladesh, the MAMA initiative in collaboration with D. Net, is connecting health information and services to mothers through mobile phones. To learn more about MAMA, visit <http://www.mobilemamaalliance.org>.

Highlights from Discussion

- Identify steps and constraints to determining whether we can use mHealth to address a particular problem.
- The problem may be a behavior; the solution a behavior change.
- The problem: A woman is delayed in getting to a facility when she is having complications.
- Constraints: Location/transportation/affordability of services; she doesn't know when/where she should go.
- mHealth solution: 24-hour hotline/call center screening those that call and giving opinions about callers' problems.

OS-2.2: PPH, PE/E, PPF, and PSE Toolkits

Stephanie Suhowsky and Sheena Currie (MCHIP)

Presenters led participants in a guided, online review of the Knowledge for Health (K4H) website—specifically toolkits and program implementation guidance for PPH, PE/E, PPF, and PSE, developed by MCHIP. The main purpose was to familiarize people with this valuable resource.

“The Knowledge for Health (K4H) Project is funded by the United States Agency for International Development (USAID) to help facilitate the development and dissemination of high quality health information products to a broad network of public health organizations supporting program managers and health service providers around the world. K4H is led by the Johns Hopkins Center for Communication Programs in collaboration with Family Health International (FHI) and Management Sciences for Health (MSH).” www.msh.org/global-presence/knowledge-for-health.cfm

The many benefits of K4H were highlighted, including its usefulness in storing and sharing toolkits in an electronic format; because the site is a portal, anyone can access its contents. Also, the content of K4H evolves, being updated over time as guidelines change and new tools are developed. In addition, anyone can create a toolkit to be included on K4H—it is not only a tool for the partner organizations.

Presenters discussed MCHIP's reasons for using K4H. “We didn't want to re-invent the wheel,” said one. “We pulled together existing materials.” For each MCHIP toolkit, an implementation guide is available to help move the program forward in a given country. This guide provides an implementation framework including: an outline of components necessary to put together a program, training materials and job aids, and what evidence exists to advocate with policymakers. For the latter purpose, MCHIP creates an annotated bibliography that summarizes the top 20 to 25 up-to-date articles that are the most compelling. MCHIP will continue to update these guides.

Participants then had an opportunity to review the toolkits on K4H. Notable features included the navigation bar on the left and ability to download materials and adapt to one's own needs.

Highlights from Discussion

- Not all providers know how to use magnesium sulfate. The resources available in the PE/E toolkit could be very useful to help address this.
- USAID's eLearning site has been very helpful. Does this site have something like that? Yes, we have links to the relevant eLearning sites.
- Whenever the updates are made, how do we know what has changed? For example, one website has a section where it marks “updates” so people can check constantly to see what is new. That is not a feature of this K4H website yet, but it would be great for them to send periodic emails notifying users of what is new.
- Is there a question/answer mechanism? We're hoping people will send things to Stephanie to include in the toolkit periodically.
- Participants were interested in training videos. The WHO website has training videos that are very good. There is still a gap in having new videos.

OS-2.3: Improving Newborn Resuscitation Using HBB Materials

Sharmina Sultana (USAID/BG); Ishtiaq Mannan and Rubayet Sayed (MCHIP/BG); Shams El Arifeen (iccdr,b)

Newborn mortality accounts for 60% of child mortality in Bangladesh; 68% of births in Bangladesh are at home. HBB is a training approach to neonatal resuscitation, the goal of which is to ensure that all who complete the training can meet the immediate needs of every baby at birth. Trainees are equipped after their training with the HBB action plan, flip chart, learner workbook, bag and mask. And trainers are given a NeoNatalie newborn simulator to help them with their work.

The HBB pilot study in Bangladesh started with the baseline study and continued through training and implementation and finally the endline evaluation. Milestones met through the pilot study convinced policymakers to scale up, which has included capacity-building, quality assurance, and ensuring sustainability (Box 3). HBB has been incorporated into the health policy and service delivery protocols; MIS strengthening is in progress. It has become clear that coordination among many partners is vital to success.

Box 3. Bangladesh National HBB Scale-Up Plan	
Capacity-Building	<ul style="list-style-type: none">▪ SBAs trained▪ Equipped all facilities and SBAs with newborn resuscitator (bag and mask) and Penguin suction
Quality Assurance	<ul style="list-style-type: none">▪ Supervision and monitoring of training▪ MIS system strengthening▪ Evaluation of HBB scale-up activities independently
Sustainability	<ul style="list-style-type: none">▪ Incorporate HBB curriculum into all relevant in-service and pre-service curricula▪ Capacity-building of facilities for training and refresher training▪ Routine refresher training for retention of skills

The HBB training plan is scheduled for June through September 2012, including training of master trainers, training of trainers (11 steps learned in two days of training), and training of SBAs from all public health sectors. The training will cover: ensuring that SBAs attend to both mother and baby (not just baby), handwashing, how to keep baby warm, cord-cutting and cord care, stimulation of breathing by rubbing the baby's back with the heel of the hand, clearing of the airway, and ventilation with bag and mask.

The results framework for evaluation, research questions, and timeline were also discussed. Of particular note were: the operational plan to observe 4,000 deliveries in facilities and about 1,000 in the community to assess the performance of those trained across the continuum of care; and the intention to complete scale-up by the first quarter of 2013.

Highlights from Discussion
<ul style="list-style-type: none">▪ How are you planning refresher training of providers? We use checklists and ask them to practice under the guidance of their trainers at each monthly meeting. They also practice using their tools and workbooks at these meetings. They learn from their peers' experiences during these meetings too.▪ Who are the SBAs? Are they midwives? They are existing government female community workers with 6 months of training.▪ Comment: Bangladesh and Tanzania are doing HBB with good and bad experiences. In Tanzania, it's taken 4 to 6 months for trainers to be given their equipment. The delay caused a lot of stress and excitement; HBB practice was lost.▪ To make HBB work, you need:<ul style="list-style-type: none">– Local champions– Maintenance of refresher trainings– Promptly giving those trained the equipment and ongoing maintenance of equipment

OS-2.4: Integration of FP and MNH—Health Approach

Salahuddin Ahmed (JHU); Dr. Neeta Bhatnagar, Dr. Ravi Anand, and Dr. Kamlesh Lalchandani (MCHIP/India)

Dr. Ravi Anand began by discussing the PPF/PPIUCD program in India. She focused on the benefits of healthy timing and spacing of pregnancies, emphasizing the success and challenges for uptake of the PPIUCD program in India. She and Dr. Neeta Bhatnagar demonstrated the PPIUCD insertion procedure on the ZOE model with postpartum attachments. Participants practiced on the models with the help of checklists. During demonstration and practice, the training resource and IEC materials were displayed and explained to the participants.

Dr. Kamlesh Lalchandani then presented on the postpartum systematic screening (PPSS) tool. As part of an effort to address unmet need for family planning, especially PPF, MCHIP India—in collaboration with the Government of Jharkhand MOH—is conducting a pilot study of the PPSS tool. In this study, the PPSS tool is being used in the Kolibera block of Simdega, Jharkhand, where it has been introduced to the Auxiliary Nurse Midwives (ANMs), Accredited Social Health Activist (ASHAs) or Saahiyas, and Aanganawadi workers (AWWs).



Dr. Neeta demonstrates how to insert PPIUCD in a Zoe model.

The aim of the tool is to increase opportunities for FP counseling, encourage early adoption of PPF among women with young children, and screen for all other relevant services. The main purpose of this evaluation is to determine the effectiveness of the PPSS tool as a means of increasing access to and use of PPF counseling and services at immunization outreach sites in selected MCHIP-supported sites in Jharkhand. MCHIP's objective is to capture and document lessons learned about the use of tools such as PPSS, which can help lead to increased integration and coverage of high-impact services.

OS-2.5: Improving Newborn Survival through Structured Home Visits

Neena Khadka (Save the Children International); Rajiv Bahl (WHO); Imteaz Mannan (MaMoni); and Suzanne Stalls (ACNM)

Dr. Joseph de Graft-Johnson (MCHIP) began the session by presenting the evidence that led to the WHO/UNICEF Joint Statement in 2009 regarding a 38% reduction in neonatal mortality rate (NMR) based on five studies on home visits. Since then, results of three more studies have been added for a total reduction of 21% in NMR. The highest impact was seen in areas with high NMR and home deliveries. At a WHO meeting earlier this year (Geneva, February 2012), some results were shared preceding release of the postnatal care (PNC) survey: 91% of countries in Asia have a policy for PNC visits, 12% of countries carry out three such visits—18% do the first visit within 24 hours after birth; a huge variety of cadres carry out the visits.

Recommendations: (1) Policies and implementation needed for Francophone Africa; (2) WHO to define optimal PNC package; (3) PNC implementation guide to be developed with partners and indicators defined; (4) More research needed: linkages between community and facility, models of implementation of PNC in different settings, and use of technology to support implementation.

Continuing, Mannan discussed expansion of PNC in Bangladesh under the MaMoni⁷ program, which started in 2003 with many partners. In 2009, standard guidelines were developed and approved by the MOH: HMIS needs to change the “within 42 days” visit timeline to visits within 0–2, 4–7, and 14 days. Ideally, preparations for PNC should begin at ANC; TBAs should notify the health facility where PNC is organized about deliveries at home; and PNC visits may take place at the clinic, outreach clinic, home, or tea garden. Figures 21 and 22 show the main components and logistics of PNC as prescribed by MaMoni.

Figure 21. The “why” and “what” of MaMoni-prescribed PNC

Why? To prevent mortality and morbidity of mother and newborn, ensure growth and development		
* PNC begins at ANC, if mothers are not identified and counseled, PNC may not happen		
Activity	Maternal	Newborn
Counseling and Support	LAM, PFP, danger signs, nutrition	positioning/attachment, EBF, danger signs, delayed bathing, thermal management
Referral for routine services	PP Vit-A, PP-IFA,	BCG, EPI
Check for complication	Nipples/breastfeeding, sepsis, other problems	Infection, LBW, hypothermia
Mgmt/Referral of complications	Identify appropriate center, notify service provider	Same +S2S Contact,
Program Mgmt	Misoprostol use validation	Birth registration (MOLGRD)

Figure 22. The “who,” “when,” and “where” of MaMoni-prescribed PNC



Challenges have included: record-keeping through the continuum of care, given the different cadres and different settings for care; problems with the denominator (number of live births), as there is no reliable source of information about live births; and a lack of delivery notification/birth registration. The presenter described various strategies to address these challenges. Take-away message: Operationalizing policy takes time and patience.

Stalls introduced/described *Taking Care of a Baby at Home after Birth: What Families Need to Do*⁸ and requested feedback. The guide is based on the “know-do” gap, which exists when people *know what to do* but not *how to do it* because of lack of skills, motivation, or other factors. PNC home visits are not “taken up” by the community or household because there is little understanding of the importance of PNC; the tool—which is in a flip chart format—can

⁷ MaMoni is an Integrated Safe Motherhood, Newborn Care and Family Planning Project (ISMNC-FP) under the leadership of the Maternal and Child Health Integrated Program (MCHIP).

⁸ <http://www.healthynewbornnetwork.org/sites/default/files/resources/CORE%20ENC%2011-08-2011.pdf>

be used by CHWs and CHVs, without much orientation. Adaptations are encouraged. A case study from Benin is being developed to learn how to integrate the guide with MNH efforts.

Highlights from Discussion

- Suggestion: Use patient-retained cards for continuity of records/care.
- Parts of the package that show most impact and how to assess quality of care for PNC visits were discussed.
- In India, the denominator is estimated based on expected deliveries; the indicator is survival at 42 days of age.

OS-2.6: Landscape Mapping of Maternal and Perinatal Infections

Sadaf Khan (Oxytocin Initiative)

With sepsis being a major cause of death in both mother and newborns, it is important to broaden the information around the underlying infections. There are three aspects of the maternal and perinatal infections landscape: identifying the priority pathogens affecting mothers and newborns; identifying and assessing current and emerging diagnostics for preventing and identifying the infections caused; and elucidating the opportunity for delivering diagnostics at the community level across the continuum of care.

The tool is limited to mapping five infections (out of 15) that affect pregnant women: urosepsis, septic abortion, chorio/puerperal sepsis, skin and soft tissue infection, and sexually transmitted infections (STIs). Four field sites each, in Bangladesh and Uganda, have been selected based on geographic, health systems, and demographic diversity. Research methods included focus groups and in-depth interviews. Field research objectives were to: (1) identify patterns of women's care-seeking behaviors and provision of maternal health care services, (2) assess community and provider receptivity of common testing modalities, and (3) determine a preliminary set of product requirements and functional specifications for diagnostic devices.

In Bangladesh, key providers were: TBAs (who deliver babies at home, have informal or little training, are community members, receive gifts as payments); family welfare assistants (who have formal training, are government employees, work from family welfare centers); family welfare visitors (who have formal training, are government employees, work from family welfare centers); and village doctors (who have informal or little training, are community members, run profit-seeking businesses). In Uganda, key providers were: TBAs (little or no training); CHWs (short training – 7 days); nursing officers (nursing degree); and midwives (formal training).

Key observations and conclusions:

- Generally, the mother-in-law or husband decides if a woman will go to a health care facility.
- In Uganda, a woman could not give birth in the facility unless both the mother and father were tested for HIV.
- Postnatal health care ended at delivery in both Bangladesh and Uganda.
- Providers are frustrated with the infrastructure available to them to provide care.
- Providers do not feel vaginal/cervical swabs are very feasible but, through interviews, it was clear that providers were not trained to do this.
- Rollout for the diagnostic should be administered by formal providers, in a private facility setting; female providers should be used.

Highlights from Discussion

- A participant from Bangladesh asked about the Bangladesh experience in using the diagnostic. Experience of users varied and depended on location.
- Comment: “Women as influencers” is an interesting concept since they think care ends at delivery; one wonders what led to this.
- What were the existing diagnostics? There were 15 initial identifications, but the technical advisory group narrowed it to five.
- Participants questioned the accuracy of diagnostics in their own country.
- The role of the private sector in regulation was discussed.

OS-2.7: Introduction to Uterotonic Selection Tool

Alice Levisay (Oxytocin Initiative)

(See summary for May 4 session, page 32.)

PLENARIES

Plenary 9: Beyond PPH and PE/E: What Else Must We Do to Save Mothers' Lives?

Moderators: Mary Ellen Stanton (USAID/W) and Kim Dickson (UNICEF)

P-9.1: Maternal Sepsis. Dr. Linda Bartlett, Johns Hopkins University

Puerperal sepsis is an infection of the genital tract, occurring at any time between the onset of the rupture of membranes or labor and the 42nd day postpartum, in which fever and one or more of the following are present: pelvic pain, abnormal vaginal discharge, abnormal odor of discharge, and delay in the rate of reduction of the size of the uterus as it returns to a pre-pregnant state.

Maternal sepsis is the third most frequent cause of maternal mortality, with an incidence in the range of 5% to 20%. Risk factors include delivery by an untrained birth attendant, delay in reaching a health facility, anemia, malnutrition, HIV/AIDS, and unhygienic conditions. Complications include septicemia, shock, chronic pelvic inflammatory disease, impaired fertility, and transmission of infection to the newborn. The case fatality rate was about 20% before the development of antibiotics; now it is less than 2% with timely and appropriate care.

Approaches to prevention include, at the facility level, reducing the length of the mother's labor, prolonging the amount of time before rupture of membranes (thereby shortening labor), reducing the number of vaginal exams, and implementing infection prevention practices (particularly handwashing). Large percentages of births occur outside the formal health sector in South Asia, presenting an added challenge, and even when birth takes place in a facility, the woman is usually home before sepsis complications occur. Approaches at the community level, therefore, include training TBAs, giving them or the women clean birth kits, and cleansing the vaginal canal with chlorhexidine.

More work is needed to improve the quality of care at the facility level and to determine the most important interventions for preventing sepsis and the barriers to using them. In addition, more population-based studies are needed to determine effective interventions at the community level. The Aetiology of Neonatal Infection in South Asia is one such study that is in the formative stages in Pakistan and Bangladesh. Its goal is to develop and validate a suitable diagnostic algorithm for identifying sepsis in the community by frontline health workers. Analyses and dissemination of findings are expected beginning in December 2013.

P-9.2: Postabortion Care: The Missing Ingredient in Reducing Maternal Mortality. Ellen Israel, Pathfinder International

Unsafe abortion is one of the three leading causes of maternal mortality. In 2008, half of all abortions in the world were unsafe and 98% of them occurred in developing countries. Deaths from unsafe abortions are most common in countries with the most restrictive abortion policies, but even in countries where abortion is not restricted, there are high percentages of substandard procedures in both public and private facilities.

Postabortion care (PAC) tends to be neglected in maternal health programs because of the stigma attached to abortions and the women who seek them. As a result, the root causes of unsafe abortion—barriers to obtaining and using contraception, gender issues, and other barriers—go unaddressed.

Political will is fundamental to ensuring universal access to PAC. Governments need support and even pressure to live up to the commitments they made through international agreements that reiterated the public health imperative and women's right to receive PAC services without discrimination. Programs should be: working with governments to address unsafe abortion and implement comprehensive and integrated PAC services, decentralizing and scaling up PAC services, building a network of stakeholders, ensuring the availability of

misoprostol, bringing services closer to the community, recognizing and addressing gender constraints/barriers, addressing the needs of young women and girls, and emphasizing attitude change for providers.

The Postabortion Care Consortium (PACC) strives to ensure universal access to PAC services. PACC endorsed the following five essential elements of PAC: community and service provider partnerships, counseling, treatment of incomplete abortion and complications, contraception/FP services, and reproductive and other health services. PAC programs should address all five areas.

Some recommendations for ensuring the integration of PAC with maternal health programs are: incorporating PAC into language, protocols, programming, budgets, and data collection for maternal health; including PAC in adolescent- and youth-oriented sexual and reproductive health programs; conducting values clarification and attitude change exercises at all levels; ensuring on-the-spot availability of high-quality postabortion contraceptive services; working with government to ensure maximum access to comprehensive PAC services; ensuring access to misoprostol to increase access to PAC; ensuring access to PAC by young and unmarried women without discrimination; and working with the PACC to gain strength through experience and tools for problem solving.

P-9.3: Integrating Family Planning within a Community-Based Maternal and Neonatal Health Program in Sylhet, Bangladesh. Salahuddin Ahmed, Johns Hopkins Bloomberg School of Public Health/Jhpiego

Although Bangladesh is often cited for its successful FP program, Sylhet district is far from achieving the country's national health and FP indicators. This study developed and tested an integrated approach to FP and MNH services through CHW home visits and community mobilization activities. More than 2,200 pregnant women were enrolled in each arm of the study. The intervention arm received MNH services plus FP during ANC and postpartum visits; the comparison arm received only MNH services. The women were followed through pregnancy to 36 months after delivery.

The role of the CHWs is to provide counseling during the antepartum and postpartum periods and also conduct pregnancy surveillance and dispense contraceptives. In addition, these caregivers conduct meetings with women, husbands, mothers, mothers-in-law, and community leaders. Finally, they are the local champions for the lactational amenorrhea method of postpartum family planning.

Contraceptive use was significantly higher in the intervention arm than the control arm at 18 months postpartum. Self-reported pregnancy incidence was significantly lower in the intervention arm. Drying and wrapping the newborn and initiation of breastfeeding (and duration of exclusive breastfeeding) were also higher in the intervention arm. These improvements occurred without a negative effect on the delivery of MNH services.

P-9.4: Respectful Care at Birth. Dr. Mohammad Baharuddin, Budi Kemuliaan Hospital, Jakarta

The Budi Kemuliaan Association is a nonprofit organization established in 1912 by Indonesians and Dutch pioneers who were inspired by the writings of Indonesian hero and philosopher Princes Kartini. The Budi Kemuliaan Maternity and Children Hospital was established in 1917 and is now part of the Budi Kemuliaan Health Institution, which provides maternal and reproductive health services (at the hospital), education (at the midwifery academy), and training and research.



This delivery room is well-equipped and shows good infection prevention practices.

The **health institution** is a public asset; it is implemented by and benefits the public. Its mission is to ensure the growth and development of a better future generation through providing the best, affordable health services and continuing community-based implementation of health services, education, training, and research.

The **hospital** aims to make childbirth a positive and satisfying experience for women and families by empowering women and reducing over-medicalized childbirth. It operates with the assumption that services should be

provided to everyone with respect and dignity. No deposit is required for admission and some clients are selected for free treatment. The care provided takes into consideration the woman's values, beliefs, feelings, and dignity. The hospital has 12 delivery rooms, and every woman who delivers there is accompanied and supported. Cleanliness, privacy, infection prevention, interpersonal communication, and skilled service provision are all emphasized.

P-9.5: WRA Voices: Changing Lives for Mothers & Newborns. Dr. Farhana Ahmad, White Ribbon Alliance, Bangladesh

The White Ribbon Alliance (WRA) is a global grassroots movement that builds alliances, strengthens capacity, influences policies, harnesses resources, and inspires action to save the lives of women and newborns around the world. Fifteen countries have national WRAs, which share global advocacy objectives and a strategic plan but have autonomy to determine their own national priorities. Most of the national alliances work on four types of objectives: policy, resources, accountability, and information dissemination.

The WRA alliance in **Nepal** has been working for years to advocate for the Safe Motherhood and Neonatal Health Bill, which would institutionalize women's right to make decisions about their own health, improved and accessible health services, effective emergency referral systems, and free delivery care. The bill is expected to pass Parliament this year.



Some of our most inspiring messages, in working to save the lives of women and newborns, come from the community itself.

In **Yemen**, the WRA alliance has been campaigning for a Safe Age of Marriage Bill, which will make child marriage illegal, and advocating for the role of midwives in partnership with the midwives' association. Working with a stable partner has helped the alliance respond to the challenge of working amid the country's political instability.

In **Pakistan**, where the dissolution of the federal ministry of health has resulted in health being managed at the provincial level, the WRA has been working to establish provincial WRA chapters to ensure that maternal health remains a national priority. This year the alliance is focusing on the promotion and use of magnesium sulfate, advocating for its inclusion in the list of essential medicines, and educating citizens about its benefits.

The WRA in **Bangladesh** is working on an analysis of the national budget to understand allocations of maternal health funds and on influencing parliamentarians, the media, and political leaders to bring maternal health into the public eye. In addition, they are identifying key strategies to promote public sector accountability for maternal health.

WRA **India** has been a leader in the development of social accountability for maternal health. They have developed a series of tools and methods—including checklists, community score cards, and public hearings—to monitor the government’s delivery of its commitments. These tools have enabled administrators and policymakers to identify gaps in their commitments and reaffirm or pledge new ones.

In **Indonesia**, the national alliance has established a partnership with Radio Republic of Indonesia, recruited the First Lady to serve as a patron and spokesperson for the alliance, and used social media to engage and mobilize youth advocates and supporters. Using radio and social media has helped to overcome the country’s geographic barriers, which make message dissemination difficult.

We do know how to prevent the needless deaths and of women in childbirth, and now we are seeing this happen in more and more countries around the world. Ending maternal mortality can be done—and it must be done.

A general discussion that followed the presentations focused on the following points and questions:

Questions and comments related to abortion and PAC services:

- We need a strategy for working with governments to make PAC and medical abortion-related products available.
- In terms of unsafe abortion, we should look at Uruguay as an example. A group of doctors there took a “harm reduction” approach, which is something worth considering.
- We must talk about comprehensive abortion care, not just postabortion care.
- **The procurement of MVA kits has been very time-consuming.** Response from Ellen Israel: We are trying to determine which manufacturers are quality and which are not, which may help to go beyond the limited range of providers that countries know about now. Misoprostol is largely the answer, as a first-line response because it would eliminate the need for so much equipment.
- **You mentioned recommendations around discrimination and stigma, but what exactly can we do?** Response from Ellen Israel: Values clarification—we need to look at our values and how they affect others’ lives (look at values clarification toolkits).

Questions about integration of FP and maternal health services:

- **Does having MNH workers deliver FP services create a challenge with workload? Where are the FP providers?** Response from Salahuddin Ahmed: In our study, the CHWs provided integrated FP/MNH services, addressing missed opportunities to provide FP services. Workload should be considered, but outcomes are improving and clients are more satisfied.
- **We know that community involvement is key to success. What approach or strategy did you follow to involve community leaders? What sustainability components are built into the program?** Response from Salahuddin Ahmed: We have many meetings, including meetings in each ward with different groups of influencers. In MaMoni, we used a community action cycle.

Other questions:

- **The attitude of providers is critical in safe motherhood. We are doing a lot of training, but we don’t see changes in behavior. What needs to happen to actually make behavior change?** Response from Linda Bartlett: It is frustrating that quality of care trainings and guidelines sometimes don’t bring about actual change. We need to start at the bottom, talk to providers, do qualitative research, and find out from them what they think are the essential elements of quality of care.
- **How does the Budi Kemullaan Hospital ensure that everyone at the hospital works with the same philosophy?** Response from Mohammed Baharuddin: We have education for midwives and training, and we instill in them our philosophy.

Plenary 10: Interventions for Newborn Complications

Moderator: Lily Kak (USAID/W)

Lily Kak introduced the plenary by highlighting a call to action to end all preventable child deaths by 2035. The focus must be on newborn mortality, which accounts for 41% of all under-5 mortality. Rajiv Shah urged partners to “look for the bends in the curve” to be able

to achieve this goal. Evidence has been generated on key newborn health interventions, and learning is available on how to deliver an evidence-based package of interventions at the community level. National policies are now in place and the focus is on scaling up high-impact interventions. Coverage at scale is the key to making essential newborn care a right for all babies at health facilities and in the community and to addressing the three major causes of newborn mortality: sepsis, asphyxia, and preterm complications.

P-10.1: Technical Updates on Newborn Resuscitation and Home Visits for Newborn Survival. Ornella Lincetto, WHO

WHO has issued new 2012 Neonatal Resuscitation Guidelines, updating the previous guidelines from 1998. The guidelines provide clear recommendations, along with the quality of the evidence on which they are based, and the strength of each recommendation is based on the balance of benefits and risks, values and preferences, and costs. They also take into consideration the range of circumstances in which they will be used, and they contain clear recommendations for use in different environments. The guidelines include the following recommendations:

- Positive pressure ventilation (PPV) with a bag and mask should be provided with air, not with oxygen, within one minute.
- Late cord clamping should be applied after one minute.
- Additional stimulation after drying should be limited to rubbing the baby's back two or three times before cutting the cord and starting PPV.
- Routine suctioning should not be used. Use of suction should be limited to meconium-stained amniotic fluid when the baby is not breathing and to clear amniotic fluid when the baby is not breathing and the mouth or nose is full of secretions, preventing effective PPV.
- PPV should be initiated within one minute after birth if the newborn is not breathing on his/her own. It should be initiated with air and given using a self-inflating bag and face mask. The baby should be assessed for heart rate and chest movement.
- PPV should be stopped after 10 minutes if there is no heart rate and after 20 minutes if the heart rate is less than 60 breaths per minute.

In 2009, WHO and UNICEF issued a joint statement on home visits for the newborn. A 2010 review of the results of five studies provided evidence that postnatal visits reduced neonatal mortality by 38%. Combining these results with the results of three more-recent studies shows a 21% reduction. In general, the impact of home visits on mortality was greater among the smaller studies, among the studies conducted in control areas with higher neonatal mortality rates, and in studies in settings with predominantly home births. All studies showed an improvement in newborn care practices with home visits.

An informal survey at the 2012 informal WHO meeting on home visit policies and practices for newborn survival showed that 60% of the countries (including 50% of African countries and 90% of countries in Asia) had postnatal care home visit policies addressing both mother and child. More than 54% had nationwide implementation of their policies. The following recommendations were made at the meeting:

- Advocacy needed for increased adoption of postnatal care policies and increased resources for implementation
- WHO to define optimal package of interventions for mother and baby and provide estimates of implementation costs
- WHO/UNICEF/USAID/Save the Children to develop implementation guide and define standard indicators of tracking progress

- Research needed on linking CHWs to facilities, models for implementing postnatal care in different settings, and use of technology to support implementation

P-10.2: Improving Newborn Resuscitation in Bangladesh. Dr. Mohammad Shahidullah, HBB National Scale-Up Initiative and Bangabandhu Sheikh Mujib Medical University, Bangladesh

Helping Babies Breathe[®] (HBB) is a neonatal resuscitation curriculum based on the premise that every baby deserves assessment at birth and simple newborn care. Bangabandhu Sheikh Mujib Medical University conducted an HBB pilot study in 2010, the results of which convinced policymakers to scale up the program within six months.

The national scale-up plan included capacity-building, quality assurance, and sustainability. The training plan included training for more than 17,000 master trainers, trainers, and public-sector skilled birth attendants, including doctors, nurses, paramedics, and community skilled birth attendants and female health volunteers. Simple equipment was made widely available: NeoNatalie sets were placed in all facilities; bag, mask, and suction bulb sets were given to all trained providers. Action plans/flip charts (translated) were made available in all facilities, and learner workbooks were provided for all trainees.

As of mid-April 2012, with the support and technical assistance of partners and the Ministry of Health and Federal Welfare, 7,357 participants had been trained.

P-10.3: Ensuring Newborns with Infections Get Prompt Treatment: Nepal's Experience. Shyam Raj Upreti, Ministry of Health and Population, Nepal

Based on evidence from the successful implementation of Community-Based Integrated Management of Childhood Illness (CBIMCI) program at scale, the Morang Innovative Neonatal Intervention (MINI) pilot-tested whether FCHVs could identify newborn infection and provide treatment. FCHVs made home visits within 24 hours of all births and assessed the newborns. If they found a newborn with a bacterial infection, they were to classify the infection and treat it and follow up per guidelines. Seven percent of the newborns had a possible severe bacterial infection. Of those cases, 98% received cotrimoxazole, 86% received gentamycin, and 94% received a full course of seven doses of gentamycin. Based on these results, MINI determined that community-based management of newborn sepsis is feasible and that FCHVs can follow an algorithm and provide injections of gentamycin for sepsis.



Behavior change and communication using the Birth Preparedness Package

The government of Nepal is also piloting a Community-Based Newborn Care Program (CBNCP), in which FCHVs conduct seven key components of community-based newborn care: behavior change communication; promotion of institutional delivery (and clean delivery practices in home deliveries); prevention and management of hypothermia; recognition and management of asphyxia; care of low birth weight babies; postnatal care with counseling on danger signs; and management of possible severe bacterial infection.

A monitoring and evaluation system for CBNCP was developed so that data can be collected and reported through the existing reporting system during the pilot period. When the system is scaled up to all districts, selected indicators will be included in the health management information system. Initial findings from the pilot suggest that FCHVs have been able to reach more than 50% of the expected pregnant women in five of the pilot

districts and less than 50% in the remaining five districts. Essential newborn practices are satisfactory, and FCHVs are capturing cases of possible severe bacterial infections, but performance varies across the districts. Compliance with gentamycin treatment is satisfactory in most districts.

Assessment of the pilot in 10 districts will continue and the package of interventions will be modified according to the findings. Other changes to the program may include integrating of IMCI and Safe Motherhood programs, incorporating new interventions such as cord care with chlorhexidine, strengthening facility-based newborn care, scaling up to the national level, and focusing on unreached populations.

P-10.4: Scaling Up Kangaroo Mother Care in Vietnam. Dinh Thi Phuong Hoa, Ministry of Health, Vietnam

Kangaroo Mother Care (KMC) was first introduced at the Uongbi hospital in North Vietnam in 1986. In 1996/97, four staff from Uongbi hospital (North Vietnam) and Tudu hospital (South Vietnam) went to Colombia to train, and in 1998 L'Appel provided support for the implementation of KMC in the two hospitals.

Scale-up began in 2000, when two KMC training centers were established, and national trainers were trained in 2000–2002. Starting in 2003, the national trainers trained staff from 50 hospitals, as well as participants from seven other countries. KMC materials from Colombia, including a manual and a KMC guide, were translated and adapted for use in Vietnam.

KMC community support groups formed to follow up babies and hold regular meetings to share experiences. KMC workshops are held every two years, and representatives also participate in international KMC conferences and conduct KMC research. Members of the groups help family members learn about KMC, and skin-to-skin contact and breastfeeding are encouraged immediately after birth.

In 2009, a KMC section was added to the national RH guidelines, and the guidelines were used to establish KMC neonatal health care units at health facilities in 2011. All doctors and nurses who provide MNH services at facilities are trained in KMC and KMC counseling. At least one room at each hospital is allocated for KMC.

KMC is simple but tough to scale up. It requires that people have a keen interest and willingness to support initiation and expansion. It can be challenging to motivate health facility staff and families to support and practice KMC; international support and collaboration, as well as national guidelines, are very important for scale-up. Vietnam's next steps include establishing three "model KMC training units" in three regions by 2015 and making KMC part of the National Plan for Safe Motherhood and Newborn Health.

A general discussion that followed the presentations focused on the following questions:

- **If there is no bag and mask for ventilation for a newborn, what should be done? Should mouth-to-mouth be done?** Mohammad Shahidullah replied that if a baby needs PPV, this ideally should be done with a bag and mask as there is a danger of communicable disease transmission with mouth-to-mouth resuscitation. If the only option is mouth-to-mouth, then the necessary preventive precautions must be taken.
- **Since CHWs in Nepal can provide injectable gentamycin, are they considered professionals?** Shyam Raj Upreti replied that if a woman is in labor, the CHW accompanies her to the health facility for delivery. CHWs assess the woman for danger signs and counsel on essential newborn care. The CHW can provide cotrimoxazole, but gentamycin requires safe injection and must be administered by a health provider at the health facility. CHWs do not administer gentamycin.
- **What are the preventive measures in the hospital setting to prevent a TB-infected mother from spreading TB to the KMC babies and mothers?** Dinh Thi Phuong Hoa replied that there are criteria for admission of mothers and newborns to the KMC units. Mothers are screened for infectious diseases and are not put in the KMC ward if they are infectious.
- **Are there any KMC data, outputs, and outcomes after 12 years of implementation in Vietnam?** Dinh Thi Phuong Hoa replied that this information will be shared later, outside this session.

Two videos on KMC: one by WHO (available at: <http://www.youtube.com/watch?v=kAVMWa6BFPY&feature=share&list=PL68EE6D503647EA2F>); another from Malawi, made by Save the Children (available at: <http://vimeo.com/41435895>).

- **What are the recommendations for home-based care, related to number and timing of subsequent visits after one week?** Dr. Lincetto replied that home visits are recommended for home births and for facility births. The postnatal visits should occur within the first week. If a baby is born at home, there should be three visits in the first week, on Days 1, 3, and 7. For health facility births, the first check should be at the facility and the follow-up visits should take into account the country's postnatal schedules. Most newborn deaths occur within the first week, so postnatal visits within the first week are critical.
- **Is there a difference between the updated WHO guidelines and the current recommendations made through Helping Babies Breathe?** There are no differences, but there is an emphasis on no routine suctioning in the WHO guidelines. Other than that, all 13 recommendations are consistent with what the American Academy of Pediatrics recommends.

Plenary 11: Implementing MNH Programs

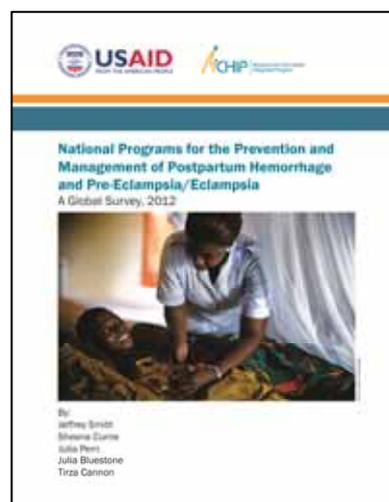
Moderator: Ubaidur Rob (Bangladesh)

P-11.1: National Programs to Prevent and Manage PPH and PE/E: 2012 Multi-Country Analysis of USAID-Supported Countries. Dr. Jeffrey M. Smith, MCHIP

The purposes of this study were to address the need for better qualitative and overarching quantitative data on maternal health programs; to show some broad global and national trends on program priorities in maternal health; and to identify areas of focus for future programming, both nationally and globally.

Data for the analysis were collected through 44-item questionnaires about PPH and PE/E, which were sent to 41 countries in early 2012. Responses were received from 37 countries, and the findings were compared with a similar analysis from 2011.

Results cover the following topics: availability of uterotonics, availability of magnesium sulfate and antihypertensives, medicines approved at the national level (Figures 23 and 24), active management of the third stage of labor, misoprostol, midwife/skilled birth attendant scope of practice, education/training in PPH and PE/E, monitoring and evaluation, and scale-up and bottlenecks. For each of the topics covered, the report (now available, as shown) will provide analysis of the global status, a comparison of the findings for 2011 and 2012, and changes by country from 2011 to 2012.



Report now available at:
www.mchip.net/globalstatusreport

Figure 23. Availability of uterotonics in health facilities, 2011 and 2012

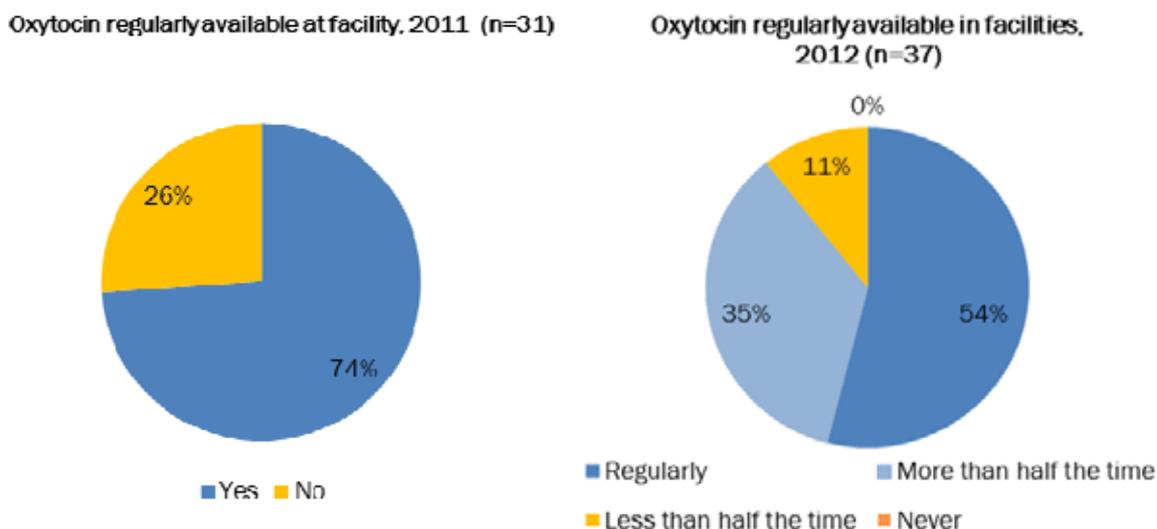
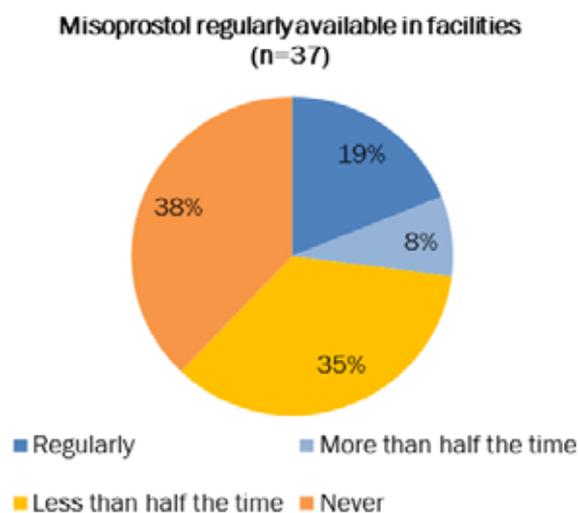


Figure 24. Availability of misoprostol in maternity centers, 2012



Preliminary analysis suggests mixed progress on the availability of and national support for increasing drug availability. The availability of oxytocin and magnesium sulfate has increased markedly, but fewer countries reported having misoprostol on the national EML. In addition, the findings suggest that PPH programs are more robust than PE/E programs.

P-11.2: Revitalizing Maternal Health Care in Seven Districts of Punjab. Akhtar Rashid, Government of Punjab, Pakistan

The goal of the Chief Minister’s Health Initiative Attainment & Realization of MDGs (CHARM) is to reduce maternal, infant, and child mortality and morbidity by targeting preventable causes. The program is intended to address resource allocation and utilization problems such as health funding not being allocated to cover the most-needed services, inappropriate behaviors/attitudes of health care providers, weak linkages between communities and health care facilities, and the disintegration of services.

To improve linkages between health facilities and communities, provide immediate feedback, and expedite data entry, the program is using: (1) voice messages delivered via android-based handsets for monitoring of monitors, and (2) an e-reporting and monitoring system in which daily reports, delivery reports, and referral reports are sent from each health unit by SMS, and monthly reports will be submitted through an online system that is currently under development. As the program progresses, it is expected that lady health volunteers will use

SMS to alert a central server when childbirth occurs. The server will then send a confirmation message to health facility staff. Automated messages to clients' phones will follow and will include congratulation messages as well as advice on early initiation of breastfeeding and reminders regarding immunization, postnatal appointments, and family planning.

The program has been challenged by a shortage of funding. A phased approach to scale-up is planned to address this.

P-11.3: Health Equity Fund Implementation in Cambodia. Koum Kanal, Ministry of Health, Cambodia

Cambodia's national health financing charter established user fee schemes at the facility level in 1996. In 2000, an evaluation of the impact of user fees on access by the poor revealed that exemption from user fees for poor and indigent patients was functioning relatively well at the level of the health center but not as effectively at the hospital level. Health equity funds (HEFs) were introduced as a demand-side financing mechanism to improve hospital access and, later, transportation and food costs for the poor. The HEFs reimburse public facilities for poor patients' health care expenses.

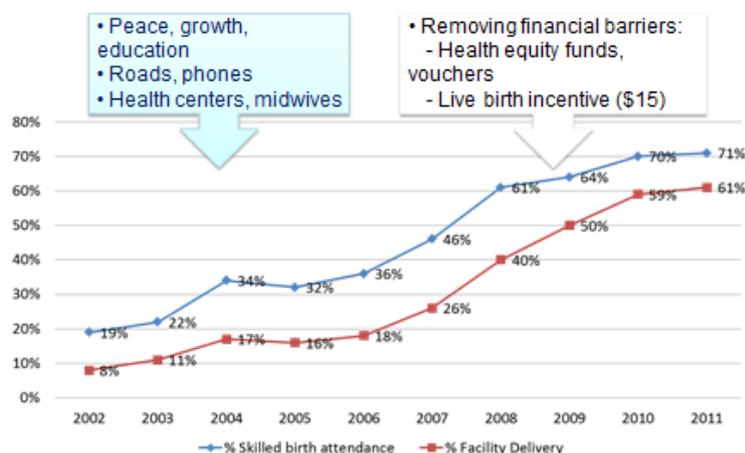
In 2003, HEFs became an integral component of Cambodia's Health Sector Strategic Plan and National Poverty Reduction Strategy, and in 2006 this component was incorporated into the National Strategic Development Plan. In 2007, the Government of Cambodia established a government HEF for exemptions from user fees at government facilities. HEFs are also an important element of the new Strategic Framework for Health Financing (2000–2015) and the second Health Sector Strategic Plan (2008–2015).

HEF beneficiaries are identified according to eligibility criteria, either within the community before accessing health care or at health facilities through interviews. Whether an individual receives full or partial coverage of nonmedical benefits, such as transportation and food, depends on the type of HEF the person has.

There are several schemes for funding the HEFs and each is associated with a different level of benefit. Some are funded exclusively by the MOH, some by contracted agencies, and others by NGOs. Some large NGOs fund all clients who receive care at certain facilities—for example, if a woman receives four ANC visits, L&D care, and PNC at a facility, her care will be free and the NGO will pay \$10 to the facility.

Cambodia's MMR has declined a lot starting in 2002; after the government implemented measures such as the HEFs to remove the financial barriers to care, access and use of health services increased dramatically (as shown in Figure 25).

Figure 25. Interventions for maternal health in Cambodia



Source: National Health Statistics MoH 2002–2011. Mainly public sector.

P-11.4: New Initiatives for Maternal and Newborn Health under NRHM in India. Manisha Malhotra, Ministry of Health and Family Welfare, India

India's National Rural Health Mission (NRHM) was launched in 2005 to: strengthen the hands of state governments in health care delivery; allocate more financial resources for health; bring sharper focus on rural, marginalized, and vulnerable populations; and move toward vertical integration, decentralization, and "communitization."

The NRHM focuses on poor-performing states and districts, allocating greater resources to 264 districts with poor health indicators. Financial allocations for the NRHM were US\$15 billion up until this year, and US\$4 billion are allocated for the current year. This is likely to increase with the next five-year plan. The funding has helped to: strengthen health facilities; improve infrastructure; support mobile medical units and emergency referral transport; and strengthen community processes, organizations, and personnel—including the accredited social health activist (ASHA), the village health sanitation and nutrition committees, patient welfare societies, and a community monitoring program. By the last count, the targeted states and the country as whole have shown significant declines in MMRs since 1999/2000. Newborn mortality and the total fertility rate have also declined.

As part of the NRHM, India has two public programs that guarantee access to health services at public health facilities. Janani Suraksha Yojana (JSY) is a safe motherhood intervention offering cash assistance to poor pregnant women who deliver at public hospitals. Janani-Shishu Suraksha Karyakram supplements JSY by offering free entitlements to pregnant women and sick newborns, with the aim of reaching the nearly 7.5 million women a year who still deliver at home. JSY has resulted in an increase in institutional delivery from less than 1 million in 2005/06 to 10.8 million in 2010/11.

India's new strategic objectives include "Delivery Points," a program to provide comprehensive RH and MNCH health services in high-caseload facilities—strengthening adolescent health; improving community newborn care practices through involvement of frontline workers (ASHAs); strengthening the nursing and midwifery cadres with focus on the midwifery component; enhancing focus on pregnancy-spacing methods, including focus on PFP services; strengthening community-based delivery of contraceptives through ASHAs; "line-listing" of severely anemic women; and using a web-enabled mother and child tracking system. Key strategic interventions to reduce infant mortality include: universal provision of essential newborn care, expansion of services for care of the sick newborn, home-based newborn care, promotion of optimal infant and young child feeding practices, micronutrient supplementation, management of children with severe acute malnutrition, management of childhood diarrheal diseases and acute respiratory infections, strengthening of routine immunization coverage, elimination of measles-related deaths, and polio eradication.

A general discussion that followed the presentations focused on the following questions:

- **How well does the SMS system work, and what is the coverage?** Akhtar Rashid responded that the computer has just now become functional, and the impact will be assessed after three years.
- **How is security ensured for 24/7 coverage at health facilities?** Rashid replied that at present the security system is relatively local.
- **Why has misoprostol not been added to many EMLs?** Jeff Smith replied that misoprostol was added to the WHO essential medicines list only last year, and it was only two months ago that WHO shared the recommendation to promote misoprostol at the community level. So now is the time for incorporation of misoprostol into national drug lists.
- **How does Cambodia ensure sustainable funding?** Koum Kanal replied that by 2014, Cambodia expects to be able to provide health coverage for 90% of the poor population. Identification of the poor and assessment of the scale remain a challenge.
- **Why not use the direct entry midwife cadre in India?** We need to build skills with the cadres they are already working with and not introduce more.

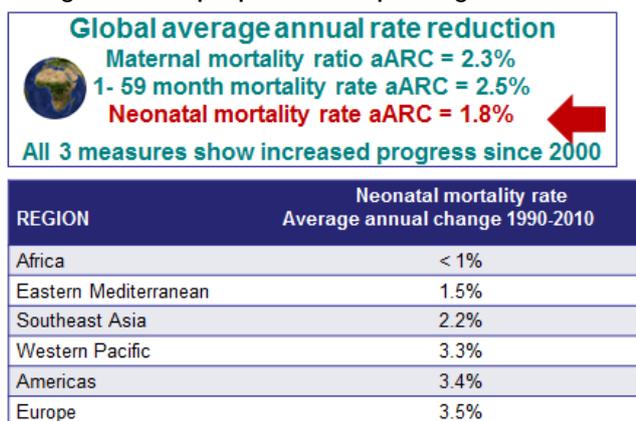
Plenary 12: Environment for MNH
Moderator: John Borrazzo (USAID/W)

P-12.1: Advocacy for Mothers and Babies: Maternal & Newborn Health as a Global Health Priority. Amy Boldosser, Family Care International

Advocacy efforts must continue at the global level to ensure that mothers and children remain a priority. Progress on reducing neonatal mortality is slow. More money is needed for health and more health is needed for the money. To accelerate progress in individual countries, we need to hold stakeholders accountable for the commitments they have made. We need global and regional advocacy to target MOHs, donors, NGOs, professional associations, and those who influence decision-makers (i.e., the media and the general public).

Several global advocacy campaigns are under way to accelerate progress on the continuum of reproductive, maternal, newborn, and child health (RMNCH). Every Woman, Every Child was launched by the United Nations (UN) Secretary-General to achieve commitments from all the leaders who attended the Millennium Development Goals summit in 2010. As part of the initiative, the UN created the UN Commission on Life-Saving Commodities for Women and Children, the Commission on Information and Accountability for Women’s and Children’s Health, and the independent Expert Review Group. WHO created the Partnership for Maternal, Newborn and Child Health, which plays an important role in accountability for Every Woman, Every Child. The partnership’s goals are to accelerate achievement of MDG-4 and MDG-5, to promote collaboration among 450 key constituencies, and to advocate accountability for global strategy and regional RMNCH commitments.

Figure 26. Behavior change and communication using the birth preparedness package



Source: Lawn J. et al. A decade of change for newborn survival: Multi-country analysis. Health Policy and Planning. In press. Data sources: Oestergaard et al. 2011. PLoS. UNICEF 2011. www.childinfo.org

“Countdown to 2015” is a global movement that began in 2005 and involves individuals, governments, and organizations in working toward the UN’s Global Strategy for Women’s and Children’s Health. Countdown to 2015 tracks progress in the 75 highest-burden countries, focusing on analysis and dissemination of data, advocacy at the national and international levels, and accountability for action. Other global advocacy partnerships include Women Deliver, the White Ribbon Alliance, the Maternal Health Task Force, and the Campaign to End Fistula.

Moving forward, advocacy groups need to maintain and strengthen the attention given to maternal and newborn health. We need: more, new national champions; increased investment; and better data collection, data analysis, and information sharing.

P-12.2: Going Beyond the MDGs and 2015. Raj Abdul Karim, Women Deliver

Women Deliver is a global advocacy organization that brings together voices from around the world to call for action against maternal deaths. MDG-5 is at the heart of all of the MDGs. If it fails, all of the others will too. Yet it is the most underfunded of the health-related MDGs, and progress toward achieving it has been the slowest.

Forty-four percent of maternal deaths and 56% of newborn deaths occur in Asia and the Pacific. Three out of five women giving birth in South Asia do so without a skilled birth attendant. The high maternal mortality rate can be linked to inadequate, inefficient, and inequitable spending. Many deaths could be prevented in a cost-effective way if women had

access to family planning, but 55% of the global unmet need for FP services is in the Asia-Pacific region.

Advocacy efforts in South Asia must focus on four areas. **Population growth and family planning:** Population growth in Dhaka is the highest in the world. Asia's urban population will double by 2050. We could avert 78% of maternal deaths with family planning. **Youth dynamics:** More than half of the world's youth live in the Asia-Pacific region. Health information and services should be youth-friendly, accessible, and stigma-free; youth should be involved in the policies and programs that affect them. **Access to skilled care:** Thirty percent of all maternal deaths are in South Asia, where access to ANC and skilled L&D care remains low. Women in rural areas are the most vulnerable. We need adequate training for health workers, improved access to lifesaving technologies, commodity security, and accessible information. **Political will and funding:** There are many commitments globally, but not many are translated into practical, affordable programs. We need programs that are equitable and accountable.

Moving forward, Women Deliver has identified five priority actions: (1) prioritize education and employment; (2) scale up health systems; (3) increase skilled care; (4) address RH needs of all women; and (5) strengthen partnerships.

P-12.3: The Role of Health Professional Organizations for Maternal and Newborn Health: The FIGO Perspective. André Lalonde, International Federation of Gynecology and Obstetrics

Health professional associations have a vital role to play in the promotion of women's health, especially maternal and newborn health and the achievement of MDG-4 and MDG-5. Building the capacity of health professional associations at the country level is essential if they are to undertake their roles effectively, especially in low-resource countries where the majority of maternal, newborn, and child mortality and morbidity occur. National societies of obstetrics and gynecology can play a role in improving the quality of RH care by contributing to the regular collection and assessment of data, audits, confidential inquiries, and near-miss analyses; and developing and supporting the operationalization of ethical standards for society members and the country's ob/gyns in general.

The International Federation of Gynecology and Obstetrics (FIGO) is facilitating several initiatives aimed at supporting the role of ob/gyns and midwives. The Saving Mothers and Newborns Initiative builds and sustains the capacity of ob/gyn and midwifery societies in participating developing countries. The Leadership in Obstetrics and Gynecology for Impact and Change (LOGIC) Initiative is strengthening the role of ob/gyn national associations in eight countries. The Misoprostol for Postpartum Hemorrhage in Low-Resource Settings Initiative advocates for and disseminates evidence-based information on misoprostol for PPH to providers and clinical policymakers. The Prevention of Unsafe Abortion Initiative works to reduce the number of women dying from and suffering long-term complications of unsafe abortions. The Fistula Initiative is implementing a standardized fistula surgical training programs in sub-Saharan Africa.



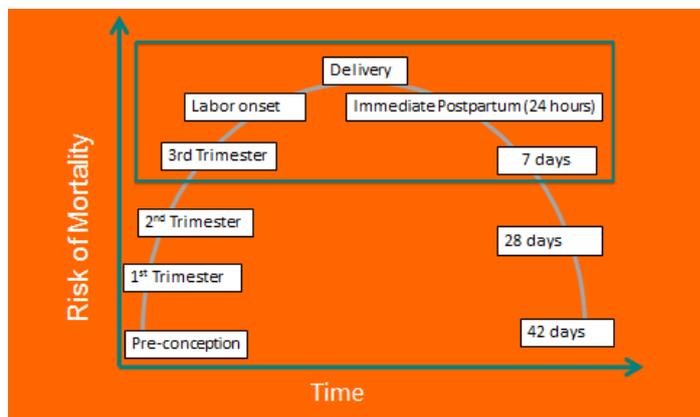
Can be accessed at:
http://www.figo.org/files/figo-corp/FIGO_Global_Competency-Based_Fistula_Surgery_Training_Manual_0.pdf

P-12.4: Eradicating Preventable Maternal Deaths: Learning from Success Stories and Moving Forward. Ana Langer, Maternal Health Task Force

What can we learn from countries that have made good progress on reducing maternal deaths? Egypt went from a high MMR to a low MMR by working on both supply and demand and actively working within the community through IEC and outreach. Iran went from a low

MMR to an even lower one by deploying rural midwives supported by a strong referral system and by involving religious leaders in IEC activities. Malaysia established a professional midwives program and conducted maternal death reviews, offered free services, and implemented a strong referral system. Sri Lanka also established a strong referral system, integrated family planning, offered free services, developed a strong HMIS, and conducted death reviews.

Figure 27. Maternal health task force: narrowing the focus



We know that these things work: (1) strong and sustained political commitment, (2) improved infrastructure, (3) better quality, (4) functioning referral systems, (5) affordable and accessible services, (6) comprehensive reproductive health services, (7) community involvement, and (8) strong data for decision-making and targeting interventions.

What about countries that are not progressing fast enough? Ethiopia has a notable national commitment,

and its health sector development program is improving facilities, providers, and referrals; but its MMR has not declined in the past five years, most likely due to low utilization of services and poor quality of care. India has a notable national commitment, and the JSY initiative is showing a positive impact on perinatal and neonatal health; but its MMR is still high, perhaps due to the increased workload of providers and the resulting poor quality. The Dominican Republic has a high MMR despite nearly universal coverage of institutional deliveries; its referral hospitals are overcrowded and understaffed, normal deliveries are over-medicalized, and complicated deliveries are often not handled appropriately.

Improvements in access and availability alone are not enough—quality is what is needed. The Maternal Health Task Force is working to reduce the risk of mortality by focusing on improving the quality of interventions at specific points before and during pregnancy, during labor and delivery, and during the postnatal period. The emphasis is on improving the quality of interpersonal and technical maternal health care, developing and improving tools to measure quality of care, supporting promising innovative strategies for improving quality, and supporting educational opportunities and technical capacity-building for maternal health professionals.

GROUP EXERCISE: INTERVENTIONS FOR PREVENTION AND MANAGEMENT OF MATERNAL COMPLICATIONS

Before lunch on Day 3, the entire group of meeting participants was divided into mixed teams (participants and facilitators from a variety of countries) of about 15–20 people each to fill out two matrices on “Preventing and Managing PPH with and without an SBA” and “Preventing and Managing PE/E with and without an SBA.” Half of the groups focused on one, the other half on the other. The goal for this activity was to facilitate a discussion about possible interventions to reduce PPH or PE/E in a variety of scenarios.



Glad to take notes for her group: Tabassum Firoz

The instructions groups were provided were as follows: “Based on the information presented in the sessions today, complete a 2x2 table... [showing interventions that] could and should be possible [with skilled providers, without skilled providers, or in either case]. Answers may vary by country, region, local regulation, and so forth. There are not specific (‘correct’) answers other than differentiating between prevention and management and [including] anything that would be highly unlikely (e.g., manual removal of the placenta in the ‘without SBA available’ category). It is quite possible that there may be overlap in the provider categories. The lists do not have to be exhaustive; this is an exercise for discussion about what is possible.”

After the activity, notes from each group were compiled into “master matrices” and shared before plenaries the following morning.

See Appendix E: Results of Group Exercise (Table E-1: Preventing and Managing PPH with and without an SBA; Table E-2: Preventing and Managing PEE with and without an SBA).

THE WAY FORWARD: DIALOGUE WITH THE EXPERTS

Before the closing of the meeting, several global MNH experts convened on stage—as a panel—to answer questions from other meeting attendees. Panel members included: Mary Ellen Stanton, Koki Agarwal, Amy Boldosser, Raj Karim, André Lalonde, Ana Langer, and John Borrazzo (session moderator).

Question: What are the take-home messages participants should carry forward from this conference?

- All health workers need to be using standard protocols to reduce PPH and PEE.
- Innovation, evaluation, reaching consensus, and implementation are going to be components of moving forward.
- Every woman should know and recognize danger signs of pregnancy and birth, and take steps to address potential problems (including family planning).
- MNH programs need to be accountable to the women and children that they are designed to serve.
- We cannot overlook the importance of supporting positive behavior change and shifts in attitudes, changing norms to promote respectful and compassionate care; we also need to look at private care and unnecessary medical intervention.
- Look at the fact that it can be done! Many countries are beginning to demonstrate change over time. And if some countries are doing it, we can do it. But we need to look at quality of care and content instead of only coverage of services. The challenge for us is to actually implement standards and protocols we have put in place.

Question: We have to count the newborn; we often do not talk enough about newborns. Why does newborn health sometimes fall through the cracks?

- We need more research to look at the synergies between maternal and newborn health, promote the continuum of care, and raise awareness of the effect of the mother’s health on that of the newborn.



A panel of global MNH experts convened for a discussion with fellow participants on the way forward

- The risks of dying for both the woman and her newborn occur during the same period; we need to think strategically about how to address the mother and newborn dyad—“Take the [mother and newborn] together in that first 7 days and think of interventions for both.”
- Look at links between women’s health overall and reproductive health and that continuum of care.
- There are challenges with measurement of newborn mortality. “Newborns can’t get up to the microphone and speak for themselves...but their mothers/families should!”

Question: How can we organize the health system such that interventions can be pushed beyond the public sector, and reach the private sector as well?

- The private sector needs to be engaged, as there is no regulation in many countries. It needs to be called to action to respect national guidelines.

Question: What is your take on additional incentives for health workers?

- Providers are not incentivized enough. (“Thank you for making the point.”)

Question: How can we involve the participation of mothers in policymaking decisions?

- Every place where women are delivering, there should be women’s advisory committees.
- Advocacy agencies should have parliamentary committees on maternal and newborn morbidity.
- We also need to engage men as well to support mothers and care for infants.

Question: What can you say about the fact that commitments are not translated into action (e.g., by policymakers)?

- Women themselves and their advocacy groups need to know what commitments governments have made.
- Parliamentarians can do a lot to keep governments accountable—make governments accountable for the gaps between commitments and what has actually been done.
- The community needs to be engaged in looking at why women die and why newborns die. Look at how conducting maternal death audits in the community can help get the community involved.

SUMMARY AND CLOSING CEREMONY

At the end of the meeting, closing comments were provided by several distinguished guests. First, Anita Gibson thanked everyone for feedback provided through the online “survey for impact,” saying it would be very useful for following up this event and in future events. Koki Agarwal then announced Vietnam as the winner for the best country poster. The prize includes a scholarship for one person to attend the 2013 Women Deliver conference in Kuala Lumpur.



The country team from Yemen shared their optimism and spoke concretely on their plans to convert their learning into action.

Jamela Al Raiby, Ministry of Health and Population, Yemen

Speaking as a representative of the participants, Al Raiby said “In Yemen, seven women die every day from complications from pregnancy and child birth,” pointing out that Yemeni women do a lot for their families but not enough for saving their own lives. In Yemen, the MOH, USAID, and WHO are working as a team to reduce maternal, newborn, and child mortality and morbidity. In this meeting, we’ve seen many things we can learn and take home with us. For example:

- **Introduction of misoprostol.** It has been a battle in introducing this drug in Yemen, but now we have more information to take back home to introduce it at the community level.
- **Calcium to reduce risk of PE/E.** We are hopeful this intervention will help us in achieving our goals in reducing maternal mortality.
- **Improved QUALITY of services,** for women and their newborns, including HBB. “This means a lot to women.”
- **Commodity security.** “How many mothers do we lose because the right commodity is not available at the right time at the right place with the right person? We need to focus on this.”

Al Raiby then expressed thanks for the invitation to attend, to Bangladesh for hosting, to organizers and funders, and to “all of you for sharing your experience with us and for making this meeting so fruitful for us as a Yemeni team.”

Kate Teela, Maternal, Newborn, and Child Health Division, Bill & Melinda Gates Foundation

Teela spoke about how far we’ve come and shared how inspiring she found the passion and dedication she had seen over the past few days, as well as the great dialogue about how to continue moving things forward. We have had a chance to connect with well-known partners and colleagues, she said, and to spend time with new ones. She finished by acknowledging frontline health workers around the world: they are the ones “who are really working to make every mother and baby count.”

Koki Agarwal, MCHIP

Agarwal started by alluding to the “whole other group of people around the world watching with [the 400+ physically present]” as the meeting unfolded. She encouraged anyone who does not use social media to learn how, stating that she was taught by her children.

Since the meeting began, there had been more than 1,500 views, as well as participation—from parties in the US, UK, Australia, Nepal, Indonesia, India, and Pakistan—via various social media outlets and online “live streaming” of meeting activities. She pointed out that these resources would continue to be available online, allowing this engaging conversation to continue.

“We think the conference is important, but it is not just the event we are interested in,” said Agarwal. “We hope you will continue to hold this dialogue at the country level and among countries to continue sharing information ... at the global level.”

John Borrazzo, Senior Maternal and Child Health Advisor, USAID

Borrazzo expressed his pleasure at being able to represent USAID “at what has been a very successful meeting” and thanked Bangladesh and the MOHFW for hosting. He characterized the gathering—which included more than 100 participants from Bangladesh—as testimony to the importance of these topics in the region.

As difficult as MDG-4 and MDG-5 may be to reach, we ARE making progress. Borrazzo provided assurance that USAID is committed to building on over two decades of support to maternal and child health. “We want to apply the latest research and evidence-based interventions and really tackle these priorities,” said Borrazzo: “If we can scale up what we know we need to do for impact, I know we can achieve what we all agree we want to accomplish.”

And he spoke of the importance of everyone applying what they learned over the course of the past three days.

“None of what we have talked about ... will reach a single mother or baby if we don’t take these ideas back and act on them.”

—John Borrazzo

In closing, Borrazzo thanked the MCHIP staff for their efforts in making the meeting a success, as well as the USAID/Bangladesh office for its participation and support.

Md. Humayun Kabir (Chair of the Closing Ceremony), Senior Secretary, Ministry of Health and Family Welfare, Bangladesh

As Chair of the Closing Ceremony, Kabir expressed the hope that all in attendance gathered new knowledge and experiences and that “the meeting helped them focus beyond the Millennium Development Goals and 2015”—providing new insight into reducing maternal and newborn deaths in a sustainable way. Pledging enduring support from the Government of Bangladesh of the meeting’s goals, he went on to acknowledge the contributions from many countries, which he said made conference a great success.

Kabir made special mention of the nutrition session held on the day before the meeting, pointing out that Bangladesh has mainstreamed nutrition with maternal and newborn health. He also said that the government was very “technologically friendly” and promotes the use of technology and innovation for dealing with maternal health issues. “I came to know in the skills sessions that there are low-cost technologies available.”

Ishtiaq Mannan, Country Director, MCHIP/Bangladesh

Mannan expressed thanks to the Government of Bangladesh, the MOHFW, Ministry of Foreign Affairs, Ministry of Internal Affairs, and Ministry of Civil Aviation—as well as to the Dhaka Metropolitan Police. “When the government welcomes certain initiatives and agrees to take responsibility,” he said, “that means a lot.” Thanks also went to:

“Thanks to USAID Washington and also to USAID Bangladesh for taking this [meeting] as a way to reflect on Bangladesh achievements ... not only for the country but also for the entire region.”

—Ishtiaq Mannan

- Governments of participating countries for ensuring that their representatives could participate;
- The 400+ participants for coming to share their experience and ideas with one another;
- Hotel Ruposhi Bangla for hosting us; and
- Local logistics team and volunteers for their support; as well as to
- The USAID Mission in Bangladesh and the USAID Global Health Bureau in Washington for sponsoring, supporting, and mentoring this big undertaking;
- Other sponsors of this conference for crucial their support;
- Print and electronic media for helping to get messages to the outside world and appropriate target groups since the meeting’s planning stages; and
- MCHIP Washington and Bangladesh for working hard, day and night, for months to make this happen.

Appendix A: Meeting Agenda



Asia Regional Meeting on

Interventions for Impact in Essential Obstetric and Newborn Care

Detailed Agenda

3 May 2012

9:00–17:00 ALL DAY

Nutritional issues in maternal and newborn health: Calcium for prevention of pre-eclampsia, and iron for treatment/prevention of anemia

15:30–18:00 AFTERNOON

Orientation on programming the *Helping Babies Breathe* initiative for newborn resuscitation

19:00–20:00 EVENING

OPENING CEREMONY

Technical presentation: Maternal mortality reduction in Bangladesh
Welcome remarks: Government of Bangladesh, USAID and US Embassy/Dhaka

20:00 WELCOME DINNER—Hosted by Jhpiego

Day One: 4 May 2012 (Friday)

8:30 OPENING OF THE DAY

IMPROVEMENTS IN MATERNAL HEALTH: THE CHANGING SITUATION OF MNH IN ASIA

MODERATORS: Richard Greene (USAID/Bangladesh) and TA Chowdhury (BIRDEM, Bangladesh)

Global progress in maternal mortality 1990–2011

Dr. Monir Islam (WHO/SEARO)

Maternal mortality reduction in Afghanistan

Dr. Sadia Fayeque Ayoubi (Ministry of Public Health)

Maternal mortality reduction in Nepal

Dr. Naresh Pratap KC (Ministry of Health and Population)

Maternal mortality reduction in Cambodia

His Excellency Deputy Prime Minister Yin Chhay Ly

Determinants of maternal health in Asia

Dr. Bushra Alam (World Bank, Dhaka)

10:20 TEA/COFFEE

BILL & MELINDA GATES foundation

OXYTOCIN INITIATIVE PROJECT



10:50	GLOBAL EVIDENCE AND GUIDANCE FOR PPH PREVENTION AND TREATMENT	MODERATOR: André Lalonde (FIGO)
	New WHO PPH guidelines	João Paulo de Souza (WHO/Geneva)
	WHO trial on active management of the third stage of labor	Justus Hofmeyr (University of the Witwatersrand and Eastern Cape Department of Health, South Africa)
	Evidence for use of misoprostol for prevention and treatment of PPH	Rasha Dabash (Gynully)
	PPH prevention and management strategies at different levels of health system	Farhana Dewan (OGSB)
12:30	LUNCH	
13:45	OVERCOMING BARRIERS AND MEASURING SUCCESS—IMPLEMENTING PPH PREVENTION AND MANAGEMENT PROGRAMS	MODERATORS: Khadijat Mojidi (USAID/BG) and Catharine Taylor (PATH)
	Maternal health indicators and use of a uterotonic in 3 rd stage	Steve Hodgjin (MCHIP)
	Experience with community level use of misoprostol in Asia	Nurlye Hodoglugil (VSI)
	Program implementation: Bangladesh experience	Abu Jamil Faisal (EngenderHealth)
	Program implementation: Nepal experience	Naresh Pratap KC (MOHP Nepal)
15:05	TEA/COFFEE	
15:35	DRUGS AND COMMODITIES	MODERATORS: Nahed Matta (USAID/W) and Laura Reichenbach (icddr,b)
	Quality of oxytocin and ergometrine, India scoping exercise	Cindy Stanton (Oxytocin Initiative)
	Quality of misoprostol	Peter Hall (Concept Foundation)
	Improving the quality of uterotonics	Victor Pribluda (USP)
	Systems for improving drug management	Beth Yeager (SIAPS)
17:30	OPTIONAL EVENING SATELLITES	
	Story of Bangladesh maternal mortality reduction	Kanta Jamil (USAID); Shams El Arifeen, Peter Kim Streatfield and Quamnun Nahar (icddr,b)
	Uterotonic use in India	Nitya Nand Deepak (Oxytocin Initiative)
	Training on PPH prevention - "Bleeding After Birth"	Cherrie Evans and Neeta Bhatnagar (Jhpiago)
	Improving newborn survival: Role of chlorhexidine application to the umbilical stump	Esther Lwanga (USAID); Luke Mullary (JHU); and Naresh Pratap KC (MOHP Nepal)
	Stakeholder consultation on policy recommendations for improved access to maternal health supplies	Deborah Ambruster (USAID); Wame Baravtala (UNFPA); Kim Dickson (UNICEF); Kristy Kade, Catharine Taylor and Rachel Wilson (PATH); and Sita Shankar Wunnava (PATH/India)
	Respectful care at birth: Research and advocacy	Mary Ellen Stanton (USAID) and Charlotte Warren (TRAction Project)
	Introduction to uterotonic selection tool	Alice Levisay (Oxytocin Initiative)

Day 2: 5 May 2012 (Saturday)

8:30	OPENING OF THE DAY	
	MIDWIFERY FOR REDUCTION OF MATERNAL AND NEWBORN MORTALITY	MODERATORS: Sue Bree (ICM) and Tim Evans (BRAC University)
	State of the World's Midwifery Report and midwifery in Asia	Geeta Lal (UNFPA) and Pashtoon Azfar (International Confederation of Midwives)
	Midwifery model in Afghanistan	Sabera Turkmani (Organization of Afghan Midwives)
	Special video in honor of International Day of the Midwife	Introduced by Sheena Currie (MCHIP)

9:20	EVIDENCE FOR PREVENTION AND DETECTION OF PRE-ECLAMPSIA/ECLAMPSIA (PE/E)	MODERATORS: Geeta Lal (UNFPA) and Halida Ahkter (E2A)
	New WHO guidelines on PE/E (2011)	João Paulo de Souza (WHO)
	Use of calcium and vitamin D for prevention	Justus Hofmeyr (University of the Witwatersrand and Eastern Cape Department of Health, South Africa)
	Quality of care in PE/E: Review of data from six countries	Barbara Rawlins (MCHIP)
	Screening and early detection of PE/E	Harshad Sanghvi (Jhpiego)
10:40	TEA/COFFEE	
11:00	EVIDENCE FOR DECISIONS IN PE/E MANAGEMENT	MODERATORS: Leslie Mancuso (Jhpiego) and Kaosar Afsana (BRAC)
	Choice of anticonvulsants in management of PE/E	João Paulo de Souza (WHO)
	Choice of antihypertensives in management of PE/E	Tabassum Firoz (Pro-EMPT)
	Induction of labor/delivery management in PE/E	Narimah Awin (WHO/SEARO)
	Management strategies at different levels of health systems	Dwirani Amelia (Jhpiego/Indonesia)
12:30	LUNCH (Posters showing country program status displayed)	
13:15	PROGRAMS FOR PE/E	MODERATORS: Deborah Armbruster (USAID/W) and Syed Abu Jafar (DGHS, MOH & FW)
	Prevention of PE/E including community level intervention in Bangladesh	Latifa Shamsuddin (OGSB)
	Program considerations for calcium supplementation	Tahmeed Ahmed (icddr,b)
	Experience implementing PE/E management program in Nigeria	Sharif Hossain (Population Council)
	Use of the Springfusor® pump for MgSO4 administration	Hillary Bracken (Gynuity)
14:30	TEA/COFFEE	
15:00	SKILLS SESSIONS (Total 8 offerings, participant chooses 3)	
	1. Low-tech BP measurement/Urine testing for detection of pre-eclampsia	Harshad Sanghvi and Kusum Thapa (Jhpiego)
	2. Safe induction of labor and use of misoprostol for induction	Blami Dao and Fauzia Assad (Jhpiego)
	3. Enhancing use of MgSO4: A new teaching tool	Jeffrey Smith (MCHIP) and Sabera Turkmani (DAM)
	4. Additional technologies for management of PPH	Paul LaBarre (PATH)
	5. Providing essential newborn care	Goldy Mazia (MCHIP)
	6. How to use Kangaroo Mother Care	Joseph de Graft-Johnson and Stella Abwao (MCHIP)
	7. MamaNatalie: A new anatomic model for teaching skills in obstetric emergencies	Sheena Currie (MCHIP) and Ingrid Laerdal, Tor Inge Garvik, Eileen Nelissen and Ida Neuman (Laerdal)
	8. Use of oxytocin in Uniject™ and MgSO4 dilution and dosing mobile phone application	Steve Brooke (PATH)
17:00	LAUNCHING OF MNH BRAND AMBASSADORS	Richard Greene and Khadijat Mojidi
17:00	COUNTRY POSTER REVIEW SESSION: Part 1: Status of PPH and PE/E Programs in Participating Countries	
17:30	OPTIONAL EVENING SATELLITES	
	mHealth and the MAMA Initiative	James BonTempo (Jhpiego) and Ananya Raihan (D.Net)
	PPH, PE/E, PPHP and PSE toolkits	Stephanie Suhowsky and Sheena Currie (MCHIP)
	Improving newborn resuscitation using HBB materials	Sharmina Sultana (USAID/BG); Ishtiaq Mannan and Rubayet Sayed (MCHIP/BG); Shams El Arifeen (icddr,b)
	Integration of FP and MNH—Health approach	Salahuddin Ahmed (JHU); Neeta Bhatnagar (MCHIP/India), Ravi Anand, (MCHIP/India), Kamlesh Lalchandani (MCHIP/India)

Improving newborn survival through structured home visits	Neena Khadka (Save the Children International); Rajiv Bahi (WHO); Imteaz Mannan (MaMori); and Suzanne Stalls (ACNM)
Landscape mapping of maternal and perinatal infections	Sadaf Khan (Oxytocin Initiative)
Introduction to uterotonic selection tool	Alice Levisay (Oxytocin Initiative)

DAY 3: 6 May 2012 (Sunday)

8:30 OPENING OF THE DAY

BEYOND PPH AND PE/E: WHAT ELSE MUST WE DO TO SAVE MOTHERS' LIVES? MODERATORS: Mary Ellen Stanton (USAID/W) and Kim Dickson (UNICEF)

Maternal sepsis	Linda Bartlett (JHU)
Complications of unsafe abortion	Eilen Israel (Pathfinder)
Integration of family planning and MNH programs	Salahuddin Ahmed (JHU)
Respectful care at birth	Md. Baharuddin (Budi Kemuliaan Hospital, Jakarta)
Voices changing lives for mothers and newborns in Asia	Farhana Ahmed (White Ribbon Alliance/Bangladesh)

10:15 TEA/COFFEE

10:45 INTERVENTIONS FOR NEWBORN COMPLICATIONS MODERATOR: Lily Kak (USAID/W)

Newborn resuscitation and home visits for newborn survival	Rajiv Bahi (WHO)
Improving newborn resuscitation in Bangladesh	Mohammad Shahidullah (BSMMU)
Ensuring newborns with infections get prompt treatment: Nepal experience	Shyam Raj Upreti (MOHP Nepal)
Scaling-up Kangaroo Mother Care in Vietnam	Dinh Thi Phuong Hoa (MOH Vietnam)

12:00 GROUP EXERCISE:

Interventions for prevention and management of maternal complications.

12:30 LUNCH

13:15 COUNTRY POSTER REVIEW SESSIONS

Part 2: Considerations for new areas of focus for country programs

13:45 IMPLEMENTING MNH PROGRAMS MODERATOR: Ubaidur Rob (Bangladesh)

Tracking the progress of PPH and PE/E programs: A multi-country survey	Jeffrey Smith (MCHIP)
Increasing utilization and managing MNH services in Pakistan	Akhtar Rashid (Govt. of Punjab, Pakistan)
MNH financing I: Equity fund – Cambodia	Koum Kanal (MOH Cambodia)
MNH financing II: JSY India	Manisha Malhotra (Ministry of Health and Family Welfare, India)

14:55 TEA/COFFEE

15:15 ENVIRONMENT FOR MNH MODERATOR: John Borizzo (USAID/W)

Advocacy for advancing MNH	Amy Boldosser (FCI)
Going beyond MDGs and 2015	Raj Karim (Women Deliver)
The Role of health professional organizations for MNH: The FIGO perspective	André Lalonde (FIGO)
Eradicating preventable maternal deaths through quality of care improvements	Ana Langer (MHTF)

16:15 DIALOGUE WITH THE EXPERTS: THE WAY FORWARD: PROGRESS, CHALLENGES AND THE FUTURE OF MNH

17:00 SUMMARY AND CLOSING

Appendix B: Participant List

Note: An asterisk (*) appears following the name/affiliation of people who attended the special technical session on nutrition (on May 3). Also, most names are listed, alphabetized by first name, in association with the country in which the person currently resides and his/her affiliation. The names of participants whose country or affiliation information was not captured at the conference are listed at the end, under "Also in attendance."

Afghanistan

Dr. Ahmad Abd El Rahman
Ms. Denise Byrd, Jhpiego*
Dr. Malalai Naziri
Mr. Mahmood Azimi, Jhpiego/HSSP*
Dr. Mohammad Masood, Jhpiego/HSSP*
Dr. Mohammad Nadim Kaihan Niazi, Jhpiego/HSSP*
Dr. Mohammad-Tahir Ghaznavi*
Dr. Mohammed Shafiq Mirzazada, Aga Khan Health Service
Dr. Nasrin Oryakhil, Malalai Maternity Hospital, MOPH*
Ms. Sabera Turkmani, Afghan Midwives Association
Dr. Sadia Fayaq Ayubi, MOPH*
Dr. Sayed Shah Faqir, Aga Khan Health Service
Dr. S.M. Moazzem Hossain, UNICEF
Dr. Sohaila Ziaee Waheb, MOPH
Dr. Sultan Mahmood Bazel, Jhpiego/HSSP*

Australia

Dr. Michelle McIntosh, Monash University
Dr. Alison Morgan, Adv Nossal Institute for Global Health

Bangladesh

Dr. Abu Jamil Faisal, EngenderHealth/Mayer Hasi
Dr. Md. Abdul Haque, MOHFW
Dr. Md. Alamgir Ahmed, Save the Children/MaMoni*
Mrs. Alana Albee, UK Government
Dr. Ananya Raihan, D.Net, MAMA
Mrs. Anna af Ugglas Nygren, UNFPA
Areba Panni, Save the Children
Dr. Bushra Alam, World Bank
Dr. Chinmoy Kanti Das
Dr. Dilip Kumar Brahma
Ms. Elizabeth Isimhen Williams, SPRING, Helen Keller International*
Mrs. Erica Roy Khetran, Helen Keller International*
Dr. Farhana Ahmad, White Ribbon Alliance
Dr. Prof. Farhana Dewan, Shaheed Suhrawardy Medical College Hospital
Dr. Farzana Islam, Save the Children*
Ganesh Chandra Sarker, IEM/DGFP*
Dr. Golam Mothabbir, Save the Children*
Md. Humayun Kabir, MOHFW
Dr. Imteaz Mannan, MaMoni
Ms. Indrani Chakma, UNICEF/B
Dr. Ishrat Jahan, BRAC
Dr. Ishtiaq Mannan
Dr. Kanta Jamil, USAID/B
Dr. Kaosar Afsana, Bangladesh Rural Advancement Committee (BRAC)
Khadijat Mojidi, USAID/B
Ms. Kie Kanda, UNICEF/B
Ms. Kimberly Rook, Center for Communication Program, DGFP, IEM Unit (JHU CCP)*

Dr. Laura Reichenbach, icddr,b
 Ms. Lauren Wooten Smith, icddr,b*
 Dr. Prof. Latifa Shamsuddin, Obstetrical and Gynaecological Society of Bangladesh
 Ms. Lianne Henricus Kuppens, UNICEF/B
 Dr. Louise Tina Day, MIS-Research, LAMB Integrated Rural Health and Development, LAMB Hospital*
 Dr. Malay Kanti Mridha, Department of Public Health, State University of Bangladesh
 Ms. Melkamensh Alemu Nigussie, DFID*
 Dr. Mohammad Zahirul Islam, Foreign Ministry/CIDA*
 Dr. Mohammad Shahidullah, Bangabandhu Sheikh Mujib Medical University (BSMMU)
 Dr. Momena Khatun, CIDA
 Dr. Naheed Nazrul, Health Friendship*
 Ms. Nancy Loutenbroek, CRWRC*
 Peter Kim Streatfield, icddr,b
 Dr. Quamrun Nahar, icddr,b
 Dr. Jebun Nessa Rahman, Jhpiego*
 Rabeya Khatoon, MNCAH/WHO*
 Dr. Riad Mahmud, UNICEF/B
 Mr. Richard Greene, USAID/B
 Mrs. Roushon Ara Begum, UNFPA
 Dr. Sabbir Ahmed, Save the Children/MaMoni*
 Sameera Hussain, School of Public Health, BRAC
 Ms. Saroj Sedalia
 Dr. Sayed Rubayet, HBB, Saving Newborn Lives
 Dr. Setara Rahman
 Dr. Shafiqur Rahman, Institute of Public Health and Nutrition*
 Dr. Shams El Arifeen, icddr,b
 Dr. Sharif Hossain, Population Council
 Dr. Sharmina Sultana, USAID/B
 Sheikh Shahed Rahman, Pragati Insurance/CARE*
 Sheela Sinharoy, Nobo Jibon
 Shirin Afroz, Helen Keller International
 Mrs. Shoko Sato, Public Health Foundation of Bangladesh
 Dr. SK Asiruddin, TRAction Project, URC*
 Sumitro Roy, FHI 360/Alive and Thrive*
 Dr. Syed Abu Jafar, DGHS, MOH&FW
 TA Chowdhury, BIRDEM
 Dr. Tahmeed Ahmed, Centre for Nutrition and Food Security, icddr,b*
 Tina G. Sanghvi, FHI 360/Alive and Thrive*
 Dr. Tim Evans, BRAC
 Dr. Ubaidur Rob, Population Council
 Dr. Ziaul Ahsan, Save the Children/MaMoni*
 Dr. Ziaul Matin, UNICEF
 Zubayer Hussain, Management Sciences for Health

Cambodia

Mrs. Amy Ellis, CRS*
 Mr. Aun Chum, UNICEF*
 Dr. Chan Soeung Sann, MOH*
 Dr. Chea Samnang, Cabinet of H.E. Yim Chhay Ly, Cabinet of the Prime Minister*
 Dr. Chivorn Var, Reproductive Health Association of Cambodia*
 Dr. Kathy Ann Krasovec, University Research Co. LLC*
 Dr. Koum Kanal, MOH*
 Dr. Lan Chhin, Reproductive and Child Health Alliance (RACHA)*
 Mrs. Nary Mey, RACHA*
 Dr. Som Kompheak, RACHA*
 Dr. Sopheanarith Sek, USAID*
 Dr. Vong Sathiarany, UNFPA*

Dr. Wannak Samrith
Mr. Yim Chhay Ly, Cabinet of the Prime Minister*

Canada

Dr. André B. Lalonde, University of Ottawa
Dr. Diane Sawchuck, University of British Columbia*
Dr. Janice C. Heard, University of Calgary
Dr. Nalini Singhal, Alberta Children's Hospital
Mr. Pierre Lacerte, Micronutrient Initiative
Dr. Tabassum Firoz, University of British Columbia

Egypt

Dr. Aly Abdel Azim Abdel Megeid, MCHIP – SMART Project*
Dr. Amal Mohamed Rezk, MOH
Dr. George Michel Sanad, USAID Egypt
Ms. Laura Campbell, USAID Egypt
Dr. Moataza Mostafa Bashir MCHIP – SMART Project*
Dr. Nevine Ismail Hassanein, SMART Project*
Dr. Siham Yassin Mohamed MCHIP – SMART Project*

England

Dr. Asma Khalid, Marie Stopes International

Fiji

Mr. Wame Baravilala, UNFPA

India

Ms. Alka Barua, Gynuity Health Projects
Dr. Anil Kumar Agarwal, UNICEF
Dr. Anju Puri, USAID – MCHIP
Dr. Ataur Rahma
Dr. Bulbul Sood, Jhpiego
Ms. Dipa Nag Chowdhury, MacArthur Foundation
Dr. Deepa Prasad, UNFPA*
Dr. Esther Vijila Isac, Prem Jyoti Community Hospital*
Ms. Gayatri Rathore, MCHIP/Jhpiego*
Dr. Hema Divakar, Divakars Hospital/FOGSI
Ms. Kanika Bajaj, Jhpiego
Mr. Jaya Swarup Mohanty
Mr. John McDonald Pile, STAR Initiative
Ms. Jyoti Vajpayee, Population Services International
Dr. Kamlesh Lalchandani, Jhpiego
Ms. Madhavi Misra, Public Health Foundation of India
Dr. Madhulika Jonathan, UNICEF
Dr. Manisha Malhotra, Jhpiego/MCHIP*
Ms. Marianna Beth Hensley, Catholic Relief Services*
Ms. Monica Tripathi Lucknow, IntraHealth
Dr. Narimah Awin, WHO/SEARO
Dr. Neeta Bhatnagar, Jhpiego
Mr. Nitya Nand Deepak, PATH
Mrs. Pashtoon Azfar, ICM
Mr. Pushkar Ingale
Dr. Quazi Monirul Islam, World Health Organization
Dr. Ravi Anand, Jhpiego
Dr. Ravi Lucknow, Jhpiego
Mr. Sanjay Kapur
Dr. Sanjiv Kumar
Ms. Shairoz Nathoo, Aga Khan Health Services

Mrs. Sita Shankar Wunnava, PATH
Dr. Somesh Kumar, Jhpiego
Mr. Sudhir Babruwan Maknikar
Mr. Sunil Saksena Raj, Public Health Foundation of India

Indonesia

Mrs. Anne Atkinson Hyre, EMAS
Dr. Dwirani Amelia Miftah, RSIABK
Dr. Erna Mulati, MOH
Dr. Gita Maya Koemara Sakti, MOH
Dr. Iin Dewi Astuty, MOH
Ms. Lina Rustanti, PATH
Mr. Lukman Hendro Laksmono, UNICEF
Dr. Martono Tri Utomo, IDAI
Mr. Mohammad Baharudin Hasanuddin, BK Health Institution
Dr. Noroyono Wibowo, ISOG
Dr. Nurdadi Saleh, ISOG
Mr. Pancho Hekagery Amilo Kaslam, EMAS
Mrs. Ratih Indriyani Rakhmawati, EMAS
Mr. Riyanto Irawan Moeslimin, Serang Public Hospital
Mr. Robin Kumar Nandy, UNICEF
Ms. Rustini Floranita, WHO
Dr. Sudibyso Markus, Governance Muhammadiyah/EMAS Jhpiego
Mrs. Susan Preston Tredwell, EMAS

Kenya

Mrs. Charlotte E. Warren, Population Council*
Dr. Grace Miheso, USAID

Laos

Dr. Chounramany Kaisone, National Mother and Child Health Center

Malaysia

Ms. Raj Abdul Karim, Women Deliver

Myanmar

Dr. Cho Myat Nwe, Population Services International*
Ms. Hnin Oo, MOH
Dr. Hnin Wai Hlaing, Population Services International*
Ms. Moe Thet Thet Mon, MOH
Ms. Mya Lay New, MOH
Dr. Myint Myint Win, Population Services International*
Dr. San San Hline
Mrs. San San Myint, MOH

Nepal

Dr. Asha Pun, UNICEF Nepal
Mr. Deepak Paudel, USAID*
Ms. Kusum Thapa, Jhpiego
Dr. Naresh Pratap KC, Family Health Division, Department of Health, MOHP*
Dr. Neena Basnet Khadka, Save the Children*
Dr. Nuzhat Rafique, UNICEF Regional Office for South Asia (ROSA)
Mr. Raj Kumar Pokharel, Nutrition Section/CHD, Department of Health Services, MOHP*
Dr. Rajendra Prasad Bhadra, Jhpiego*
Mr. Ramchandra Silwal*
Dr. Shilu Adhikari*
Dr. Shyam Raj Upreti, MOH
Mrs. Stephanie Suhowatsky, Jhpiego/MCHIP*

Netherlands

Dr. Ellen Nelissen, VU University Amsterdam
Ms. Mary Anne Kirk, International Confederation of Midwives

New Zealand

Dr. Judith McAra-Couper, University of Technology/WHO
Ms. Patricia Ann Thompson, AUT University
Ms. Susan Jane Bree, ICM

Norway

Ms. Ida Neuman, Laerdal Global Health
Ms. Ingrid Laerdal, Laerdal Global Health
Mr. Tor Inge Garvik, Laerdal Global Health
Mr. Tore Laerdal, Laerdal Global Health

Pakistan

Dr. Akhtar Rashid, National Program for FP & PHC*
Dr. Arjumand Rabbani, Midwifery Association of Pakistan
Dr. Dahar Zaib Un Nisa Nisa
Ms. Dania Anwar
Dr. Fauzia Khan, Jhpiego
Mr. Fawad Shamim, Greenstar Social Marketing
Dr. Feroz Din Memon, General Health Service, Health Department, Government of Sindh
Dr. Haris Ahmed, Pathfinder International*
Dr. Haroon Ibrahim, Greenstar Social Marketing (Pvt.) Ltd.
Mr. Inam Ullah
Dr. Mah Talat, PACP*
Dr. Muhammad Amjad Ansari
Dr. Naeem Majeed, National Program for FP & PHC*
Mrs. Nasreen Jamal Khan, USAID Pakistan
Ms. Nora Madrigal, USAID Pakistan*
Mrs. Nighat Ijaz Durrani, Pakistan Nursing Council
Dr. Nisar Ahmad Cheema, General Health Punjab, Government of the Punjab, Health Department*
Ms. Nusrat Jahan, Aga Khan Health Service
Dr. Qudsia Uzma, Save the Children
Dr. Rafat Jan, Aga Khan University*
Dr. Rahat Najam Qureshi, Aga Khan University Hospital
Mr. Rizwan Haider Rizvi, Aga Khan University
Dr. Rozina Farhad Mistry, Aga Khan Health Service
Mrs. Samia Rizwan, UNICEF
Dr. Sahib Jan Badaruddin, National MNCH Programme, Health Department, Government of Sindh
Dr. Shabana Zaeem, Jhpiego
Dr. Syeda Tasneem Fatima, Marie Stopes Society
Dr. Tahir Manzoor, UNICEF
Dr. Zafar Ikram

Papua New Guinea

Dr. John Walpe Bolnga, Modilon General Hospital

Philippines

Dr. Abdullah, Jr. Bajunaid Dumama, DOH, Center for Health Development – Davao Region
Ms. Cecilia Banca Santos, Philippine League of Government & Private Midwives
Ms. Consuelo Lacson Anonuevo, USAID/Philippines*
Dr. Cynthia Fernandez Tan, Philippine Obstetrical and Gynecology Society
Dr. Esperanza Anita Escano Arias, Quezon City Health Department
Dr. Kadil, Jr Manera Sinolinding, DOH – Autonomous Region for Muslim Mindanao
Dr. Maria Irma Labro Asuncion, Department of Health

Sierra Leone

Ms. Monica Greene, Marie Stopes International

South Africa

Dr. George Justus Hofmeyr, Eastern Cape Department of Health

Spain

Ms. Olivia Hill, Medicos Sin Fronteras*

Switzerland

Dr. João Paulo de Souza, WHO

Mr. Peter E. Hall, Concept Foundation

Dr. Rajiv Bahl, WHO

Thailand

Ms. Alexandra Johns, Asia Pacific Alliance

Ms. Alyssa Davis, Save the Children UK

Dr. Nabila Zaka, UNICEF

Timor Leste

Mrs. Cristina Sarmiento da Costa, QI TL HIP (Timor Leste Health Improvement Project)*

Dr. Jose Antonio Gusmao Guterres, National Hospital TL HIP*

Mrs. Misliza Vital, MCH Department TL HIP*

Mrs. Antonia Maria du Rego Mesquita Fernandes, TL HIP*

Mrs. Odete Amado Martins, TL HIP*

United States

Dr. Alain Damiba, Jhpiego

Ms. Alice Levisay, PATH

Ms. Amy Suzanne Boldosser, Family Care International

Dr. Ana Maria Langer, Harvard School of Public Health

Ms. Andrea Sternberg, USAID*

Ms. Anita Gibson, MCHIP*

Ms. Ann Mead, Accelovate Program, Jhpiego*

Ms. Arianna De Lorenzi, PATH

Ms. Barbara Joan Rawlins, Jhpiego*

Mrs. Beth Anne Catherine Yeager, Management Sciences for Health*

Dr. Blami Dao, Jhpiego

Ms. Brenna McKay, PATH

Ms. Carmen Crow Sheehan, Jhpiego

Ms. Catharine Taylor, PATH

Ms. Charlene Ann Reynolds, MCHIP

Ms. Chelsea Cooper, MCHIP

Dr. Cherrie Lynn Evans, Jhpiego/MCHIIP

Dr. Ciro Franco, Management Sciences for Health*

Dr. Cynthia Kay Stanton, Johns Hopkins Bloomberg School of Public Health

Ms. Dana Tilson, Population Services International

Mrs. Deborah Armbruster, USAID

Dr. Diaa Hammamy, Futures Group International

Ms. Dina Abbas, Gynuity Health Projects

Mrs. Eileen Schoen, American Academy of Pediatrics

Ms. Ellen I. Israel, Pathfinder International

Ms. Esther Lwanga, USAID

Mrs. Geeta Lal, UNFPA

Dr. Gladys Mazia, MCHIP

Mrs. Halida Hanum Akhter, MSH*

Ms. Hillary Bracken, Gynuity Health Projects

Ms. Kate Teela, Bill & Melinda Gates Foundation

Dr. Harshad Kumar Sanghvi, Jhpiego
Dr. Hendricus M. Vemer, Accelovate Program, Jhpiego
Ms. Jaime Mungia, Jhpiego
Mr. James BonTempo, Jhpiego
Dr. Jeffrey Smith, MCHIP*
Ms. Jill Sheffield, Women Deliver
Mr. Joel Segre, Bill & Melinda Gates Foundation
Dr. John Borrazzo, USAID
Dr. Joseph Ernest de Graft-Johnson, MCHIP
Dr. Justine Kavle, MCHIP/PATH*
Ms. Keisha L. Pierce, MCHIP
Mrs. Khatidja Jivani
Dr. Kim Eva Dickson, UNICEF
Dr. Koki Agarwal, MCHIP*
Ms. Kristy Kade, PATH
Ms. Laura A. Gustafson, MCHIP
Dr. Leslie D. Mancuso, Jhpiego
Dr. Lily P. Kak, USAID
Dr. Lincetto Ornella, MCHIP/Save the Children
Dr. Linda Bartlett, Johns Hopkins Bloomberg School of Public Health
Dr. Luke C. Mullany, Johns Hopkins Bloomberg School of Public Health
Ms. Mandy Hovland, MCHIP
Ms. Marcia Griffiths, The Manoff Group, Inc.*
Dr. Marge Koblinsky, MCHIP/JSI*
Ms. Martine Marie Holston
Ms. Mary Ellen Stanton, USAID*
Ms. Melody Ann McCoy, Jhpiego
Ms. Molly Katherine Miller-Petrie, MCHIP (PATH)
Dr. Nabeel Akram, Jhpiego*
Dr. Nahed Matta, USAID*
Dr. Nuriye Nalan Sahin Hodoglugil, VSI
Dr. Osgood Masee Bateman, USAID/Indonesia
Ms. Paige Bennett Harrigan, SPRING/SC*
Ms. Patricia Boison, PATH
Ms. Patricia Daly, Save the Children
Ms. Patty Alleman, USAID
Mr. Paul LaBarre, PATH
Mrs. Patricia Taylor, MCHIP*
Ms. Rachel Wilson, PATH
Ms. Rae Galloway, MCHIP*
Ms. Rasha Dabash, Gynuity Health Projects
Ms. Ratha Loganathan, USAID*
Mrs. Rebecca Levine, Save the Children
Dr. Richard Lowe, VSI*
Mr. Robert Clay, USAID
Dr. Rushna Ravji Aqil, USAID*
Dr. Sadaf Khan, PATH
Dr. Salahuddin Ahmed, Johns Hopkins Bloomberg School of Public Health
Ms. Shannon Michelle Bledsoe, VSI*
Ms. Shanon McNab, AMDD, Columbia University
Ms. Sheena Currie, MCHIP
Ms. Sheena Patel, Management Sciences for Health*
Ms. Steffanie Chritz, PATH
Dr. Stella Nang'endo Abwao, Save the Children
Mr. Stephen Brooke, PATH
Dr. Stephen Hodgins, MCHIP*
Ms. Suzanne Stalls, American College of Nurse-Midwives
Dr. UnJa Hayes, USAID*

Dr. Victor Samuel Pribluda, Latin America Programs Promoting the Quality of Medicines Program,
United States Pharmacopeia

Vietnam

Mr. Binh Thanh Ha
Mr. Du Huy Nguyen, UNICEF*
Ms. Hoa Thi Phuong Dinh, MOH

Yemen

Mr. Abdusalam Abdulwahab Al-Ahsab
Dr. Areej Mohammed Taher Sana'a Yemen Making Pregnancy Safer/NPO*
Dr. Ashraf Ali Zabara Sana'a Yemen*
Dr. Azal Alhomaquni Sana'a Yemen
Dr. Eman Al Kubati Sana'a Yemen DG Reproductive Health
Dr. Hoang Anh Tuan, Maternal and Child Health Dept., MOH
Dr. Jamela Al Raiby Sana'a Yemen, Ministry of Public Health and Population
Dr. Lina Yasin Mohammed Amin Sana'a Yemen
Dr. Mona Almudhwahi Sana'a Yemen Programme
Dr. Nawal Ali Baabbad Sana'a Yemen, USAID/Yemen
Dr. Nguyen Duc Vinh, Maternal and Child Health Dept., MOH
Dr. Rashad Ghaleb Sheikh Bin Shujaa Sana'a Yemen, HPTSU Ministry of Public Health and Population

Also in attendance:

Ahmed Al Kabir
Dr. Ahsanul Islam
Dr. Ajoy Sarker
Dr. Md. Al Amin Mridha
Alfa Arju
Dr. Altaf Hossain
Dr. Arefin Amal Islam
Dr. Arjun Chandra Dey
Dr. Azizul Alim
Dr. Baizid Khorshid Riaz
Dr. Begum Nasrin
Mr. Beryl Davies
Mr. Brian Armstead
Christopher McDermott
Derriennic Yann
Dr. Dilder Ahmed Khan
Ellen Themmen
Dr. Prof. Md. Ekhlaur Rahman
Dr. D.M. Emdadul Haque
Dr. Fahmida Sultana
Dr. C. Md. Farid Uddin Faruki
Farhana Afrose Jahan
Fatima Gohar
Dr. Ferdousi Begum
Gao Yan
Hasina Begum
Md. Ibrahim Khalil
Ismat Bhuiya
Issam El Adawi
Jamal Nasher
Mr. Jamie Walker
Md. Jamil Akhter
Dr. Jannatul Ferdous
Dr. Jatan Bhowmick
Dr. Javedur Rahman

Dr. Kamrul Hassan Sabuj
Kazi Moksedur Rahman
Md. Khairul Islam
Mr. Karar Zunaid Ahsan
Prof. Kohinoor Begum
Prof. Laila Arjumand Banu
Linda Quamar
Dr. Lubna Yasmin
Dr. M. Abdul Mannan
Dr. Mahbub Elahi Chowdhury
Mahin Rashid
Dr. Md. Mahbubul Haque
Mahmuda Rahman Khan
Md. Mamunul Haque
Md. Mamun ur Rashid
Dr. Manisha Banerjee
Manoj Roy
Mansur Ahmed
Michael Foley
Mofizur Rahman
Dr. A.E.M. Md. Mohiuddin Osmani
Monjur Ahmed
Dr. Morseda Chowdhury
Najim Uddin
Prof. Nasima Begum
Omar Farook
Osama Shamsuddin
Patricia Hill
Rezaul Hassan
Prof. Salma Rouf
Sanwarul Bari
Dr. Saria Tasnim
Dr. Shahida Akter
Shaila Sharmin
Dr. Shamim Jahan
Mrs. Shannon Young
Dr. Sharifun Nahar
Dr. Shehlina Ahmed
Shukhrat Rakhimdjannov
Sonia Meyer
Sonjoy Kumar Dey
Dr. Sukumar Sarker
Dr. Sufi Ahammad
Dr. Sumona Ferdous
Dr. Tabassum Parvin
Dr. Tarafdar Runa Laila
Thibaut Williams
Dr. Umme Salma Jahan Meena
Uzama Syed
Dr. Wahida Khanom
Yasmin Rahman
Yogesh Rajkotia
Md. Younus
Md. Yunus

Appendix C: Presenter/Facilitator Biographies

(Alphabetized by last name)

Dr. Stella N. Abwao specializes in pediatrics and child health and has more than 20 years' experience in clinical medicine and public health. As MCHIP's newborn health technical advisor, she supports MCHIP in several countries in Africa and also supports programs focusing on essential newborn care/postnatal care and newborn resuscitation, including Helping Babies Breathe and Kangaroo Mother Care.

Dr. Kaosar Afsana has worked at the Bangladesh Rural Advancement Committee (BRAC) in Bangladesh for about 20 years. Currently, she serves as the health director for BRAC and as a professor at the James P. Grant School of Public Health at BRAC University. She is an expert in reproductive, maternal, neonatal, and child health and nutrition and is the author of peer-reviewed journal articles and two books, *Disciplining Birth: Power, Knowledge and Child Birth Practices in Bangladesh* and *Discoursing Birthing Care: Experiences from BRAC, Bangladesh*. She is a member of many international and national organizations.

Dr. Koki Agarwal is the director of MCHIP, USAID's flagship maternal, newborn, and child health program. She has more than 25 years of service delivery experience in reproductive health and maternal and newborn health and more than 16 years' experience leading, managing, and implementing large-scale, USAID-funded global health projects in Asia, Africa, Eastern Europe, and Latin America. She served as the director of the ACCESS Program and managed the Health Services Support Project in Afghanistan. Before joining Jhpiego, she worked at The Futures Group International, where she served as the director of the Center for International Health and deputy director of the POLICY Project.

Dr. Farhana Ahmad has worked in the field of public health and empowerment for nearly 15 years. As the national coordinator of the Bangladesh chapter of the White Ribbon Alliance, she is responsible for leading the alliance in the safe motherhood movement in Bangladesh, coordinating membership, creating a strong network with government, civil society, parliamentarians, NGOs, and media and public relations organizations, and ensuring the secretariat's visibility. Previously, she was the program director for the CARE Bangladesh Women's Empowerment Unit. She has also worked with Save the Children UK on monitoring the implementation of the WHO protocol in the treatment of malnutrition in a partner hospital, as a physician in the obstetrics and gynecology unit of a large private hospital, as a coordinator for the British High Commission's Acid Burns Project, and as the course coordinator of a Dutch train-the-trainers project on hospital hygiene and infection control.

Dr. Salahuddin Ahmed is a program manager at the Johns Hopkins Bloomberg School of Public Health and Jhpiego, where he works on a USAID-funded operations research project to develop and test an integrated community-based family planning and maternal and child health care program in Sylhet, Bangladesh. He has more than 10 years of experience in designing and conducting community trials to provide evidence for maternal and child health interventions. He is the author of several scientific articles published in peer-reviewed journals and many other reports.

Dr. Tahmeed Ahmed is the head of the nutrition program and a scientist in the clinical sciences division of icddr,b.

Dr. Halida Akhter is the global technical lead for family planning/reproductive health at Management Sciences for Health (MSH) and the deputy project director of E2A, a five-year USAID-funded global project. She founded and led a reproductive health research institute (BIRPERHT) and managed a large reproductive health organization. Her key areas of research include contraceptive effectiveness, reproductive health needs and services, abortion, and assessments of maternal morbidity and mortality in Bangladesh. She served as the director-general of the Family Planning Association of Bangladesh, an affiliate of the International Planned Parenthood Federation that promotes reproductive health and

reproductive rights. She has served on numerous boards of directors and is chair of the boards of PATH and FHI and of the Dean's Alumni Council of Johns Hopkins University.

Dr. Dwirani Amelia is an Indonesian obstetrician/gynecologist with seven years of experience providing MNH and reproductive health services and leadership in high-volume hospital settings. Currently, she is the head of clinical governance and training at the Budi Kemuliaan Maternal and Child Health Hospital (RSIABK), where she facilitates the development of RSIABK's dashboard indicators and weekly dashboard meetings with team leaders. She collaborates with clinicians in all areas of RSIABK to offer routine clinical updates for staff. She also coordinates and facilitates BEmONC and CEmONC clinical skills training for pre-service and in-service training.

Dr. Ravi Anand has worked in the field of obstetrics and gynecology for the last 35 years, in both the public and private sectors. She has experience in reproductive and child health (RCH), including family planning, both as a clinical provider and as a champion for capacity-building and quality assurance for family planning and RCH projects in India. Before joining Jhpiego, she worked with CEDPA as the senior advisor for reproductive health and with Abt Associates as director of capacity-building and quality assurance, providing technical leadership to the DiMPA program.

Deborah Armbruster is a senior maternal and newborn health advisor at USAID/Washington. A nurse-midwife and fellow of the American College of Nurse-Midwives (ACNM), she joined USAID after serving as director of PATH's Oxytocin Initiative and of the Prevention of Postpartum Hemorrhage Initiative (POPHI). She is a founding member of the White Ribbon Alliance for Safe Motherhood and has more than 25 years' experience in safe motherhood and reproductive health programs in more than 15 countries. She was involved in the development of the Home-Based Life-Saving Skills program for ACNM and serves as a peer reviewer for ACNM's *Journal of Midwifery and Women's Health*.

Fauzia Assad, Jhpiego

Dr. Narimah Awin is the regional advisor for maternal and reproductive health at WHO/SEARO in New Delhi. Previously, she worked in a similar position for the Western Pacific Region in Manila. She also served as the director of family health and primary health care in the ministry of health of Malaysia. She presented more than 200 papers while serving the government of Malaysia, and 145 of these have been compiled into a book, *Public Health: A Multi-Faceted Discipline in Medicine*.

Pashtoon Azfar is the ICM regional midwife advisor for Asia. Previously, she served in a number of roles in midwifery education in Afghanistan, including director of the Institute of Health Sciences and the IHS System, and as a midwifery technical advisor, strategic director, and educator. She was the first president of the AMA when it was founded in 2005, and was reelected to the position in 2008. She has been actively involved in scholarly activities related to midwifery and maternal, newborn, and reproductive health.

Md. Baharuddin, Budi Kemuliaan Hospital, Jakarta

Dr. Rajiv Bahl is a pediatrician with a doctorate in epidemiology and extensive research experience in newborn and child health. He is the lead specialist for newborn health in WHO's Department of Maternal, Newborn, Child and Adolescent Health. He coordinates several research projects in Asia and sub-Saharan Africa and is responsible for development of WHO's guidelines in newborn health care.

Dr. Wame Baravilala is a Reproductive Health Adviser for UNFPA, based at the Pacific Sub Regional Office in Suva, Fiji. He is part of a team of advisors and analysts who serve 15 island countries in the Western Pacific Ocean. Wame is a medical graduate of Otago University, Dunedin, New Zealand and completed his ob/gyn specialist training in Scotland and England. He has a background in clinical obstetrics/gynecology and undergraduate and postgraduate medical education, and has served on the Pacific Committee of the New Zealand Health Research Council. Wame was the first chairperson and later the Secretary-General of the Pacific Society for Reproductive Health.

Dr. Linda Bartlett is a medical doctor and epidemiologist with more than 25 years' experience in clinical and public health practice, maternal and perinatal health epidemiology, and program implementation in developed and developing country settings, including refugee and conflict/post-conflict settings. She has worked at Health Canada, the U.S. Centers for Disease Control and Prevention (CDC), and UNICEF, and she is currently on the faculty at the Johns Hopkins University Bloomberg School of Public Health.

Dr. Neeta Bhatnagar is the senior advisor for clinical services and training for Uttarakhand, India. She is an obstetrician/gynecologist with 34 years of experience in the field of maternal and child health and family planning. She has worked in the government sector for 23 years, and for the last 12 years she has provided technical assistance to improve and save the lives of women and children. Her work focuses on improving the quality of skilled attendance at birth and strengthening health systems.

Steve Brooke is a senior advisor for commercialization and corporate partnerships in PATH's Technology Solutions (TS) Global Program, where he plays a lead role in public/private product development collaborations, product commercialization strategies, and intellectual property management. He provides strategic input on numerous project teams, leads multiple teams centered on innovative pharmaceutical delivery and packaging systems, and serves as the senior problem-solving resource for commercialization staff in the TS Global Program.

Amy Boldosser is the director of global advocacy at Family Care International (FCI). She is responsible for designing and implementing advocacy strategies to generate increased political and financial commitments for RMNCH from the U.S. government, other national governments, and the United Nations. She also assists FCI's regional programs in implementing national and regional advocacy strategies to promote integration of RMNCH programs with HIV, tuberculosis, and malaria services. She has extensive experience in both global and domestic health policy advocacy with a particular focus on the health and rights of women and adolescents. Before joining FCI, she worked with the National Institute for Reproductive Health, the New York City Department of Health, the International Organization for Adolescents, and the Rockefeller Foundation.

James BonTempo is an information and communication technology (ICT) expert with more than 15 years of experience in both the nonprofit and commercial sectors. For the last seven years at Jhpiego, he has provided technical leadership on diverse projects in areas such as education and training, monitoring and evaluation, service delivery, and behavior change communication. He has managed and led the development of national, regional, facility, and client-level information systems and has worked to build ICT capacity within Jhpiego and its external beneficiary communities.

John Borrazzo is the chief of the maternal and child health division of USAID's Bureau for Global Health. Before assuming that position in January 2008, he worked for 10 years on the USAID Global Health Bureau's efforts on water supply, sanitation, and hygiene.

Hillary Bracken is a director at Gynuity Health Projects, where she conducts research on medical abortion, pre-eclampsia, and incomplete abortion. Before joining Gynuity, she was a staff program associate at the Population Council, where she was involved with clinical studies of mifepristone medical abortion and social science research related to abortion.

Sue Bree is a self-employed midwife in a rural community in New Zealand. She is a past president of the New Zealand College of Midwives and was a member of the inaugural Midwifery Council of New Zealand, and she continues to represent midwives on several national maternity committees. She has been a board member of ICM for the past year, representing the Asia-Pacific region.

Sheena Currie, a British midwife educator and maternal and newborn health expert, has worked extensively in low-resource settings, providing technical guidance in the development, management, and evaluation of maternal and newborn health programs. After working for more than 20 years in the area of midwifery education, she recently joined MCHIP, where she provides technical and program support with an emphasis on prevention,

identification, and treatment of pre-eclampsia/eclampsia and postpartum hemorrhage, and support for skilled birth attendants, especially midwives.

Rasha Dabash is a director at Gynuity Health Projects, where she manages Gynuity's research and technical assistance portfolio for the Middle East and North Africa region. In this capacity, she is responsible for the development, implementation, and dissemination of research for several of Gynuity's technical programs, including clinical and operational research on the use of misoprostol in the management of PPH, PAC, and medical abortion. Before joining Gynuity in 2003, she was a senior research and evaluation associate at EngenderHealth. She also served as a staff program associate for the Population Council's Expanding Contraceptive Choice Program.

Dr. Blami Dao is an obstetrician/gynecologist who trained at the University of Dakar in Senegal and has 15 years of field experience. Before joining Jhpiego in December 2010, he was the vice dean of the School of Medicine at the Polytechnic University of Bobo Dioulasso and head of the Department of Obstetrics and Gynecology at Souro Sanou University Teaching Hospital in Burkina Faso. Ten years ago his hospital was the first in francophone Africa to introduce AMTSL. He has collaborated extensively with Gynuity Health Projects on research for various indications of misoprostol (incomplete abortion and PPH) and has led training on EmONC in francophone Africa.

Nitya Nand Deepak has more than 10 years of experience in operational research, program, and communication initiatives with national and international organizations in the areas of maternal health, HIV/AIDS, family planning, and gender in India. He is experienced in working with technical, management, and executive teams in study design, project implementation, training, and monitoring and evaluation.

Dr. Joseph de Graft-Johnson has worked in international public health for more than 25 years in Africa, the Caribbean, and Asia. He currently serves as the newborn team leader for MCHIP. He has collaborated with colleagues to introduce and expand Kangaroo Mother Care for low birth weight babies in more than eight countries in sub-Saharan Africa and Asia, and he continues to be a strong advocate for this intervention.

Dr. Farhana Dewan is a professor of obstetrics and gynecology at the Shaheed Wuhrawardy Medical College Hospital in Dhaka, Bangladesh, and a member of the Obstetrical and Gynaecological Society of Bangladesh. She has published more than 40 national and international publications and is a master trainer in EmONC, competency-based training, skilled birth attendance, evidence-based training, and HIV/AIDS training.

Dr. Kim Eva Dickson is a public health physician and senior advisor for maternal and newborn health at UNICEF. Her experience includes more than 20 years in clinical medicine, maternal and child health, HIV, and sexual and reproductive health, as well as research, policy development, and public health program management. Before joining UNICEF, she was a senior advisor for the Ending Mother to Child Transmission of HIV/AIDS plan in WHO's HIV department. She was responsible for coordinating WHO's contributions to the global plan for the elimination of new HIV infections among children and keeping their mothers alive.

Dr. Shams El Arifeen is an epidemiologist and head of the child health unit of icddr,b. He is the principal investigator on a number of projects in different parts of Bangladesh. In addition, he is an adjunct associate professor at the BRAC School of Public Health, where he coordinates the course on epidemiology.

Dr. Cherrie Evans is a senior maternal health technical advisor at Jhpiego. Her work has focused on evaluating the efficacy of strategies to promote maternal survival in developing countries—most recently, the Bleeding after Birth training package. She is a midwife and has practiced in the United States in a variety of settings, including pre-service midwifery and medical training.

Dr. Tim Evans is the dean of the James P. Grant School of Public Health at BRAC University in Bangladesh. He has written numerous journal articles, chapters, and books on topics in global health and development, with a particular focus on health equity, health

systems, and health research policy. He is currently a commissioner on the Commission on Health Professional Leadership in the 21st Century and a member of the Board of the Public Health Foundation of India, and he serves as a scientific advisor to the Institute of Population and Public Health of the Canadian Institutes for Health Research. He previously served as chair of the board of trustees of icddr,b and as a member of the board of BRAC.

Dr. Abu Jamil Faisal is the country representative for EngenderHealth in Bangladesh. He is a public health physician with more than 33 years of diverse experience in family planning, reproductive health, delivery of Bangladesh's Essential Services Package, and improving the quality of services in Bangladesh, including nine years as a clinical service provider and trainer and five years of work on clinical trials and the introduction of new FP methods in the national program.

Dr. Tabassum Firoz works on pre-eclampsia, particularly at the global level. She is currently working on maternal mortality and morbidity surveillance for community-level management of pre-eclampsia in low- and middle-income countries. The work is part of the Pre-eclampsia/Eclampsia Monitoring, Prevention and Treatment (PRE-EMPT) Initiative supported by the Bill & Melinda Gates Foundation.

Tor Inge Garvik is the product development manager at Laerdal Global Health. Before joining Laerdal he participated in the establishment of Design without Borders, a program led by the Norwegian Centre for Design and Architecture that integrates the creative and analytical skills of designers to solve challenges in low-resource settings. He was also part of the Design for Sustainability section at the University of Delft (Holland), co-writing the *Ecodesign Manual for Central America* (1999). He holds a master's degree in industrial design engineering.

Mr. Peter Hall is the CEO of the Concept Foundation. He has worked with the World Health Organization in Egypt, Iran, and Switzerland. He was responsible for research and development of long-acting hormonal contraceptive methods and for advising and assisting governments on increasing contraceptive options and addressing other reproductive health issues by identifying and implementing policies, programs, and research. From 1998 until 2002, he led a London-based NGO, Reproductive Health Alliance. He then returned to Switzerland where he provided technical support to WHO and UNFPA, undertook assignments for many international NGOs and donor agencies, and worked with the Concept Foundation, based in Bangkok, on making high-quality maternal health pharmaceutical products available and affordable for women in developing countries.

Dinh Thi Phuong Hoa, MOH/Vietnam

Dr. Steve Hodgins oversees MCHIP's technical teams, focusing on the program's global technical leadership mandate to ensure that the program contributes optimally to advancing global best practices in maternal, newborn, and child health. His technical expertise cuts across MCHIP's areas of work and includes a focus both on practical implementation issues and on applied research. Previously, Mr. Hodgins worked in public health in northern India for two years, in the Canadian Arctic for five years, in Zambia for three years, and in Nepal for six years.

Dr. Nuriye Hodoglugil is the associate medical director at Venture Strategies Innovations. She is trained in medicine, anthropology, and public health, and has many years of experience working internationally on improving women's reproductive health. She worked as a service provider, reproductive health trainer, program director, and researcher in the areas of family planning, sexually transmitted diseases, HIV prevention, women's reproductive rights, and safe motherhood. In her current position, she provides leadership and technical expertise for 14 country programs across Africa and Asia.

Dr. Justus Hofmeyr is an obstetrician and head of the Department of Obstetrics and Gynecology at the East London Hospital Complex, Eastern Cape Department of Health, in South Africa. He is also director of the Effective Care Research Unit at the Universities of the Witwatersrand and Fort Hare. He has published nearly 300 peer-reviewed articles, 25 textbook chapters, and nine audiovisual teaching programs. He is co-editor of the Cochrane

Pregnancy and Childbirth Group and the WHO Reproductive Health Library. His research focuses on the major causes of maternal death in low-resource settings.

Dr. Sharif Hossain is a senior program officer at the Population Council's Bangladesh office, where he designs, implements, supervises, monitors, and evaluates operations research programs. He is a medical graduate with a specialization in public health, and his areas of expertise include qualitative and quantitative research on reproductive and sexual health, sexually transmitted infections, HIV and AIDS, family planning, blood banking, gender-based violence, capacity building on operations research, and diarrheal diseases. Before joining the Population Council, he worked as a clinical fellow for the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). He has been involved in operations research for 16 years.

Ms. Ellen Israel is a clinical nurse-midwife with extensive experience in private practice and with inner-city populations of adolescents and immigrant women in the U.S., as well as in international reproductive health. She has worked in all areas of reproductive health, but her experience and interests have emphasized HIV, abortion and postabortion care, safe motherhood, quality improvement in both facility- and community-based services and programs, and community change and empowerment. Ms. Israel's safe motherhood experience includes technical backstopping of the India portion of the MacArthur-funded Continuum of Care for Prevention of PPH project in India and Nigeria, as well as training and support of safe motherhood and reproductive health trainers in Vietnam. She has also worked in the women's empowerment and gender equity components of integrated programs.

Syed Abu Jafar, DGHS, MOH&FW

Dr. Kanta Jamil, USAID

Kristy Kade is the family health advocacy officer at PATH, where she works to increase global and country advocacy efforts related to improving the policy environment for family health. Prior to joining PATH, she served as the associate director of advocacy and public policy at Pathfinder International and previously served as health professions organizer with the Abortion Access Project and program associate for the Harvard School of Public Health's Division of Public Health Practice. She also consulted on reproductive health policy with the reproductive health division of the Thai Ministry of Public Health.

Dr. Lily Kak is the senior advisor for global partnerships and newborn health at USAID's Bureau for Global Health. She represents the maternal and health child team in various global partnerships and has led the development of USAID's global development alliances with the private sector to reduce newborn mortality. She provides technical support to the USAID Missions in Asia and Africa in the development, strengthening, and evaluation of their maternal, newborn, and child health strategies and programs. She is a core team member of Saving Mothers, Giving Life, the partnership between the private sector and the governments of the United States and Norway to reduce maternal mortality. Before joining USAID, she was the lead country advisor for the Global Health Initiative in Bangladesh.

His Excellency Koum Kanal is an advisor for the Ministry of Health of Cambodia. Previously, he served as director of the ministry's National Maternal and Child Health Center (NMCHC), chair of the Immunization Coordination Sub-Committee, actual vice chair of the Task Force for RMNCH, member of Technical Working Group for Health, and chair of the Cambodia Society of Gynecology-Obstetric.

Dr. Raj Karim is the vice president of the Malaysian Council of Child Welfare and serves as a consultant to Women Deliver. Her previous positions included director of the Public Health Institute of the Ministry of Health of Malaysia, director general of the National Population and Family Development Board, regional director of the International Planned Parenthood Federation, and commissioner of the National Human Rights Commission of Malaysia. She has received several coveted awards from the Malaysian government and was the chairperson of the United Nations 31st Commission Session on Population and Development.

Dr. Neena Khadka, a clinician, perinatal health specialist, and public health pediatrician, has 25 years' experience in maternal, neonatal, and child health. In her current role she oversees the entire portfolio of Save the Children's engagement in Nepal.

Dr. Sadaf Khan is a senior maternal, newborn, and child health specialist at PATH. In this capacity she provides technical leadership and support to a range of MCH and reproductive health research and program activities. She has previously served as faculty of community medicine, Ziauddin Medical University Karachi, Pakistan. Her research interests include improving maternal and perinatal outcomes in low-resource settings, scaling up of health technologies for maternal and newborn health, gender and health, and repositioning family planning.

Paul LaBarre has more than 20 years' experience leading multidisciplinary teams and more than 15 years' experience developing medical technologies. He currently leads a portfolio of projects within PATH's Technology Solutions program, including the Merck for Mothers collaboration.

Ingrid Laerdal is an assisting managing director at Laerdal Global Health.

Geeta Lal is the global midwifery program coordinator with the United Nations Population Fund. She also oversees the joint UNFPA/ICM Investing in Midwifery program and the recently launched global program with Intel on pre-service and in-service training of frontline health care workers. She has more than 15 years of social development experience in a range of population, sexual and reproductive health, and development issues, particularly in the Asia and Pacific region.

Dr. Kamlesh Lalchandani is a public health and nutrition specialist with a medical degree in community medicine and seven years of experience. He has worked with government, UNICEF, and MCHIP in technical areas related to maternal and child health.

Dr. André Lalonde is chair of the Maternal Newborn Health Committee of the International Federation of Gynecology and Obstetrics (FIGO), which is responsible for the development and monitoring of FIGO Save the Mothers programs in 10 countries. He has expertise in the implementation of safe motherhood programs, reduction of maternal mortality and morbidity programs and audits, management of clinical services in hospitals, risk management, sexual and reproductive health, and partnership programs in low-resource countries.

Dr. Ana Langer is the director of the Women and Health Initiative and a professor in the Department of Global Health and Population at the Harvard School of Public Health. She is a physician who specializes in pediatrics and neonatology, and is a reproductive health expert, public health researcher, and advocate for women's reproductive health and rights. She was the president and CEO of EngenderHealth from 2005 until 2010.

Alice Levisay is the senior advisor for maternal and newborn health at PATH. She has nearly 25 years of experience working in global health and more than 20 years of experience in developing countries. At PATH she provides strategic and technical guidance for maternal and newborn health programs, leads and manages the Oxytocin Initiative Project funded by the Bill & Melinda Gates Foundation, and acts as a PPH advisor for the Merck for Mothers Project. Before joining PATH, she worked with UNFPA as their representative to Cambodia, with HLSP as their regional representative for Asia, with WHO as an advisor to the Ministry of Health of Cambodia at both the national and the provincial levels, and with the International Rescue Committee, PCI, and the Centers for Disease Control and Prevention.

Esther Lwanga is a health research advisor in USAID's Bureau of Global Health, where she manages maternal, neonatal, and child health research activities and provides strategic guidance and technical assistance on research priorities, research design and implementation, and the adaptation of research findings into field programs. Previously, she was a program specialist at the National Institutes of Health and a community development manager for the Maryland and Delaware State Primary Care Association, where she developed and managed projects aimed at increasing health care access for uninsured and underserved populations.

Manisha Malhotra is the deputy commissioner for maternal health at the Ministry of Health and Family Welfare (MOHFW) in India, a position she has held since 2005. Her responsibilities have included policy, planning, implementation, and monitoring of maternal health strategies under the National Rural Health Mission/Reproductive and Child Health Program. Before joining the MOHFW, she served for 13 years as chief medical officer for India's Central Government Health Scheme.

Dr. Leslie Mancuso is the president and CEO of Jhpiego. She is a nurse by training and a recognized international business leader with 25 years of experience, overseeing Jhpiego's longstanding relationships with international agencies, foreign governments and ministries of health, nursing, midwifery and medical schools, and local NGOs. She was appointed as Jhpiego's President and CEO following a 13-year career with Project HOPE, where she served as chief operating officer and then as acting CEO.

Imteaz Mannan has more than 11 years' experience in the fields of communication, behavior change, and advocacy, and has worked in both Bangladesh and Afghanistan supporting maternal and newborn health programs. He is currently working for the USAID-supported MaMoni project as a program advisor for advocacy and system strengthening.

Dr. Ishtiaq Mannan is a public health specialist who has worked for the past 18 years in reproductive health, maternal and child health research, and service delivery programs for a number of organizations. In Bangladesh, his experience includes work on urban reproductive health program planning, management, partnership building, operations research, and evaluation of national programs. He was involved in the supervision and management of South-South RH leadership-building projects in India, Malaysia, Kenya, Ethiopia, Sudan, Egypt, and Nigeria. He is the co-author of 23 research articles in peer-reviewed journals.

Dr. Nahed Matta is a senior maternal and newborn health advisor with USAID and the agreement officer's technical representative for MCHIP.

Dr. Goldy Mazia is a pediatrician who was trained in neonatology in Colombia and Israel and has more than 25 years of clinical experience. She has been managing newborn health international programs in Latin America, the Caribbean, and Africa for nine years and has also contributed to global newborn health activities.

Khadijat L. Mojidi is the director for population health, nutrition, and education and global health and the global health field deputy for the USAID/Bangladesh office. With more than 25 years of international public health experience, including six years with the World Bank, she has managed multimillion dollar health projects across Africa, the Caribbean, and Asia. In Bangladesh she is responsible for managing a five-year, \$300 million health program and for helping the government scale up important evidence-based MNCH interventions to address PPH, eclampsia, birth asphyxia, and umbilical cord infections.

Dr. Luke C. Mullany is an associate professor in the Department of International Health at the Johns Hopkins Bloomberg School of Public Health. His research aims to increase infant and neonatal survival in low-resource settings through the development of effective, low-cost interventions that can be implemented at the community level. His current activities include investigation of topical umbilical cord cleansing with chlorhexidine; bacterial colonization of the cord and association with omphalitis (Bangladesh); prevalence, timing, and risk factors for newborn hypothermia (Nepal); development of sign-based algorithms for newborn skin and umbilical cord infections (Bangladesh, Nepal, Tanzania); and examination of the role of community-based health workers in improving maternal and neonatal outcomes (Burma, Nepal).

Dr. Quamrun Nahar is an associate scientist in the Center for Population, Urbanization and Climate Change at the icddr,b, where he has worked for more than 20 years. He is a physician by training with a master's degree in public health and a doctorate in sociology. His area of interest is reproductive health, particularly adolescent reproductive health and maternal health.

Dr. Ellen Nelissen is a medical doctor who specializes in tropical medicine and international health. She has worked in Tanzania as a medical officer and is currently working as a doctoral student on the evaluation of Helping Mothers Survive and MamaNatalie in Tanzania.

Ida Neuman

Dr. Naresh Pratap KC is the director of the Family Health Division of Nepal's Ministry of Health and Population. He has more than 27 years of experience working at various levels of government in Nepal. He is actively involved in training, social mobilization, implementation, supervision, monitoring and evaluation, tuberculosis control, HIV/AIDS, safe motherhood, and family planning. As the director of the Family Health Division, he has been instrumental in scaling up community-based interventions.

Dr. Victor Pribluda is the manager of Latin American programs for the Promoting the Quality of Medicines Program at United States Pharmacopeia (USP). He directs activities designed to help strengthen the quality assurance and quality systems for pharmaceuticals and combat the distribution of substandard and counterfeit medicines in 10 countries in Latin America and the Caribbean. Before joining USP he worked at the National Institutes of Health and was a scientist and vice-president of research and development at EntreMed. He has published more than 25 articles in peer-reviewed scientific journals.

Dr. Ananya Raihan, an Ashoka Fellow, is the executive director of D.Net, a social enterprise for promoting access to information and knowledge for all citizens through interactive digital media. He is also the chief technical advisor for the Mobile Alliance for Maternal Action (MAMA) in Bangladesh and is a member of the editorial board for the *Journal for Community Informatics*.

Dr. Akhtar Rashid is a dynamic and innovative public health specialist working as the provincial coordinator for the National Program for Family Planning & Primary Health Care, Punjab, Pakistan. He has broad experience in public health, hospital administration, community-based health programs, and preventive programs, and has worked at various administrative posts in government departments and hospitals. In addition, he has worked with international NGOs, serving as provincial manager for Save the Children and the PAIMAN project.

Barbara Rawlins is a public health professional with more than 15 years of experience in operations research and monitoring and evaluation of maternal and newborn health, family planning/reproductive health, environmental education/communication, and population-environment programs. She works at Jhpiego as the monitoring and evaluation team leader for MCHIP.

Dr. Laura Reichenbach is a social scientist and director of the Center for Reproductive Health at icddr,b. Her research addresses a range of reproductive and maternal health issues, including family planning, sexually transmitted infections, maternal health, HPV, and cervical cancer. Previously she was a research scientist at the Harvard Center for Population and Development Studies and a teacher at the Harvard School of Public Health. She is principal and cofounder of Global Health Insights, LLC.

Dr. Ubaidur Rob is the country director for Bangladesh for the Population Council. For the past 30 years his work has focused on collaborating with Asian governments to use research findings to shape population and health policies at the national and regional levels. He has managed, developed, and implemented operations research projects in family planning/reproductive health in Bangladesh, Pakistan, and other countries, and has worked with program managers, policymakers, and other key decision-makers to analyze and disseminate research results and best practices. He has published numerous articles and edited books on reproductive health, population planning, and population policy.

Dr. Sayed Rubayet is a project manager for Helping Babies Breathe and the Saving Newborn Lives program for Save the Children in Bangladesh. He coordinates the national scale-up of Helping Babies Breathe initiatives in the country. He is a public health

professional with 14 years of experience in newborn and child health, immunization, disease surveillance, and health system strengthening.

Dr. Harshad Sanghvi is the vice president and medical director for Jhpiego and a senior associate at the Bloomberg School of Public Health at Johns Hopkins University. He has worked in 45 countries. For the last 15 years he has led the global effort to expand emergency obstetric care and seek solutions for preventing PPH, pre-eclampsia, and cervical cancer in low-resource settings. He is currently engaged in developing faster, cheaper, and more efficient technologies to address global health challenges. In 2009 he was recipient of the Global Health Council's best practices award for his work in PPH.

Dr. Mohammad Shahidullah is a professor and the chairman of the Department of Neonatology at Bangabandhu Sheikh Mujib Medical University (BSMMU). He was appointed pro-vice chancellor of BSMMU in March 2009. He is the president of the Bangladesh Neonatal Forum, vice president of the Bangladesh Perinatal Society, secretary general of the Child Health Foundation, Bangladesh, executive committee member of Bangladesh Paediatric Association, and president-elect of the Federation of Asia-Oceania Perinatal Society. He has published 28 articles in national and international journals, mostly related to neonatal health issues.

Dr. Latifa Shamsuddin is the president-elect of the Obstetrical and Gynaecological Society of Bangladesh. She has worked for 40 years in obstetrics and gynecology as a teacher and clinician in different medical colleges and universities. She is the pioneer of the introduction of magnesium sulfate to control and prevent eclampsia in Bangladesh, and she also introduced a visual inspection with acetic acid screening program for cervical cancer in Bangladesh.

Dr. Jeffrey Smith is an obstetrician-gynecologist and public health practitioner with 20 years of clinical and public health experience in developing countries. He works for Jhpiego and is the maternal health team leader for MCHIP, based in Washington, DC. He recently spent 10 years working for Jhpiego in Nepal, Afghanistan, and Thailand.

Dr. João Paulo Souza is an obstetrician with a doctorate in maternal health who specializes in maternal intensive care. Since 2008 he has been a medical officer at the World Health Organization in the Department of Reproductive Health and Research. Before joining WHO, he served as a researcher and physician at the University of Campinas, Brazil. At WHO, he conducts research projects, develops global guidelines in the area of maternal and perinatal health, and provides technical guidance for the development of health policies at the country level. He also functions as associate editor of the WHO Reproductive Health Library.

Suzanne Stalls has worked throughout the world for the past 25 years in the fields of reproductive health; program design, implementation and management; community development and technical assistance; and education and training. She has maintained an active midwifery clinical practice, working at birth centers, homes, and hospitals. In 2011 she was inducted as a fellow of the American College of Nurse-Midwives.

Dr. Cynthia Stanton is an associate professor in the Department of Population, Family and Reproductive Health at the Johns Hopkins Bloomberg School of Public Health, where she works on survey and census-based measurement and model-based estimation of maternal mortality and stillbirth in low-income countries. Most recently, her work has combined population and health facility-based data to assess the safety of expanding oxytocin coverage for the prevention of postpartum hemorrhage, assess the potency of uterotonic drugs, evaluate estimates of obstetric fistula, develop an expanded list of cesarean-birth-related indicators for use in routine health information systems, validate women's self-report of intrapartum care, and document facility-based practices regarding induction and augmentation of labor.

Mary Ellen Stanton is a senior maternal health advisor at USAID, where she guides the Global Health Bureau's maternal health portfolio, including research and implementation of country programs. She has decades of experience in clinical nursing and midwifery, nurse-midwifery education, international maternal and newborn health, and international

development. She collaborates with national governments, bilateral donors, UN agencies, other departments and agencies of the U.S. government, academic institutions, professional associations, and NGOs.

Peter Kim Streatfield is the head of health and demographic surveillance at icddr,b.

Stephanie Suhowatsky has worked in Nepal on FP/MNCH programs for more than 10 years. She helped develop the PPH and PE/E toolkits for MCHIP.

Dr. Sharmina Sultana has worked as a project management specialist in the Office of Population, Health, Nutrition and Education at USAID Bangladesh for two years and in the public health sector for 10 years. Previously, she worked at Save the Children as the deputy program manager for maternal and neonatal health in the USAID-funded ACCESS/MaMoni Project. She is a medical graduate with a master's degree in business administration in development economics.

Catharine Taylor directs PATH's activities in maternal health, child health, and nutrition. She has 25 years of experience in international and domestic sexual and reproductive health, with a focus on maternal and newborn health and programming for youth. Before joining PATH in 2008, she worked as the lead specialist for maternal health and as the program manager for multisectoral programs for HIV/AIDS in South Africa with HLSP. Previously, she served as an expert in civil society organizations for a large European Union-funded reproductive health program in Turkey, as the Asia regional advisor for Plan International, and as the technical training advisor for the Nepal Safe Motherhood Project.

Dr. Kusum Thapa is a regional technical advisor for Asia and the Near East at Jhpiego. She is an obstetrician and gynecologist with more than 25 years' experience. She is a fellow of the Royal College of Obstetricians and Gynecologists in the UK and also holds a master's degree in public health.

Sabera Turkmani is the president of the Afghan Midwives Association. She has experience in performance and quality improvement in midwifery education and clinical site strengthening. She has worked in Afghanistan as a midwifery trainer with IMC, as a midwifery program officer and technical advisor with Jhpiego, and as a consultant for quality improvement for MCHIP in Bangladesh. Currently she is a technical manager with JHU and a consultant for Jhpiego in Afghanistan.

Dr. Shyam Raj Upreti is the director of the Child Health Division of Nepal's Ministry of Health and Population. He is responsible for three national programs: immunization; IMCI, including newborn care; and nutrition. He has worked as an international monitor in a measles catch-up campaign in Indonesia and an encephalitis campaign in India, and as a temporary international professional (TIP) in WHO SEARO to support a measles catch-up campaign in the state of Chhattisgarh in India.

Charlotte Warren is one of the Population Council's lead social scientists. She has worked in ten African countries over 17 years, building the skills of policymakers and program managers to address critical public health issues. She co-developed the community midwifery approach in Kenya as an additional strategy to increase skilled attendance at birth. Her other key areas of research include developing a comprehensive package of postnatal care, assessing the benefits of integrated HIV and sexual and reproductive health services, evaluating voucher and accreditation interventions for reproductive health, and promoting respectful maternity care in Kenya.

Rachel Wilson is the senior director of policy and advocacy at PATH, where she is responsible for the development, management, and evaluation of PATH's public policy and advocacy initiatives. With nearly 20 years of experience in public health policy, research, and communications, she most recently served as director of policy communications at the Global Health Council. She has held numerous public policy leadership roles in women's health, health disparities, and infectious diseases.

Sita Shankar Wunnava is the director of maternal, child health, and nutrition for PATH India. She has more than 25 years of experience in international health programs, including community-based HIV/AIDS prevention programs and adolescent reproductive health

projects in India. Before joining PATH, Ms. Shankar worked for the India office of Pathfinder International, where she served as the deputy country representative and led the Promoting Change in Reproductive Behavior in Bihar (PRACHAR) project.

Beth Yeager is a principal technical advisor for Management Sciences for Health's Center for Pharmaceutical Management (CPM). At CPM, her area of expertise is the maternal and child health sector of the USAID-funded Systems for Improved Access to Pharmaceutical and Services (SIAPS) program. She manages the SIAPS maternal and child care core portfolio, which includes personnel and activities such as collaborative efforts with international agencies and other USAID implementing partners, and field programs aimed at strengthening pharmaceutical management systems for maternal and child health medicines and supplies. Previously, she was a senior program associate for the Rational Pharmaceutical Management Plus and Strengthening Pharmaceutical Systems programs. Before joining MSH, Ms. Yeager lived in Peru, where she worked on maternal and child health and nutrition research activities, including community-based intervention trials to improve infant feeding practices, maternal nutrition, and rational use of medicines for child illness.

Appendix D: Guidance on Implementing Effective Programs to Prevent Pre-Eclampsia and Anemia to Improve Maternal and Newborn Outcomes

SPECIAL TECHNICAL SESSION AT ASIA REGIONAL MEETING (MAY 3, 2012)

Editors: Ms. Rae Galloway and Dr. Justine Kavle, Nutrition Team, MCHIP

All presentations can be found on the conference Scribd page at:
<http://www.scribd.com/Dhaka2012>.

Based on strong evidence that calcium supplements prevent pre-eclampsia, particularly in women at risk for pre-eclampsia, WHO recommends 1.5–2 g calcium daily for all pregnant women in areas where calcium intake is low (2012).

In response to WHO’s 2012 recommendations on calcium supplementation, Mary Ellen Stanton—Senior Maternal Health Advisor to USAID’s Global Health Bureau (Washington D.C.)—suggested that MCHIP organize a day-long meeting to discuss calcium supplementation and anemia control interventions preceding the MCHIP-hosted Asia Regional Meeting in Dhaka: “Interventions for Impact in Essential Obstetric and Newborn Care.” USAID requested that the meeting focus on giving guidance on: (1) improving existing anemia control programs, and (2) how and when to introduce calcium supplementation to prevent pre-eclampsia. **This appendix provides a summary of that meeting, a special technical session held before the Opening Ceremony on May 3, 2012.**

Part 1, the morning of the special session, included two panels—*Panel 1: Calcium and Anemia: Prevalence, Burden of Disease and Programmatic Considerations*; and *Panel 2: Making Anemia Control Programs Effective: What Have We Learned? How Anemia Control Can Inform Calcium Supplementation?* In the afternoon, Part 2, participants broke into four groups to discuss the components of the generic scale-up map for maternal anemia prevention and control and the steps needed to introduce calcium supplementation. At the end of this appendix is the agenda for this special session, which had 112 registered participants (see special annotation [*] in Appendix B: Meeting Participant List) representing or residing in 16 countries.



Participants at special session on nutritional issues study a schematic diagram to aid in making implementation decisions for an integrated anemia control program.

BACKGROUND

Evidence suggests that iron-folic acid (IFA) supplementation and calcium supplementation are two high-impact interventions that can reduce maternal anemia and pre-eclampsia, two major causes of maternal mortality.

The *Lancet Maternal and Child Undernutrition* series⁹ estimates that iron deficiency increases the risk of maternal death from obstetric complications and is responsible for 115,000 maternal deaths worldwide. WHO recommends that women take IFA supplements in pregnancy to prevent anemia.² An integrated package that addresses all causes of anemia, including malaria and helminth infections, has been recommended by WHO and others.^{10,11} In addition to its effect on reducing maternal mortality, controlling iron deficiency anemia may have a significant effect on newborn and child mortality.¹² Recent WHO recommendations for calcium supplementation during pregnancy are based on a review of scientific evidence for interventions to prevent and treat pre-eclampsia and eclampsia¹³, which together are responsible for 18% of maternal mortality. **The recommendation of 1.5–2 g calcium daily for all pregnant women in areas where calcium intake is low is based on strong evidence that calcium supplements prevent pre-eclampsia, particularly in women at risk for pre-eclampsia.**

OPENING REMARKS

Opening remarks by Ms. Rae Galloway, Nutrition Team, MCHIP, acknowledged the contributions of organizers including MCHIP partners: Alive and Thrive, Micronutrient Initiative (MI), and SPRING. Mary Ellen Stanton—Senior Maternal Health Advisor to USAID’s Global Health Bureau in Washington, D.C.—opened the meeting with the question “What makes a difference to saving the lives of mothers and children?” The consequences of anemia are recognized but not appreciated enough, she said, and nutrition does not get the attention it deserves from the maternal health community—but instead is “siloeed” in many organizations. More intensity is needed in tackling the problem of maternal anemia through ensuring that a package of interventions, tailored to the country-setting, is used in addressing not only iron deficiency but other causes of anemia including malaria and hookworm (a type of helminth). Advocacy is a key component of anemia control. Ms. Stanton relayed the example of fistula, which gained attention through personal stories from women about how their lives were adversely affected by fistula. Similarly, stories about the consequences of anemia and pre-eclampsia could garner attention and funding to scale up the interventions to prevent and treat them.

“As countries introduce calcium supplementation, they can learn from and build on successful experiences in implementing existing anemia prevention and control programs.”

—Mary Ellen Stanton

Ms. Stanton recognized that anemia prevention and control and calcium supplementation are delivered through ANC. As countries introduce calcium supplementation, they can learn from and build on successful experiences in implementing existing anemia prevention and control programs, particularly IFA supplementation.

While there is general agreement that calcium intake is low in some developing countries, which may warrant giving calcium to pregnant women where calcium intakes are low, Ms.

⁹ Black RE, Allen LH, Bhutta ZA, Caulfield LE et al., for the Maternal and Child Undernutrition Study Group. 2008. Maternal and child undernutrition: Global and regional exposure and health consequences. *Lancet* 371(9608): 243–260.

¹⁰ Stoltzfus RJ and Dreyfuss ML. 1998. *Guidelines for the Use of Iron Supplements to Prevent and Treat Iron Deficiency Anemia*. INACG, WHO and the UN.

¹¹ Galloway R. 2003. Anemia Prevention and Control: What Works? Inter-agency document on anemia control. FAO, MI, PAHO, SCN, UNICEF, USAID, World Bank and WHO.

¹² Dibley MJ, Titaley CR, d’Este C and Agho K. 2012. Iron and folic-acid supplements in pregnancy improve child survival in Indonesia. *Am J Clin Nutr* 95: 220–230.

¹³ WHO. 2012. *WHO Recommendations for Prevention and Treatment of Pre-Eclampsia and Eclampsia*.

Stanton indicated questions that remain regarding introduction of maternal calcium supplementation:

- What are the cost implications for introducing calcium supplementation?
- Will some other intervention, such as anemia control, be compromised to pay for calcium supplementation?
- How can our current IFA supplementation programs inform us about how to get calcium supplements to women?
- What do we know about improving supplies?
- What do we know about getting information to providers and consumers?

Ms. Stanton closed by emphasizing that we should discuss the “how” of program implementation, rather than the evidence for anemia control and calcium supplementation. In addition, participants should step back and discuss advocacy for anemia control and how to introduce calcium in their country programs.

PART 1: THE BURDEN OF DISEASE FOR ANEMIA AND CALCIUM DEFICIENCY—IMPROVING PROGRAMS

Panel 1: Calcium and Anemia: Prevalence, Burden of Disease and Programmatic Considerations

Presentation 1: “Overview—Burden of Calcium Deficiencies and Anemia in Asia and Middle East and Evidence for their Impact on Maternal and Neonatal Mortality”

Dr. Tahmeed Ahmed, Director, Centre for Nutrition and Food Security, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b), provided an overview on the burden of calcium deficiency and anemia in Asia and the Middle East regions. About 30–50% of pregnant women and 50–70% of children younger than two years of age are most affected by anemia. In most countries, IFA is the primary intervention to address maternal anemia, yet coverage remains low. In Bangladesh, for example, only 5% of women are taking at least 90 IFA tablets during pregnancy. Few interventions address anemia in children.

The burden of disease from anemia is high. Anemia during pregnancy increases the risk of maternal death by 1.35 times for moderate anemia and 3.5 times for severe anemia. In South Asia, it is estimated that US\$5 billion are lost each year from anemia alone due to compromised educational and health outcomes. A recent study in Indonesia found that when mothers took any IFA during pregnancy, there was a 34% decreased risk of death in their children younger than 5 years of age. This protective effect was highest in the first day of life (i.e., a 60% reduced risk of dying). The study estimated that 20% of early neonatal deaths were attributed to women not taking any IFA supplements.

Hypertension or high blood pressure is responsible for 40,000 maternal deaths annually. Pre-eclampsia affects 7–10% of pregnancies; pre-eclampsia and eclampsia together are the third greatest cause of maternal mortality (after postpartum hemorrhage and sepsis). A recent Cochrane analysis found that calcium reduced the risk of hypertension by 35%, pre-eclampsia by 55% and pre-term birth by 24% (Box D1). The effect was highest in low-calcium consumers, with the risk of pre-eclampsia reduced by 64% when these women were given calcium.

Box D1. Cochrane review on calcium supplementation and pre-eclampsia, hypertension, and pre-term birth

- Risk of hypertension reduced with Ca⁺⁺, RR 0.65 (0.53–0.81)
- Risk of PE reduced with Ca⁺⁺, RR 0.45 (0.31–0.65)
- Risk of PE reduced among low Ca⁺⁺ consumers, RR 0.36 (0.2–0.65)
- Pre-term birth reduced with Ca⁺⁺, RR 0.76 (0.6–0.97)

Source: Hofmyer GJ, et al. 2011. Cochrane Collaboration.

Despite the WHO calcium supplementation recommendation for pregnant women (1.5–2 g/day), in areas where calcium intakes are low, globally, there is little information about dietary calcium intakes and calcium deficiency. Although milk and dairy products are the best source of bioavailable calcium, the consumption of milk products is limited in most developing countries. In the least-developed countries, milk product consumption is 29.4 kg compared with 249 kg per capita per year in North America.¹⁴ Calcium in green leafy vegetables has reduced bioavailability, and women would have to consume 16 servings of spinach to get the equivalent amount of calcium in 244 mL of milk. In closing, Dr. Tahmeed relayed several next steps needed for iron-folic acid and calcium supplementation (Box D2).

Box D2: Next Steps for Iron-Folic Acid (IFA) and Calcium Supplementation

- Both IFA and calcium supplementation can be delivered through ANC at facilities, community-based outreach and/or private pharmaceutical vendors.
- Messages on IFA and calcium need to be effective and ensure that the supplements “do no harm” to women. For example, the dose of calcium recommended (1.5–2 g) may interfere with iron absorption so messages need to advise women to take supplements at different times of day. In addition, women with high intakes of milk products should not be taking additional calcium, unless they are at risk for PE. To scale up IFA and introduce calcium supplementation, we need to know more about the constraints for increasing coverage including supply-side and demand-side issues.
- An integrated package is needed to address multiple causes of anemia, including nutritional deficiencies (mainly iron deficiency) and parasitic infections (malaria and hookworm) and to prevent and treat PE is also needed.
- Disseminating the anemia package will require involvement of Ministries of Health, other ministries (e.g., Ministry of Finance) and donors. Robust M&E systems are needed to track success and constraints to implementation of these interventions.
- Cost and cost-effectiveness analyses should be part of M&E, which is critical to continued advocacy to implement and maintain interventions at-scale.

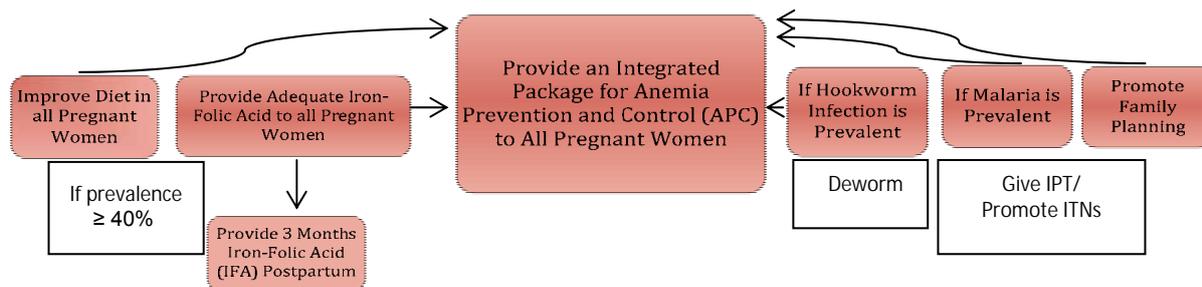
Presentation 2: “Decision Tree for Anemia Control”

Rae Galloway, Technical Lead, Nutrition Team, MCHIP, presented a schematic diagram to help in making decisions for implementing integrated anemia control. She pointed out that many of the elements for anemia control implementation will be the same for calcium supplementation.

- The first step is to determine what maternal anemia prevalence is—national and regional prevalence. This can serve as a baseline as countries plan national programs at-scale. Demographic and Health Surveys have collected this information in many countries.
- The next step is to decide on the package of interventions needed to reduce anemia in a given setting (Figure D1). (To do this, other information may be needed, such as the prevalence of hookworm.) In endemic areas, malaria and anthelmintic interventions will be included in the package. In all countries, three interventions are critical components of this package:
 - All pregnant women should take IFA supplements for six months to prevent anemia and, where anemia prevalence is $\geq 40\%$, women should continue IFA for three months after delivery.
 - Modern methods of family planning should be promoted to women, their husbands, and their communities; FP use should be recommended in the postpartum period to prevent “nutrition depletion,” which is caused by having too many pregnancies and short birth intervals.
 - The supply of iron-rich foods in communities and their consumption by women should be improved.

¹⁴ Food and Agriculture Organization (FAO). Food Balance Sheets. FAO database.

Figure D1: Step 2—Decide on components of the anemia control package



Demand- and supply-side program components for IFA supplementation and ANC commodities related to anemia control are also part of the decision tree. Channels of delivery may change depending on ANC coverage. Where coverage is low or women come in for ANC late in their pregnancy, a community-based distribution system should be implemented. The private pharmaceutical sector also can play a role. (For the entire decision tree graphic, along with the presentation, see Scribd page at <http://www.scribd.com/Dhaka2012>.)

Presentation 3: “Bangladesh Country Example on the Gaps and Facilitating Factors for Calcium Supplementation”

To make the case for the need for calcium supplementation in Bangladesh, Dr. Ferdousi Begum, Associate Professor of Ob/Gyn, Dhaka Medical College, presented evidence for calcium deficiency in Bangladesh. Results from a study in two areas of Bangladesh (Dhaka city and rural Nandail sub-district, in Betagair) showed:

- Nearly half (47%) of women of reproductive age or WRA (16 to 40 years) in the high socioeconomic group failed to meet even the lowest level of recommended calcium consumption (400–500 mg/day) for WRA, with the main sources for total calcium intake from fish (42%) and milk (19%).
- No women in the low socioeconomic group consumed even 400–500 mg of calcium per day; in fact, 63% consumed <200 mg/day, with cereal (32%) and fish (25%) as the main sources of total calcium intake.
- These figures are more critical in both groups if we consider the recent recommended daily allowance (RDA) of calcium for adult women in the United States: 1,000 mg/day.

Important considerations in addressing current gaps include the cost of calcium supplements, which are more expensive than IFA at US\$3 to \$6 per pregnancy for chewable calcium carbonate tablets (without vitamin D), versus US\$0.48 per pregnancy for IFA supplements (which includes the cost of some packaging). Other considerations include costs for transportation to health centers and storage (large-dose calcium supplements are bulkier/heavier than IFA), as well as the issue of maximizing calcium absorption. Iron, calcium, and other minerals compete for absorption, whereas calcium decreases iron absorption, for example, at doses of calcium >800 mg/day).

The calcium scale-up map for Bangladesh (see scale-up map graphic on the Scribd page at <http://www.mchip.net/MNHDhaka>) highlighted the following four areas of implementation experience and barriers related to calcium supplementation, which are:

- Inadequate allocation in the budget for calcium
- Existing infrastructure and a network of health providers

“Anemia [control] needs to be a mission in Bangladesh because the 2012 statistics resemble data from 1973 ... little has changed.”

—Dr. Ekhlasur Rahman

- ANC as the platform for calcium as well as for IFA supplements
- Use of existing logistics and supply system for calcium when a policy is developed

Implementation barriers were also discussed. Currently, there is no policy to give routine calcium supplementation to pregnant women, although it may be given as a dietary supplement by some private providers. For calcium supplementation to become a policy, research is needed in Bangladesh on the efficacy of calcium in preventing pre-eclampsia. Formative research can to develop evidence-based counseling messages and capacity-building of health workers about the “whys” and “hows” of calcium supplementation will also be needed.

Panel 1 Discussion—Highlights

Dr. Ekhlashur Rahman, Director, Institute of Public Health Nutrition and Line Director for the National Nutrition Services, Bangladesh, highlighted key needs for anemia control and calcium supplementation.

- Anemia control is stagnant in Bangladesh, given that 2012 statistics resemble data from 1973 (i.e., little has changed). There is need to address the persistence of anemia.
- Adequately monitor IFA stocks, stock-outs, and the proportion of women receiving IFA versus the proportion of women actually taking what they receive.
- Address cultural barriers to women taking iron (i.e., perception that IFA causes big babies and difficult deliveries). Address compliance issues with taking IFA (one per day) and calcium (three per day).
- Discuss possibility of different formulations and issues with supplementation: combining IFA and calcium in one pill, competition for absorption in gut with calcium and iron, and cost.

Panel 2: Making Anemia Control Programs Effective: What Have We Learned? How Can Anemia Control Inform Calcium Supplementation?

Presentation 1: “Improving the Chances that Nutrient Supplements Will Make a Difference: ‘Supply-Side Considerations’”

Marcia Griffiths—of the Manoff Group and representing SPRING—began by describing demand as “the interplay between a product (in this case, a supplement), the service and its use,” pointing out that we cannot assume that if we recommend supplements, women will take them as prescribed for the full period. Improving adherence to medical recommendations (e.g., taking a supplement, which is a behavior) requires understanding the user’s needs and desires, service delivery, and the sociocultural context.

Ms. Griffiths emphasized that taking a supplement is not one but three interrelated behaviors: (1) trial or initiation, (2) continued use for full recommended period, and (3) correct use. Formative research provides insights into the critical considerations and conditions related to each behavioral objective (Table D1).

Table D1. Factors critical to successful iron-folic acid (IFA) programming

	Trial or Initiation	Continued & Correct Use for the Recommended Period
Dosage and form	<ul style="list-style-type: none"> ▪ Taste, size, color, coating ▪ Adequate packaging to prevent deterioration 	<ul style="list-style-type: none"> ▪ Number of tablets to take per day and in pregnancy ▪ Maximizing absorption (e.g., take in between meals) ▪ Storage (e.g., in a cool, dry place and away from children) ▪ Reminders to take daily (via print materials, cell phone)

	Trial or Initiation	Continued & Correct Use for the Recommended Period
Service delivery	<ul style="list-style-type: none"> ▪ Provider-patient relationship and counseling: <ul style="list-style-type: none"> – Patient confidence to try – Information on why and how to take and what to expect (e.g., possible side effects and how to manage them) 	<ul style="list-style-type: none"> ▪ Ease and reliability of resupply* ▪ Post-initiation follow-up (for asking about specific behaviors, resolving issues, etc.)
Personal and sociocultural factors	<ul style="list-style-type: none"> ▪ Patient's view of taking medication in pregnancy ▪ People who are influential over women taking IFA 	<ul style="list-style-type: none"> ▪ First-month follow-up for assessing experience with taking IFA and identifying barriers and facilitating factors to taking (e.g., side effects, family/peer support, perceived benefits)

*Note Indonesia experience that community-based distribution increases access to supply.

Relevance of the IFA supplementation experience to calcium supplementation includes tailoring the product to consumer preference, recognizing that adherence decreases with number of tablets women have to take; ensuring that resupply is convenient (i.e., community-based distribution); and acknowledging the importance of the provider-patient relationship and counseling in supporting women to try and continue to take supplement(s) correctly.

Presentation 2: “Pharmaceutical Management for Micronutrients and Anemia-Reduction Medicines: Supply-Side Considerations”

Mr. Sumitro Roy—Deputy Country Director (Bangladesh), Alive and Thrive—presented findings from projects in India and Uganda to improve logistics and supplies for IFA supplements and deworming medication.¹⁵ Pregnant women reported that lack of supplies were a common reason they were not taking IFA in Jharkhand, India, and Uganda. As a first step in addressing the problem, the project developed a conceptual framework for the pharmaceutical management cycle (Figure D2). This conceptual framework identified the key factors needed in logistics and supplies to ensure success of IFA distribution. Common barriers identified are the poor quality of IFA supplements and the absence of other interventions needed to control anemia (e.g., deworming). A key problem is the inaccuracy of efforts to forecast supplies and lack of fall-back supplies to ensure that IFA supplements are always available. Health workers need to be able to estimate the expected number of pregnant women in their catchment area in order to estimate the number of IFA supplements needed. Even when IFA supplements are available, health workers often do not know how to counsel women on how, why, and when to take them.

Interventions were identified for each area to: advocate for better supplies; change forecasting to population-based estimates by getting the denominator of pregnant women correct; develop systems and procedures for procurement, forecasting and distribution; build capacity to train providers; and develop and use tools to monitor supplies and develop systems. Results included a decrease in IFA and deworming medication stock-outs. For example, in one health sub-center in Dumka District in Jharkhand State, IFA stock-outs decreased from 58% in 2007–8 to 18% in 2008–9, whereas deworming medication stock-outs decreased from 72% to 27% in the same health sub-center over the same period.

Conclusions for getting supplies and logistics right included the following:

- Ensure high quality of IFA supplements and packaging
- Estimate the number of IFA supplements needed based on the population size—make sure the denominator is correct

¹⁵ These projects were funded and implemented by the USAID-funded A2Z project, with Management Sciences for Health (MSH) giving technical assistance to A2Z for the project.

- Advocate and engage stakeholders at all levels to prioritize procurement and get supplies right for IFA and deworming medications (promote a package of interventions to control anemia)
- Strengthen procedures and systems for forecasting, procurement, inventory control distribution, and health information management systems indicators and tracking
- Build staff capacity at all levels to support functioning supplies and logistics systems
- Monitor stocks at all levels

Figure D2: Pharmaceutical management cycle



Presentation 3: “Intensification of Iron/Folic Acid Supplementation Program in Nepal”

Raj Kumar Pokharel, Head of the Nutrition Section/Child Health Division, Department of Health Services, Ministry of Health and Population, Nepal, presented on the Nepal national program to reduce maternal anemia. In 1998, Nepal had a policy to give women IFA supplements during pregnancy and for 45 days after delivery, but a national survey showed that only 3% of pregnant women were receiving 90+ IFA tablets and 75% of pregnant women were anemic. Initial formative research determined that most women did not have access to IFA tablets and there was a lack of awareness about the need for IFA supplements during pregnancy and lactation.

To address this situation, a knowledge, attitude, and practice (KAP) study was undertaken in 2003–4 to better understand the anemia problem in Nepal before designing the Iron Intensification Program (IIP). Limited access to ANC was identified as a barrier to receiving IFA supplementation; helminth infections were identified as a major, unaddressed cause of iron deficiency anemia. A National Anemia Control Strategy and Plan was developed to complement updated national policy—helping to inform the IIP design, which has the following goals: (1) improve IFA supply and accessibility through community-based distribution and increasing the use of ANC services; (2) increase compliance with IFA through simple counseling messages about why and how to take IFA; (3) increase deworming medication to reduce helminth infections as a cause of anemia; 4) address vitamin A deficiency, also a cause of anemia, by increasing postpartum vitamin A supplementation coverage; and 5) promote dietary diversification in pregnant and postpartum women to improve dietary sources of iron and vitamin A. In addition, to raise awareness, simple key messages on the contribution of low dietary intake of iron resulting in iron deficiency—which deprives the mother and fetus of oxygen and nutrients and can lead to maternal complications and poor mental development of the child—were developed and widely distributed in community.

Since 2003/04, the project has been scaled up to 74 out of 75 districts in the country through: capacity-building at the district and community levels; procurement of adequate supplies of IFA by government to promote a sustainable supply; IFA monitoring in the Health Management Information System; and continuous monitoring of IIP and integration into existing supervision of health facilities. IFA supplementation coverage has increased greatly

and anemia prevalence in pregnant women has decreased from 75% in 1998 to 48% in 2011. Challenges remain for the program including increasing the coverage of women receiving and taking an adequate number of IFA supplements during pregnancy (i.e., 180) and increasing coverage by reaching women residing in the most remote areas.

Panel 2 Discussion—Highlights

Dr. Tina Sanghvi, Director of Alive and Thrive in Bangladesh, highlighted the following in Panel 2:

- Tailoring messages around supplementation based on understanding of socio-cultural factors, and including critical influencers (e.g., mothers-in-law, religious leaders) in our behavior change communication efforts. Logistics and supplies management were recognized as key to improving existing programs.
 - In Nepal, donors and higher-level authorities including the Ministry of Finance engaged and financially supported a multi-year plan for anemia control. Competitive bidding ensured the best price and quality of IFA. District warehouses were responsible for forecasting and management of supplies and worked with community-based providers to identify the number of pregnant women as the basis for forecasting.
 - In India, there has been a shift from central- to state-level procurement, improving the accuracy of forecasting. Private sector suppliers can offer an alternative source of IFA.
 - In Bangladesh, several types of preparations available in private sector pharmacies do not have the recommended dose of iron and folic acid. Programs need to work with private sector suppliers to ensure that the correct product is given to women who wish to purchase IFA.
- Examining the distribution curve of anemia can be an important step in analyzing program success. Shifting the distribution curve to the right (from severe to moderate to mild anemia) should be our goal. Although moderate and severe anemia is life-threatening, mild anemia can result in weakness, malaise, and reduce a woman's productivity.

PART 2: GROUP WORK: DEVELOPING SCALE-UP MAPS FOR ANEMIA CONTROL AND INTRODUCTION OF CALCIUM SUPPLEMENTATION

Presentation 1: “Review of Making Maternal Calcium Supplementation and Anemia Control Programs Effective”

Rae Galloway opened the afternoon session by reviewing how anemia control programming can inform the introduction of calcium supplementation. As a way of taking stock, she posed a question: “What do we know about the prevalence of anemia and calcium deficiency in developing countries?” Her observations included the following:

- More is known about anemia prevalence since Demographic and Health Surveys added an anemia module in the late 1990s. Like iron, calcium exists in many foods but the bioavailability of calcium varies in these foods. Calcium is much more bioavailable in milk products and calcium-set tofu than in legumes and green, leafy vegetables.
- There is little information on calcium intake or deficiency in developing countries, but we know milk intake is limited in most developing countries compared with Europe and North America.¹⁶ Can milk/dairy intake be a proxy for calcium intake?

If our goal is to reduce both maternal anemia and pre-eclampsia/hypertension, an integrated package of interventions to prevent and treat them will be needed to address all the known causes. To help inform creation of this package, we must ask: “What do we know about how to improve the main program components for maternal anemia control?” and “How can we apply this knowledge to introduction of calcium supplementation?” Table D2 provides a summary responding to these questions.

¹⁶ According to The Food and Agriculture Organization's Food Balance Sheets

Table D2: Improving or introducing IFA and calcium supplementation programs

Program Components	Activities Required
Delivery should occur through multiple channels	<ul style="list-style-type: none"> This can happen via facility- and community-based ANC and through private sector suppliers where available.
Creating and ensuring demand for any daily regimen (calcium and IFA) requires supporting women to try to continue these supplements and to use them correctly	<ul style="list-style-type: none"> Support from health workers, family members, and civil society is needed to increase the number of women taking the full dose for the recommended length of time. Research is needed to tailor messages to each setting; currently, little information on women's interest, ability and motivation to take the recommended 3 tablets of calcium per day
BCC messages can increase coverage	<ul style="list-style-type: none"> Experience from Indonesia suggests that improving BCC messages and counseling increased the proportion of pregnant women taking 90+ IFA supplements to 75%. What is the critical coverage needed for IFA to reduce anemia and for calcium to reduce hypertension?
Lack of supplies and functioning logistics and supplies system is still an important barrier to increasing coverage of IFA, which may also be true for calcium	<ul style="list-style-type: none"> Program experiences suggest that forecasting for IFA (and other interventions to control anemia such as deworming medication) has to be correct through advocacy to improve supplies and training on procurement. Logistics and supplies issues will be similar for calcium supplementation—learning from getting IFA supplies right will help calcium introduction.
Cost, transport, and storage can be an issue for calcium vs. iron	<ul style="list-style-type: none"> Cost is an issue for calcium supplementation, which—because of the dosage recommended (1.5–2 g)—is estimated at US\$3 to \$6 per pregnancy (for chewable tablets without vitamin D) compared with US\$0.50 per pregnancy for IFA. Transport and storage will be more expensive for calcium than IFA supplements.
Program implementation includes ensuring correct indicators and periodic monitoring	<ul style="list-style-type: none"> Improving capacity of health workers and community distributors and monitoring of uptake will be imperative to make programs work. Getting indicators into the HMIS is needed for IFA, deworming, malaria in pregnancy, and calcium. Periodic monitoring of program barriers and facilitating is needed at all levels to determine how to improve program implementation.

Presentation 2: “Introduction to Small Group Activities to Develop Calcium and Anemia Scale-Up Maps”

Dr. Steve Hodgins, Global Leadership Team Leader, MCHIP, “unpacked” the process of scale-up for both maternal anemia control and calcium supplementation for small group work. Anemia control programs exist already, so Dr. Hodgins emphasized that group work should discuss how to improve current programs so that at least 80% of pregnant women receive the recommended dose of IFA and other interventions to control anemia. Use of scale-up maps (see the conference Scribd page at <http://www.scribd.com/Dhaka2012>) was an iterative (rather than prescriptive) process, with teams thinking through *short- and long-term activities for scale-up*.

Four Presentations and Discussion on Scale-Up Maps from Group Work Summary

Two small groups worked on discussing and compiling lists of issues related to scale-up of anemia control and introduction of calcium—using the scale-up maps as a basis. After meeting, each group presented to the rest of the participants. Dr. Hodgins moderated.

From: “Scaling up anemia control—what does it take?”

- Several policy changes are needed to make anemia control programs effective: allow community-level distribution and approve deworming in pregnancy.
- Advocacy is needed to put integrated anemia control on the agenda and improve existing programs.
- Formative research may need to be decentralized for regional results and should be with health workers as well as with women.

Advocacy is needed to put integrated anemia control on the agenda within departments of ministries of health and improve existing programs.

—Finding from Small Group Activity

- Drugs and supplies: improve the quality and supplies and logistics.
- How informed and motivated are health workers? Can we use incentives (pay for performance) to ensure health workers give women IFA?
- Emphasize one-on-one counseling. We can learn about counseling from FP services.
- The community and civil society need to partner. Bring in key influential persons including religious leaders to support and supervise compliance.
- Identify small, doable actions and practical messages.
- M&E needs to be improved or even created. Some countries are not routinely tracking anemia control programs. Start by getting indicators into HMIS to track who received IFA and other interventions, who consumed IFA, who received deworming medication, etc.

From: ***“Introduction of calcium supplementation—is it feasible/what does it take?”***

Note: Of group participants, no country had a policy on administration of calcium during pregnancy/ANC.

- To introduce calcium, advocacy with decision-makers (within MOHs and other ministries, particularly the Ministry of Finance to provide a line item in the budget for calcium supplements) and research may be required. Given decentralization, in India these activities need to be at the State level.
- Countries need help in advocating for calcium from all partners (United Nations, donors including USAID, etc.). Right now, calcium is not on the UNICEF drug list and it is expensive from private sector pharmaceutical suppliers; scaling-up will not be possible until a low-cost source of calcium is readily available in countries.
- Work off existing platforms. The Scaling-Up Nutrition initiative in 27 countries might help.
- Research should focus on: ensuring effectiveness (is it having the desired effect?); determining cost-effectiveness (is the desired effect worth the cost compared with other interventions?); and improving quality, acceptability, and use of the product.
- More needs to be known about what will motivate women to take calcium—will they take calcium because it is good for the baby or for women or both?
- Identify and engage stakeholders, including the community, to support introduction.
- Build capacity of health workers by integrating information about calcium into pre- and in-service training; improve supplies and logistics systems as part of the entire maternal health strategy and ANC—it should not be separate.
- Existing programs improving the supplies and logistics of other commodities can be tapped for their support of getting supplies and logistics for calcium right.
- Monitoring and evaluation systems needs to be robust to track outcomes, identify barriers and any negative effects, and improve program implementation to increase coverage.

More needs to be known about what will motivate women to take calcium—will they take calcium because it is good for the baby or for women or both?

— Finding from Small Group Activity

Next Steps for Research

Pierre Lacerte, Health Advisor and Maternal and Newborn Health/Nutrition Program Manager in Africa for the Micronutrient Initiative (MI), presented on MI's upcoming research to answer practical questions about how to implement calcium supplementation programs—building on known barriers and facilitating factors in IFA programs. The goal is to develop, implement, and evaluate demonstration projects (in Ethiopia, Kenya, Senegal, and Niger) to test evidence-based strategies for implementing calcium supplementation during pregnancy. The intended outcome is to provide policymakers and program managers advice on how to implement calcium supplementation programs. Examples of issues to be addressed include: formulation of calcium; forecasting to get supplies right; development of protocols and checklists for integrating calcium and IFA supplementation with ANC services; development of effective BCC strategies, messages and materials; and training.

WRAP-UP: “NEXT STEPS FOR PROGRAM IMPLEMENTATION AND FOR MEASURING/TRACKING SUCCESS”

Dr. Justine Kavle—Senior Program Officer, Nutrition Team, MCHIP/PATH—**recapped components of successful IFA supplementation programs**, in response to the question “What have we learned from anemia prevention and control programs?” Programs must ensure that the right product (i.e., appearance, packaging, and acceptability with the target population) goes hand-in-hand with demand generation. Choosing effective and innovative approaches to provide IFA through private sector, community-based services and/or ANC will aid in achieving high coverage so that intended recipients (pregnant women) *receive* the supplements (coverage) and *take all* of the supplements received (compliance). All of these components collectively will achieve impact, as measured by a reduction in iron-deficiency anemia (IDA).

“Nepal took the building blocks of generating consumer demand, ensuring service delivery and supplies, building capacity, and intensifying monitoring and supervision of activities to create its Iron Intensification Program.”

— Dr. Justine Kavle

The **barriers to anemia prevention and control**, as potential challenges to scale-up are:¹⁷

- Inadequate political support
- Low priority for IFA
- Insufficient bundling of interventions
- Inadequate supplies – low utilization – weak demand
- Lack of evidence for effective program implementation
- Lack of community-based programs – complement ANC

Despite these programmatic barriers, **scale-up is achievable**. Nepal's excellent example demonstrates how countries can rise above “implementation challenges” (Figure D3). With clear objectives and strong understanding of causes of anemia through a situation analysis, Nepal took the building blocks of generating consumer demand, ensuring service

Figure D3: Improving anemia control in Nepal

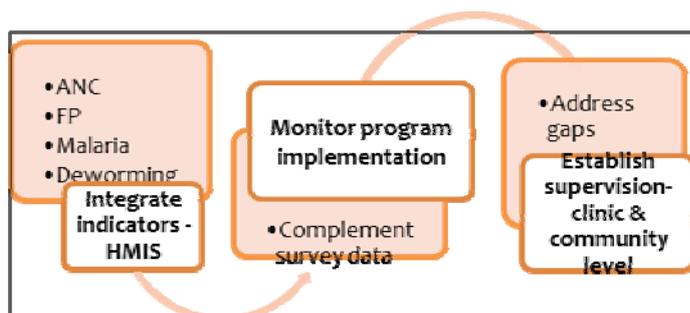


¹⁷ Source: Klemm R et al. 2011. *Are We Making Progress on Reducing Anemia in Women? Cross-country Comparison of Anemia Prevalence, Reach, and Use of Antenatal Care and Anemia Reduction Interventions*. AED, June 2011.

delivery and supplies, building capacity, and an intensified monitoring and supervision of activities to create its Iron Intensification Program (IIP). This four-pronged strategic approach addressed high levels of anemia through an integrated package of fortification, IFA supplements, deworming, and dietary promotion.

In order to track program success, one must not only talk of bundling multiple interventions during ANC, but also: integrate indicators into HMIS, complement national survey data (e.g., DHSs) with routine program monitoring data, and address gaps through community- and clinic-based supervision. Through this combination of efforts, we can strengthen our ability to monitor and supervise scale-up (Figure D4).

Figure D4: Strengthen M & E: Integrate, monitor, and supervise scale-up¹⁸



The way forward for introduction and implementation of calcium supplementation was discussed, given that early introduction of calcium has occurred in a few countries with the potential for scale-up. With high clinical coverage in the country, Bangladesh could maximize the opportunity to deliver calcium through ANC.

MCHIP will follow up with countries to fill out country-specific, scale-up maps for anemia prevention and control and calcium introduction, based on small group work. This will be the next step in advancing integrated anemia control and calcium supplementation in Asia and the Middle East.

¹⁸ Source: Klemm RDW, Harvey PWJ, Wainwright E and Faillace S. 2009. *Micronutrient Programs: What Works and What Needs More Work?* A Report of the 2008 Innocenti Process. Washington, D.C.: Micronutrient Forum.

AGENDA FOR SPECIAL SESSION ON NUTRITIONAL ISSUES



Asia Regional Meeting on
Guidance on Implementing Effective Programs to Prevent Preeclampsia and Eclampsia and Anemia to Improve Maternal and Newborn Outcomes
 3 May 2012

Meeting Objectives:

- To present and discuss global scientific evidence on the impact of calcium supplementation and anemia control interventions in reducing maternal and neonatal mortality and other poor health outcomes.
- To review and discuss country programmatic experiences and progress in implementing integrated maternal anemia control programs, with a focus on iron-folic acid (IFA) supplementation.
- To review existing programs and give guidance on implementing maternal calcium supplementation programs, building on the experience with anemia control programs.
- To identify next steps for introducing and/or scaling up calcium supplementation and anemia control programs.

MEET AND GREET	
MORNING	
8:45-9:00	Registration
9:00-9:10	Opening Statement - Welcome, Objectives of the Meeting, and Introductions: Ms. Mary Ellen Stanton, USAID, Washington, D.C.
Panel 1: Calcium and Anemia: Prevalence, Burden of Disease, and Programmatic Considerations	
9:10-9:30	Overview - Burden of Calcium Deficiencies and Anemia in Asia and Middle East and Evidence for Their Impact on Maternal and Neonatal Mortality: Dr. Tahmeed Ahmed, ICDDR,B
9:30-9:50	Decision Trees for Anemia Control and Calcium Supplementation: Ms. Rae Galloway, MCHIP
9:50-10:10	Country Examples on Gaps and Facilitating Factors for Calcium Supplementation (use of the scale-up map tool): Dr. Ferdousi Begum, Dhaka Medical College
10:10-10:25	Discussion: (Moderator: Dr. Rahman, Director, Institute of Public Health Nutrition & Line Director, National Nutrition Services, Bangladesh)
10:25-10:40	Tea Break



Panel 2: Making Anemia Control Programs Effective: What Have We Learned? How Anemia Control Can Inform Calcium Supplementation	
10:40–11:00	Demand-Side Considerations: <i>Ms. Marcia Griffiths, SPRING</i>
11:00–11:20	Supply-Side Considerations: <i>Mr. Sumitro Roy, Alive and Thrive</i>
11:20–11:40	Country Presentation: IFA Supplementation through Community Workers in Nepal: <i>Dr. Raj Kumar Pokharel, Director of Nutrition, Ministry of Health & Population, Nepal</i>
11:40–12:00	Discussion (Moderator: <i>Dr. Tina Sanghvi, Alive and Thrive</i>)
2:00–13:00	Lunch
AFTERNOON	
13:00–13:30	Review of Making Maternal Calcium Supplementation and Anemia Control Programs Effective: <i>Rae Galloway, MCHIP</i>
13:30–15:00	Small Groups to Develop Calcium and Anemia Scale-Up Maps: <i>Dr. Steve Hodgins, MCHIP</i>
15:00–15:15	Tea Break
15:15–15:55	Four Presentations on Scale-Up Maps from Group Work: <i>Participants</i>
15:55–16:15	Discussion on Scaling-Up: (Moderator: <i>Dr. Steve Hodgins, MCHIP</i>)
16:15–16:30	Next Steps for Research: <i>Dr. Pierre Lacerte, the Micronutrient Initiative</i>
16:30–16:45	Discussion (Moderator: <i>Ms. Elizabeth Isimhem Williams, SPRING</i>)
16:45–17:00	Wrap-Up: Next Steps for Program Implementation and for Measuring/Tracking Success: <i>Dr. Justine, Kavle, MCHIP</i>

Appendix E: Orientation to *Helping Babies Breathe*[®] Learning Materials

SPECIAL SESSION ON OPENING DAY OF ASIA REGIONAL MEETING (MAY 3, 2012)

Editors: Stella Abwao (MCHIP) and Syed Rubayet (MCHIP/SNL)

On the day before the MCHIP-hosted Asia Regional Meeting in Dhaka, “Interventions for Impact in Essential Obstetric and Newborn Care,” a three-hour orientation session was held on *Helping Babies Breathe*[®] (HBB). The session was attended by well over 100 participants from the Asia/Southeast Asia region, as well as representatives from Africa and other collaborating countries. It was conducted by Dr. Nalini Singhal from the American Academy of Pediatrics (AAP), Dr. Lily Kak from USAID, Tore Laerdal from the Laerdal Foundation and a pool of national and international HBB trainers.



The purpose of the session was dual: (1) to introduce and orient the participants to the HBB approach; and (2) to familiarize them with the NeoNatalie resuscitation simulators, accompanying equipment, and support materials (HBB flip chart, learner workbook, etc.). The first part of the session included the introduction of the HBB learning materials and associated training aids including the NeoNatalie resuscitation simulator, as well as a description of the HBB Global Development Alliance; the session continued with a hands-on orientation to HBB materials and protocols, which concluded with a discussion among participants. This appendix provides a summary of this special session; the session agenda is provided at the end.

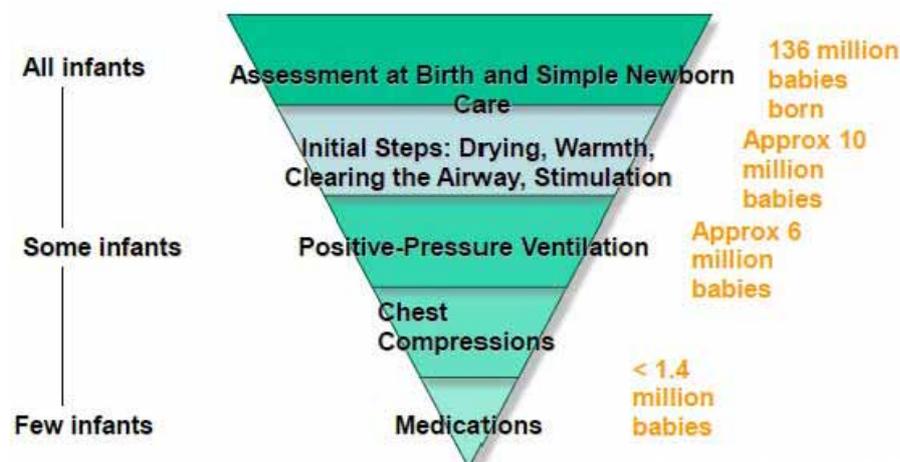
HBB PRESENTATIONS

Presentation 1: “*Helping Babies Breathe*—Every Baby in the World Deserves a Chance to Breathe”

Dr. Nalini Singhal, of the AAP, began by providing a brief overview of the causes of newborn death, as well as the newborn health situation globally. She focused on those 1.02 million stillbirths and the 830,000 neonatal deaths due to asphyxia¹⁹, which are the target of the HBB initiative. In describing the inverted pyramid of neonatal resuscitations (Figure E1), which shows the proportions of babies who will need an increasing level of breathing-related interventions to survive, Dr. Singhal emphasized that “the benefits to be realized [by HBB practices] are enormous.” Recent estimates published in the October supplement to the *International Journal of Obstetrics and Gynecology* suggest that 16 million babies could be helped—saved from death or possible disability—through universal application of neonatal resuscitation.

¹⁹ Lawn JE et al. 2009. *IJGO* 107:S5

Figure E1. Inverted pyramid of neonatal resuscitation²⁰



Dr. Singhal then transitioned into providing background information on the HBB initiative, introducing some of the key concepts and tools—such as the HBB Action Plan, which guides the provider through a simple decision tree to determine what actions are needed to help a baby with troubled breathing. The HBB curriculum covers: **preparation for birth, routine care, the “Golden Minute” ventilation and prolonged ventilation.**

“The benefits to be realized [by Helping Babies Breathe practices] are enormous.”

— Dr. Nalini Singhal

Singhal continued by discussing the sustainability of HBB programming and highlighting features of its learning methodology. Specifically, she emphasized the concept of learning in pairs (“peer learning”), the way in which all of the materials are explicitly linked and the range of objective and qualitative assessments—of participants’ knowledge, skills, and performance and of the learning event itself. She concluded by summarizing results from the field-test of learning materials.

Presentation 2: “Helping Babies Breathe—A Global Development Alliance Facilitates Implementation at Scale”

Dr. Lily Kak of USAID focused on discussing HBB implementation at scale and the role of the Global Development Alliance (GDA) in facilitating this effort. She began by reminding her audience that among reductions in mortality over the past two decades, progress has been slowest for newborns²¹ and that newborn asphyxia is one of the top three killers for this group.²² “Among babies born in health facilities in Africa, only about 11% of those who needed resuscitation had access to a trained provider and only 25% had access to resuscitation equipment,” said Dr. Kak, referencing data from SPA (2002–2010).²³

Dr. Kak then moved on to discuss GDA’s main goal—to reduce mortality from birth asphyxia—and the GDA partnership, which is steadily growing.

The major objectives of the GDA for HBB are as follows:

- **Global and National Advocacy:** Advocate for global commitment and resources for newborn resuscitation as a part of essential newborn care
- **Equipment/Materials:** Improve the availability of high-quality, appropriate, and affordable resuscitation devices and training materials

²⁰ Wall, Lee, Niermeyer et al. 2009. *IJGO*.

²¹ Levels and Trends in Child Mortality. 2011. UN Report.

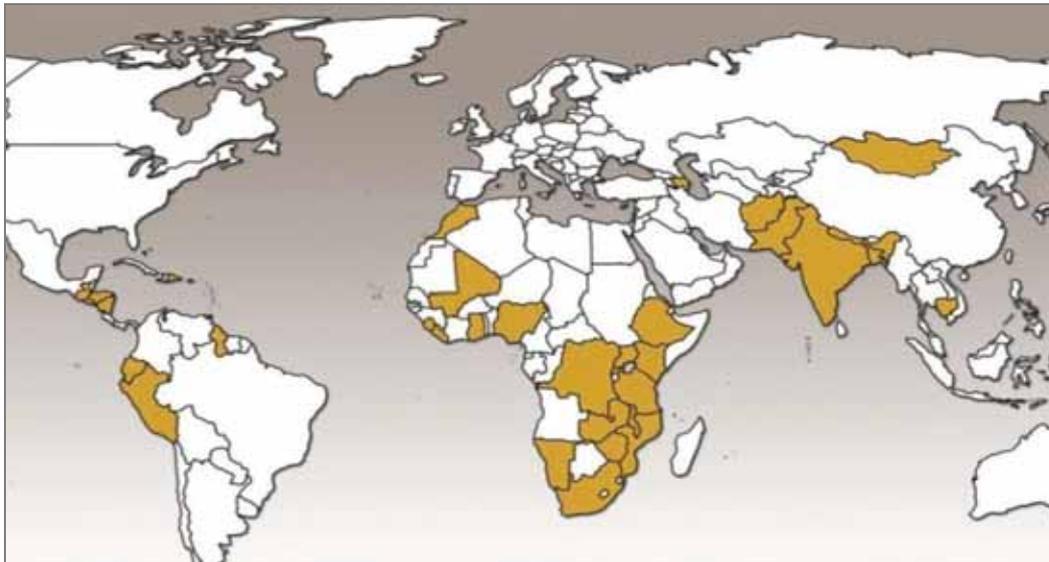
²² Black et al. for the Child Health Epidemiology Reference Group of WHO and UNICEF. 2010. Global, regional, and national causes of child mortality in 2008: A systematic analysis. *Lancet* 375(9730): 1969–1987.

²³ SPA, 2002–2010, MACRO.

- **Skills:** Improve the resuscitation capabilities of birth attendants with an emphasis on skilled birth attendants
- **System:** Strengthen the supply chain logistics system and supervision system
- **Evaluate:** Evaluate the impact of resuscitation programs at scale

Dr. Kak also shared a logical framework model for HBB monitoring and evaluation, a tool developed by the GDA to guide scale-up. She went on to highlight some exciting progress made: between 2010 and the present, about 70,000 health providers from 34 countries (Figure E2) have completed HBB training; access to resuscitation equipment has increased remarkably; and after one year of HBB implementation in Tanzania, preliminary findings from 20,000 deliveries show a 38% reduction in early neonatal deaths (other evaluation studies are under way).

Figure E2. Rapid rollout of HBB: 34 countries and ~ 70,000 providers in less than two years



GDA/HBB activity, Dr. Kak suggested, has acted as a catalyst for improving providers' newborn resuscitation skills and making available simple technologies to aid in newborn resuscitation. In closing, echoing Dr. Singhal, she said the next phase of GDA's efforts would be about sustainability: "quality improvement and mainstreaming in national health systems for impact."

PRESENTATIONS—CLOSING REMARKS

Tore Laerdal, of the Laerdal Global Health Foundation, then addressed the audience, further discussing HBB initiatives and expressing thanks to all partners of the HBB initiatives.



Discussions at the special session on *Helping Babies Breathe*® gave participants a chance to share experiences and observations.

HANDS-ON ORIENTATION TO HBB MATERIALS/PROTOCOLS

After the presentation, participants were given a chance to familiarize themselves with the HBB methodology. This included viewing demonstrations and participating in discussions on the use of the NeoNatalie sets, facilitator flip charts, and learner materials. There were about 12 tables, each with eight or more participants.

The demonstrations focused on the equipment/materials and their functions, as well as how the NeoNatalie simulator is used during training to demonstrate newborn resuscitation. The importance of the “Golden Minute” was again emphasized as the time within which a newborn should be helped to breathe to help ensure survival. Throughout, continual reference was made to the HBB Action Plan.



Following the demonstrations, participants were able to ask questions and share their own experiences from HBB program implementation within the groups.

AGENDA FOR SPECIAL SESSION ON HELPING BABIES BREATHE



USAID
USAID
USAID



MCHIP

Maternal and Child Health
Integrated Program

Helping Babies Breathe® (HBB) Orientation Workshop

Date and Time: 3 May 2012; 15:30–18:00

Venue: Ruposhi Bangla Hotel

Objectives:

By the end of the orientation, participants will:

- Be familiar with the HBB training materials
- Understand the HBB training methodology
- Practice newborn resuscitation using the HBB training materials
- Discuss adoption/expansion of HBB in their countries

15:30–16:15

Opening Remarks

Koki Agarwal (MCHIP)

Presentations

- Introduction of HBB Materials and Training Methodology
Presenter: Nalini Singhal
- Facilitating Program Implementation through the HBB Global Development Alliance
Presenter: Lily Kak

16:15–17:40

Demonstration and Practice of Helping Babies Breathe®

Led by HBB facilitators

17:40–17:55

Open Discussion

Facilitator: Joseph de Graft-Johnson

17:55–18:00

Closing Remarks

Tore Laerdal (Laerdal Foundation)

American Academy
of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®



The Laerdal Foundation for Acute Medicine

Appendix F: Results of Group Exercise

PPH	WITHOUT SBA	WITH SBA	
PREVENTION	<ul style="list-style-type: none"> ▪ Community-based or ANC distribution of misoprostol <ul style="list-style-type: none"> – Ensure the availability of misoprostol (India, Pakistan, Yemen) – Programmatic guidelines (on who can provide, minimum qualifications, etc.) – Included in the EML – Availability – Advocacy among policymakers 	<ul style="list-style-type: none"> ▪ AMTSL <ul style="list-style-type: none"> – Ensuring training – Supervision – Supplies 	
	<ul style="list-style-type: none"> ▪ Screen for risk factors during ANC: previous PPH, big baby, twins, anemia 		
	<ul style="list-style-type: none"> ▪ Initiate breastfeeding within first 30 minutes 		
	<ul style="list-style-type: none"> ▪ Village alert system 	<ul style="list-style-type: none"> ▪ Availability of oxytocin <ul style="list-style-type: none"> – Advocacy for appropriate storage – Add temperature indicators on oxytocin ampoules – Uniject oxytocin 	
	<ul style="list-style-type: none"> ▪ Community mobilization: BP/CR, awareness of danger signs, early recognition of danger signs, promote facility delivery, blood group, selection of SBA, cash savings, arrange transport with companion 		
	<ul style="list-style-type: none"> ▪ Reduce harmful community level practices <ul style="list-style-type: none"> – No cord pulling – No pushing on stomach 	<ul style="list-style-type: none"> ▪ Ergometrine needs to be removed from delivery kits (India); add misoprostol in delivery kits 	
	<ul style="list-style-type: none"> ▪ Anemia reduction: IFA supplementation, deworming, IPT & ITN (increase coverage and compliance) 		
	<ul style="list-style-type: none"> ▪ In countries without Misoprostol <ul style="list-style-type: none"> – ANC, PNC – Referral system 	<ul style="list-style-type: none"> ▪ Partograph 	
	Family planning		
		<ul style="list-style-type: none"> ▪ Promote postnatal care visits 	
	<ul style="list-style-type: none"> ▪ REFERRAL: strengthen transportation communication; promote emergency planning 		
		<ul style="list-style-type: none"> ▪ Postpartum observations (pulse, BP) every 15 minutes, keep the woman at the facility for at least 6 hours 	
MANAGEMENT	<ul style="list-style-type: none"> ▪ Home-based treatment with misoprostol 	<ul style="list-style-type: none"> ▪ Early recognition, facility-based readiness for obstetric emergencies 	
	<ul style="list-style-type: none"> ▪ Counseling 	<ul style="list-style-type: none"> ▪ Management according to the cause <ul style="list-style-type: none"> – Training – Job aids – Supplies – Protocols, guidelines 	
	<ul style="list-style-type: none"> ▪ Teach community to recognize blood loss for more rapid recognition and referral 	<ul style="list-style-type: none"> ▪ Bimanual compression 	

PPH	WITHOUT SBA	WITH SBA
	<ul style="list-style-type: none"> Abdominal massage 	
		<ul style="list-style-type: none"> Improving the availability of blood at health facilities <ul style="list-style-type: none"> Promoting voluntary blood donation Blood storage units/bank Strengthening the midwifery program (Yemen)
	<ul style="list-style-type: none"> Breastfeeding 	<ul style="list-style-type: none"> Repair of injury, manual removal of placenta (BEmOC)
	Empty bladder	
		<ul style="list-style-type: none"> Surgical procedure/intervention if needed (CEmOC)
	<ul style="list-style-type: none"> Give liquids; emphasize stabilization before referral to higher centers; first aid by TBA or CHW for trauma 	
	<ul style="list-style-type: none"> External uterine compression 	<ul style="list-style-type: none"> Stabilization before referral (from BEOC to CEOC)
	<ul style="list-style-type: none"> Referral 	<ul style="list-style-type: none"> Supply chain management
	<ul style="list-style-type: none"> Misoprostol use 	<ul style="list-style-type: none"> PPH kit
		<ul style="list-style-type: none"> Policy to allow mid-level providers to perform manual removal of placenta
		<ul style="list-style-type: none"> Anti-shock garment (NASG)
		<ul style="list-style-type: none"> Balloon tamponade
		<ul style="list-style-type: none"> CCT (assuming it is removed through AMTSL)
		<ul style="list-style-type: none"> Oxygen
		<ul style="list-style-type: none"> Express clots manually

OTHER:

Global advocacy with UNICEF to allow storage of oxytocin in vaccine fridge

PE/E	WITHOUT SBA	WITH SBA
PREVENTION	<ul style="list-style-type: none"> Calcium supplementation Lowest dose (500 mg) Start at 12–20 weeks Multi-pill with IFA (interaction?) Media support for calcium promotion Think about targeting populations based on coverage and costs 	
	<ul style="list-style-type: none"> Encourage increased calcium dietary intake 	
	<ul style="list-style-type: none"> Community mobilization: BP/CR, awareness of danger signs, early recognition of danger signs, promote facility delivery, selection of SBA, cash savings, arrange transport with companion. Better communication using mHealth 	
	Pregnancy registration	
	<ul style="list-style-type: none"> Use a simple device for community level screening of BP; urine testing 	<ul style="list-style-type: none"> 3–4 ANC visits with accurate checking and follow-up for PE/E (India does not incentivize ANC only delivery) <ul style="list-style-type: none"> BP and urine testing Give calcium as part of ANC
	<ul style="list-style-type: none"> Satellite clinics, mobile phones, CSR by private sector 	<ul style="list-style-type: none"> Partograph

PE/E	WITHOUT SBA	WITH SBA
	<ul style="list-style-type: none"> Screen for risk factors during ANC to identify high risk groups: previous PE/E Family planning: high risk mothers (young and old women) should get FP counseling during the intrapartum period Promote postnatal care visits: ensure women and families know PE/E can occur post-delivery as well 	
	<ul style="list-style-type: none"> REFERRAL: strengthen transportation communication; promote emergency planning.; accompany women during referral and provide moral support 	
MANAGEMENT	<ul style="list-style-type: none"> Loading dose of MgSO₄: At health center IV or IM: need clear regulations on who can do what at the community level <ul style="list-style-type: none"> People are not comfortable unless trained well Midwives must be trained to give loading dose Administer hypertensives (oral at community level; possibly oral hypertensives and MgSO₄ at facilities; pr MgSO₄ to be explored) 	
	<ul style="list-style-type: none"> Increased surveillance of BP (if appropriate technology available) 	<ul style="list-style-type: none"> Early recognition, facility based readiness for obstetric emergencies
	<ul style="list-style-type: none"> Counseling on danger signs 	<ul style="list-style-type: none"> Better screening and changing provider attitudes to do follow-up; monitoring after delivery
	<ul style="list-style-type: none"> Close monitoring and timely referral 	
		<ul style="list-style-type: none"> Prepared kits of drugs and supplies for PET
	<ul style="list-style-type: none"> Rest 	<ul style="list-style-type: none"> Ensuring tertiary care hospitals: <ul style="list-style-type: none"> Induction of labor Cesarean section Antenatal steroids NICU for preterm births?
		<ul style="list-style-type: none"> ACS?
		<ul style="list-style-type: none"> Decision algorithm
		<ul style="list-style-type: none"> Logistics and supplies: calcium gluconate, MgSO₄ procurement, country-specific MgSO₄ dose

OTHER:

1. WHO should advocate for calcium supplementations to all countries' MOH and scale up
2. More studies and research needed for the calcium dose and way to implement
3. Standardize guidelines across countries; not only recommend based on evidence
4. More authority to community level workers to help as assistant nurses after being trained
5. WHO should address the PE/E issues for maternal and neonatal consequences together
6. Work with public and private facilities and providers

Appendix G: Priority Interventions for Selected Countries (Based on Country Poster Review Sessions)

Bangladesh

- The PPH prevention activities need to be better coordinated.
- A strong monitoring and evaluation plan should be developed.
- A scaling-up “road map” with a time should be developed by the Directorate General of Family Planning (DGFP) and Directorate General of Health Services (DGHS).
- Attention should be given to the procurement and supply of misoprostol tablets.
- All other maternal mortality interventions need to be streamlined/integrated with PPH prevention activities.

Cambodia

- For PPH: Ensure oxytocin in cold chain → up to MoH on how to implement.
- For PE/E:
 - Full nationwide rollout of AMTSL beyond hospitals and USAID-supported areas
 - Introduction of calcium for prevention of PE/E
 - Acceleration of training for use of MgSO₄ among low-level midwives:
 - Increase number of master trainers
 - Decentralize training in order to accelerate
 - Improve screening for PE/E
 - Increase supply and monitoring of (and training for use of) urine dipstick
- Other recommendations:
 - Expand and train for newborn care
 - Increase quality of maternal and newborn care
 - Increase community awareness
 - Brief Minister on this meeting and priority interventions
 - Brief Task Force on this meeting and key priorities; discuss next steps and priorities
 - Brief the sub-technical working group for MCH on the meeting and key priorities; discuss next steps and priorities

Egypt

- Priority interventions:
 - Ensure that assessment of CDA clinical facilities includes a review of where the full range of HBB skills can be incorporated
 - Strengthen KMC aspects of the existing program
 - Establish contact with the group working on misoprostol OR to discuss programmatic implications
 - Review the existing community package to ensure that messages around IFA and calcium intake are adequate/appropriate

- Look into the feasibility of establishing loading dose of MgSO₄ at primary health care unit level
- Two immediate steps:
 - Brief extended project staff and MOH counterparts
 - Develop country-specific (as opposed to project-specific) maps for PPH and PE/E

Pakistan

- Advocacy: national/provincial campaign
 - Formation of MNCH Pakistan Group for joint efforts in implementation of PPH and PE/E interventions at all levels by all stakeholders
 - Organize an advocacy seminar (end of May)
 - Nominate a steering committee from existing groups
 - Conduct a series of technical updates
 - Develop national/provincial champions
 - Promote evidence-based practices/interventions at all health facilities as a national campaign:
 - AMTSL
 - Use of MgSO₄
 - Calcium supplementation
 - HTSP/PPFP
- Creating an enabling environment:
 - Notification from DG Health Offices for practicing AMTSL at each vaginal delivery
 - Situation analysis for PE/E detection, management, and prevention at the health facilities conducting deliveries (tertiary care, DHQ, THQ, RHC, private maternity homes)
 - Develop a plan of action for PPH/PE Prevention Program within existing strategies
- Testing innovations:
 - Training of LHWs on BP measurement and urine albumin testing for screening PE clients
 - Use of misoprostol for prevention of PPH in the community setting
 - HBB and essential newborn care for health care providers/LHWs
- Training of providers:
 - Strengthen practical component of pre-service and in-service trainings for detection and management of PE/E and for AMTSL
 - Develop clinical champions and model service delivery sites
 - Conduct supervision, monitoring, and follow-up of training
- Improving quality of care:
 - Review of minimum service delivery standards through Health System Reform Unit
 - Set and institutionalize standards
 - Integrate QOC monitoring across sites and facilities through notification from DG Health Office

- Incorporate standards into existing supervisory and monitoring tools to ensure sustainability
- Measure and recognize progress through collected data
- Increasing awareness among families:
 - Integrate messages with existing campaigns (Mother and Child Health Week)
 - Develop and disseminate messages through LHW/CMWs
 - Use media for campaign
- Monitoring and evaluation:
 - Incorporate PPH/PE-related indicators into DHIS or monitoring tools for MNCH Program
 - Use data for decision-making
- Logistics and supplies:
 - Notification from DG Health Office for proper storage of oxytocin
 - Ensure availability of the relevant drugs at all health facilities
 - Include misoprostol in essential drug list

The Philippines

- Advocate with DOH regarding use of misoprostol:
 - Prepare evidence on the importance of misoprostol and share with DOH
 - Negotiate with the Food and Drug Administration for inclusion in the Philippine National Drug Formulary and the Essential Drug List
- Scale up implementation of policy allowing midwives to practice AMTSL, including the injection of oxytocin after delivery of the baby and the injection loading dose of MgSO₄ as needed:
 - Consultation of stakeholders to disseminate best practices
 - Scaling up of training: capacity enhancement of midwives on maternal and newborn care, which includes AMTSL practice
 - Be involved with the midwives' group in amending the midwifery law
 - Ensure/monitor availability of oxytocin and MgSO₄ in the facilities
 - Include AMTSL in the national health information system
- Work on formulating policy on PE/E prevention and management:
 - Consultation
 - Policy development and dissemination
 - Capacity enhancement from national to local/community level
- Document best practice in PPH interventions; conduct operations research and formative research

Timor Leste

Adapt WHO's recent recommendations on prevention and treatment of PPH and PE/E; revise national policies and protocols to include evidence-based practices:

- Convene an MCH working group meeting that involves key persons at central MoH and relevant partners for a presentation by the Dhaka team

- Review WHO's recommendations in terms of PPH and PE/E management
- Consider what adaptations are necessary for the local context
- Develop a guideline/standard of procedure on the management of PPH/PE/E

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