



Strategic Guidance Note on the Newborn
UNICEF and Save the Children

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Save The Children: is a leading international nonprofit child-assistance organization working in over 40 countries world-wide, including the United States, with a mission to make lasting positive change in the lives of children in need. The Saving Newborn Lives II initiative of Save the Children, funded by the Bill and Melinda Gates Foundation, awarded in late 2005 aims to go to scale with essential interventions to reduce newborn mortality in 20 countries.

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1. Rationale

Thirty-eight percent (38%) of the estimated 10.5 million child deaths each year occur in the first four weeks of life, the neonatal period. This means that a newborn baby has a 30 fold increased risk of dying during the first month of life than in the following 11 months¹. In addition to this burden, 4 million babies are stillborn.

During the last 3 decades, governments, along with UNICEF, other UN, multilateral and bilateral partners, as well as NGOs, and groups from civil society, have made great efforts to reduce child deaths. Deaths from vaccine preventable conditions were reduced through immunization, and deaths from diarrhoea and pneumonia were reduced through ARI and CDD programmes; now part of the Integrated Management of Childhood Illness (IMCI). While infant and under-5 childhood mortality rates in developing countries have declined significantly during this period, neonatal mortality rates (NMRs) have remained relatively static.² This decrease in post-neonatal mortality with little change in neonatal mortality increases the proportion of deaths in the neonatal period.

A note of clarification:

In high income countries with good health indices, it is normal for neonatal deaths to account for 60 – 70 % of child deaths (see Figure 1 page 2), because they have greatly reduced deaths (in the neonatal, post-neonatal, and under five periods) and are left with difficult to prevent conditions such as congenital malformations and prematurity often resulting in death within the first month. In low income countries or those with poor health indices, the decrease in post-neonatal mortality is encouraging and indicates that development efforts are paying off, but a static and elevated neonatal mortality rate indicates there is need to focus on reducing deaths in this vulnerable period. Fortunately, there are low-cost, evidence-based interventions to reduce these deaths.

The Millennium Development Goal 4, to reduce under 5 year old child mortality by two-thirds by 2015, sets the global focus. Experts predict that neonatal mortality will have to be halved if this goal is to be reached. The publication of the Bellagio Child Survival Study Group

¹ Lawn J, Cousens S, and Zupan J, Four Million neonatal deaths: When, Where, Why?, Lancet Neonatal Survival Series Paper 1 365: 891-900 published online March 3 2005

² Saving Newborn Lives. State of the World's Newborns. Washington, DC: Save the Children/USA; 2001, and Darmstadt G, Lawn J, Costello A. Advancing the state of the world's newborns.

Bull World Health Organ. 2003;81:224-225

papers on Child Survival in the Lancet in 2003, followed by the Neonatal Survival Series published in the Lancet in March 2005, has provided scientific basis for action. Improvement in neonatal mortality will need interventions at all levels, from advocacy at the national level, to health systems improvement, to community care schemes. Each country needs to strategise their action based on the local situation, within the context of ongoing initiatives, and with a view to what works.

In accordance with a human rights approach based on the Convention on the Rights of the Child, and armed with the latest evidence-based information, UNICEF has identified and developed this strategic guidance note on the newborn to assist country offices in their work with governments and other partners, to address the question of what must be done to improve newborn survival, and to help identify UNICEF's role in this important work to reach global commitments. This document is based on the new UNICEF Health & Nutrition Strategy and the UNICEF 2006-2009 Medium Term Strategic Plan (MTSP). This strategic guidance was developed in cooperation with the Saving Newborn Lives Initiative of Save the Children and is based on their technical expertise, research, evaluation and programme modelling experience of the last 5 years.

2. The Problem

2.1. Which newborns are dying and where?

Ninety-nine percent (99%) of all newborn deaths³ occur in developing countries where the NMR on average is 33 deaths per 1000 live births. Only 1% of deaths take place in high income countries where the average NMR is 4 per 1000.⁴ This is a powerful statement about global inequity.

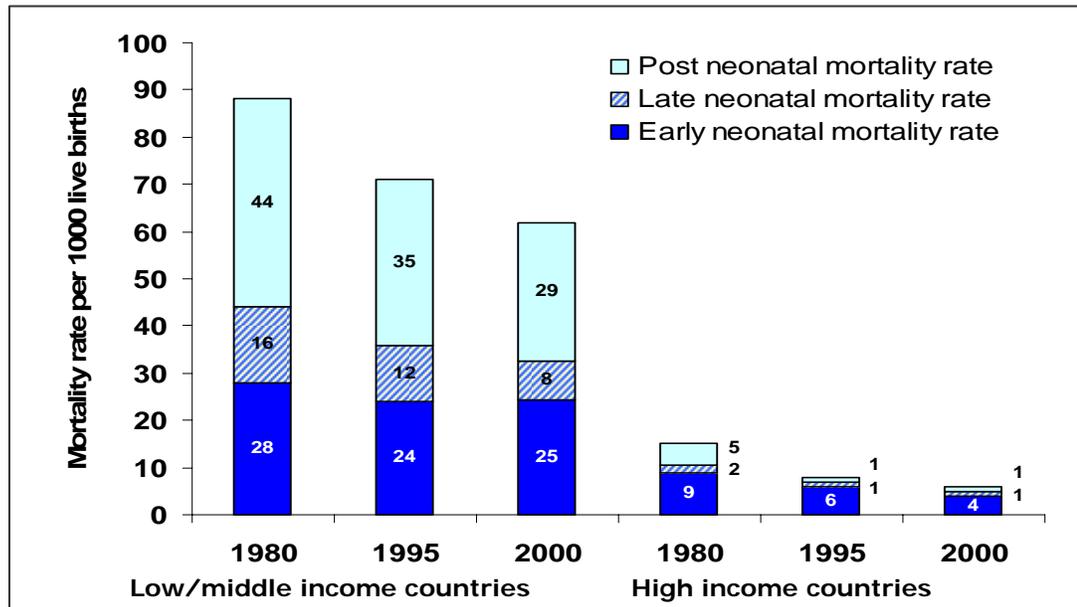
Disparity in mortality occurs not only between rich and poor countries, but within countries as well. Generally, the poorest have the highest mortality rates and less accessibility to health care when compared to the richest people.

³ note: in this strategy, 'newborn deaths' is synonymous with 'neonatal deaths'

⁴ Lawn J, op cit. Lancet Neonatal Survival Series Paper 1

Figure 1

Time trends in early, late and post neonatal mortality 1980 to 2000, highlighting the lack of progress in reducing first week deaths in low/middle income countries.



Source: Lawn J, Zupan J, Begkoyian G, Knippenberg R.. *Newborn Survival*. Chap 27, *Disease Control Priorities 2nd Edition*. Eds Jamison D et al 2006
 Sources for data: Authors based on United Nations Children's Fund, various years, World Health Organization (1998)

Each year, fifty three million women give birth at home, (representing close to 40% of births) without the help of a skilled attendant.⁵ This proportion of births at home, without skilled care is much higher in less developed countries, and often higher still in rural areas within these countries. Across 40 countries with DHS data between 1995 and 2003, more than 50% of neonatal deaths arose after a home birth with no skilled care⁶.

⁵ Sibley L, Sipe TA, Koblinsky M, Does traditional birth attendant training improve referral of women with obstetrical complications: A review of the evidence *Soc Sci and Medicine* 59 (2004) 1757-1768

⁶ Lawn, J et al op cit *The Lancet Neonatal Survival Series Paper 1*

It is estimated that between twenty-five to forty-five percent of the 529,000 maternal deaths and twenty-five to fifty percent of the 4 million neonatal deaths take place during labour/delivery or in the first 24 hours post-delivery, with over two-thirds of both maternal and newborn deaths occurring by the end of the first week.⁷ *Having access to care during labour, delivery and the first week postpartum is key to reducing maternal and neonatal mortality and morbidity. In cases where skilled attendants are not yet available, other solutions need to be found. These solutions will be developed at the same time efforts are being made to increase access and use of skilled attendants and of the emergency obstetric care package.*

2.2. Causes of newborn death

Globally, 86% of all neonatal deaths are caused by 3 problems; infection, asphyxia and prematurity (see Figure 2). **Infection** alone, accounts for 36% of the 4 million deaths annually. In areas where home birth without skilled attendance is the norm, this rate can be higher. In the Gadchiroli study in India, with 95% home births, sepsis accounted for 52% of neonatal deaths.⁸ Newborn infections can occur at any time in the neonatal period, but are the major cause of neonatal death after the first week.⁹ Treating existing maternal infections during pregnancy, following infection prevention guidelines during labour, delivery, and the post partum period (i.e. washing hands frequently and using clean cord cutting and cord care procedures), and identifying infections in newborns early and initiating antibiotic treatment can save many lives.

Asphyxia is the term used when the newborn does not cry or breathe immediately after delivery or has difficulty doing so (gaspings), and accounts for 23% of newborn deaths.

⁷ Li XF, Fortney J, Kotelchuck M, Glover LH, The postpartum period: The key to maternal mortality, Int Journal of Gynecology and Obstetrics 1996, Jul 54(1) 1-10 and op cit Lawn, J et al Lancet Neonatal Series Paper 1

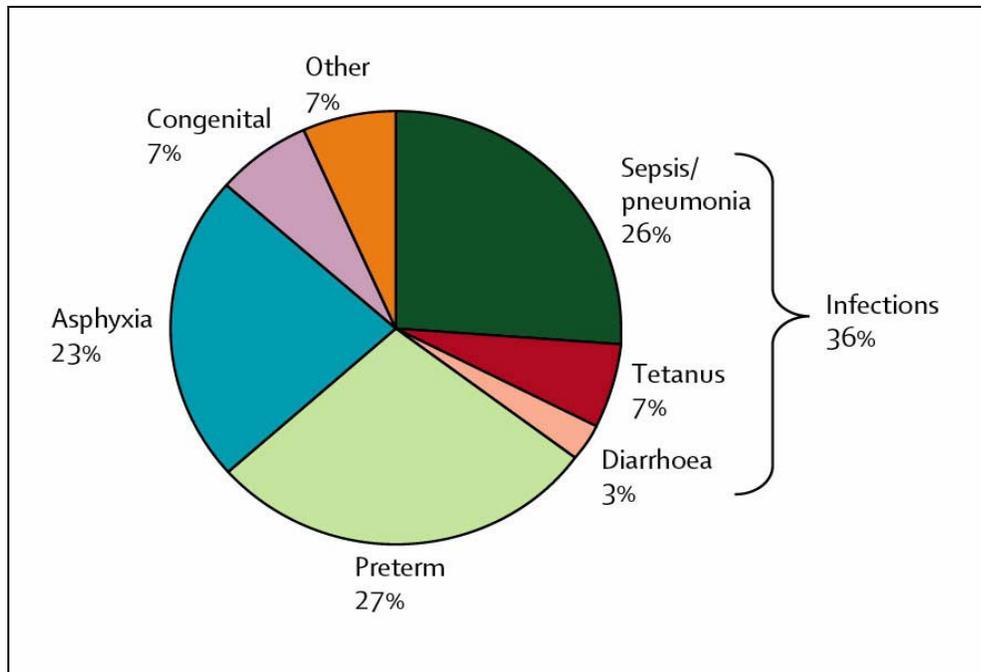
⁸ Bang, A, Bang R, Baitule S, Reddy H, Deshmukh M, Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India, The Lancet vol 354 December 4 1999

⁹ Lawn, J, Zulan, J, Begkovic G, Knippenburg, R, in DCP, Chapter 27 Newborn Survival, p.4_June 1005

While some situations during labour and delivery – such as prolonged labour – can alert the birth attendant to the possibility of asphyxia in the newborn, it is extremely difficult to predict all those babies who will suffer from asphyxia. Therefore, it is important to be ready at every delivery in case resuscitation is needed. Without a trained person present at the delivery to identify and treat asphyxia, the newborn will die or possibly suffer grave morbidities such as mental retardation or cerebral palsy.

Figure 2

Estimated distribution of direct causes of 4 million neonatal deaths for year 2000¹⁰



Source: The Lancet Neonatal Survival Series Paper 1 2005

Prematurity is the direct cause of 27% of newborn deaths. Many premature newborns suffer from respiratory problems due to immature lungs, and as a result of being born early, have **low birth weight** (defined as being below 2500 gms), a problem that underlies about 70% of all neonatal deaths.

¹⁰ Lawn J, et al op cit The Lancet Neonatal Survival Series Paper 1

Premature infants are less able to maintain a normal body temperature, have difficulty feeding, and are at higher risk of infection.

Saving small, moderately preterm babies is highly achievable and within our reach, with simple low cost care in the clinic or home; keeping the baby warm (one method is Kangaroo Mother Care, also called skin to skin care when carried out in the community¹¹), helping with feeding if needed, special attention to hygiene to prevent infections and early recognition and treatment of infections.

To reduce the incidence of prematurity, pregnant women should receive quality ante-natal care, including identification and treatment of maternal infections (such as bacteriuria), managing hypertension and pre-eclampsia during pregnancy, and giving intermittent presumptive treatment (IPT) for malaria where endemic. In Africa, malaria is a major cause of maternal anaemia, LBW and premature birth. Recent evidence shows that birth intervals of less than 36 months significantly increase the risk of low birth weight, prematurity and neonatal death¹².

Most low birth weight babies (the majority found in South Asia) are not premature; they are born at the right time but they are small for their age, a problem called **intrauterine growth retardation (IUGR)**; they are stunted in utero, before they are born. While still at risk, small babies born at the right time fare much better than premature babies, although they do need extra care to ensure warmth, adequate feeding, and to guard against infection. The risk for these children is more developmental than one of survival. For IUGR infants, the mother's nutritional status and health condition before and during pregnancy have a lot to do with why babies are born at full gestation but small (IUGR). The solutions for term IUGR are intergenerational; ensuring access to health care and adequate nutrition to girl-children from birth, through childhood and into young adulthood, while avoiding adolescent pregnancy.

2.3. When Newborns Die

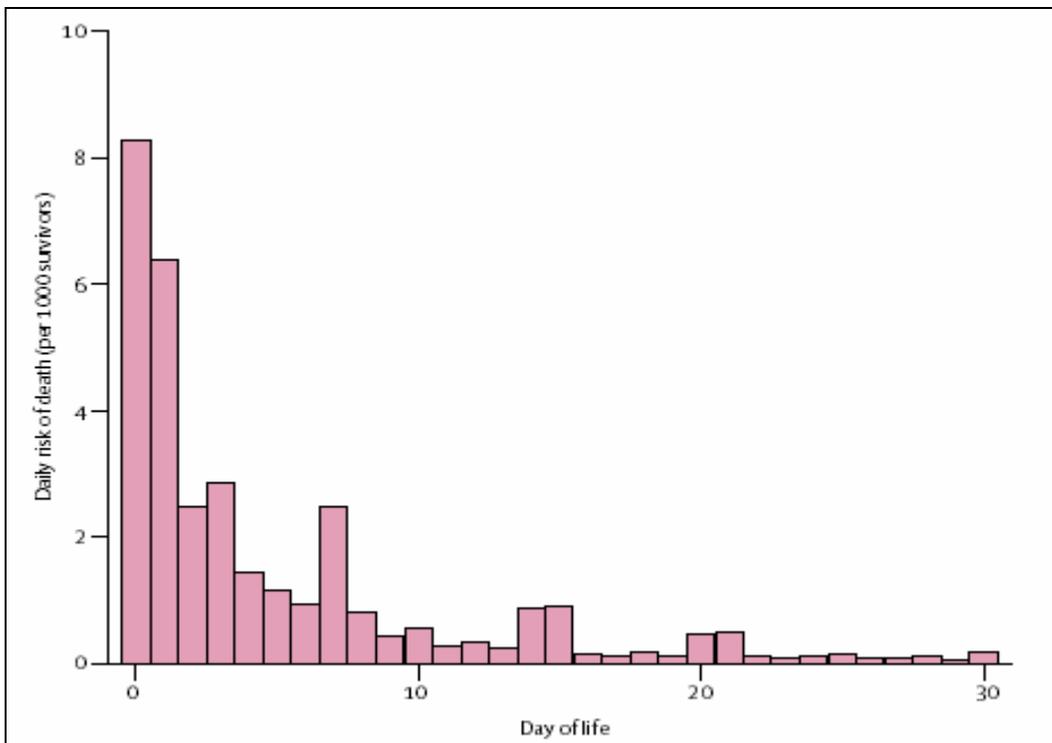
¹¹ Comment from Anne Tinker, Saving Newborn Lives, Save the Children, Nov., 2005

¹²Norton, M, Guest Editor, International Journal of Gynecology and Obstetrics, Birth Spacing: New Evidence on Newborn, Infant , Child and Maternal Health, Vol 89 Supplement 1 April 2005

Figure 3¹³ from the Lancet Neonatal Series illustrates the dramatic facts of when newborns die. Three-quarters of all neonatal deaths take place in the first 7 days, with the greatest numbers of deaths occurring on the day of delivery and the first day after delivery. The authors note that in recording deaths there may be preferences in noting certain days like day 7, 14, 20 etc, but the trend of very high mortality around delivery and the immediate post-partum period, and steadily reducing after the first week is clear.

Figure 3

Daily Risk of Death during First Month of Life.



Source: *The Lancet Neonatal Survival Series Paper 1 2005*

Source of data based on analysis of 47 DHS data sets 1995 – 2003 with 10,048 neonatal deaths

3. Essential Interventions

¹³ Lawn, J et al *The Lancet Neonatal Survival Series Paper 1*

It is a myth that advanced technology and medical care is needed to substantially reduce the burden of death and disease among newborns. In a case controlled study in Gadchiroli District, state of Maharashtra, India, the neonatal mortality rate decreased by 62% over a period of 3 years by training local women with limited education to provide essential interventions during pregnancy, at the time of delivery and in the first month after delivery. These essential interventions include drying the newborn and keeping him/her warm, initiating breastfeeding as soon as possible after delivery and supporting the mother to breastfeed exclusively, giving special care to low-birth weight infants, and diagnosing and treating newborn problems like asphyxia and sepsis (with referral for severe complications).¹⁴ ***Experts estimate that with the provision of essential interventions at scale, the neonatal mortality rate can be reduced up to 70%.***¹⁵

The suggested package of essential interventions for pregnancy, delivery and postpartum is attached as Annex 1. A detailed analysis of the evidence for interventions specifically aimed at impacting perinatal and neonatal mortality and morbidity can be found in a special supplement to the journal Pediatrics¹⁶ published in February 2005. The authors used the extensive review from this study to formulate the analysis on essential interventions found in the Lancet Neonatal Survival Series (Paper 2), where a list of the most effective interventions by levels of evidence (Annex 2) is highlighted.

3.1. Antenatal Interventions

While it is widely assumed that Antenatal Care (ANC) has a positive influence on both maternal and newborn health, there have been few systematic studies of the impact of ANC programmes on perinatal and neonatal outcomes.

The effect of ANC on newborn outcomes has more to do with the specific interventions occurring during the contact with a health

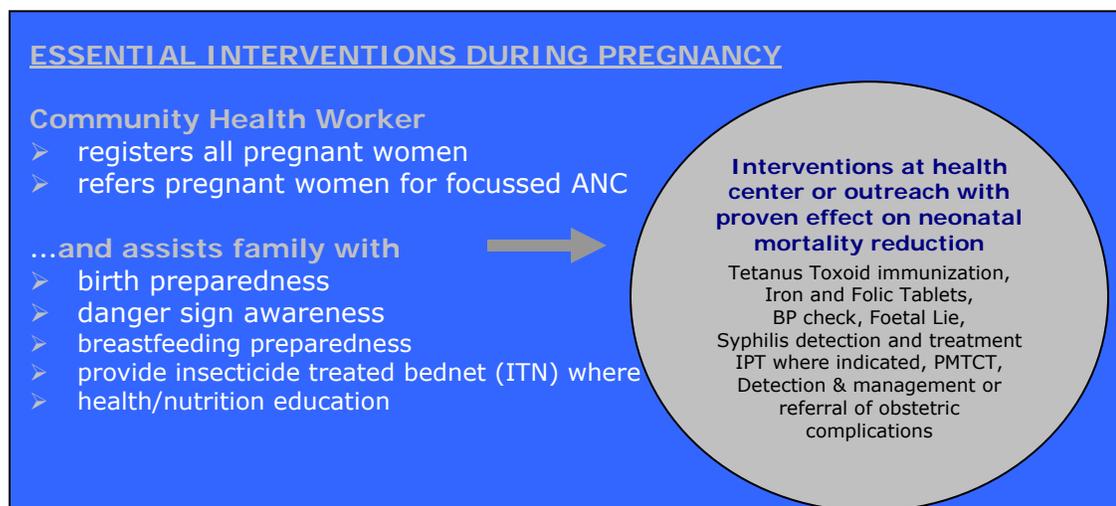
¹⁴ Bang et al op cit

¹⁵ Darmstadt G, Bhutta Z, Cousens S, Adam T, Walker A, Evidence-based, cost effective interventions that matter: how many newborns can we save and at what cost? Lancet Neonatal Survival Paper 2, published online March 3 2005

¹⁶ Bhutta ZA, Darmstadt, Babar S., Hasan and Rachel Haws, Community-based interventions for improving perinatal and neonatal health outcomes in developing countries: a review of the evidence. Pediatrics v115 i2 pS519(99), , Feb 2005

provider, and research has demonstrated¹⁷ that these interventions can be given in fewer visits than previously advised.

In low resource settings, **Antenatal Care** should be focussed to provide those interventions that are most critical in promoting a safe pregnancy and healthy newborn and mother. Key components of ANC are listed in the oval in Figure 4, and are usually done at a health centre or possibly through outreach. Other essential interventions during pregnancy are listed in the left column, and can also be provided during ANC, through outreach activities from the local health centre, or be provided in the community by a trained community worker.



Explanations and background data supporting the inclusion of interventions into ANC at a health facility is attached as Annex 3.

The following is a summary of the essential interventions during pregnancy that can be performed by a trained Community Health Worker.

Breastfeeding preparedness

The importance of breastfeeding to newborn survival is incontrovertible. Exclusive and continued breastfeeding is the most

¹⁷ Villar J, Ba'aqeel H, Piaggio G, et al. WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care [published correction appears in Lancet. 2001;358:1556]. Lancet. 2001; 357:1551-1564.

significant preventive intervention, capable of saving an estimated 1.3 million child lives annually (UNICEF). Preparing a mother for breastfeeding during her pregnancy, through health education, has shown to significantly improve full breastfeeding at 6 months compared to mothers not receiving prenatal breastfeeding education.¹⁸

Birth Preparedness¹⁹

All women and newborns need timely access to skilled care should complications arise during pregnancy, delivery and the postpartum period. Timely access to emergency obstetric and newborn services is often hampered by 3 delays: delay in deciding to seek care, delays in reaching care, and delays in receiving care.²⁰ There are many factors that interplay with these delays. The decision to seek care is often influenced by cultural factors; some societies believe that mothers and newborns should not leave the home for delivery or during the first month after birth, and if they need to, permission is necessary from the husband, or male head of the family. If this person is not at home at the time of the emergency, and prior agreement has not been given, it could prove fatal. Other barriers to deciding to seek care include fear that providers at the health facility will not respect them or their beliefs, or lack of confidence in the capacity of the health system and care providers. Economic factors also play a role, the cost of transportation and user fees at the facility may prove to be barriers to care seeking. Geographical barriers are also important, especially in extremely isolated areas with poorly maintained roads.

While these barriers are formidable, birth preparedness and emergency readiness interventions help families and communities plan for such eventualities.

If families and communities are prepared for such emergencies beforehand, (by understanding danger signs and when care is essential, by raising money (or saving money) for emergencies, by

¹⁸ Pugir, E, Valdes, V, Labbock M, Aravena,R, Does Prenatal breastfeeding skills group education increase effectiveness of a comprehensive breastfeeding promotion program?

¹⁹ Note: In this context birth preparedness includes danger sign awareness or as it is often called, complication readiness.

²⁰ Thaddeus S, Maine, D Too far to walk; Maternal mortality in context, 1994, Social Science and Medicine 38: 1091

identifying transportation beforehand etc) the first 2 delays can be avoided or greatly reduced.

Assuring competent care at the referral centre and thereby reducing the third delay is the object of EmOC programmes, and goes hand in hand with community strategies to reduce maternal and newborn mortality and morbidity. Although birth preparedness and complication readiness models are included in comprehensive packages of maternal and newborn interventions, the effectiveness of their individual contributions to the total impact of the care package has not yet been sufficiently evaluated. Recent results from a study in western Kenya demonstrate significant improvements in utilization of skilled care when birth preparedness was introduced through community and women's groups.²¹

Insecticide Treated Bed Nets (ITN)

The use of bed nets impregnated with the insecticide permethrin (or related compounds) can reduce bites from mosquitoes and reduce mosquito populations and therefore the chance of getting malaria. Use of ITNs has been shown to reduce maternal anaemia rates as well as child mortality and morbidity.. The evidence is less robust for improving pregnancy outcomes and reducing perinatal or neonatal mortality²². Distribution of bed nets as part of ANC is an accepted strategy of the Roll Back Malaria partnership. ITNs can also be distributed as a community activity, along with health education explaining why it is important to sleep under a treated net - especially for mothers and newborns. Monitoring and assessment of ITN use and effectiveness is essential, especially when scaling up.

Nutrition and Health Education

Many women in developing countries are already undernourished when they become pregnant. Because pregnancy is an additional energy burden, it is important for all women, but especially those

²¹ CHANGE Project and Safe Motherhood Demonstration Project [A Community Developed Birth Preparedness Intervention in Western Kenya](http://www.changeproject.org/technical/maternalhealthnutrition/mstoolkit/bp_kenya/overview_bp.htm) 2005, USAID and DFID funded,
http://www.changeproject.org/technical/maternalhealthnutrition/mstoolkit/bp_kenya/overview_bp.htm

²² op cit Bhutta, Darmstadt, Babar, Hassan, Haws, etc

already underweight, to eat more during pregnancy. Mothers who are undernourished and who do not gain sufficient weight during pregnancy are at risk of having low birth weight (LBW) babies. LBW babies are more vulnerable and are at greater risk of morbidity and mortality. Mothers should be encouraged to eat an extra helping of a staple food and to eat foods rich in vitamins and minerals.

Mothers (and families) should be counselled to ensure that pregnant women do not over work, in order to preserve caloric energy. Pregnant mothers should be taking iron and folic acid tablets to reduce maternal anaemia and families should be encouraged to use iodized salt to protect themselves and their new babies from mental or physical problems caused by iodine deficiency.

Giving deworming medication to pregnant women after the first trimester, especially in areas heavily infested with helminths, can improve maternal haemoglobin levels (decrease anaemia) and positively impact infant weight.

In situations where mothers are extremely undernourished, some studies show that protein-energy supplementation can be effective in improving maternal weight gain and birth weight. Challenges remain in the cost of the supplements and the logistics of getting adequate supplies where they are most needed.

3.2. Essential Interventions During Delivery

While the presence of a skilled attendant at birth, with support from a well-functioning referral system, is the ideal choice for a safe delivery for both mother and baby, this option is not yet available for many families especially in developing countries. With this in mind, the following essential interventions are focussed on the newborn, and can be carried out by a skilled attendant in the health facility, or by a trained community worker or an informed family member at home.

Good hygiene practice is key to infection prevention during delivery for both the mother and newborn. Birth attendant hands must be thoroughly washed with soap and water and if possible clean gloves should be used. Anyone handling the baby should wash their hands with soap and water.

ESSENTIAL INTERVENTIONS FOR NEWBORN AT DELIVERY

- Promote or provide clean birth kit
- Be present at delivery and assess newborn
- Do resuscitation if required (advanced skill training)
- Support temperature management
 - ✓ Dry, wrap and skin- to- skin
- Support immediate and exclusive breastfeeding
- Ensure proper cord care
- Take birthweight
- Monitor Post-partum condition; stay at least 2 hours to make sure mother and newborn are stable
- Provide Vitamin A to mom after birth
- Refer if necessary

Be present at delivery and assess newborn

The first minutes after delivery are crucial for the newborn. A newborn must be dried immediately after delivery to prevent hypothermia and must be observed for breathing. If the baby is not crying or breathing, or is gasping (commonly termed as birth asphyxia), interventions to promote proper breathing should start no later than 1 minute after delivery in order to prevent death or disability. Therefore it is essential to have someone present, trained in giving essential newborn care including identifying problems such as asphyxia, which need an immediate response.

Resuscitation

Birth asphyxia accounts for about 23% of direct cause newborn death (see pie chart page 5). In addition, 26% of the close to 4 million stillbirths occurs during labour (intrapartum).²³ Performing a caesarean section in cases of prolonged labour and/or foetal distress could prevent some of these deaths (see note below on caesarean section).²⁴

²³ Lawn, J., Shibjuya K., Stein, C., No Cry at birth; global estimates of intrapartum stillbirths and intrapartum related neonatal deaths, Bulletin of the WHO June 25, 83 (6)

²⁴ NOTE: Caesarean section (c-section) refers to the surgical procedure to deliver a baby by making incisions into the abdomen and the uterus. Foetal distress, a sign of impending birth asphyxia, is measured by monitoring foetal heart rate (this can be done with a simple stethoscope and proper training, although using a foetal monitor is easier and more accurate). Birth asphyxia is an indication for performing a c-section and can be life saving. Other indications for c-section include dystocia (where the size of the baby and/or pelvis make vaginal delivery difficult or impossible), prolonged labour (which can be detected by using the partograph), breech presentation, and prior c-section. The desired c-section rate is between 5 and 15%.

However, if a newborn is born with asphyxia, resuscitation (including clearing secretions and ventilation with a bag and mask) can be life saving.

After reviewing a wide body of evidence, the Newborn Survival Lancet series, gives 'resuscitation of newborn' a level 4 (out of 5), and estimates that if resuscitation is timely, and performed by a trained person, all cause mortality can be reduced approximately 5 – 20 %.²⁵ Although data are lacking, particularly at community level, one prospective study showed that immediate resuscitation by a trained Community Health Worker (CHW) reduced asphyxia related case fatality by 50%.²⁶ (It should be noted that the definition of 'asphyxia' in this study included babies with 'mild asphyxia' (Apgar 7), not a standard definition of asphyxia used in other studies). Whether performed in a referral hospital, a health clinic or the community, resuscitation training needs to be standardised, based on norms and guidelines, competency based, and well supervised. Because asphyxia is not a common event, and resuscitation skills are not frequently used, timely retraining is essential.

Temperature management

Newborn babies, especially premature babies, cannot regulate their body temperature as efficiently as older infants, so it is essential to pay attention to keeping a newborn warm. Steps include immediately drying the baby after delivery, and placing the newborn skin- to- skin against the mother's abdomen then covered by a dry towel, or wrapped in a dry towel and placed close to the mother so breastfeeding can be started as soon as possible.

Families should know about putting a hat on the newborn and clothes, even in warm climates. Hypothermia (low body temperature) predisposes the newborn to infection (sepsis) and is preventable.

Breastfeeding

²⁵op cit Darmstadt et al Lancet Neonatal Survival Series Paper 2, Table 3 page 23 2005

²⁶ Bang a., Bang, R, Baitule, S, Reddy, H, Deshmukh M, Management of Birth Asphyxia in Home Deliveries in Rural Gadchiroli: The Effect of two types of birth attendants and of resuscitation with mouth to mouth, tube-mask or bag-mask, Neonates in Gadchiroli: Field trial of Home-based neonatal care in rural India (1993-2003), Supplement to Journal of Perinatology, volume 25, 1 March 2005

Breastfeeding should start as soon as possible after delivery, and within the first 30 minutes. Immediate breastfeeding hastens the expulsion of the placenta, contracts the uterus, and reduces blood loss. Breastfeeding prevents hypoglycaemia, and provides the newborn with nutrition tailored to its needs. Colostrum, the milk made during the first week after delivery, is perfectly tailored to the newborn's nutritional needs while providing antibodies to protect the newborn against infections. Breastfeeding should be exclusive as introducing the newborn to other fluids can cause diarrhoea and function to limit the amount of breast milk produced. Findings from a landmark study in Ghana show that both timing of initiation and type of breastfeeding pattern exert independent influences on neonatal mortality. Twenty-two percent of newborn deaths could be averted if breastfeeding started within one hour of delivery and 16 % could be averted if breastfeeding started within the first day. In addition, the risk of neonatal death was four times higher in those newborns not exclusively breastfed during the first month.²⁷

Having a knowledgeable person to assist a mother and newborn with this first feed and to provide needed support and knowledge about positive breastfeeding practices and behaviours is key to preventing problems such as sore nipples, engorgement, insufficient milk supply etc., and in promoting successful breastfeeding.

Cord Care

Hygienic cutting and caring for the cord can reduce the incidence of infection. Umbilical cords should be cut with a sterile instrument or at least a new razor blade, and tied with sterile cord, or a sterile cord clasper.

A community health worker or informed family member can influence the family about using a clean blade or can be the source of a simple clean birth kit. The current advice based on the evidence, is for umbilical cord stumps to be left clean, dry and uncovered (WHO).

²⁷ Edmond, KM, Zandho c, Quigley MA, Amenga-Etero S, Owusu-Agyei S, Kirkwood, BR, Delayed breastfeeding Initiation Increases Risk of Neonatal Mortality, Pediatrics, Vol 117, Number 3, March 2006

Putting gentian violet, a mild antiseptic, on the cord does not cause harm and some practitioners say it meets the needs of families who want to apply something, and can be used to replace harmful substances such as cow dung or oil.²⁸

Birthweight

Low birth weights babies (LBW), defined as weighing below 2500 grams, are 20 times more likely to die, or have poor health outcomes than heavier babies.²⁹ Although premature babies are at much higher risk than IUGR babies (see explanation on pages 4 - 5), all LBW babies have higher risk than babies weighing 2500 grams or more at birth.

Weighing a newborn at delivery can provide an indicator of whether the baby is at risk, and if so, then additional care may be required. (See Postpartum interventions for LBW newborns below).

In addition, birth weight can be a useful indicator to monitor improvements in maternal nutrition as well as improved prenatal care.

Vitamin A to mothers

Vitamin A deficiency (VAD) dramatically increases the risk of dying during childhood. Breastfed newborns receive their vitamin A through breast milk. Therefore, WHO and UNICEF recommend giving a postpartum mother 200,000 IU of vitamin A in a capsule after delivery or within 6 weeks³⁰.

Having a trained person at delivery can provide a vehicle for distributing this dose to postpartum mothers. (Recent research in high prevalence HIV settings to be considered.)

Identify treat/refer complications

²⁸ Presentation by Dr Abhay Bang to visiting UNICEF Delegation, April 2005, Gadchiroli

²⁹ UNICEF and WHO Low Birthweight: Country, regional and Global estimates 2004, New York

³⁰ Integrated Management of Pregnancy and Childbirth, Pregnancy, Childbirth Postpartum and Newborn Care: A guide for essential practice, WHO, UNICEF, UNFPA < The World Bank, 2003, WHO, Geneva

Early identification of danger signs during delivery and swift action to manage problems or to transfer the mother and newborn to a facility offering emergency obstetric and newborn care, can save lives. The presence of a trained community or family member with knowledge of danger signs can help the family make the decision to seek additional care if the need arises.

3.3. Essential Interventions Postpartum

By the end of the first week postpartum more than two-thirds of all maternal deaths and two thirds of all neonatal deaths have occurred. Yet only about a third of women in developing countries, use any postpartum care (WHO 1998). Even where a postpartum check up of the mother is done, it is unlikely to include the newborn.

Besides the need to identify complications, and manage treatment or referral, newly delivered mothers and newborns need additional care and information to prevent problems and ensure healthy outcomes.

Postpartum check ups for both the mother and the baby can be done in the health centre or in the community by a trained worker. Hygiene is also very important during the early post partum period, and all people handling the baby should wash their hands beforehand with soap and water.

3.3.1. Care of the Newborn Postpartum

POST DELIVERY CARE OF 2-3 HOME VISITS DURING FIRST WEEK. THE FIRST VISIT ON DAY 1

Care of Newborn –using checklist

- Assess newborn
 - ✓ weight
 - ✓ temperature
 - ✓ feeding
 - ✓ cord care
- Assess for sepsis (treat or refer if req.)
- Counsel parents on thermal control, exclusive BF, danger signs
- Refer for vaccination
- Refer for birth registration

Assess for weight, feeding, temperature and cord care

A trained health worker visiting the home during the crucial first days post delivery, is in an ideal position to monitor the newborn's weight and temperature, monitor the condition of the cord, and assess breastfeeding. If any problems exist, interventions can be introduced early on to prevent complications.

For example if a newborn has a low body temperature, the worker can show the mother how to re-warm the newborn, and discuss with the mother and family members ways to keep the baby warm. If there is difficulty in breastfeeding, the worker is there to observe a breastfeed, identify any problems and give relevant advice and support.

Assess for sepsis and treat/refer

Early identification of infection or sepsis in the newborn and initiating immediate treatment (or referral for immediate treatment) is crucial to saving newborn lives. While the global estimate of neonatal mortality due to infection is 36% (including deaths from pneumonia, tetanus and diarrhoea), a community based study in India where the vast majority of births occurred in the home (a scenario found in many areas in developing countries) identified that 52% of neonatal deaths were caused by sepsis.³¹ In this same study covering 39 villages, immediate antibiotic treatment by a CHW reduced the sepsis case fatality rate from 17% during the baseline (no treatment) to 3 % after treatment by CHWs.

The Lancet Neonatal Survival series (Paper 2) assigns 'community management of pneumonia' the highest level (5) of evidence as an effective intervention, and estimates up to 55% reduction in serious infection-specific mortality when practiced by trained agents.

Counselling for newborn care; hygiene, thermal control, breastfeeding, danger signs

The first days after delivery are very important for the mother and newborn. Support during this time can help establish exclusive breastfeeding, prevent infection by explaining the importance of hand washing, ensure that the newborn is warm enough, and provide education about danger signs that could arise in both mother and newborn and warrant medical attention.

³¹ Bang A, et al op cit

Refer for vaccination

A trained worker visiting the home can explain to the family the importance of timely vaccination for all infants, and help interface with the outreach worker to identify the time and place to receive these services. Vaccinations for newborns in the first week include BCG, polio, and Hep B.

Birth registration

Registering a newborn is the first step in establishing his or her right to a name, a nationality, health services etc. Encouraging birth registration can be done during the postnatal visit. It might even be possible in some situations to have the community worker do the registration.

3.3.2. Special Care for LBW Newborns

Approximately 27% of all newborns are born too soon and too small. LBW babies are at much higher risk of dying and getting sick than larger newborns. Paying extra attention to hygiene and frequent hand washing is important when caring for LBW newborns.

Although not all causes of prematurity are known or can be prevented at this time (even in industrialized countries) it is therefore essential to provide LBW infants with special care to prevent disease and death. There is convincing evidence that between 20 and 50% of newborn mortality caused by prematurity can be prevented by implementing simple, low-cost interventions, such as keeping the baby warm, assuring hygiene, and assisting with feeding if needed.³²

³² Darmstadt et al op it (Lancet Neonatal Series Paper 2)

- **If LBW, give extra care with 2 additional home visits**
 - ✓ kangaroo mother care (called skin to skin care in the community)
 - ✓ keep warm
 - ✓ assist with feeding if needed
 - ✓ attention to hygiene
 - ✓ review danger signs

Kangaroo Mother Care (KMC)³³

First described in Bogotá, Colombia as an alternative to insufficient access to incubator care KMC has proven to be a viable alternative for care of the stable LBW newborn, (those who can breath air and have no major health problems).

In addition, evidence shows that KMC is at least equivalent to conventional care (incubators) in terms of safety and thermal protection, as measured by mortality, and that the prevalence and duration of breastfeeding in KMC infants is increased. Components of KMC include;

- ✓ Early, continuous and prolonged skin to skin contact (infant placed in a vertical position between the mothers breasts)
- ✓ Exclusive breastfeeding (ideally)
- ✓ A gentle and effective method that avoids the agitation routinely experienced in a busy ward with preterm infants and promotes bonding with the mother

While usually started in the hospital setting, KMC offers the advantage of early discharge with continuing practice at home. Because of its advantages, KMC is recommended for all hospital settings (even tertiary hospitals) if the newborn is stable. It is generally recommended to initiate KMC for all stable infants weighing more than 1200 grams. Although there have been reports of good outcomes in some infants weighing below 1200 grams, these infants usually have prematurity related respiratory problems, and would benefit from traditional neonatal hospital care until stabilised. Of course in settings where referral facilities do not exist for such newborns, KMC is the best that can be offered.³⁴

³³ Kangaroo Mother Care a Practical Guide, WHO Geneva, 2003 ISBN 92 4 159035

³⁴ Cattaneo A, Davanzo R, Bergman N, Charpak N, Kangaroo Mother Care in Low Income Countries Journal of Tropical Pediatrics Vol. 44 Oct 1998 Oxford Univ press

Although to date there are few studies of KMC initiated in the home, current studies in northern India as well as Bangladesh (with Bangladesh Rural Advancement Committee <BRAC>) supported by Save the Children, have shown very promising initial results.³⁵

Assisted Feeding

Very small LBW infants, especially those less than 30 – 32 weeks gestation, and weighing 1200 grams or less, usually need to be fed through a naso-gastric, or oro-gastric tube, which can be filled with expressed breast milk. Assistance should be given to the mother to teach her how to express her milk.

The baby can be fed with a naso-gastric tube while in the kangaroo position. This should only be done in a health facility.

Babies over 1200 grams and about 30 - 32 weeks gestation may have difficulty suckling directly from the breast. These infants can take expressed breast milk from a cup, spoon or paladai (a small cup with a small spout found throughout India). The health worker should teach the mother how to express her milk and assist her when feeding for the first time with a cup or spoon. The baby should be taken out of the kangaroo position for feeding and held in the mothers arms, wrapped in a warm blanket. After feeding, the baby should return to the kangaroo position.

Babies of about 32 weeks gestation can usually suckle directly from the breast, but may need to be offered expressed breast milk from a cup after the breastfeed to ensure the baby has taken enough. From 34 weeks, (and 1800 grams) babies should be able to take all they need from the breast.³⁶

For detailed information on KMC and assisted feeding see Kangaroo Mother Care a Practical Guide, WHO Geneva, 2003 ISBN 92 4 159035.

Review danger signs

³⁵ Personal communication with Anne Tinker, Saving Newborn Lives, Save the Children, and Gary Darmstadt of Save the Children/Johns Hopkins University.

³⁶ WHO Technical Consultation on Feeding LBW infants. Draft report and recommendations September 2005.

Because LBW infants are at higher risk of becoming ill and dying, it is important to review danger signs with the mother and other family members so that care can be sought if needed. Remember to explain that when caring for LBW babies, it is always better to seek help, even if in doubt.

Danger signs include:

- ▶ Stops feeding, is not feeding well
- ▶ Is difficult to awake
- ▶ Becomes restless, irritable, lethargic or unconscious
- ▶ Has fever (temp above 37.5° C)
- ▶ Is cold (temp below 36.5° C)
- ▶ Has difficulty breathing
- ▶ Has diarrhoea
- ▶ Shows any other worrying sign

3.3.3. Care of the Mother Postpartum

A trained community worker, doing a post partum check for the baby, can also do a simple post partum check for the mother.

CARE OF MOTHER – USING CHECKLIST

- Assess mother
 - ✓ check bleeding
 - ✓ check temperature
 - ✓ breast problems
- Discuss danger signs
- Counsel on nutrition and birth spacing
- Refer if necessary

Post-partum checks for mother

Women continue to be vulnerable postpartum, and can benefit from check-ups within the first week after delivery. Maternal bleeding should be decreasing after delivery, and increased bleeding signals a problem. Maternal infection, most often manifesting in the postpartum period can likely be detected by an increase in temperature or foul smelling vaginal discharge. Support during breastfeeding can minimize problems such as engorgement which can lead to mastitis and, if not properly treated, to abscess.

In a rural community in India, home visits postpartum by CHWs reduced the incidence of maternal morbidities by 50% by

supporting breastfeeding, asking specific questions about the mother's bleeding, or if she felt feverish, as well as counselling for danger signs and nutrition.³⁷

Danger Signs

Mothers and families should be alerted to danger signs during the postpartum period for the mother as well as the newborn (discussed above). Maternal danger signs include:

- ▶ excessive bleeding
- ▶ fever
- ▶ foul smelling discharge
- ▶ breast pain or redness

Counselling for Nutrition and Birth Spacing

Mothers need to eat more food and drink plenty of liquids when breastfeeding. As during pregnancy, breastfeeding mothers should be encouraged to eat an extra helping of a staple food and eat foods rich in vitamins and minerals. Continued supplementation of iron and folic tablets is recommended for all postpartum mothers for three months after delivery. For the mother who is anaemic, a double dose of iron should be given for those 3 months (WHO)³⁸. A vitamin A capsule (200,000 units) should be given soon after delivery depending on country protocols.

Birth spacing has been shown to be beneficial to the health and survival of both mothers and children. While the usual advice is to space at least 2 years, new evidence shows that spacing at least 3 years (36 months) is even more effective. Evidence from a large retrospective study of Demographic and Health Surveys (DHS) from 17 countries in four regions show that for the year 2003, if women in developing countries (excluding China) did not have any births at intervals less than 24 months, they could have averted almost 2 million child deaths in that year.

³⁷ Bang, A, Presentation to visiting UNICEF Delegation, Gadchiroli, April, 2005

³⁸ Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice. WHO, UNFPA, UNICEF, The World Bank, Geneva 2003, page D24

If mothers had spaced 12 months more (for a total spacing of 36 months), an additional 1 million deaths would have been avoided.³⁹

Counselling post partum mothers on the advantages of birth spacing on child survival and for their own health, and linking them with family planning services, can have impressive impact on reducing maternal and child mortality.

4. Strategies for intervention

Strengthen community practices and linkages to the health system, and go to scale.

Since most maternal and newborn deaths occur around the time of delivery and up to the first week post partum, efforts must be made to protect the mother-newborn dyad during the childbirth process and provide acceptable and appropriate services at this crucial time.

This imperative, coupled with SNL's ground-breaking work on the newborn and UNICEF's strategic advantage of working with government and partners to support maternal and child survival, particularly through high level advocacy and community-based interventions, helps define the focus of this joint UNICEF - SNL strategic guidance for programming. This guidance is based on UNICEF's new Health & Nutrition Strategy and the 2006-2009 Medium Term Strategic Plan (MTSP).

Going to Scale

The question at this point in time is not what needs to be done, but how can we extend these essential interventions to all people? It is only with large scale coverage of these essential interventions that global reductions in neonatal mortality will happen. Therefore, going to scale in as many countries as possible is a key component of the UNICEF-SNL alliance. Pragmatically, it will not be possible to introduce and sustain the whole package of essential interventions on a large scale at one time.

³⁹ Rutstein, S.O. Effects of preceding birth intervals on neonatal, infant and under-five mortality and nutritional status in developing countries: evidence from the demographic and health surveys, International Journal of Gynecology and Obstetrics, (April 2005) vol 89, Supplement 1 S7 - S24

Programming in each country will have to be based on current realities on the ground, vis a vis the health infrastructure, financial and human resources, availability of community workers, the situation of mothers and newborns etc.

Strengthen facility-based health care

In some countries where more than 60% of the deliveries take place in health facilities, it might make sense to give initial emphasis on improving facility level essential and emergency care for mothers and newborns; linking to EmOC programmes and adding the 'N' Newborn component to both IMNCI and to EMNOC. At the same time, linkages should be forged with communities, especially for birth planning, health education and post-partum care.

REACHING ALL NEWBORNS

➤ Existing health facilities should be able to:

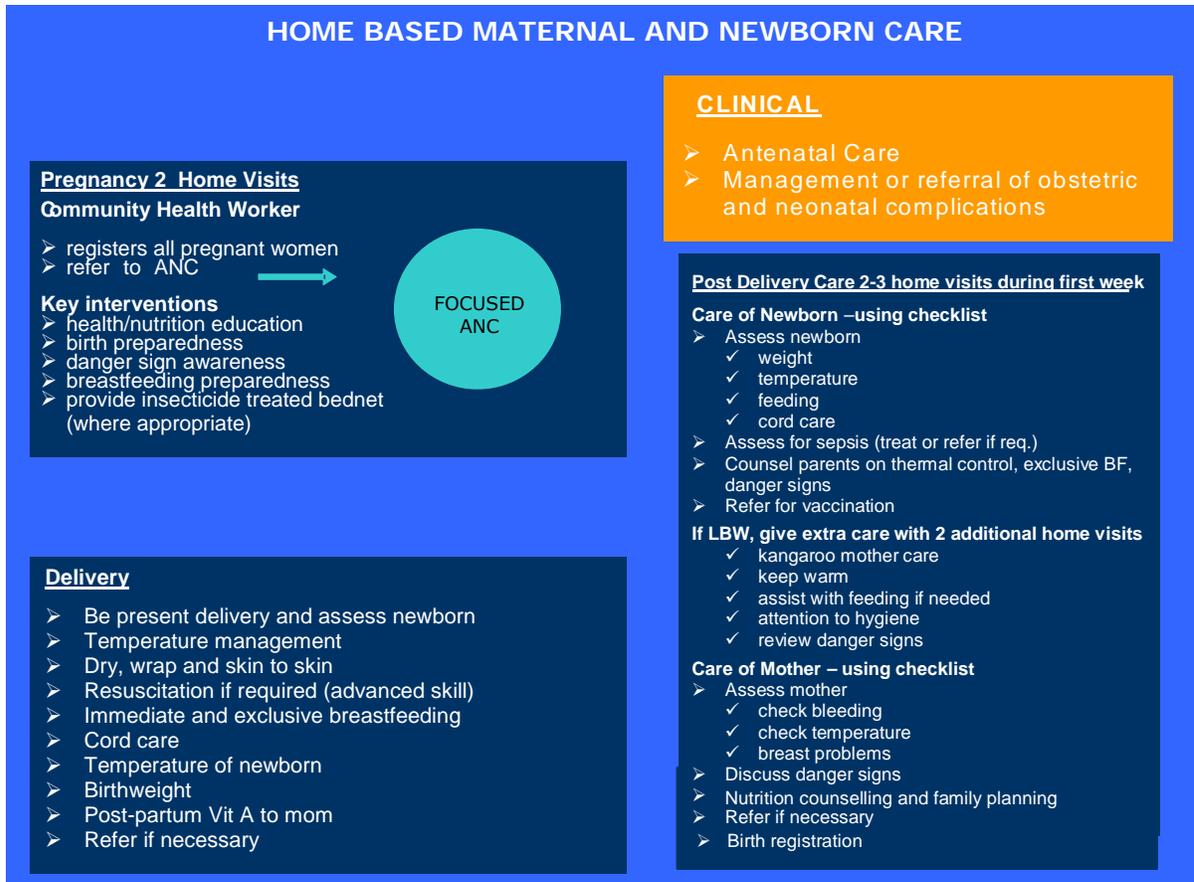
- ✓ Provide essential newborn care (drying, keep warm, breastfeeding, care of LBW etc)
- ✓ Provide care of the sick child (IMNCI including newborn)
- ✓ Provide emergency newborn care (i.e resuscitation)
- ✓ Identify and be able to treat newborn illnesses including giving antibiotics
- ✓ PMTCT + if indicated

Strengthen community practices and linkages to the health system

In low resource settings, where the majority of deliveries take place at home, strategies can be phased so that more feasible interventions are introduced first, such as tetanus immunization, drying and warming, immediate breastfeeding, good hygiene practices and teaching family members newborn and maternal danger signs. More complex interventions like antibiotics for sepsis and resuscitation with bag and mask can be taken up incrementally as the scenario improves.⁴⁰ Entry points in the community should be through community participation processes, as expected in a human rights-based approach to programming.

COMMUNITY MODEL

⁴⁰ [Essential Newborn Care](http://www.savethechildren.org/health/newborns/index.asp) Save the Children
<http://www.savethechildren.org/health/newborns/index.asp>



A human rights approach: ensuring universal access to quality maternal and child health services, with emphasis on the poorest and most excluded.

This UNICEF strategic guidance note on the newborn calls for country offices to support governments to focus attention on the newborn as part of a maternal and child survival package, to do so with a human rights approach, and with the poor and disadvantaged in mind.

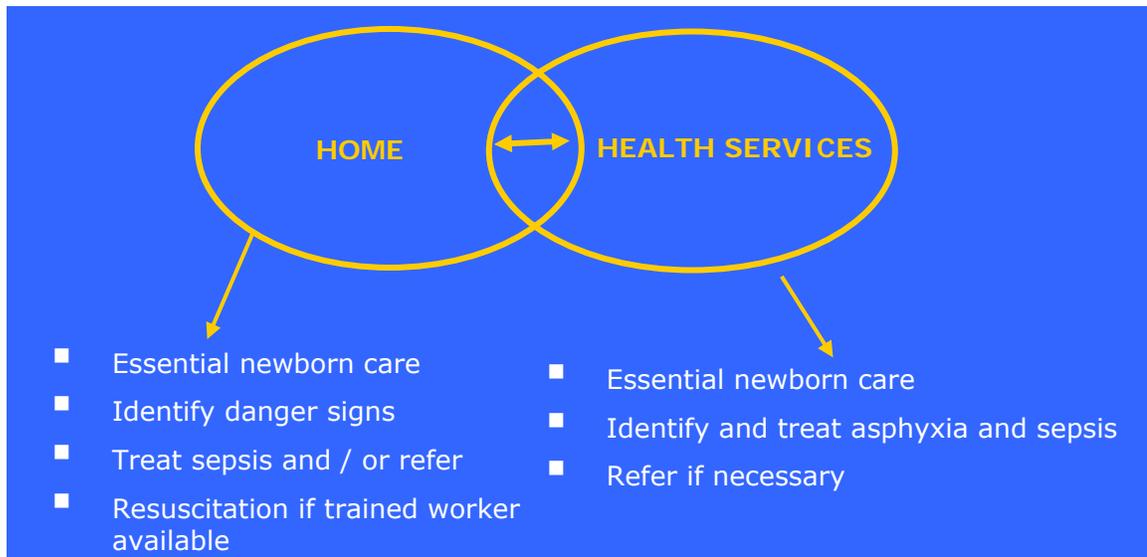
UNICEF has been in the forefront of promoting the rights of children and almost all governments having ratified the Convention on the Rights of the Child. This rights focus is powerful in motivating governments and other partners into action. This approach is particularly relevant in relation to the stark differences in mortality and morbidity between developed and developing countries, among developing countries and different geographic locations of a country.

Child survival interventions do not take place in a vacuum but are implemented in societies with social stratification. When new interventions are added, the better off usually take advantage of them more readily than the poor. Programming of new interventions has to counteract this usual evolution.⁴¹ PRS's and SWAPs (Sector Wide Approaches) should have sufficient in-built measures to ensure that poor people equally benefit from economic and social development.

Continuum of care

The health of a newborn is intricately linked to the health and nutritional status of his/her mother, and to her access to care during pregnancy, delivery and in the postpartum period. The continuum of care approach recognises this, and further asserts that a healthy start in life is an essential step towards a sound childhood and a productive life. The continuum of care also refers to the linking of households to hospitals by improving home-based practices, mobilising families to seek the care they need, and increasing access to and quality of care at health facilities.⁴²

CONTINUUM OF CARE



⁴¹ Victora C, Wagstaff A, Schellenberg J, Gwatkin D, Claeson M, Habicht JP, Applying and equity lens to child health and mortality: more of the same is not enough, Lancet Child Survival IV, The Lancet, vol 363 July 19, 2003

⁴² Tinker, A., ten Hoop-Bender, P., Azfar, S., Bustreo, F, Bell, R., "A Continuum of Care to Save Newborn Lives, Comment to The Lancet Newborn Survival Series, March 2005

It is crucial that key interventions, such as essential newborn care, be available in the home as well as the health facility, and that facility appropriate interventions be available for complications when needed.

Conclusion

The global community was inspired by the recent Lancet articles on newborn health. This publication brings to the forefront the importance and feasibility of reducing neonatal mortality.

In line with this movement, the UNICEF Newborn Strategy calls for each country to assess the situation of the newborn, and look again at current programmes to see how they can be strengthened and broadened to meet the needs of the newborn.

Solutions need to be found so that the poor have access to quality essential services. If the facility-based health system is not adequate, it will need to be strengthened, but it's not necessary to wait; approaches can be creatively initiated with communities to ensure that newborns receive much of the care they need to survive and thrive. It is only with the concerted effort of governments, the international donor community, local organisations and civil society that we can begin to meet the MDG goals. UNICEF can play an important role in making sure that the newborn is a priority within this agenda.

This strategic orientation calls on strengthening and broadening already existing programmes; such as child survival, the Accelerated Child Survival and Development programme (ACSD) , IMCI and C-IMCI, safe motherhood, EmOC, nutrition, early childhood development, and community development programmes, in order to increase the accessibility of quality essential maternal and newborn life-saving interventions to all communities.

4.1. Programme Guidance

4.1.1 National Advocacy, Situation Analysis and Strategy Development

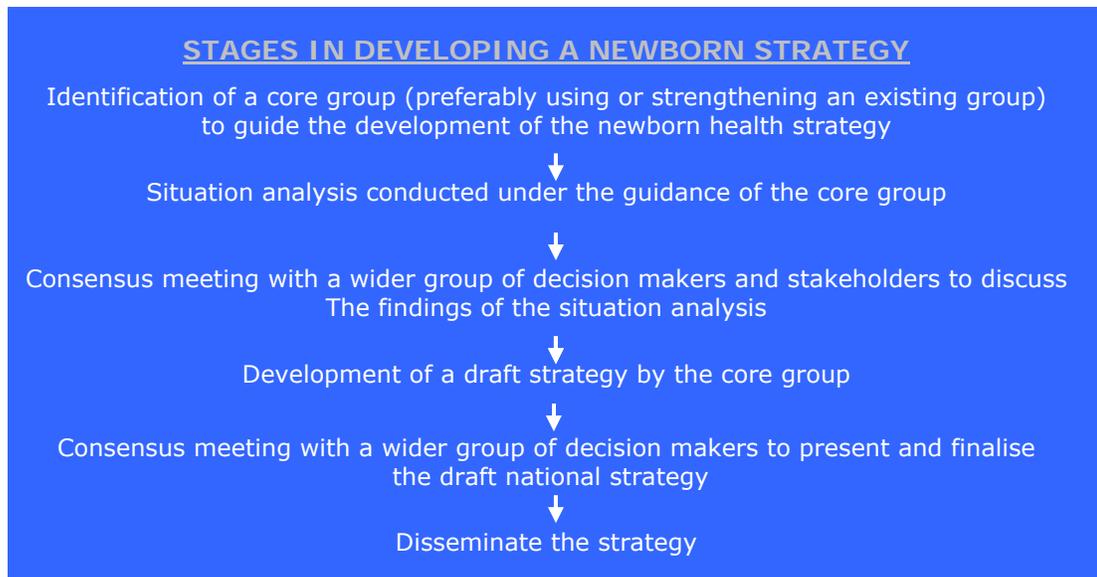
In countries with a high burden of neonatal mortality, it is essential to initiate an active dialogue with government and key shareholders, such as other international, bilateral and NGO donors, professional organisations, and groups from civil society.

One helpful tool is a **national strategy**, based on the situation in the country. If a Child Survival, Reproductive Health or Safe Motherhood strategy exists, it should be reviewed to ensure that the 'newborn' is included and specific problems of the newborn in the country adequately represented.

If such a strategy does not exist, it should be developed, either as a joint Reproductive Health Strategy including newborns, or a Child Survival Strategy including newborns, as a stand alone Newborn Strategy, or ideally as a Maternal, Newborn, Child Health Strategy (relevant nutrition issues should be included in all such strategies).

A national strategy can define the problem and act as a unifying force in mobilising partners into action.

The steps in developing a strategy (and these apply to a stand alone Newborn Strategy or to identifying the newborn component of a larger Strategy) are listed below. For clear guidelines on developing a national strategy, please refer to Newborn Health: Policy and Planning Framework, Part I Overview for Policy Makers (included in Guidance Package). The suggested contents of a newborn strategy are attached to this document as Annex 6.



Source: *Newborn Health: Policy and Planning Framework WHO/Save the Children 2004*

Before the strategy is developed, as part of the situation analysis, a review of existing programmes should be undertaken with the idea of seeing where newborn care can be included or amplified. Where can the implementation of evidence-based, low-technology interventions that have proven effectiveness in reducing mortality be included? Depending on the local situation, these interventions can be packaged for delivery within already existing maternal and child health programmes through the current health system.

In settings with high neonatal mortality rates (NMR) and weak systems, interventions can be carried out through outreach and family/community activities. Based on each country's situation, and guided by the common strategy, **national action plans**⁴³ can be developed.

National action plans should include monitoring and evaluation modalities, and timely reviews, undertaken to make sure progress is on target. A list of possible newborn programme indicators is attached as Annex 7. Some of these indicators have been incorporated into the Child Survival matrix of the UNICEF MTSP 2006-2009.

- Some kind of baseline is required before programme implementation. Although mortality rates are available in most countries, reliable data on neonatal mortality is not often available. Information on home based care practices is not always available, and may need to be established.
- Wherever feasible, newborn indicators should be included in household and health facility surveys. The MICs and DHS have already included many questions related to these indicators.
- In consultation with the government and other agencies, key newborn indicators should be collected routinely through HMIS to enable the government to monitor newborn health care on a regular basis.
- Documenting and sharing experiences and lessons learned in scaling up newborn care is encouraged.

⁴³ Newborn Health Policy and Planning Framework Part I Overview for Policy Makers, WHO, Saving Newborn Lives, piloting version October 2004

CASE STUDY 1: THE NEWBORN STRATEGY IN NEPAL⁴⁴

- The experience of Nepal provides an example of a collaborative process for developing a newborn health strategy. The National Neonatal Health Strategy (NNHS) has its roots in the *State of the Worlds Newborns: Nepal*, a situation analysis based on research from the country's leading health professionals and supported by the Ministry of Health (MOH).
- Following the launch of the report, the MOH convened a Newborn Working Group to develop Nepal's newborn health strategy. Representatives from diverse professional backgrounds including neonatology, safe motherhood and community mobilisation, worked for 5 months to create a shared vision of the NNHS. The result was a set of evidence-based priority interventions for newborn care based in the community and linked to the national health system. The NNHS was formally accepted by the government in 2004 and is being distributed throughout the country as the official statement of newborn health care policy.
- To transform policy into action, Nepal's "Long-Term Neonatal Health Plan" is being finalised. The operational plan will provide government, donors and other key stakeholders with implementation guidelines through 2007.

Another example of national advocacy is illustrated below in the Vision 2010 initiative.

CASE STUDY 2: NATIONAL ADVOCACY WITH FIRST LADIES IN WEST AFRICA

- In 2001, the Government of Mali, UNICEF, and other partners organized a meeting of the First Ladies in central and western Africa, launching a high-level initiative called "Vision 2010" to draw attention to and raise awareness about the high and unacceptable levels of maternal and newborn death and disease.
- The goal of the initiative is to reduce maternal and newborn mortality by 50 percent by 2010. A framework of action was developed, and to date, seven countries have established national committees to monitor progress. Five countries have established a Safe Motherhood Day. The next meeting of the First Ladies will be held in December 2005 along with partner organizations; UNICEF, WHO, UNFPA, Save the Children, International Federation of Planned Parenthood (IPPF), USAID, and the West Africa Health Organization (WAHO).

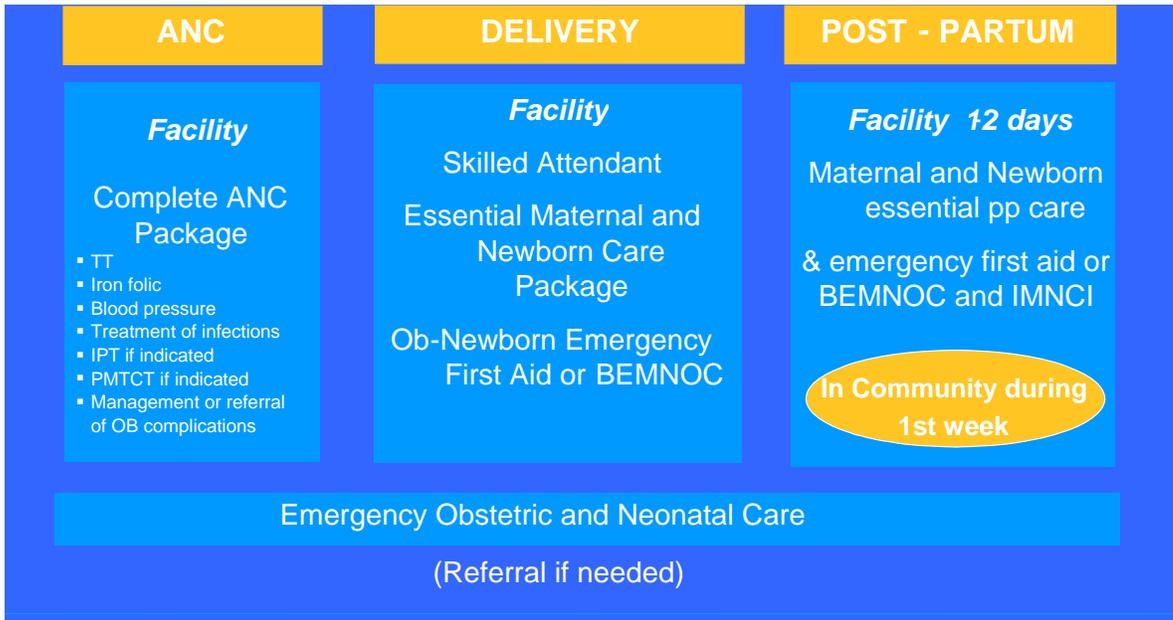
4.1.2 Newborn interventions at facility level

Safe Maternal and Newborn Care

Delivery of quality care during the pregnancy to postpartum continuum is vital to ensure the health of mothers and newborns (see figure below). Facilities should be providing a full antenatal package (see Annex 3 for more information on specific interventions), skilled care for delivery and postpartum care.

⁴⁴ Newborn Health: Policy and Planning Framework, Part I, WHO/SNL, 2004

HEALTH SERVICES MODEL



The provision of postpartum care in many facilities is less than desirable because the mother and newborn may be discharged soon after delivery, often after only 6 hours, and alternative provision for postpartum care is not in place. Since the majority of newborn and maternal deaths occur in the first days/week after delivery, providing care during this time is crucial.

Facilities should change administrative practices in order to keep mothers and newborns longer, at least 24 to 48 hours, thereby ensuring that the mother and newborn are being observed during the period of greatest risk. During this time both mother and newborn are examined; and essential health education on breastfeeding, keeping the baby warm, danger signs for both mother and baby etc, can be imparted. When this is not possible, alternative strategies are needed.

An important new approach is to provide postpartum care in communities, either by public health nurses making home visits or by initiating community based post-partum visits with Community Health Workers (CHWs) as explained in more detail under 4.4 Community Interventions.

Emergency Obstetric Care (EmOC)

The evidence is clear that skilled attendance at delivery and a functioning referral system for the treatment of obstetric emergencies is needed to reduce maternal mortality and morbidity, and for the treatment of severe newborn problems. Although UNICEF supports the work of national governments and partners in the long term goal of developing a cadre of skilled attendants, the programme focus for many countries has been on the upgrading of health facilities to provide **Emergency Obstetric Care (EmOC), focused ANC, competency based training on life saving skills and maternal death review**. Programme experience over the last decade has shown that much can be done with modest investments. UNICEF has participated in EmOC assessments, facility improvement, training and improving quality of care in over 60 countries; much of this work in coordination with Columbia University (Averting Maternal Death and Disability Program).

Adding the Newborn to Emergency Obstetric Care (EmOC) Programmes

Along the lines of the continuum of care model, in countries with EmOC programmes, essential care of the newborn and care of the sick neonate should go hand in hand with emergency obstetric care. Training should be expanded to include essential care of the newborn, and nurses and midwives should be trained and given legal permission to treat newborn complications, such as asphyxia and sepsis, when they arise. A short guidance note on integrating the newborn into EmOC activities including suggested indicators can be found in Annex 4).

FUNCTIONS OF EMERGENCY OBSTETRIC CARE (EMOC) AND EMERGENCY OBSTETRIC AND NEONATAL CARE (EMONC)

Basic EmOC (BEmOC)	Basic EmONC
<ul style="list-style-type: none"> • Antibiotics (parenteral) ▪ Oxytocic drugs (parenteral) ▪ Anticonvulsants (parenteral) ▪ Manual removal of the placenta ▪ Removal of retained products ▪ Assisted vaginal delivery(vacuum extraction or forceps) 	<p><i>Everything in left column PLUS:</i></p> <ul style="list-style-type: none"> ▪ Neonatal resuscitation with bag and mask ▪ Hypothermia Management(rewarming) ▪ Antibiotics for neonatal sepsis (injectable and oral) ▪ Essential newborn care
Comprehensive EmOC (CEmOC)	Comprehensive CEmONC
<p><i>All 6 signal functions of Basic EmOC plus</i></p> <ul style="list-style-type: none"> ▪ Cesarean section ▪ Blood transfusion 	<p><i>All of the above plus:</i></p> <ul style="list-style-type: none"> ▪ Assisted ventilation

Again, all hospitals and health facilities involved in upgrading EmOC should also be part of the **Baby-Friendly Hospital**

Initiative, and if this is not feasible in certain countries (for example if BFHI is not an active programme), the training of health staff (doctors, nurses, midwives, nursing aides) should include the main components of the BFHI training course. Wherever maternal death review has started, review of perinatal/newborn death can be included if staff are trained and guidelines are made available. In Bangladesh, SNL assisted government in starting maternal and perinatal death reviews at the same time, and it is already being replicated successfully in several hospitals.

IMCI

IMCI is the main global strategy for the treatment of sick children, yet the generic IMCI case-management guidelines do not include the first week of life—the period of highest risk for child mortality. IMCI also depends on the sick child being brought to a health facility. This factor limits coverage, since many neonatal deaths occur at home without contact with health services. Every newborn child should be reached and receive essential care in the first days of life. An IMCI strategy that incorporates essential postnatal care of all neonates through a home contact and appropriate treatment of illness could contribute greatly to neonatal survival.⁴⁵ The need for postpartum care is essential whether most deliveries currently take place in the home or in the facility.

IMNCI Strengthening clinics and referral hospitals with strong links to community

IMCI should be expanded to include newborns, and health ministries should revise the IMCI curriculum to include newborns (IMNCI). Doctors, nurses and community workers should be trained in providing essential newborn care as well as care of the sick newborn and child. In addition, nurses, especially those staffing a health centre where a doctor may not be present on site, should be taught to diagnose and treat asphyxia and sepsis, and be allowed to do so legally.

INTEGRATED MANAGEMENT OF NEWBORN AND CHILDHOOD ILLNESS

⁴⁵Martines, J, Paul, VK, Bhutta, ZA, Koblinsky, M, Soucat, A, Walker, N, Bahl, R, Fogstad, H, Costello, A, Neonatal Survival: A Call for Action, The Lancet Newborn Survival Series, Paper 4, March 2005

IMCI	IMNCI
<p>Treats infants 7 days to 5 years (or 2 months to 5 years)</p> <ul style="list-style-type: none"> ▪ Integrated case management of the five most important causes of childhood deaths <ul style="list-style-type: none"> ➢ Acute respiratory infections (ARI) ➢ Diarrhoea ➢ Measles ➢ Malaria ➢ Malnutrition ➢ Other serious infections ▪ Micronutrient supplementation ▪ Anthelmintic treatment ▪ Breastfeeding and complementary feeding counselling ▪ Family/community education ▪ Home care practices ▪ Promotion for immunization 	<p>Treats infants from birth to 5 years</p> <p>All of IMCI plus:</p> <p>Birth to 2 month module to include:</p> <ul style="list-style-type: none"> ▪ Essential newborn care ▪ Emergency newborn care ▪ Assessment of young infants for infection and diarrhoea ▪ Treatment and referral when required <ul style="list-style-type: none"> ➢ Antibiotics (oral for pneumonia, oral plus injectable for very severe disease) ➢ ORT ▪ Extra care (Kangaroo mother care) for LBW infants ▪ Support for initiation of early and exclusive breastfeeding and correction of problems ▪ Home care practices and danger sign awareness for the sick newborn ▪ Home visiting

India and Bolivia are examples of countries where IMCI has been broadened to include the newborn by becoming IMN (Newborn)CI. The cost of including N (neonatal) in IMCI clinical care is estimated at less than 10 cents per person, given the existence of traditional IMCI programmes.

Besides including the newborn in IMCI programmes, countries are now broadening coverage to the community. Training of additional health and nutrition workers (two per 1000) and provision of home visits is estimated to cost 22 cents per person.⁴⁶

⁴⁶ Ibid, Lancet Newborn Survival Series Paper 4

CASE STUDY 3: IMNCI IN BOLIVIA: in Facilities and Communities

- The Ministry of Health, with assistance from partner organizations such as Save the Children, UNICEF, PAHO, USAID, and a consortium of NGOs called PROCOSI, have expanded IMCI to include the newborn, and brought the programme into communities.
- At national level, IMNCI curricula have been developed for doctors, nurses, and community volunteers. Training has taken place in referral units.
- In the community, volunteers raise awareness to the community as a whole about the need for care during pregnancy, delivery and the postpartum. Specifically the community volunteers:
 - ✓ Visit pregnant women and develop birth plans for each family
 - ✓ Reviews danger signs and encourages skilled attendance
 - ✓ Visits the home postpartum
 - ▶ Encourages family to keep the newborn warm
 - ▶ Supports immediate and exclusive breastfeeding
 - ▶ Screens for sepsis and refers if indicated

Results show that in project areas the percent of deliveries attended by a skilled provider increased from 42% to 75%, and mother's knowledge of 2 or more danger signs during childbirth increased from 28% to 82%.

Further programme illustrations of Community based IMNCI programmes can be found in section 4.4 on Community Interventions, pages 43 and 44 .

BFHI

There are over 18,000 Baby-Friendly Hospitals in 80 countries world-wide. Since breastfeeding is an essential component of newborn survival, supporting and/or revitalizing BFHI where it exists, and maintaining its principles is part of this newborn strategic guidance. Besides linking with EmOC programmes to ensure all EmOC facilities are baby-friendly, it is recommended that Step 10 of the ten steps of BFHI, the community component, be strengthened and solutions to provide support for women in communities be designed based on local realities. In some communities CHWs already function as community breastfeeding counsellors, giving individual support to mothers as needed, and from time to time providing essential information to groups of pregnant women. BFHI hospitals can be developed as centres of excellence for newborn care or should at least have staff trained in the minimum essential newborn care, IMNCI or Life-saving Skills package.

New Baby-Friendly materials including mother friendly options are now available on the UNICEF website.

Prevention of mother to child transmission of HIV (PMTCT)

In addition to protecting children from HIV, PMTCT programmes should aim to protect the child from all major causes of death, including improving care practices during the newborn period. The increased political commitment and resources to scale up prevention of mother to child transmission of HIV (PMTCT) provide an opportunity to strengthen care and support of the mother during pregnancy, delivery and immediately post-partum as well as that of the baby.

The PMTCT Interagency Task Team recommends a comprehensive 4 pronged approach to reducing infection in infants:

1. primary prevention of HIV among women of childbearing age and their partners
2. prevention of unplanned pregnancies among HIV-infected women
3. prevention of transmission from an HIV-infected pregnant woman to her infant and
4. care, treatment and support of women, their infected children and family members

However, most of PMTCT programs have focussed mainly on the third prong and are providing antiretroviral drugs and counselling on optimal and safe infant feeding options. Strong linkages with other prongs need to be strengthened to ensure that women get access to other sexual and reproductive health services as well as a comprehensive package of HIV care, treatment and support services. Inadequate follow-up of women and children remains a major challenge. Because of the high level of home deliveries and the lack of follow-up, many infants born to HIV-infected women do not receive adequate care and support.

It is therefore imperative that PMTCT interventions are integrated into a continuum of antenatal, delivery and postnatal care, including core newborn care interventions.

4.1.3 Newborn interventions through outreach

Outreach can play an important role in delivering certain services, especially where communities are located far from facilities, or where care-seeking behaviour is not well developed. The illustration below reviews the kind of interventions that can be delivered through outreach. It is clear that outreach can provide some of the ANC services, but is less suited to provide the delivery or postpartum services, as labour, delivery and early post partum visits cannot be 'scheduled'. When possible, it is preferable that pregnant women go to facilities for ANC because of better access to equipment and services. Outreach services should not replace facility-based ANC, but can be used in settings where facility services are not accessible or are poorly utilized. Outreach can also be useful in referring women to ANC or in providing incentives such as vouchers for bednets or for emergency services.

OUTREACH MODEL

ANC	DELIVERY	POST - PARTUM
Tetanus Toxoid Iron and Folic tablets Insecticide Treated Bednets IPT for Malaria Danger sign awareness Deworming	Clean Birth Kit	Vitamin A BF counseling Nutrition counseling Birth Spacing Vaccination

ANC

A focussed ANC package, including tetanus immunization, iron and folic acid tablets and a blood pressure (BP) check, at the minimum, should be available to all pregnant women.

(In malaria-endemic areas, provision of an ITN and intermittent preventive therapy (IPT) should also be part of the “focussed ANC package”). In areas where helminth infections are wide-spread, deworming of pregnant women after the first trimester can be indicated.

In addition, the following elements are recommended:

- strengthen birth planning and recognition of complications

- treatment of maternal infections (IPT for malaria, STD treatment)
- encourage birth with skilled attendance
- link to referral services

Some countries provide ANC through outreach by sending nurses to different communities every few weeks (i.e. Auxiliary Nurse Midwives in India). Other country models encourage community women (through community awareness activities or the work of a CHW) to attend ANC at local health centers

For some countries with low ANC coverage, outreach services provide an opportunity to 'start with the doable'; interventions such as Tetanus Toxoid campaigns, deworming, distribution of insecticide treated bednets, IPT etc.

Tetanus Toxoid ⁴⁷

Immunization campaigns through outreach, can turn the tide on the prevalence of tetanus among women and newborns. Neonatal tetanus deaths have decreased from 800,000 worldwide in the 1980's to 180,000 in 2002, partly due to improved hygiene during delivery, but largely due to improved tetanus immunization coverage. It is estimated that tetanus still causes 30,000 maternal deaths each year. Tetanus vaccine can be provided through ANC or during special immunization days.

A focussed strategy called the 'high risk' approach calls for supplemental immunization activities in specific geographic areas where routine immunization is lacking or inadequate. Over a twelve month period, three doses of tetanus vaccine are administered to all women of childbearing age living in high risk areas (high prevalence of tetanus infection, low immunization coverage, and where clean delivery services are scarce) conferring up to 5 years of coverage. Elimination of the disease is sustained by improving routine immunization in these areas and promoting clean deliveries.

CASE STUDY 4: Tetanus Toxoid Campaign in Bangladesh

- Intensified immunization activities raised the proportion of women immunized against tetanus from 4 per cent in 1986 to 90 percent in 2001.
- Over the same period, the number of newborns dying of tetanus each year fell from about 40 per 1000 live births to about 3 per 1000 live births.
- Today in Bangladesh, some 12,000 newborn babies die each year from tetanus, compared with about 100,000 in the early 1980's.
- Source: UNICEF 2003

Distribution of Insecticide Treated Bed Nets (ITNs)

Although the evidence for the reduction of perinatal and neonatal mortality from the use of bed nets is not strong, use of bed nets has been shown to reduce maternal anaemia, a problem associated with poor obstetric and neonatal outcomes, which may also indirectly affect child care due to increased maternal fatigue. In addition, provision of an ITN to women during their pregnancy increases the likelihood that the breastfeeding infant will be protected during the very critical first year of life when malaria mortality is high. ITNs can be distributed, along with health education on why/how to use them, through ANC services at facilities, or through outreach, or via a community health worker.

Deworming ⁴⁸

Helminth infections have long been known to have adverse effects on maternal health and pregnancy outcomes. In areas with high infestation, WHO recommends deworming pregnant women after the first trimester.

In rural Nepal, researchers demonstrated that giving albendazole in the second trimester was associated with a significant decrease in the prevalence of severe anaemia in treated mothers, that the birth weight of babies from mothers given two doses of albendazole rose on average by 59g, and that the infant mortality rate at 6 months had fallen.

The evidence is even more compelling for schistosomiasis, which affects an estimated 10 million pregnant women in Africa alone. Studies show that half of these women suffer from anaemia, and demonstrate the impact deworming can have on both pregnant women and their babies. Praziquantel, the drug of choice for

⁴⁸ Deworming for Health and Development WHO 2005
http://whqlibdoc.who.int/hq/2005/WHO_CDS_CPE_PVC_2005.14.pdf

schistosomiasis, can be given to women at any time during their pregnancy.

Deworming can be programmed as part of routine antenatal care, or piggy-backed onto vertical programmes such as vitamin A distribution or tetanus toxoid campaigns. For sustainability, distribution should be linked to ongoing efforts such as twice yearly child health days.

ACSD

In West Africa the 11 country ACSD programme can be expanded to include simple components of newborn care, particularly by using contacts with pregnant women to promote newborn care practices including clean delivery, cord care, early and exclusive breastfeeding, temperature management, and awareness of danger signs. Supporting members of the community to do home-based newborn care and counselling before, during, and after birth could be introduced as a next step of the ACSD approach (see above diagram on community model).

4.1.4. Newborn interventions in the Community

Implement innovative pilot projects to inform policy decisions

Low cost packages with Community Health Workers

While ensuring universal access to skilled care is the accepted strategy to make childbirth and the early postnatal period safe for mother and newborn, the reality is that at present,

only about half of developing country women deliver with a skilled attendant, and in several countries in Asia and Africa, the proportion is less than 25%.

While additional skilled attendants are being trained and deployed, health systems strengthened, and demand for appropriate care increased, a simultaneous strategy supporting community-based providers can help save lives in the immediate term, especially in poor, high mortality settings. Community-based workers can help

improve household practices and provide a link between families and the health system.⁴⁹

Based on the Home-based Newborn Care model of the NGO SEARCH in Gadchiroli India, an expansion project of 7 NGOs in the state of Maharashtra began in 2003. The project trained CHWs to perform a package of services including prenatal education; care of the newborn at delivery (warming, immediate breastfeeding, resuscitation if needed); and post partum visits to include preventive care (hygiene, breastfeeding, warming), care of the LBW infant and diagnosis and treatment of sepsis. Although the final evaluation has not taken place, data from the first 2 years of the project (2003-2005) show a 50% reduction in neonatal mortality over the baseline.⁵⁰

⁴⁹ Essential Newborn Care Save the Children
<http://www.savethechildren.org/health/newborns/index.asp>

⁵⁰ Personal communication from Dr Abhay Bang to a UNICEF team visiting the Ankur project in April 2005

CASE STUDY 5: HOME-BASED NEONATAL CARE (HBNC) SEARCH IN GADCHIROLI INDIA ⁵¹

The Society for Education, Action, and Research in Community Health (SEARCH) trained Community Health Workers (CHW) to provide Home-based neonatal care in communities where up to 95% of all women deliver in the home.

CHW activities include:

- ✓ Identify all pregnant women in the community
- ✓ Visit each pregnant mother at least twice during pregnancy
 - ▶ Refer for ANC
 - ▶ Health education including breastfeeding preparedness
 - ▶ Birth and complication preparedness
- ✓ Be present at delivery and collaborate with traditional birth attendants. CHW provides
 - ▶ Immediate care to newborns including drying and warming, cutting the umbilical cord in a hygienic manner, identifying and treating asphyxia, and giving an injection of vitamin K
- ✓ Visit the mother-newborn post partum at least 8 times during the first month (including 3 times during first week)
 - ▶ assist with early and exclusive breastfeeding
 - ▶ assess newborns temperature, weight, and respiratory rate
 - ▶ for high risk newborns, including preterm or low birth weight babies visit an additional 4 times per month and provide additional care (warmth, assistance with feeding, hygiene)
 - ▶ diagnose and treat sepsis through dual administration of antibiotics: gentamycin injection daily for a week along with oral cotrimoxazole

Results reveal a staggering 70 percent reduction in neonatal mortality in the villages with community health workers practicing home-based care.

Cost was calculated at \$7 per neonate saved, with non-recurring costs per village of \$155, and recurring costs per village of \$117

Community Integrated Management of Childhood Illness (C-IMCI)

Many countries have broadened IMCI to the community, under Early Childhood Development initiatives. Consistent with this approach, focus has been on community participation and exposure to the 17 key behaviour practices.

⁵¹ Bang, Abhay et al. March 2005. Neonates in Gadchiroli: The field trial of home-based neonatal care in rural India (1993 – 2003). Journal of Perinatology. Volume 25. Supplement 1. Nature Publishers. New York and London.

CASE STUDY 6: COMMUNITY-IMCI (C-IMCI) IN EASTERN AND SOUTHERN AFRICA⁵²

- C-IMCI programmes focus on extending concepts of IMCI to the community. Through participatory development processes, and the promotion of 17 key care practices to promote improved maternal and child health, a variety of interventions have been initiated based on local needs. Findings from current C-IMCI program sites have been encouraging.
- After three years of community and household interventions:
 - ✓ the exclusive breastfeeding rate in participating sites in Malawi increased by 30 percent and in Uthukela District of South Africa by 43 percent
 - ✓ In Malawi, households with at least one insecticide treated bed net increased from 18 percent to 40 percent, and the percentage of children 0 – 59 months who slept under a bed net the night before increased from 9 to 69 percent
 - ✓ The percentage of children 0-23 months of age with infections who received antibiotics at home more than doubled in intervention sites to 30%.
 - ✓ All sites in the survey showed improved knowledge of danger signs of serious illness.
 - ▶ In Uthukela District of South Africa, the proportion of caregivers who could list at least two general danger signs increased from 28 percent to 63 percent
 - ▶ In Ntungamo District of Uganda, the identification of blood in stool as a danger sign improved from 18 percent to 79 percent.

These activities set the stage for a more focussed approach to implement essential interventions during delivery, the post partum period, and early childhood. In countries with strong C-IMCI programmes (such as Tanzania, Malawi, Uganda etc), introducing home-based newborn care interventions is both advisable and feasible. Supervision is key to the success of home-based newborn care strategies. Supervisors should be at the nearest health center where relevant staff are competent in IMNCI, and have had supervisory training.

UNICEF India has supported the Government of India to adapt the standard IMCI package to be an all inclusive IMNCI package with a community workers component. The “anganwadi workers” visit homes postpartum and carry out a set of tasks including weighing, breastfeeding support, warming, care of LBW infant at home, diagnosis and treatment/referral of sepsis. Preliminary results are very encouraging.

⁵² UNICEF C-IMCI State of the Art Review report 2005

COMMUNITY CASE STUDY 7 : IMNCI IN INDIA

- To respond to the fact that India has the highest annual number of newborn deaths in the world, the government took the courageous step of expanding the IMCI programme to include the newborn (hence IMNCI) and to extend services to communities.
- This was accomplished by the collaboration of the Ministry of Health and the Ministry of Social Development. The latter has employed a community worker called an Anganwadi Worker (AWW) since the 1970's to carry out an early childhood development and feeding programme. The role of the AWW has been expanded to include:
 - ✓ Registering of all pregnancy women in the community
 - ✓ Informing the ANM (Auxiliary Nurse Midwife) to come to community to provide ANC (tetanus and iron/folic tablets)
 - ✓ Visits the mother and newborn at home post partum on days 1,3,7
 - ✓ Promotes breastfeeding and thermal control
 - ✓ Screens for sepsis and provides treatment for pneumonia; gives first dose of oral cotrimoxazole and refers for very severe pneumonia
 - ✓ Close linkages with PHC
- This programme started as a pilot in 8 districts in India and is now expanding to 250 districts nation-wide.

In countries which have extended IMNCI to the community through a CHW (India) or volunteer (Bolivia), **supervision is key to ensuring success**. Not only is supervision important to maintain quality worker performance, but it also strengthens the linkages between the worker and the referral health centre. For the health facility to provide quality supervision and support to community workers, the health care workers require IMNCI or similar training.

Broadening IMNCI to include essential newborn care and treatment of the sick newborn, while linking to care initiatives in the community is a cornerstone of this strategy. It brings needed care to the newborn and strengthens the health system at the same time.

UNICEF and other partners are in the process of developing a standard newborn kit for community health workers, as well as a newborn kit for health facilities. The suggested contents of these kits are attached as Annex 5.

Community-based projects and programmes that focus on providing essential care during delivery and/or post partum are still not that plentiful. The examples of SEARCH and ANKUR projects show what can be done by training a community health worker to provide Home-based Neonatal Care (HBNC).

The examples of IMNCI in India and Bolivia illustrate how aspects of essential newborn care are provided and linked to an already existing government programme. The Home-based Life Saving Skills (HBLSS) of the American College of Nurse-Midwives, teaches obstetric and newborn skills to women in the community, especially focussing on obstetric first aid and early care seeking for complications.

COMMUNITY CASE STUDY 8: HOME-BASED LIFE-SAVING SKILLS (HBLSS)⁵³

- The American College of Nurse Midwives (ACNM) has designed a training course in maternal and newborn life saving skills for community men and women, based on the understanding that although upgrading referral facilities and strengthening skills of trained health care providers is essential, positive home care practices and care seeking behaviour needs to be adopted in order to create a functioning system, linking the community to the health services.
- The Home Based Life Saving Skills (HBLSS) approach to behavior change, trains HBLSS 'guides', who then transfer this knowledge to families and women (by group discussions, home visits, being present at delivery etc). Topics include danger signs, birth planning and essential interventions. HBLSS guides are usually volunteers, with ties to the local health clinic.
- Maternal care interventions include semi-sitting, rubbing the womb, squatting and passing urine, and proper disposal of the placenta
- Newborn interventions include drying and warming, immediate breastfeeding, resuscitation, care of the low birth weight baby, and danger signs and referral.
- HBLSS has been field tested in India, Ethiopia, Vietnam, Gaza Strip and the West Bank.
- An HBLSS programme is being implemented in Liben District, southern Ethiopia. To date, a key finding is that the HBLSS initiative has resulted in improved community awareness, knowledge, and practice related to newborn and maternal lifesaving care and has helped to establish a lifesaving link between the community and the formal healthcare system

Community Participation

Community participation can provide an essential element of success to any community initiative. Active participation of community leaders, Village Development Committees (VDC), and women's groups (to name a few) confers approval of new initiatives.

This aids in fostering community involvement and acceptance of new initiatives, a collective sense of empowerment, and aids in the process of individual behaviour change. The participatory process itself has been key in several successful projects highlighted below.

CASE STUDY 9: WARMI PROJECT IN BOLIVIA⁵⁴

⁵³ ACNM HBLSS Brochure available online

at <http://www.acnm.org/siteFiles/global/HBLSSBrochureFinal7.2005.pdf>

and Sibley, L, Final Internal Review of Home-based Life-saving Skills Prog. Phase 2 Ethiopia, ACNM, Dec 2005

In Bolivia, the Warmi (which means woman in Aymara) “woman-to-woman” approach supported by Save the Children and USAID used participatory methods with women’s groups to enable community women to determine their health needs. This process was termed ‘autodiagnosis’. Once identified, the women’s group worked together to define interventions to improve maternal and newborn health and access to services.

- ✓ Skilled attendants at the referral facility were trained to manage obstetric emergencies and to be sensitive to local customs that had discouraged use of such facilities in the past
- ✓ Local women learned about danger signs from pictorial flash cards (as many women in this area are illiterate)
- ✓ Emergency transport funds were obtained by women selling vegetables from a common garden to create a fund to pay for emergency transport

Results showed a fall in the perinatal mortality rate from 117 to 44 per 1,000 live births over three years

CASE STUDY 10: MAKWANPUR PROJECT IN NEPAL⁵⁵

- In Makwanpur, Nepal, where 90 percent of women deliver at home (most with untrained attendants), a study showed that birth outcomes in a poor rural population improved significantly through a low cost, potentially sustainable participatory intervention with women’s groups.
- Based on the methodology of autodiagnosis (from the Warmi project in Bolivia), female facilitators convened a monthly women’s group meeting, in which the group identified local perinatal problems and formulated strategies to address them.
- Activities included community-generated funds for maternal or infant care, stretcher schemes, production and distribution of clean delivery kits, home visits by group members to newly pregnant mothers and awareness raising using a locally made film to stimulate discussion. (Safe Motherhood newsletter issue 31 2004)
- **Results showed a 30% reduction in neonatal mortality and a decrease in maternal mortality.**

Conclusion

⁵⁴ Howard-Grabman, L., Seoane, G., Davenport, A., MotherCare, and Save the Children. 2002. The Warmi Project: A participatory approach to improve maternal and neonatal health, an implementor’s manual. John Snow International and Save the Children. Westport, Connecticut.

⁵⁵ Dharma S. Manandhar, David Osrin, et al. The Lancet. Vol. 364. Sept. 11, 2004

This Strategic Guidance Note attempts to marry the evidence on effective maternal and newborn interventions with programmes; how can these interventions be brought to mothers and newborns so that mortality and morbidity can be substantially decreased. Newborn mortality can be reduced and maternal health improved if we:

- Include the newborn in ongoing initiatives such as maternal health programmes including EmOC, as well as IMCI, BFHI and Early Childhood Development initiatives
- Initiate community programmes to bring needed information and services to communities
- Link community initiatives to facilities to strengthen the continuum of care
- Focus on the poor and underserved using a human rights approach

5. Annexes

5.1. Annex 1

EFFECTIVE INTERVENTIONS (ADAPTED FROM SAVE THE CHILDREN, SAVING NEWBORN LIVES)

Pre-conception

- Folic acid

Antenatal Care

- Immunization for tetanus toxoid
- Counselling on nutrition, birth preparedness and breastfeeding
- Supplementation with iron, folate and iodine
- Identification of major risk of obstructed labour (i.e. abnormal foetal presentation and lie, cephalopelvic disproportion (size of baby too large in relation to size of pelvic bones))
- Identification and treatment of bacteriuria, hypertension, pre-eclampsia etc
- Treatment of syphilis and malaria
- Distribution of ITNs and intermittent preventive treatment (IPT) in malaria endemic areas
- Testing for HIV

Labour, delivery and first 1-2 hours of life

- Clean and safe delivery
- Temperature maintenance
- Immediate and exclusive breastfeeding
- Cord and eye care
- Emergency obstetric care for complications*
- Antibiotics for premature rupture of membranes*
- Neonatal resuscitation*
- Management of newborn complications*
- Prevention of mother to child transmission of HIV*

Maternal and Newborn care (from 1-2 hours after delivery to 4 weeks)

- Exclusive breastfeeding
- Temperature management
- Cord care and hygiene
- Recognition of danger signs and prompt care seeking
- Counselling on birth spacing
- Special care for the small baby*
- Prevention of mother to child transmission of HIV*
- Management of complications, serious infections, severe jaundice and very low birth weight babies*
- Follow up of newborns in need of special care

Note: All interventions should be available for all pregnant women and newborns except those marked *, which need to be provided only for illness or complications.

* indicates care if condition arises

Adapted from: Newborn Health; Policy and Planning Framework, Part I 2004 WHO and Save the Children

5.2. Annex 2

THE MOST EFFECTIVE INTERVENTIONS BASED ON THE EVIDENCE TO DATE

	Amount of evidence
Preconception	
Folic Acid supplementation	IV
Antenatal	
Tetanus Toxoid immunisation	V
Syphilis screening and treatment	IV
Pre-eclampsia and eclampsia: prevention (calcium supplementation)	IV
IPT for malaria	IV
Detection and treatment of asymptomatic bacteriuria	IV
Intrapartum	
Antibiotics for preterm rupture of membranes	IV
Corticosteroids for preterm labour	IV
Detection and treatment of breech (c-section)	IV
Labour surveillance (including partograph)	IV
Clean delivery practices	IV
Postnatal	
Resuscitation of newborn	IV
Breastfeeding	V
Prevention and management of hypothermia	IV
Kangaroo mother care (LBW in facilities)	IV
Community-based pneumonia case management	V

Source: Adapted from *Neonatal Survival 2* Darmstadt, G, Bhutta, ZA, Cousens, S, Taghreed, A, Walker, N, de Bernis, L, *Evidence-based, low-cost interventions: How many newborn babies can we save?*

www.thelancet.com Published online 3 March 2005

<http://image.thelancet.com/extras/05art17web.pdf>

The authors use a scale ranging from I to V, with V having the most evidence of effectiveness.⁵⁶

⁵⁶ Levels of evidence:

- I. Evidence of no benefit. Interventions for which evidence exists showing no important benefits singly or in combination for perinatal or neonatal health
- II. No evidence of benefit. Interventions for which evidence for or against an effect was absent
- III. Uncertain evidence of benefit. Interventions for which there is some evidence, but contradictory evidence, or issues with study design etc preclude any firm conclusions. Further studies are needed
- IV. Evidence of efficacy. Interventions effective in reducing perinatal and neonatal mortality but lack of data on effectiveness in large scale programme conditions
- V. Evidence of efficacy and effectiveness. Interventions of incontrovertible effectiveness that seems feasible for large-scale implementation

5.3 Annex 3

FOCUSSED ANTENATAL CARE INTERVENTIONS

In the health centre, or through outreach activities, health workers can provide focussed ANC; delivering essential interventions within the four visits advised by the global model (WHO). Birth asphyxia and trauma, maternal infection, and prematurity are the principle causes of infants dying in the early neonatal period. Determinants of these outcomes are closely related to health status of pregnant women, including pre-eclampsia and eclampsia, anaemia, malaria, HIV/AIDS and untreated maternal infections such as urinary tract infections, and sexually transmitted diseases. Essential interventions during ANC include:

Tetanus Toxoid (TT)

The most effective way to prevent neonatal tetanus is the administration of TT injections. The evidence for this is strong and incontrovertible. Two doses during pregnancy will give protection for that pregnancy. Three doses will protect the woman for up to 15 years (UNICEF website) and 5 doses will protect the mother for 30 years, or for all of her reproductive years (WHO). Tetanus is caused when the umbilical cord is cut with dirty implements or when substances such as cow dung or oil are applied to the cut cord. A hygienic delivery, using a clean blade and cord ties, with the attendant properly washing hands - even without TT protection - can prevent tetanus up to 85% of the time.⁵⁷ The best approach is to ensure a hygienic delivery and provide TT injections for all pregnant women, and if possible, all young girls and women of reproductive age.

Iron and Folic acid

There is no clear evidence of effect of iron supplementation on maternal and perinatal or neonatal outcomes. The weak evidence base is primarily due to a paucity of adequately designed trials of iron supplementation in developing countries rather than a demonstrated lack of effect.

⁵⁷ Bhutta ZA Darmstead,G, Babar S., Hasan and Rachel Haws, op cit

In poor settings, 35-75 percent of pregnant women are anaemic, resulting in increased premature births, low birth weight and diminished caring practices, all major contributors to child mortality. Given this fact, and given the apparent importance of anaemia, especially severe anaemia, as a risk factor for maternal mortality and morbidity, it would seem prudent (pending additional research, including meta-analyses) to continue with iron supplementation, concomitant with folate administration, during pregnancy and in at-risk populations of women of reproductive age.

Blood pressure check

Pre-eclampsia and eclampsia, affects 10 percent of all pregnancies, resulting in still births, premature and low birth weight and increased neonatal mortality. Pre-eclampsia can be diagnosed during pregnancy by an increase in blood pressure and protein in the urine. Symptoms may include headache, swelling of hands and face and, convulsions or unconscious.⁵⁸ Measuring blood pressure during pregnancy is a relatively easy test for a health provider to undertake during ANC. If a woman exhibits an elevated blood pressure or any symptoms as mentioned above, she should be referred for treatment.

Foetal Lie

In the last 4 weeks of pregnancy, especially in women delivering their first child, it may be possible to determine if the baby is in the most favorable position to deliver; with its head down, chin to chest, and with its back towards the mother's front. If the head is in the upper part of the mother's uterus, the baby is considered in the breech position which is harder to deliver and runs greater risks. A woman with a breech presentation should be advised to deliver in the referral hospital.

Intermittent Preventive Treatment (IPT) for Malaria

It is estimated that 45 million women live in endemic malaria areas, 23 million in sub-Saharan Africa alone. In settings of moderate to high levels of malaria, it may cause up to 30 percent of low birth weight in newborns, account for 3-5 percent of neonatal mortality, and 25 percent of total infant mortality.

⁵⁸ Managing Complications in Pregnancy and Childbirth: A Guide for midwives and doctors, WHO, UNFPA, UNICEF, World Bank, 2003 p. S-35

Malaria is also associated with spontaneous abortions and still births. Where malaria is endemic, women become more susceptible to infection during pregnancy. This susceptibility decreases with successive pregnancies, although does not appear to be the case for HIV+ pregnant women, who retain high malaria risk in later pregnancies.

Malaria is associated with maternal anaemia, increased risk of preterm birth, LBW, and neonatal mortality. Malaria prophylaxis during pregnancy is an important intervention in malaria-endemic areas, because it serves to reduce maternal anaemia and parasitemia and improve birth weight. IPT with sulfadoxine-pyrimethamine (SP) in areas without SP-resistant strains was ranked highest in terms of effectiveness due to the low cost, wide availability, easy deliverability, and acceptability of SP.⁵⁹ Artemisinin compounds for treatment are promising, once safety of these drugs for use during pregnancy has been established.

Syphilis detection and treatment

Syphilis prevalence among pregnant women is estimated to be as low as <1% and as high as 12 percent. *Treponema pallidum* can be transmitted from mother to child at any stage of pregnancy or during delivery. Untreated or inadequately treated primary and secondary syphilis during pregnancy leads to congenital infection in 60%-100% of infants, resulting in aborted pregnancy, still and premature births and delivering low birth weight babies as well as perinatal and neonatal death.

Prevention of Mother to Child Transmission of HIV/AIDS (PMTCT)

Globally, of the 2 million women living with HIV that become pregnant every year, 630,000 will pass on infection to their children, during pregnancy, delivery or lactation. Maternal HIV also increases the risk of still births, spontaneous abortion, preterm delivery and low birth weight. Of the children infected with HIV, up to 50 percent will die before their second birthday. Pregnant women with HIV are also more likely to suffer severe malaria, tuberculosis and anaemia.

5.4 Annex 4

⁵⁹ Bhutta, ZA in Pediatrics op cit

OPPORTUNITIES FOR INTEGRATING NEWBORN CARE INTO EMOC ACTIVITIES

Rationale

WHO, UNICEF, UNFPA and other partners are united through the joint Partnership for Maternal, Newborn and Child Health in calling for a continuum of care, to improve health services for mothers and children, and to ensure that newborn care does not 'fall between the cracks' of maternal and child programmes. Newborn health and survival is intricately linked with maternal survival.

The majority of maternal deaths occur at the time of delivery and in the first week after delivery. The same is true for newborn deaths. *Twenty-five to 50% of newborn deaths occur on the day of delivery and 75% die in the first week,*⁶⁰ and the causes of these early neonatal deaths are largely dependent on management during delivery and the immediate postpartum.

Essential Interventions for newborn survival

It is a myth that advanced technology (incubators etc) and medical care is needed to substantially reduce the burden of death and disease among newborns. Unlike the mode of survival for mothers, who for emergencies, need the intervention of a highly skilled provider, and access to a health facility with transfusion and c-section capability, most newborns can survive with low-tech interventions; drying, warming resuscitation, breastfeeding, care of the LBW infant and detection and treatment of sepsis.

While it is assumed that health clinic and hospital staff understand the importance of these essential interventions and implement them routinely, this is often not the case. Care of the mother and newborn should go hand in hand. It is important to take the opportunity of an EmOC assessment to look at the basic care given to newborns in hospital settings and maternity clinics along with the care and provision of services for mothers, and to address the shortcomings for both maternal and newborn care when planning activities to address gaps found in the assessment.

Some possible action steps could include:

⁶⁰ Lawn J, Cousens S, and Zupan J, Four Million neonatal deaths: When, Where, Why?, Lancet Neonatal Survival Paper 1 365: 891-900 published online March 3 2005

1. Assessment and analysis

- Set up minimum standard for essential and emergency newborn care (suggest every health facility that provides delivery service should provide essential newborn care, and all EmOC facilities, both basic and comprehensive, should provide **both** essential and emergency newborn care)
- EmOC assessments should include indicators on essential and emergency newborn care
- Continue to provide evidence that obstetric care is key to reduction of perinatal mortality

2. Policy and Planning

- National safe motherhood strategies should include essential and emergency newborn care components, with budget support
- Roadmap for achieving MDG5 should include essential and emergency newborn care
- PRS's, and SWAPs to include newborn care interventions along with maternal and child health
- Delegation of life saving functions, including newborn resuscitation and treatment of newborn sepsis with antibiotics to mid level health care providers with adequate training and supervision

3. Programming

- Upgrade health facilities to provide basic and comprehensive EmOC, including essential and emergency newborn care
- 24/7 coverage at facilities including both EmOC and emergency newborn care
- Include emergency newborn care in curricula for EmOC and life saving skills training, both pre- and in-service

- Make available clinical standards and guidelines for both essential and emergency obstetric and newborn care in health facilities
- Expand maternal death reviews, whenever possible, and institute perinatal mortality reviews. MDR guidelines should include review of fresh still births and early neonatal mortality.
- Improve referral system at the health facility and community level to timely referral of both maternal and newborn complications
- Orient the community on birth preparedness including awareness of danger signs for both maternal and newborn complications
- Improve maternity registers to include key information on newborns: out come of delivery, sex, diagnosis and treatment of newborn complications, referral
- EMOC facilities with appropriate staff have emergency newborn care kit with option to procure from standard pre-packaged kit to be available through UNICEF Supply Division in Copenhagen
- Pregnant women attending ANC be provided with a pictorial leaflet promoting essential newborn care and providing information on maternal and newborn danger signs

4. Monitoring and evaluation

- Advocate for national HMIS system to incorporate indicators on essential and emergency obstetric and newborn care
- Make regular assessment of progress of essential and emergency obstetric and newborn care indicators a part of the programme

POSSIBLE INDICATORS FOR MATERNAL AND NEWBORN CARE PROGRAMMES

Antenatal

- ◆ % of women attending ANC care (number of times)
- ◆ % of pregnant women that have a birth preparedness plan

Delivery

- ◆ % of pregnant women delivered by skilled attendant
- ◆ % of newborns attended at birth by a trained worker or relative
- ◆ % of newborns exclusively breast fed within 1 hour of birth

Postpartum

- ◆ % of newborns with delayed bathing for at least 24 hours
- ◆ % of mothers receiving a postpartum visit from a trained provider within 3 days of delivery
- ◆ % of newborns receiving a visit from a trained provider within 3 days of birth
- ◆ % of mothers who know at least 2 maternal danger signs
- ◆ % of mothers who know at least 2 newborn danger signs

Health facility and staff

- ◆ UN process indicators on EmOC
 - For every 500,000 population there be at least 4 Basic EOC facilities and 1 Comprehensive EoC Facility
 - At least 15% of all births take place in either a Basic or Comprehensive EOC facility
 - At least 100% of women estimated to have obstetric complications are treated in EOC facilities
 - Caesarean Sections account for not less than 5% and not more than 15% of all births in population
 - The case fatality rate among women with obstetric complications in ROC facilities is less than 1 % with 24/7 referral system
- ◆ % of health centres with skilled attendants offering 24/7 services
- ◆ % of health workers trained on essential newborn care
- ◆ % of health workers at appropriate level trained on IMNCI and EMNOC
- ◆ % of health facilities with routine supportive supervision
- ◆ % of health facilities with protocols and guidelines in performance and quality improvement for maternal and essential newborn care including infection prevention
- ◆ % of maternal and newborn deaths reviewed at all levels

5.5 Annex 5

CONTENTS OF STANDARD NEWBORN AND FACILITY KITS

A. Community Health Worker Home-based Newborn Care Kit

ITEMS	SPECIFICATIONS	USE	RATIONALE	ESTIMATED COST
Scale x1	Salter scale up to 50 gram accuracy.	To weigh newborns	Weighing newborn routinely and identify low birth weight babies for extra care	
Tetracycline ointment x 4 ?	UNIPAC 1510000 - Tetracycline eye ointment 1% /TBE-5g	Routine application to all newborns to prevent and treat eye infection	Tetracycline is recommended for treatment of bacterial conjunctivitis and prevention of secondary infection of viral conjunctivitis	
Digital thermometer x 1	Temperature in degree centigrade (C °) Battery lasts for 5 years	Measure body temperature, to identify fever and hypothermia	Timely recognition of changing of body temperature, both hyper and hypothermia is important to identify infection and other newborn complications	
Wrist watch x 1 or ARI timer	With second hand Battery lasts for at least 2 years Water resistant	Count breathing rate to identify pneumonia	Pneumonia is common among newborns Early identification and management of pneumonia is crucial for the survival of newborns	
Paladay x 2	Made of stainless steal. The deep cup should be able to contain 50 ml liquid. It should be easily cleaned.	For feeding LBW newborns unable to suckle expressed milk	Breast milk is important to reduce infection, for bonding between mother and baby.	
Leaflet on newborn danger signs (for local translation) x 1	Pictorial leaflet to show major newborn danger signs, correct treatment and when to refer	To assist CHWs recognising newborn danger signs	Serve as a reference to CHWs for timely and proper recognition, management, and referral of newborn danger signs	
Towels x 2	Cotton, white, 100 cm x 100 cm	To dry newborns and keep warm	Newborn can lose body heat quickly if not dried immediately	

As appropriate add antibiotics or resuscitation equipment to this package

B. Newborn Care Kit for health facilities

ITEMS	SPECIFICATIONS	USE	RATIONALE	ESTIMATED COST
Scale x1	Salter scale with sling Measure up to 5 kg and with 50 gram accuracy.	To weigh newborns	Weighing newborn routinely and identify low birth weight babies for extra care	
Digital thermometer x 2	Temperature in degree centigrade (C ^o) Battery to last for 5 years	Measure body temperature, to identify fever and hypothermia	Timely recognition of changing of body temperature, both hyper and hypothermia is important to identify infection and other newborn complications	
Tetracycline ointment x 20	UNIPAC 1510000 – Tetracycline eye ointment 1% /TBE-5g	Routine application to all newborns to prevent and treat eye infection	Tetracycline is recommended for treatment of bacterial conjunctivitis and prevention secondary infection of viral conjunctivitis	
Paladay or similar equipment x 5	Made of stainless steal. The deep cup should be able to contain 50 ml liquid. It should be easily cleaned.	For feeding LBW newborns unable to suckle expressed milk	Breast milk provides good nutrition, is important to reduce infection, for bonding between mother and baby.	
Leaflet on newborn danger signs (for local translation) x 5	Pictorial leaflet to show major newborn danger signs, correct treatment and when to refer	To assist CHWs recognising newborn danger signs	Serve as a reference to CHWs for timely and proper recognition, management, and referral of newborn danger signs	
Resuscitation kit, basic. (UNICEF Standard) X 1	<p>Technical Specifications: This kit consists of basic resuscitation equipment to facilitate resuscitation in all types of environments, including emergency situations.</p> <p>Kit contents/Description: 1 x 0760640 - Pump, suction, foot-operated 1 x 0845000 - Resuscitator, hand oper., infant/child 1 x 0845001 - Resuscitator, hand-oper., adult 2 x 0700700 - Airway, Guedel, rubber, infant, 54 mm 2 x 0700800 - Airway, Guedel, rubber, infant, 67 mm 2 x 0700900 - Airway, Guedel, rubber, adult, 82 mm Mucus (DeLee) suction</p>			
Syringe Auto-disabled	2 ml, 100 5 ml, 10	Injections	Vital to provide antibiotics IM or IV to newborns with sepsis	
Towels x 10	Cotton, white, 100 cm x 100 cm	To dry newborns and keep warm	Newborn can lose body heat quickly if not dried immediately	

Antibiotics to be added as appropriate

5.6 Annex 6

SUGGESTED CONTENT OF A NEWBORN STRATEGY

Goals and objectives

- Goals on newborn health
- Specific objectives

National policy statement on newborn health

- Principles
- Standards of care, including clinical guidelines

Interventions to be implemented

- Interventions appropriate for the country situation
- Concrete actions required at household, community, first and referral health facility levels

Integration of newborn health interventions into the existing services

- Human resources (responsibility for interventions: staff availability and how to improve it: training needs of health care providers, decisions on training packages: supervision needs, decisions on training packages)
- Strategies to improve synergy between health care providers and community workers
- Material requirements to strengthen the health system (infrastructure needs and prioritisation: equipment needs and prioritisation: supply needs and prioritisation)

Community involvement

- Strategies to increase demand for improved availability and quality of services
- Strategies to increase adherence to home care, follow-up and referral recommendations, including emergency transportation
- Communications strategy to achieve optimal maternal and newborn care practices at household and community levels

Monitoring and evaluation

- Strategies for process monitoring
- Decisions on evaluation: including baseline assessment, evaluation tools

Financial resources required

- Budget
- Strategy for reallocation of existing resources
- Strategy to find additional resources

Source: Newborn Health; Policy and Planning Framework, Part I 2004 WHO and Save the Children

5.7 Annex 7

INDICATORS FOR NEWBORN HEALTH (Priority indicators highlighted)

OUTCOMES AND PROCESSES	INDICATORS
Reduction in perinatal/neonatal mortality	Neonatal Mortality Rate
	Perinatal Mortality Rate
	% Low Birthweight
Improved Family and Community Practices	
Pregnant women and new mothers educated on danger signs before, during and after delivery and in newborns	% of new mothers that know at least 2 danger signs before, during, after delivery % of mothers who know danger signs in newborns
Immediate breastfeeding	% of infants breastfed within 1 hour of birth
Improved Skills of Facility-based Health Workers	
Facility-based health care workers trained in essential newborn care practices, including immediate newborn care and resuscitation	% of facility-based health care workers trained, by cadre, in essential newborn care practices
Facility-based health care workers performance improved and maintained through follow-up after training and periodic supervision	Correct identification and treatment and/or referral by facility-based health care workers of newborn problems, assessed by direct observation, role play, patient exit interview, or clinic records
Improved Skills of Community Health Workers	
Community-based health workers trained in counselling on essential newborn care (e.g. birth preparedness, breastfeeding, clean delivery, cord care and hypothermia prevention)	% of community health workers trained, by cadre, in counselling on essential newborn care assessed by direct observation, role play, patient exit interview, or clinic records
Community based health worker performance improved and maintained through follow-up after training and periodic supervision	Correct counselling, identification and treatment and/or referral by health workers of newborn problems
Improved Health System	
Health facilities have available staff, drugs, equipment and supplies for normal deliveries, obstetric emergencies and managing newborn problems like asphyxia	% of health facilities, by type, staffed and equipped to provide newborn care
Sustainable financing and equity of access	% of newborns with access (within 3 hours travel time) to a health facility able to manage newborn problems
Improved coverage of Essential Newborn and Maternal Care	
Immunization to protect mothers and newborns against tetanus	% of women 15-49 who received at least 2 doses of tetanus toxoid during last pregnancy or at least 5 doses in her lifetime Or % of infants protected from tetanus at time of birth
Prenatal check-ups by a trained or skilled provider	% of new mothers who received prenatal care (attended ANC) at least once (and visits 2, and 4) by a trained or skilled provider during the last pregnancy
Attendance at delivery by a skilled provider	% of new mothers whose birth was attended by a skilled provider
Postpartum check-up by a trained or skilled provider	% of new mothers who received a check-up by a trained or skilled provider within 3 days after delivery
Newborn check-up by a trained or skilled provider	% of newborns who received a check-up by a trained or skilled provider within 3 days after delivery

Source: adapted from Essential Newborn Care – Save the Children

5.8 Annex 8

CONTENTS OF NEWBORN ADVOCACY PACKAGE (TO BE SENT TO UNICEF OFFICES)

Strategic Guidance Note on the Newborn

Powerpoint Presentation: The Newborn: Meeting MDG 4 Goals

Resource Materials:

- 1) The Neonatal Survival Series The Lancet, March 2005
- 2) The Bellagio Child Survival Series The Lancet, 2003
- 3) Newborn Health: Policy and Planning Framework WHO/SNL Oct 6 2004
Part I: Overview for Policy Makers
- 4) Care of the Newborn Reference Manual Saving Newborn Lives, Save the Children, 2004 (written by Diana Beck, Frances Ganges, Susan Goldman, Phyllis Long)
- 5) Managing Newborn Problems: A guide for doctors, nurses and midwives, WHO, UNICEF, UNFPA, The World Bank, WHO ISBN 92 4 154622 0 2003
- 6) Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors, WHO, UNICEF, UNFPA, the World Bank, WHO/RHR/00.7, 2000
- 7) Essential Newborn Care Brief SNL available online at www.savethechildren.org

Training Packages:

- 1) IMNCI Training Package WHO (India version + AIEPI neonatal in Spanish and English (Bolivia))
- 2) Home-based Life Saving Skills (HBLSS) pamphlet (American College of Nurse Midwives) (copies of the package is available upon request to Health Section NYHQ)
- 3) Home-based Neonatal Care Manual (SEARCH curriculum)

Examples of Programme Materials:

1. Birth Preparation leaflet from Bolivia

Resource sites:

- ✓ Save the Children www.savechildren.org
- ✓ SEARCH Home-based Neonatal Care Research results, Perinatology Journal Supplement March 2005 www.nature.com/jp/journal/v25/nls/index.html
- ✓ SEARCH website www.searchgadchiroli.com
- ✓ Partnership from Maternal, Newborn and Child Health www.pmnch.com
- ✓ Healthy Newborn Partnership (now part of Partnership for Maternal, Newborn and Child Health) www.healthynewborns.org
- ✓ World Health Organisation www.who.org
- ✓ Maternal Newborn Health/JHPIEGO www.mnh.org