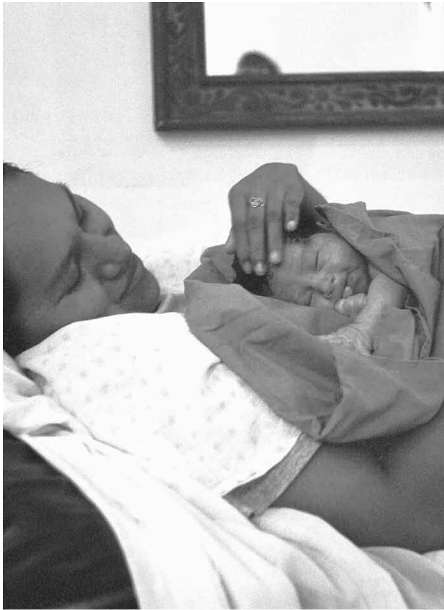
2 Newborn Health



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Newborn health has only recently been recognized as a priority intervention by the international public health community. Programs will evolve rapidly as the evidence base for community approaches grows. Planners must stay current with lessons learned from behavioral trials and pilot projects. Five, or even two years from now, approaches may be far different from today.

Why is newborn health a new concern? Certainly not because the problem is new. Mortality in the first 28 days of life, known as the neonatal period, accounts for an average of about 37 percent of all child deaths in developing countries.[1] At least two-thirds of all infant deaths occur during the first week of life and about two-thirds of those within just 24 hours of birth. Stillborn babies increase this toll of early deaths by an estimated four million every year.[2]

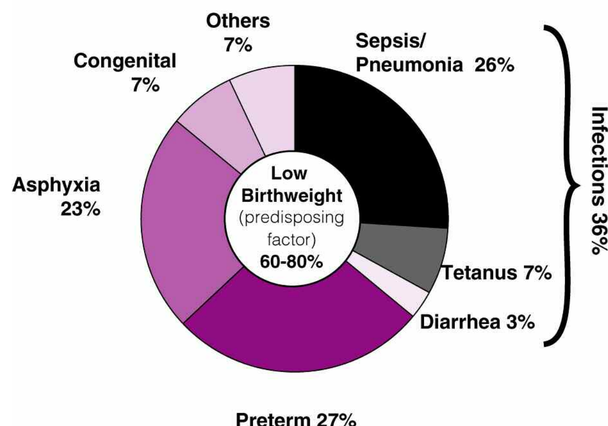
THE INVISIBLE CHILD

Until recently, however, the newborn has been virtually invisible. One reason is simply that this brief moment in the life cycle slipped between the cracks of both child survival and maternal health programs. Safe

1 Bryce et al. 2005

2 Lawn et al. 2005

Causes of Neonatal Mortality*



* Estimated distribution of direct causes of 4 million neonatal deaths for the year 2000.

Source: Adapted from Lawn et al. 2005

motherhood interventions may end with labor and delivery. When IMCI was introduced, official protocols began with the 29th day of life.[3] Lacking its own intervention, the newborn did not even appear on public health agendas. The 1990 Summit on the World's Children, for example, made no mention of neonatal health among its many goals.

This gap is also a reflection of the importance and complexity of *data* in planning. Most newborn deaths occur in the home and are not recorded. Even the World Health Organization grouped newborn deaths under the catch-all category of "other" in analyses as recent as 2000. An absence of programs has meant an absence of agreed on indicators for data collection. There has been little to report, less to review, and no one assigned to review it.

DEMONSTRATION OF RESULTS IN COMMUNITY-BASED NEWBORN CARE

A pilot study in India in the mid 1990s demonstrated that home-based newborn care and visits by community providers can save lives even in resource-poor settings. The now famous work was carried out by SEARCH/India in Gadchiroli district, India, where neonatal mortality was 52 per 1,000 live births at baseline and nearly 42 percent of newborns had low birth weight.

Care in the Home Female village health workers (VHWs) with five to 10 years of schooling learned to deliver a home-based newborn care package of services. They were also trained to give antibiotics (oral and by injection) for infections and to use a simple ventilation device to help babies who could not breathe. The VHWs visited each newborn in their community eight times during the first month of life.

Results By the third year, there was a 62 percent reduction in neonatal mortality compared to control villages. The case fatality for deaths due to infection declined from 16.6 to 2.8 percent. The study estimated that for every 18 newborns cared for, one death could be averted. The program cost approximately US $5.3 per neonate. The study demonstrated to the public health community that home-based newborn care is feasible and effective.

Others are now working to replicate this study and to test less intensive models.

Source: Bang 1999.

3 Many countries are now extending IMCI to one week or to the day of birth.

THE "IMPOSSIBLE" INTERVENTION

The newborn has remained invisible partly due to medical fatalism about causes and possible solutions to this mortality in the context of poor health structures. Early deaths are caused by birth asphyxia and injuries, infection, congenital anomalies, as well as complications due to prematurity and low birth weight. The prevailing view has long been that saving these babies would require costly approaches and sophisticated facilities. Affecting underlying causes seems even more expensive and difficult. From 60 to 80 percent of deaths occur among babies who are low birth weight[4]—a condition linked to poverty, maternal malnutrition, malaria (in endemic areas), and a host of cultural factors. Other determinants include early and late child bearing, births that are too close together, and lack of maternal decision-making and status in the family.

We now know, however, that effective newborn interventions can be delivered even in resource-poor settings and where births take place outside of facilities. A large percentage of neonatal deaths can be averted through low-cost, low-technology measures[5] (see page 12).

It has also become evident that large improvements in overall child survival rates won't be possible *without* attention to the newborn. Particularly in countries that have done well in reducing other child deaths, the high proportion of mortality in the first weeks is now difficult to ignore. Major donors (such as the Bill and Melinda Gates Foundation) have committed resources and drawn attention to the newborn, and USAID now includes newborn health in several global projects.

BEHAVIOR CHANGE AND COMMUNICATION IN THE CONTEXT OF A NEW PROGRAM

Any new program area faces special challenges. For newborn health, these are:

- Advocacy (at the policy, health system, and community levels)
- Joint decision-making (between at least two different arms of the health system) regarding programs and protocols
- Consensus on priority behaviors for communities

Behavior change and communication efforts can and should contribute in all of these areas. The most obvious is the third. Pages 15 and 16 include lists of key newborn health practices for the family, as proposed by two major newborn health projects (Saving Newborn Lives and BASICS II). One list mentions 30 family behaviors. The other describes 19 routine behaviors and 14 special behaviors. Both lists highlight the fact that newborn survival is part of a continuum of practices beginning in pregnancy. Care takes place over several phases:

- Preventive care during pregnancy
- Planning for delivery
- Care during childbirth
- Immediate care of the newborn
- Continued postnatal care

The behaviors cut across several existing interventions, in particular reproductive health and safe motherhood, but also malaria and acute respiratory infections. One question for behavior change programs is how, and to what extent, additional newborn emphasis can be integrated into ongoing interventions. The initial and most challenging task, however, is to

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4 Lawn et al. 2005.

5 Darmstadt et al. 2005.

select behaviors that are both *feasible* and will have an *impact on mortality*. In every program, the list must be small and carefully targeted.

CRITERIA FOR SELECTING PRIORITY BEHAVIORS

Access to Skilled Birth Attendants

Understanding *access to and use of services* is pivotal to selecting family behaviors. The presence of a skilled birth attendant[6] is critical to the survival of both mother and baby. Many people believe access to this service should be promoted as an essential human right. It should be a primary focus for advocacy with policymakers. Only an attendant specifically trained in newborn care can manage some problems during the first 24 hours when 40 percent of neonatal mortality occurs. In particular, handling birth asphyxia (which is responsible for around 23 percent of mortality) requires skills and simple equipment.

However, the reality is two-thirds of mothers in the developing world deliver at home and almost half are attended only by family, neighbors, or unskilled attendants.[7] Some deliver alone. In Bangladesh, for example, up to 80 percent of urban and virtually all rural births take place at home. Furthermore, access to this service is tied more closely to economic status than any other health intervention.[8]

For cultural and other reasons, some women do not seek out a skilled attendant and/or a facility for the birth even when these are available. Care is often substandard and mothers may be treated poorly.[9] In some areas, health facilities lack basic supplies and conditions are not hygienic. Safe motherhood programs may focus on these issues.

Communication programs must decide whether or not they will actively promote the behavior "seek a skilled attendant for the birth." Strategies may also vary by region or community.[10] The list of key practices on page 15 includes this behavior; the list on page 16 (which was originally created for Senegal) does not. In the second list, virtually all behaviors are initiated by the mother and carried out by her or the family.

Feasibility is the key criterion for this behavior. The relative importance, and the "who and what" of many of the other behaviors, hinge on whether this one has been included in the strategy.

Three Contexts for Selecting Behaviors

WHO recommends a phased approach to newborn programs based on two major factors: availability of skilled care and magnitude of newborn mortality. These criteria help determine the selection of key behaviors in a newborn program. WHO identifies three scenarios. Each includes an immediate strategy and a strategy aimed at the longer term task of improving services.[11]

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6 The term skilled birth attendant refers to those with midwifery skills (e.g., doctors, midwives, and nurses) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose, manage, or refer complicated cases. (MNH 2001)

7 Knippenberg et al. 2005.

8 USAID 2003 (a).

9 In one study of the competence of skilled birth attendants in four developing countries, on average, providers answered 55.8% of pertinent knowl edge questions correctly and performed 48.2% of skills steps correctly. (Harvey et al. 2004)

10 This issue can be very political. Donors may also have to be convinced that most gains in the short term will be made by focusing on care of the normal newborn and that both a short- and long-term strategy are necessary.

11 WHO/SEA 2002. (There is debate about how long it may take countries to provide their populations with access to birth attendance. In Sri Lanka the process from commitment to large-scale accessibility took about 75 years.)

Scenario One *Neonatal mortality rate is more than 50 per 1,000 live births. Deliveries take place in the home (with a relative or a traditional attendant).* Emphasis behaviors include:

- Tetanus toxoid vaccinations
- Use of clean delivery kits
- Exclusive and immediate breastfeeding
- Improved family practices for the normal newborn
- In endemic areas, intermittent preventive therapy (IPT) for malaria [12]

The complementary *long-term strategy* is to begin planning for and investing in recruitment and training of skilled birth attendants. (For a communication program, this is an *advocacy* focus.)

Scenario Two *Neonatal mortality is 25 to 50 per 1,000 live births. Some deliveries are attended by skilled birth attendants.* In addition to the basic interventions in scenario one, programs should emphasize selected antenatal services as well as some practices related to the "non-normal" newborn. Additional practices include:

- Consumption of iron folate
- Home-based care of low birth weight infants (such as Kangaroo method)
- Approaches to address asphyxia and infections

Complementary *long-term strategies* should include training of skilled attendants and also (when NMR is under 30/1000) strengthening of facilities.

Scenario Three *Neonatal mortality is under 25 per 1,000 live births.* Short- and medium-term strategies should emphasize skilled attendance at birth and promote facility-based deliveries.

ESSENTIAL ELEMENTS OF NEWBORN CARE—SAVING NEWBORN LIVES

Care During Pregnancy

- Maternal immunization for tetanus toxoid
- Nutritional support (including iron and folate supplementation)
- Birth planning including transportation
- Counseling on breastfeeding
- Recognition of danger signs and treatment or referral as needed
- Where appropriate—
  - Presumptive malaria treatment
  - Syphilis screening and treatment
  - Voluntary counseling and testing for HIV

Care During Childbirth

- Skilled birth attendance at delivery
- Clean delivery: hand-washing, clean space, clean cord care
- Recognition of danger signs (for mother and baby) and treatment or referral as needed

Immediate Care for the Baby

- Immediate and exclusive breastfeeding
- Keeping baby warm and dry
- Keeping mother and baby together
- Prophylactic eye care where appropriate
- Treatment for asphyxia and resuscitation

Continued & Routine Visits with a Trained Health Care Provider

- Early postnatal visit
- Continued exclusive breastfeeding, cord care, and thermal control
- Recognition of danger signs (e.g., fever) for both mother and baby, with treatment or referral as needed
- Immunization

Source: Saving Newborn Lives 2003. Reprinted with permission.

12 This source addressed behaviors in the SEA region so did not discuss IPT; WHO recommends IPT for malaria in endemic areas.

ESSENTIAL ELEMENTS OF NEWBORN CARE—BASICS II

BEFORE BIRTH

Preventive measures during pregnancy

- The pregnant woman receives appropriate doses tetanus toxoid vaccine
- The pregnant woman finds a *relais* or other health worker for pregnancy and until 2 months after the birth
- The pregnant woman identifies a *relais* or other health agent to get medicine to protect her from malaria
- The mother sleeps under an insecticide-treated bednet during pregnancy and after the birth with the baby to protect them from malaria
- The mother/family uses iodized salt when preparing family meals

Plan for Delivery: Place/Materials

- During the pregnancy, the mother/family identifies with the health worker the place of delivery
- The pregnant woman with selected problems identified by the health worker plans for her delivery in a suitable health center or appropriate hospital
- The mother/family prepares the material for the delivery:
  - New blade kept in its cover in a clean covered container
  - Clean thread kept in the above clean covered container
  - At least 5 clean cloths, washed and dried in the sun

Plan for delivery: Emergencies/Transport

- The mother/family plan for the resources needed in case of an emergency and transport and identifies the referral center and the method of transport

AFTER BIRTH

Essential care of the newborn

- At birth and after birth, the mother/family checks that the temperature of the baby is maintained:
  - Dry the baby with a clean cloth immediately after the delivery
  - Wrap the baby, including the head, with clean and dry cloths
  - Put the baby next to the mother
  - Delay the first bath of the baby for 6 hours
  - Check that the baby is effectively maintaining temperature by periodically making sure the stomach, hands and feet are a normal temperature
- The mother begins breastfeeding her newborn in the first half hour after birth without giving other liquid
  - The mother breastfeeds the baby exclusively, on demand, night and day, at least 10 times per day
  - The mother/family keeps the cord clean and dry without applying any clay, ash or other product until it has dried up and fallen off
  - The mother/family gives special care to the low birth weight baby, such as keeping them in skin-to-skin contact if necessary, and breastfeeding even more frequently--at least 12 times a day.

Danger signs in the newborn

- The mother/family bring the baby to the health facility as soon as one of these danger signs appears:
  - The baby feeds little or not at all
  - Baby is inactive or lethargic
  - Breathing is rapid, accompanied by chest in-drawing or gasping/grunting
  - The body is especially cold or hot
  - The base of the umbilical cord is red, inflamed, is leaking pus or has a bad odor
  - Persistent vomiting/abdominal distention
  - Convulsions

These scenarios can help determine how to target the most important behavioral clusters at the household level. They also help sort out what advocacy efforts should focus on in terms of both short- and long-term goals. Finally they provide guidance on to what degree (and how) newborn programs should put energy into supporting other ongoing programs in addition to promoting "new" family and community behaviors.

ADVOCACY AND PROGRAM DEVELOPMENT

National-level Policies and Programs

Behavior change and communication interventions have an important role to play in highlighting what practices are both *important and feasible* for families. Communication efforts can also play a significant role in addressing the first two goals mentioned on page 13: *advocacy* and promotion of consensus to move processes forward *within the health system*.

Efforts should focus on specific *outcomes*. These include a national newborn policy, a country strategy, a registry of births and deaths, and increased public awareness of the newborn. Certain *processes* are also key: collaboration across the health bureaucracy, mainstreaming within the medical profession, better use of data, and development of partnerships. WHO has outlined ten basic steps for establishing newborn health as a country-level priority (see box at right).

TEN STEPS FOR MAINSTREAMING NEWBORN HEALTH IN THE SYSTEM

WHO has made these recommendations for making newborn health a viable program area at the country level:

1. **Specify specific goals** for reduction in neonatal mortality rates.
2. **Write and adopt a national policy** supporting a countrywide neonatal health strategy.
3. **Conduct advocacy** among multiple partners at the highest levels to mobilize resources.
4. **Adopt a country strategy** providing options for programs in districts with different health infrastructures and mortality situations.
5. **Mainstream neonatal health** through coordination between maternal and child survival and other health areas, as well as cooperation with other sectors.
6. **Develop partnerships** among governments, NGOs, professional bodies, academia, and developmental partners at regional and country levels.
7. **Establish universal registration** of births and deaths. Reach consensus on key indicators for neonatal health. (Use these data for supportive supervision within the health system.)
8. **Include key indicators** within national surveys and national health management information systems.
9. **Strengthen neonatal care capacity** within both maternal and child health programs through systematic training, skills development, and logistics.
10. **Conduct operations research** to establish an evidence base for innovative programs.

Source: WHO 2002.

Developing Commitment to New Policies and Expenditures

In most countries, mortality data provide the strongest case for a commitment to the newborn. The ALIVE[13] computer modeling process is one tool that can be useful in bringing stakeholders together at the national level to examine the country-specific evidence base, agree on priorities, and also create "spin-off" materials for advocacy.

Saving Newborn Lives (SNL) often assists with a country-level situational analysis that brings stakeholders together and jumpstarts policy development. In Nepal, SNL helped bring together both safe motherhood and child survival experts from the Ministry of Health, professionals from tertiary health facilities, NGOs, as well as respected retired health experts. These experts decided to produce a series of scientific issue papers laying out the evidence base for Nepal, resulting in strong ownership of newborn care by the Working Group. They drafted a national policy that introduces newborn care within the context of traditional health practices.

Programs and Protocols

For ministries, one of the most difficult tasks is to integrate the newborn into two different arms of the health bureaucracy—safe motherhood and child health. Agreement has to be reached on who will take the lead in developing protocols, quality of care standards, and training programs. International donors are also stymied by such confusion (or competition) within their institutions. Bringing together the right individuals to talk under the right circumstances smooths bureaucratic coordination. An important focal process for many countries is extension of IMCI protocols to include the newborn. A number of countries now address the sick newborn seven days and older and a few from the second day of life. Indonesia and India now have protocols for the newborn beginning with birth. Advocacy is also important to garner attention for the newborn within other interventions (such as ARI, for example).

Mainstreaming Within the Medical System

Over the long term, professional associations and medical institutions are responsible for developing new curricula and establishing credentialing systems. Their action is necessary to make newborn health official within the system. They need to be involved from the start and feel ownership of new initiatives. In India, the National Neonatology Forum (NNF), a professional association with 18 state chapters, was instrumental in moving policies forward. (The association accredits newborn units and produces technical guidelines.) In 2003 they were successful in getting the government to launch its first National Newborn Week.

Better Use of Data

Three or four of the 10 WHO recommendations are about collection and use of data about the newborn. A national registry of births and deaths is critical. WHO also recommends not expressing neonatal mortality as a percent of child mortality (which blurs both the rate and changes in the rate), but calculating the actual *newborn mortality rate* (NMR) and then setting goals to reduce this rate. Neonatal indicators must also be established and included in surveys.

The Public and the Press

The newborn needs the support of a strong national advocacy effort. Communication programs can create awareness at the national level through workshops and

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13 ALIVE is one of a family of computer-based advocacy processes. Others include REDUCE (for maternal mortality) and PROFILES (for various nutrition interventions). These tools were developed by the Academy for Educational Development with funding from multiple donors.

briefing materials for the press, article and story placement, speakers' bureaus, and broad-based public awareness campaigns using the mass media and other approaches. A logical home for the newborn is within the White Ribbon Alliance. Building on existing safe motherhood networks is logical for many reasons. At this level, simple messages to notice the invisible newborn and linking newborn survival to specific interventions (rather than detailed behaviors) are most important. Many people also feel that newborn health must become a grassroots "rights-based" movement highlighting fundamental gender and equity issues such as maternal decision-making and access to services.

Advocacy at the Community Level

The newborn has also been invisible at the community level. In many environments, the high newborn mortality makes fatalism akin to realism. Changing community norms about the newborn starts with awareness raising and the belief that lives *can* be saved. The silence surrounding these deaths is often linked to beliefs about supernatural causes or God's will. In many cultures the newborn is not considered a person for the first days or weeks of its life. Many newborn deaths are not counted. Dealing with these issues within the community requires sensitivity and the right advocates. NGOs with experience in participatory approaches can play strong roles in increasing awareness and collective action among local leaders, within health facilities, women's groups, and other networks.

Community advocacy also has to focus on specific actions that will make a difference. These actions must be *feasible*. This may or may not include promotion of skilled birth attendance, for example. *Collective* action is necessary to save newborns. In case of emergency, families need to have a plan to transport mother and baby and to cover referral-related costs. Safe motherhood programs promote community cooperation to set up joint funds and find vehicles that can be used when mothers are in trouble. Community insurance schemes also help families cover the costs of such emergencies. Recognition that newborn emergencies also deserve such support can be integrated into these programs.

WHO has recommended that one of the first steps is to make registration of deaths compulsory and require village chiefs to sign death certificates. This will make leaders aware of the deaths, encourage responsibility, and establish a basis for taking action.

ASSESSING BEHAVIORS THAT MAKE A DIFFERENCE

So far we have talked about selecting behaviors that are *feasible*. The other half of the challenge is to emphasize what will *make a difference.* Managers (and funders) of "new programs" may be inclined to think they will only make a difference if they do something *new*, whereas the greatest gains may actually come from integrating with existing programs and supporting or supplementing them.

An important first strategy is to look at the gaps in what is known to reduce mortality and if necessary, do these things better.[14] In high mortality areas this includes the first three bullets on page 15 under Scenario One: tetanus toxoid vaccination, exclusive breastfeeding, and—in endemic areas—malaria prevention.

Tetanus Toxoid Vaccination

Over the last two decades, maternal vaccination against tetanus toxoid (TT) has made the single largest contribution to improvements in neonatal survival.[15]

14 WHO 2002.

15 WHO 2002.

MOBILIZING DEMAND FOR TETANUS TOXOID IN PAKISTAN

In Pakistan, 80 percent of births take place at home and without skilled attendance. In 1999, only about half of women of childbearing age were immunized against tetanus. In that year, 22,000 newborns died from tetanus.

Reducing Barriers. The government initially provided TT vaccination through antenatal services. However, it was clear this approach was not meeting the needs of women in that largely traditional culture. The Ministry of Health, UNICEF, WHO, JICA, and SNL developed a campaign approach that involved home visits by Lady Health Workers (LHW) who were more acceptable to women than male vaccinators. The program still faced a number of barriers. One of the primary ones was suspicions about a connection with birth control—particularly because the campaign targeted unmarried women and married women who were not pregnant, as well as those who were.

Multiple Audiences. A multi-level campaign strategy focused on creating national awareness and acceptance for vaccination at the community level. Focal audiences were fathers and husbands, mothers-in-law, community and religious leaders, and teachers. Religious and community leaders received special information leaflets. Materials were distributed at girls' schools. Just prior to the campaign in each district, local mosques promoted acceptance of the vaccinators. Vaccinators were motivated with a short docu-drama, which was also aired on national television.

Results. More than 80 percent of the five million women in the target group received three doses of vaccine.

Sources: MNH 2003; Fikree 2002.

The higher the mortality, the larger the role tetanus plays in the number of deaths.[16] Increasing or maintaining TT coverage is always a key issue for newborn survival. Many countries provide vaccination as part of the standard antenatal service package.[17] However, even where a high percentage of women visit antenatal clinics (ANC) several times during pregnancy, TT coverage may be less than 50 percent. The gap may be due to supply problems or service issues. It is also important to look at *who* is covered and who is not. The most vulnerable populations are least likely to use ANC services.[18] Newborn programs should analyze both supply and demand issues carefully.

Other approaches to TT delivery, including campaigns, are possible. In Pakistan, investigators found that women were not attending ANCs and a vertical approach was essential (see box at left). Another approach is vaccination in primary schools. Vaccines must be given early enough to catch girls before they drop out, and should be given to boys as well (in order not to discriminate but also to avoid suspicions about a family planning connection).

Immediate and Exclusive Breastfeeding

Over the last 20 years nutrition and child survival programs have brought substantial improvements in early initiation of breastfeeding. If this behavior remains a problem, newborn programs should collaborate with existing programs that include breastfeeding messages and help assess their effectiveness. (Breastfeeding is also part of a

16 USAID 2003 (b). Citing R Steinglass et al. 1993.

17 Five doses are necessary over a lifetime, three of which should be part of childhood immunizations. UNICEF, WHO, and UNFPA recommend three doses to women of childbearing age. Most countries provide at least two during pregnancy.

18 Abou-Zahr 2003.

ADAPTING TO LACK OF ACCESS

Use of antenatal services is high in many parts of the world. However, high access may obscure equity issues. An analysis of DHS surveys covering the late 1990s found that, among all developing countries with data, one-third of women in rural areas and two-thirds of women with a primary school education or less report no antenatal care.

Family members (mothers-in-law and husbands) are very influential in determining whether a woman seeks antenatal care and they should be the targets of interventions to improve attendance. At the same time, programs should keep in mind that high overall ANC use may obscure the need for special strategies to reach those women who are most vulnerable.

When ANC Visits Aren't the Answer
Newborn programs should always promote feasible behaviors. In Bangladesh, the newborn program decided not to put effort into promoting ANC visits because 52 percent of pregnant women nationwide were not using the services and supplies were often not available at the clinics. It was decided that little harm would come from leaving this behavior out of the communication strategy (particularly because tetanus toxoid—a critical service—is delivered through a vertical program in Bangladesh).

When Skilled Attendants Aren't the Answer Promotion of skilled attendance at birth was also considered a lower priority because of feasibility issues. Few trained providers were available, and even where they were, families indicated a strong preference for experienced providers, whether or not they had been trained. The program is therefore conducting intensive communication activities for the multiple *community members* who influence home practices.

Sources: Abou-Zahr 2003; SNL 2003.

continuum of essential home practices and is discussed further on page 24.)

Malaria Prevention

Malaria contributes to maternal anemia and related deaths, to still births, low birth weight, and associated newborn risks. Preventive behaviors include at least two doses of intermittent preventive therapy (IPT) during pregnancy and sleeping under an ITN (during pregnancy and afterwards with the infant). These are both challenging interventions. In malaria endemic countries, IPT is likely to be part of antenatal services.[19] National malaria control programs are working on making ITNs affordable and accessible through different strategies. There are almost always major gaps in malaria prevention programs and newborn programs may decide to contribute to solving these. Malaria prevention behaviors should *always* be emphasized as part of the newborn package in endemic countries.

INTEGRATING WITH SAFE MOTHERHOOD

ANC services are part of safe motherhood programs and attendance is high in some countries (although not in all—see box at left). An important issue for newborn programs is that clinics are likely to focus on services and not counseling. WHO has determined that women who attend ANCs often receive unnecessary services and are asked to make more visits than necessary.[20] Both of these factors reduce the time available for counseling. The important message for women is to come *early* rather than *many times.* Sometimes women who do come early in pregnancy are not counseled on birth preparedness but told to return later—and then may miss discussion of birth preparedness altogether.[21]

19 The number of doses varies according to the drug. Antimicrobial resistance and changing policies contribute to making this a challenging behavior.

20 MNH 2001.

21 Matinga 2000.

WHAT IS BIRTH PREPARATION?

Birth preparation is a key behavior in both safe motherhood and newborn programs. "Preparation" may mean many things. The classic messages are to select a place of delivery, a skilled attendant, and a referral facility in case of emergency. The family also needs to plan for transportation, which may mean saving money and receiving support from the community to identify a vehicle. In fact these behaviors will vary greatly from program to program.

Preparing in Nepal Eleven percent of Nepali women deliver entirely by themselves. About 89 percent of deliveries are at home and 78 percent are without skilled attendance. A major focus of the program in this country is therefore to plan for a hygienic delivery. Safe delivery kits are produced in Nepal but in a recent survey 80 percent of women were not familiar with them and only 8 percent had used one. SNL is planning a social marketing campaign to promote use of the delivery kits.

Preparing in Palestine In some countries planning for an emergency is considered bad luck and this is a major barrier. In the West Bank, however, mothers are encouraged to view emergencies as the norm. Women often deliver enroute to a facility because of road blocks and border delays. Positive deviance research uncovered the simple fact that women who do some advance planning are better able to protect their infants. Mothers are encouraged to stay with well-located friends or relatives as the birth approaches in order to shorten their distance to a facility. The program has also created materials to help women discuss with their families what to do in case of an emergency birth.

Sources: WHO 2002; Orsin 2002; Anne Roberts, personal conversation.

WHO now recommends that birth preparedness be discussed in *all* ANC visits. Newborn programs can help advocate for these crucial changes.

Where ANC services are promoted as part of the newborn program, counseling about essential newborn care practices should be incorporated into the ANC package along with information about birth preparation. Safe motherhood already provides information and encouragement about breastfeeding, a safe and hygienic delivery (including cord care), and planning for emergencies. Discussion of emergencies is an opportunity to emphasize that the *newborn* also deserves emergency attention and transportation if necessary. A simple, key behavior change is *attention* to the newborn and *awareness* of its status from the moment of delivery.

Counseling during antenatal care should focus on whoever comes *with* the mother, since these messages are primarily for those who will be helping her at the birth (see box at left).

Essential practices include drying and wrapping the baby, delaying the first bath, and keeping the baby with the mother (see next section). Simply spending time talking about the newborn (preferably with a family member) during counseling is a first step in changing the "invisible infant" norm.

ANC counseling can promote the first postpartum visit. This practice is also not a norm in most communities. Most mothers appreciate the need for vaccinations and the postpartum visit can be linked to this benefit.

Basic "normal care" messages are critical. However, programs need to be realistic and cautious about discussing *danger signs* during the ANC visit (see page 25). The total list of practices is always long. The mother and the provider will need appropriate memory aids for any that are promoted. The standard mother's card should also be revised to include these key behaviors.

THE BIRTH EVENT AND ESSENTIAL CARE

Who is Present at the Birth—Who Makes Decisions?

The immediate postpartum period is from the birth until two to three hours after delivery of the placenta. *Essential* newborn care practices are aimed at this small window and are deceptively simple. Amenability of existing practices to change will vary greatly in different communities. The first key factors are *who* is present at the birth and what *decisions* they are expected to make. This may vary within countries and districts and sub-regions, and communication activities must be tailored.

Even if the mother delivers alone (as in some parts of Nepal) a range of people may be responsible for decisions at different points in the birth process and afterwards. Their responsibilities are usually influenced by power relationships in the family and also strongly held traditions about ritual purity/pollution. The place of birth (it may be outside the home in a shed, for example) is often influenced by such beliefs, as is the role of a traditional birth attendant. Those who make decisions may be different for a first birth (when the mother may return to her parents' home) and subsequent births.

Formative research is essential to understand who these people are, what their responsibilities usually are and how they fulfill them, and what the barriers and enablers are that can be addressed to support improved practices.[22]

Often *different* female relatives make decisions about when the baby will be cleaned, where it will be put, and when it will be breastfed. The TBA or the mother may cut the cord, bathe the baby, and also clean up. The mother-in-law may make decisions about danger signs and what actions to take and why. The husband may decide whether and how the mother and infant are actually transported in an emergency. In general the goal of an intervention is not to change these *roles* but to understand them and decide how to influence specific actions. For example, while some programs have abandoned training of TBAs *per se* because roles are highly circumscribed, other programs include specific messages for them.

Many newborn communication programs focus primarily on the family—in particular the mother-in-law and the husband—because they are the primary decision-makers.

Notice the Baby

The first behavior is really to *pay attention* to the baby. A newborn is often left lying on the ground until the placenta has been delivered. In some cultures the placenta is considered to have a soul, adding to the importance attached to its delivery. Those present at the birth are generally exclusively focused on the mother. A program in Bangladesh actually recommended assigning one person to be the "newborn attendant," which is one way to give prominence to the newborn's care.

Keep Baby Warm and Dry

Essential messages at birth are:

- Dry the baby and cover it immediately after delivery
- Wrap the baby, including the head, with clean dry cloths[23]

22 Parlato et al. 2004. The manual outlines research questions for the different behavioral clusters and provides a matrix of methodological options for different newborn applications.

23 SNL recommends skin-to-skin contact as the optimal behavior, even for the normal newborn. After drying the infant, it should be placed in skin-to-skin contact with the mother and both covered with a clean warm blanket.

- Put the baby next to the mother and keep them together
- Delay the baby's first bath at least six hours
- Check periodically to see that the baby is warm (check temperature of stomach, hands, and feet)[24]

Many cultures are amenable to "keep baby warm" messages. In South Asia, beliefs about hot and cold conditions are also conducive to this advice. In Nepal, even when the mother gives birth alone in a shed, a fire will be made there to support the right conditions. Messages should build on helpful local beliefs. Rubbing the baby immediately as well as wrapping it in a clean cloth are very important to stimulate a non-breathing infant.

Delaying the baby's first bath is important to prevent hypothermia and is the most challenging behavior in many cultures. Some communities attach ritual importance to the first bath or believe the baby should not be breastfed until after the bath. Some believe that an attendant (a TBA for example) has not done her job or is lazy if the baby is not bathed rather quickly. Local expectations about the bath can also negatively influence practices in facilities, even where providers have been taught appropriately. WHO recommends that the bath should be delayed for six hours,[25] but programs are setting shorter times according to what may be feasible.

Behavior change strategies may have to focus on negotiation of small but important changes and a progression of such changes over time. *Harm reduction*, rather than elimination of practices, may be the first step—particularly for bathing. The TIPs methodology (Trials of Improved Practices) is a useful research tool for investigating how changes can be negotiated in any harmful practices.[26]

Initiate Immediate and Exclusive Breastfeeding

Many programs now have solid and successful experience promoting early initiation of breastfeeding. They have focused on knowledge of benefits to the baby as well as the mother. Colostrum acts as the "first vaccination" and immediate breastfeeding helps the mother deliver the placenta, stop bleeding, and recover more quickly. Benefits to the mother can be particularly convincing at the birth, given the urgent focus on delivery of the placenta and concern over blood loss. Programs have also successfully negotiated changes in ritual practices, in particular reducing prelacteals to small symbolic tastes, and have instead connected the valued rituals to colostrum (for example, equating it with God's gift to the baby).

Keep the Mother and Baby Together/ Warm and Dry

The recommended practice of "keeping the mother and baby together" promotes frequent as well as exclusive breastfeeding *both night and day*. Establishing this as a norm also provides a good base for recommending the Kangaroo mother care method if babies are born low birthweight (see page 26). Initial *separation* of mother and baby is common in some communities, however, and is often done to protect the mother in some fashion. Promoting the benefits of immediate breastfeeding *to the mother* can build on this underlying concern, providing a bridge to other behaviors as well.

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24 Using touch to determine whether a baby's temperature is normal can be difficult. A baby who is either too warm or too cold can be in danger.

25 WHO et al. 2003.

26 Dicken et al. 1997. (Nachbar 2002 recommends TIPs for five newborn behaviors: delaying the first bath; immediate initiation of breastfeeding and avoidance of prelacteals; skin-to-skin contact; drying and warming the newborn before the placenta is delivered; and clean cord care.)

Proper Cord Care

Proper cord care begins at delivery and includes cutting with a clean blade or knife and tying with clean strings. These practices are included in safe motherhood counseling. Additional practices are to keep the cord clean and dry without applying any clay, ash, cow dung, or other material until it has dried up and fallen off. Harmful practices are common and can lead to sepsis (or tetanus if the mother has not been immunized). Research is essential to uncover what is going on locally and address specific practices.

POSTPARTUM FOLLOW-UP

WHO recommends every mother be visited by (or visit) a skilled provider within six hours of birth, within the first week, and again between four to six weeks.[27] Programs must decide what kind of visit, and how many, are feasible. The initial visit is a moment of opportunity to help the mother with feeding problems and for detecting infections. The first visit after a home delivery should include initial BCG and polio vaccinations. Vaccinations may be the chief motivating factor for the family. The postpartum period is also a time of transition when women may be open to new ideas.[28] The Lactational Amenorrhea Method of birth spacing (LAM) and other family planning methods can be offered at this time.

Postpartum follow-up is an urgent issue that is often missed. Traditional practices of seclusion and beliefs about the infant's vulnerability to various supernatural causes are barriers. This is another area for good qualitative research, however. Some cultural barriers are changing. A program in Malawi found many rural women starting to make early postnatal visits and is planning "positive deviance" research to find out what the determinants are for their behaviors.

Some programs promote home visits by community health workers.[29] Throughout Indonesia, a trained village midwife is supposed to visit every new mother within one to seven days of delivery. She provides vaccinations to the baby and iron/folic acid and vitamin A to the mother. She also examines the baby and promotes adoption of the Kangaroo approach (see page 26). A program in China found that a majority of mothers welcomed help with problems feeding their infants.

One challenge is the absence of providers at the community level that have experience with newborns. TBAs often have few duties connected with the newborn and may not be interested in a new role (especially one which is not reimbursed). Their status may also restrict them in the community's eyes to certain kinds of duties (considered lower class or unclean). Nevertheless some programs have had success involving TBAs in postpartum and newborn care. Abhay Bang's program in India (see box, page 12) mobilized and trained TBAs to visit within 24 hours of delivery and provide life-saving services—although these women traditionally do not have a role in newborn care.

FAMILY CARE OF THE NON-NORMAL NEWBORN

Special behaviors can protect the low birth weight baby, the baby who has difficulty breathing, and the baby with an infection. WHO suggests these behaviors become a priority once mortality has dropped below 50 per 1000 live births (Scenario Two). It is never helpful

27 WHO et al. 2003.

28 Koblinsky 2004 (draft).

29 Koblinsky 2004 (draft).

LIFE-SAVING MEASURES FOR THE HOME

Over 20 percent of newborn deaths are due to birth asphyxiation. These babies die before they can be referred to a facility, even if one is nearby. Until recently most of these deaths were considered impossible to avoid in resource-poor areas.

Pilots in Multiple Countries A number of pilot programs have demonstrated that simple equipment and simple skills can save many babies. WHO, USAID, PATH, and the SWACH Foundation joined to conduct operations research in India, Indonesia, Bangladesh, and the Islamic Republic of Iran. They trained TBAs and other providers to identify signs of asphyxia and to use a simple, low-cost tube and mask to ventilate newborns.The devices cost under US $6.

Results A multi-site evaluation of these pilots showed that physical stimulation or mucus suction were enough to revive 31-71 percent of babies who did not cry at the time of birth. Between 34-75 percent of babies who did not cry required ventilation. Mortality from birth asphyxia in the study was only 5.8 per 1000 live births (in contrast to the developing world average of 21 per 1,000 live births). Families were very supportive of the interventions, and the equipment enhanced the prestige of providers.

The study recommends that any birth attendant who assists in more than five deliveries a month should receive training. Pilots such as these hold great promise for many newborns once mothers have access to skilled attendants.

Source: WHO 2002.

to teach danger signs that can only be treated by advanced interventions if referral isn't possible. But contextual factors are also important. For example, where prevalence of low birth weight is high, the small baby may be the norm.

Low Birth Weight Babies

Most babies in the developing world are not weighed at birth. However, families often recognize when a baby is small. The low birth weight baby needs the same protections offered to the normal newborn. It also needs to be breastfed more frequently—at least 12 times a day. Warmth is particularly important for the small baby.

SNL promotes the Kangaroo mother care method for low birth weight babies.[30] This includes 24-hour skin-to-skin contact. The baby is held in an upright position under the mother's clothes or a wrap. The mother acts as a sort of incubator, and a baby that might otherwise not survive without care in a facility can be taken care of at home. Kangaroo care is usually well received by mothers. In the West Bank where babies are often born enroute to facilities due to road blocks, the kangaroo method was promoted as a "norm" to prevent hypothermia of babies in transit. But the program found it gave mothers a sense of security as well—an unanticipated benefit.

Asphyxia

Most cases of asphyxia can only be dealt with by a trained provider who has equipment. Unless a skilled attendant is available at the birth, a baby with asphyxiation will die very quickly, certainly before it can be transported to any referral facility (see box at left). However, some babies who do not cry may look dead but will respond to gentle stimulation, such as

30 WHO 2003.

rubbing with warm cloths. This is one reason the "normal" practice of immediately drying the baby—and first of all *noticing* the baby—is so urgent.

Infection

Families have more time to act if there are signs of infection. Infection (including acute respiratory infection — or pneumonia) remains a danger throughout the neonatal period. Danger signs include:

- The baby does not feed well or at all
- The baby is inactive or lethargic
- The baby breathes rapidly (the chest draws in and the baby gasps or grunts)
- The baby's body is especially cold or hot
- The base of the umbilical cord is red, inflamed, or is leaking pus
- Persistent vomiting
- Convulsions

Some programs decide to teach these danger signs in addition to the essential care behaviors designed to prevent problems in the first place. The key factor in treatment of infections is *access*—to a knowledgeable provider as well as to supplies. Babies with infections need to be treated with appropriate antibiotics. In many communities people believe allopathic medicines are not appropriate for newborns. Such beliefs, as well as deeply held concerns about taking the newborn out of the home and problems of transportation, make treatment challenging. To date, the successful ARI programs have focused on *case-seeking* (by providers who come to the home). However, the assumption that parents will not take a newborn from the home in an emergency may not always be warranted. In Malawi, for example, research showed families were much more willing to come up with a plan for responding to danger signs (in both the mother and the infant) than to plan for skilled attendance at the birth.[31]

A high proportion of deaths due to acute respiratory infections (ARI) take place in the first weeks of life. There is a particularly important overlap between these interventions. The challenge of reducing the large number of ARI deaths has brought new attention to the neonatal period as well. Several pilot programs are discussed in Chapter 4. ARI interventions face additional policy and advocacy challenges. Advocacy for inclusion of the newborn into IMCI protocols helps assure that young infants benefit from any increased attention to ARI as well.

31 SNL/Malawi 2003 (draft).

Summary

Newborn Health

Newborn health overlaps with several other interventions: safe motherhood (including malaria prevention), immunization, and nutrition (especially breastfeeding). It includes both prevention and treatment behaviors. Newborn health begins with care of the pregnant woman and extends through the first 28 days of life. Behaviors fall into several categories:

- Pregnancy (preventive behaviors and planning for delivery)
- Immediate care of the newborn
- Continued postnatal care

Specific essential newborn care (ENC) behaviors will vary according to the magnitude of newborn mortality, use of ANC services, and access to skilled birth attendance. One of the central challenges of newborn health is selecting interventions and specifying priority behaviors (see box page 30.)

PREVENTION *and* TREATMENT: ESSENTIAL NEWBORN CARE

Audiences and Actions in a Nutshell

Policymakers

- Take concrete steps to promote and mainstream newborn health:
  - — Adopt a national policy supporting newborn care
  - — Design and fund a country strategy
  - — Incorporate newborn in health protocols, training curricula
  - — Specify goals for reduction in neonatal mortality rates
  - — Establish universalized registration of births and deaths

Press and Other Stakeholders

- Draw public attention to newborn health/rights of newborn

Communities

- Collective action – Identify emergency transport for newborns (as well as mothers)
- Village chiefs – Sign newborn death certificates

Mothers/Those Present at the Birth

- Complete TT immunization
- Plan for the birth (identify skilled attendant or plan for hygienic birth; have a plan in case of emergency)
- In malaria endemic areas – take malaria chemoprophylaxis and sleep under ITN
- Dry baby immediately and wrap in warm cloths—place with mother
- Breastfeed immediately and on demand

s u m m a r y

- Keep baby warm and dry
- Keep mother and baby together
- Delay the baby's first bath for 24 hours
- Be alert for danger signs and seek emergency care
- Practice kangaroo care for a low birth weight baby
- Seek or accept a postpartum visit and have infant vaccinated

Health Workers (ANC)

- Counsel the pregnant woman (and family) on essential newborn care practices

What are the Key Challenges?

Until recently the newborn has been almost invisible at both the health system and community levels. Advocacy and design of appropriate programs is urgent. An important task is to specify feasible key behaviors for given mortality and cultural contexts and coordinate across program areas.

- The medical community may think mortality reduction is only possible through high technology/high-cost approaches not feasible for most births.
- At the community level, fatalism may be linked to common experience as well as spiritual beliefs; many newborn deaths may not even be counted or "observed" by the community.
- The list of essential newborn care behaviors is extremely long and may be difficult for program planners to prioritize and integrate (see box at right.)
- Only trained attendants can manage some problems during the first 24 hours after birth when 40 percent of mortality occurs (e.g., due to birth asphyxia).

How are Priority Behaviors Selected?

Priority behaviors for newborn health will vary by country and by region. Behaviors must be *feasible* and have an *impact on mortality*.

The list of priority newborn health behaviors is very long, and communication specialists may feel pressured to focus on all of them.

But often the greatest impact will be gained by strengthening existing programs. In high mortality areas, this includes increasing tetanus toxoid coverage, improving exclusive breastfeeding rates, and—in endemic areas—malaria prevention.

Emphasizing family care of the *normal newborn*—drying and warming the baby, delaying the bath, and keeping mother and baby together—is also important.

WHO only recommends focusing on practices to support the *non-normal* newborn when access to skilled attendants is high (and neonatal mortality is below 50 per 1000 births).

- In many countries the majority of women have no access to skilled attendants, and may not prefer to use them even when available.
- Traditional practices vary and some may be harmful; e.g., ignoring the baby until the placenta has been born, giving a bath too early, separating mother and baby, delaying breastfeeding. Many of these behaviors have never been addressed before; determinants and relative strength of beliefs may be unknown; no "buzz" has ever been created to begin the process of changing norms.

- In most cultures the newborn is kept indoors for several weeks and the practice of a postpartum visit is unknown. These traditions delay the first immunization and may prevent early detection of problems in the first vulnerable month.

How Can Communication Approaches Contribute?

Advocacy

- Raise awareness at policy levels about the high mortality in this age group as well as the feasibility of preventing deaths even among the underserved. Focus on specific steps needed to adopt/launch/fund new programs. Facilitate collaboration between safe motherhood and child survival programs.
- Stimulate a grassroots movement, for example linked to the White Ribbon alliance, cutting across institutions and involving the media.
- When promotion of ANC visits is part of the newborn strategy, support WHO's recommendation for *fewer visits* focused on *essential services* and increased attention to *counseling*, with birth preparation discussed at the earliest visit.

Research and Program Design

- Promote a systematic process of selecting priority behaviors, focusing on those that are appropriate for the given level of mortality and current infrastructure, are feasible, and will have an impact in the short and long terms, respectively (see WHO/SEA guidance on three scenarios).
- Support the integration of key practices into ongoing safe motherhood and child health programs.
- Conduct formative research on barriers and enablers to priority essential newborn care practices. Conduct positive deviance (doer/non-doer) research regarding those practices that are already changing (e.g., in some areas, willingness to take an infant for a postpartum visit).
- Support operations research to test new strategies; e.g., working with TBAs to carry out postpartum visits, use of simple equipment to prevent birth asphyxia, etc.

Families/Communities

- Support creative strategies at the community level for "recognizing" the newborn. Promote responsibility of village chiefs for registering births and deaths. Promote collective actions (e.g., supplying transport) for protecting newborns.
- Test/promote messages for specific actors commonly responsible for specific essential practices. At the same time, promote collective responsibility for "watching" the newborn.
- Design/test "harm reduction" strategies for those behaviors that research shows are particularly resistant to change and test messages for feasibility.
- Assure benefits to *mothers* of early BF initiation are emphasized in BF promotion activities.
- Promote first vaccination according to local postpartum strategy—using the vaccination benefit to encourage early contact with the health system. At the postpartum visit, assure importance of vaccinations is stressed and the child receives a health card.

Providers/Health System

- Design job aids for ANCs to help introduce essential newborn practices (e.g., to include newborn in discussion of emergency transport, to counsel on essential practices).

- Support training for ANC and appropriate community workers regarding counseling for essential newborn practices. Focus on negotiation skills related to new behaviors, discussing harm reduction possibilities.
- Revise the standard mother's card to include appropriate newborn behaviors.
- Facilitate a postnatal contact for all babies; provide vaccination "referrals" and "counter referrals" for babies born away from their catchment areas.