

*asuh*

Awal Sehat Untuk Hidup Sehat

# Improving the Health of Newborns in Indonesia

## Final Report

October 30, 2003



Submitted by

***path***

Tifa Building  
10th Floor, Suite 1001  
Jl. Kuningan Barat No. 26  
Jakarta 12710, Indonesia

Submitted to

USAID Jakarta

USAID Cooperative Agreement  
No. 497-A-00-01-00003-00





# Table of Contents

<b>Executive Summary .....</b>	<b>iii</b>
<b>Introduction .....</b>	<b>1</b>
Background.....	1
Strategy .....	2
<b>Program Implementation .....</b>	<b>4</b>
Building the capacity of village midwives .....	5
Empowering families and communities .....	8
Strengthening district health offices .....	11
Special studies .....	13
Program structure .....	14
Evolution of project goals.....	15
Monitoring and data collection.....	15
<b>Results.....</b>	<b>19</b>
Building capacity.....	19
Improving outcomes in health services and behaviors.....	22
Special studies .....	26
Other measures of success.....	26
Lessons learned.....	29
<b>Recommendations and Conclusions.....</b>	<b>31</b>
Recommendations .....	31
Conclusions.....	31
<b>Attachments</b>	
A Materials Produced by ASUH	
B ASUH Leaflets	
C Positive Deviance Final Report	
D ASUH Organizational Charts	



## Executive Summary

From November 2000 through September 2003, PATH, in collaboration with the Indonesian Ministry of Health, implemented a \$4.7 million USAID-funded program to improve the nutrition and health of Indonesian women and children younger than five years old, focusing on care of newborns. ASUH (*Awal Sehat Untuk Hidup Sehat*, A Healthy Start for a Healthy Life) expanded elements of PATH's successful Lombok Healthy Start program to four districts in East and West Java with a combined population of 6.2 million people.

ASUH's primary objectives were to:

- Improve the health and survival of newborns.
- Increase the health, nutrition, and survival of infants.
- Enhance the ability of local health management teams and communities to assess health problems, develop and implement local solutions, and monitor and evaluate activities.
- Improve the timeliness and quality of care at delivery and during the early postpartum period.

The ASUH team consisted of PATH and the Indonesian Ministry of Health at the central, provincial, and district levels. Other key partners included USAID, several local nongovernmental organizations, and other U.S.-based organizations working on cooperative agreements with USAID. Local and international consultants provided technical assistance. The PATH team consisted of staff and consultants based in Jakarta, Bandung, Surabaya, Seattle, and Washington, D.C.

### ■ Program implementation

The major program components included building the capacity of midwives, empowering families and communities, and strengthening district health offices.

#### Building the capacity of village midwives

ASUH built the capacity of village midwives to provide newborn care through Citra Diri training (which focused on self-image, self-confidence, and communications skills), clinical training on integrated management of young infants (MTBM), and improving the supervision midwives receive. More than 1,800 midwives and their supervisors participated in the Citra Diri training, and 1,407 participated in the MTBM clinical training.

Results from quantitative and qualitative evaluations show improved midwife interactions with clients, colleagues, and supervisors; increased clinical knowledge; and increased frequency, quality, and completeness of first neonatal visits conducted by midwives.

#### Empowering families and communities

ASUH mobilized families and communities by training and supporting specialized community facilitators, working through existing community organizations, reinforcing project messages on five newborn care topics through multiple media (including a variety of interpersonal communications), and piloting a positive deviance approach to improving nutrition for children under five.

#### Strengthening district health offices

ASUH strengthened the capacity of district health office staff to design and administer programs by increasing their skills and experience in participatory planning, training, mobilizing communities, and collecting and using health data for decision-making. District health officers took active roles in ASUH activities and were instrumental in expanding project activities to new areas.

### ■ Results

In addition to achieving success in building the capacity of village midwives, empowering families and communities, and strengthening district health offices, both quantitative and qualitative evaluations show improvements in health services and behaviors. Furthermore, PATH was able to leverage USAID funding by raising US\$555,567 in direct donations and in-kind contributions of goods and services from non-federal sources.

#### Increase in first neonatal visits and hepatitis B coverage

In all ASUH districts, the percentage of mothers reporting a first neonatal visit increased significantly—from 15 to 25 percentage points. The number of newborns who received a vital birth dose of hepatitis B vaccine also increased significantly in all districts, and village midwives were responsible for 78 percent of

the total increase. Surveys suggest both a high level of satisfaction with and demand for midwife services.

### Increased knowledge of good newborn care

The number of mothers knowing the importance of immediate breastfeeding increased 10 to 15 percentage points. About 15 percent more mothers, particularly those who heard radio spots, were more knowledgeable about the value of giving colostrum. Although survey data do not yet reflect knowledge increases in all areas (for example, there was no increase in the number of mothers who knew the newborn danger signs), the time between several key program interventions (clinical training of midwives and social mobilization efforts) and data collection surveys was short.

### Improved breastfeeding

The finding that breastfeeding behaviors showed little or no improvement in either the knowledge, attitude, or practice (KAP) surveys or the first two sentinel surveys catalyzed actions by ASUH partners. After concentrated interventions, the last two sentinel surveys showed significant increases in immediate and exclusive breastfeeding during the first month of life.

### Increased base for community action

ASUH mobilized more than 3,000 community facilitators as change agents. A corps of 26 social mobilization trainer-facilitators and 138 district-level facilitators from government and nongovernmental organizations will serve as a capacity-building base on which district health officers and others can draw.

### Improved nutritional status

Of the 94 undernourished children in Cianjur who participated, with their mothers, in one or more nutrition-education sessions as part of a positive deviance pilot project, 21 percent “graduated” or moved into “good” nutritional status, and a substantial number of children in the severely malnourished group achieved weight gains sufficient to move them up to the “moderate” malnutrition category. District health office staff became knowledgeable and enthusiastic about the positive deviance method.

## Lessons learned

Selected lessons learned during program implementation are as follows:

- ASUH successfully developed communities’ commitment to newborn health. Its strengths included: the *Citra Diri* training approach, which enhanced receptiveness to learning; cross-program and cross-sector collaboration that empowered individuals without disturbing the existing system; simultaneous addressing of supply and demand sides of health care; results that directly benefit communities; a new paradigm of honesty and transparency to health districts; and simple, appropriate technologies, methods, and data, including strong supervision and monitoring systems.
- In addition to the usual complex set of start-up activities, building relationships with the many district health offices and the communities they serve required time.
- ASUH’s tight focus on the home visit and newborn was a strength, but it also resulted in a missed opportunity for applying the approach more broadly.
- ASUH’s limited time frame prevented measurement of the full impact of social mobilization interventions and the assessment of its replicability and scale-up.

## Recommendations

The ASUH team recommends building from the ASUH platform already established in four districts on Java to improve health in other areas such as malnutrition, health information systems, immunization, tuberculosis, and malaria. The team also recommends broadening the focus on newborns to include the mother-baby dyad from conception through the first month of life, giving specific attention to asphyxia, keeping babies warm, recognizing danger signs, and assessing and improving referral systems and sites for newborns and mothers. In addition, future work should emphasize immediate and exclusive breastfeeding.

## ■ Conclusion

In less than three years, PATH and its partners galvanized the participation of communities and the health system in four of Indonesia's largest districts to improve newborn health. In just one year, the number of newborns receiving a first neonatal visit within seven days postpartum increased from 25.3 percent to 41.1 percent, and the number receiving a vital birth dose of hepatitis B vaccine increased from 12.0 percent to 31.4 percent. These changes reflect increased capacity among midwives, families and communities, and district health office staff to identify and solve their own health concerns.

ASUH approaches fostered local adaptation based on local data, community involvement, and collaboration with multiple government health programs and multiple sectors. Communities began mobilizing through the initial process of designing village-level systems to gather basic information on births. The health offices in four districts have a cadre of staff trained and experienced in facilitating participatory planning, *Citra Diri* training, *MTBM* clinical training, and social mobilization. These skilled staff can continue to help implement the approach in their districts and coordinate and monitor replication wherever local interest exists and resources are available. A wide array of products is available on CD for adaptation and adoption in other locales.

Through its approach of integrating health providers, communities, and district health offices, ASUH has facilitated policy and strategy development in newborn management and breastfeeding by central, provincial, and district levels and has strengthened management systems and skills. The central government, provinces, and districts have already adopted the ASUH model. By focusing on activities during the first critical weeks of life, ASUH filled a gap in existing maternal and child health programs. This work leaves behind a platform on which to continue within ASUH program areas and to expand beyond them.



## Introduction

This final report describes the ASUH (*Awal Sehat Untuk Hidup Sehat*, A Healthy Start for a Healthy Life) program in Indonesia, which USAID funded through a cooperative agreement with PATH. This \$4.7 million, three-year program began in November 2000 and concluded in September 2003.

### ■ Background

The purpose of the ASUH program was to improve the health of mothers and children in Indonesia by expanding elements of the successful Healthy Start program, implemented by PATH on the island of Lombok in the 1990s, to other areas of the country. Because early care of newborns is so essential to their survival in both the first weeks of life and later, the ASUH program specifically focused on improving the care newborns receive.

### Infant mortality in Indonesia

Indonesia has made impressive gains in reducing its infant mortality rate over the last three decades; however, it is still high: according to the Indonesian Household Health Survey, in 2000 the infant mortality rate was 48 infant deaths per 1,000 live births.

Improving the care that newborns receive during the first weeks of life can reduce infant mortality. Nearly half of infant deaths occur in the neonatal period (0 to 28 days), with the majority of the neonatal deaths occurring in the first seven days. The most common causes of neonatal death—complications of low birthweight, asphyxia, infections, and feeding problems—must be prevented or managed in the first week of life. Many of the causes of later infant death—such as respiratory and diarrheal infections, with malnutrition a contributing factor—are also best prevented in the first weeks of life. Preventive measures include breastfeeding immediately, breastfeeding exclusively, practicing good hygiene when caring for newborns, and supplementing the mother’s diet with micronutrients. Infection with the hepatitis B virus is also most effectively prevented in infancy.

Barriers to good newborn care in Indonesia relate to lack of access to health care, low utilization of health care services, and lack of awareness of what constitutes good care. Access is limited by lack of providers skilled

in management of newborn care. But even with a skilled provider available, some families worry about the cost and are uncertain about midwives’ abilities. In addition, some cultural practices do not reflect good newborn care. For example, mothers often wait to begin breastfeeding their newborns because the milk is not yet flowing. Many also give their newborns other drinks such as formula or honey water, which do not provide the nutrition and immunity newborns need.

### Healthy Start on Lombok: a model program for improving newborn care

In the 1990s the Healthy Start program on the island of Lombok successfully addressed many barriers to good newborn care. Implemented by PATH and the Indonesian Ministry of Health, the ten-year program developed and implemented a model for delivering critical health services to newborns and their mothers through home visits. The program linked traditional birth attendants (*dukun bayi*), who delivered 90 percent of babies, with government-trained village midwives (*bidan di desa*) by establishing a “vital events” reporting and follow-up system. In this system, village volunteers and traditional birth attendants reported pregnancies, births, and child deaths to the village’s leader and midwife. This reporting system enabled midwives to actively follow up with pregnant women and low birthweight newborns and provide timely service delivery. Village midwives alerted to impending births attended deliveries and conducted home visits during the first week after birth, delivering health services such as vaccines; birthweight-checking; cord care; health education on breastfeeding, hygiene, and home care of low birthweight infants; and micronutrient supplementation for breastfeeding mothers.



Results, based on baseline (1993) and project-completion (1996) surveys, included increases in the number of births attended by a midwife, in infants aged 0 to 4 months exclusively breastfed, and in infants receiving oral polio vaccine within seven days of birth. Results also included a decrease in the number of low birthweight babies.

### Applying Healthy Start in a changed environment

In applying elements of the Healthy Start model, PATH anticipated several challenges resulting from the changing health care environment in Indonesia. PATH and the Ministry of Health implemented Healthy Start during a time of centralized direction and relative increasing prosperity in Indonesia. However, by 2000, Indonesia was still feeling the effects of the financial and political crisis of 1998—with resulting reductions in government budgets as well as in family prosperity—and health programs had to address the new challenges of decentralization.

One challenge specific to newborn health was the uncertainty of government support for the village midwife, which Healthy Start had successfully exploited as a vital link between families and the formal health system. Without greater support for midwives from the communities, the link would be in jeopardy.

### Strategy

The ASUH program's aim was to improve the nutrition and health of Indonesian women and children younger than five years of age, with a special focus on newborns. The major measurable outcomes were expected to be an increase in the quality and coverage of newborn health services delivered in the home within a week after birth and an enhanced family and community readiness to adopt healthier behaviors. ASUH's specific objectives were to:

- Improve the health and survival of newborns.
- Increase the health, nutrition, and survival of infants.
- Enhance the ability of local health management teams and communities to assess health problems, develop and implement local solutions, and monitor and evaluate activities.
- Improve the timeliness and quality of care at delivery and the early postpartum period as an indirect result of capacity building and strengthening of skills of village midwives.

### Building capacity

To succeed in improving the health care newborns receive, ASUH activities would need to promote the role of the village midwife as was done in the Lombok Healthy Start program. Doing so would involve not only building the capacity of midwives to provide newborn care using lessons learned from Lombok, but also building the capacity of district health officers—decision-makers in the decentralized system—to supervise and support village midwives. Finally, ASUH would need to help communities to set up systems for notifying village midwives of births as well as to practice good newborn care. Village midwives, district health officers, and the communities they serve became the three pillars of ASUH.

### Focus on newborn care

As with the Healthy Start program, in working with health workers and communities to improve newborn care, the ASUH team chose to focus attention on ensuring a timely first neonatal visit—an essential element of neonatal health care. An early first home visit provides a venue for a trained health care provider to examine the newborn and to offer essential health education to the family at a critical time in the infant's life. Moreover, in an environment where mothers are often uncertain about care for a sick baby, the first neonatal visit is an opportunity for bonding between the village midwife and the family. This bonding can lead the family to seek health care more regularly and to form healthy habits.



## Focus on participatory process and innovative training

In consultation with the Ministry of Health, PATH proposed two fundamental changes in the Healthy Start model: the active participation of midwives, district health officers, and communities in program planning and implementation and the use of innovative training approaches for all three groups. A participatory process for planning and implementing programs was necessary for obtaining buy-in from the stakeholders, who had experienced decades of top-down management. Innovative training approaches such as applying theories of adult learning and continuing learning ensured that training would engage participants and create opportunities for problem solving.

## Site selection

ASUH was implemented in four districts in East and West Java with a combined population of 6.2 million people.

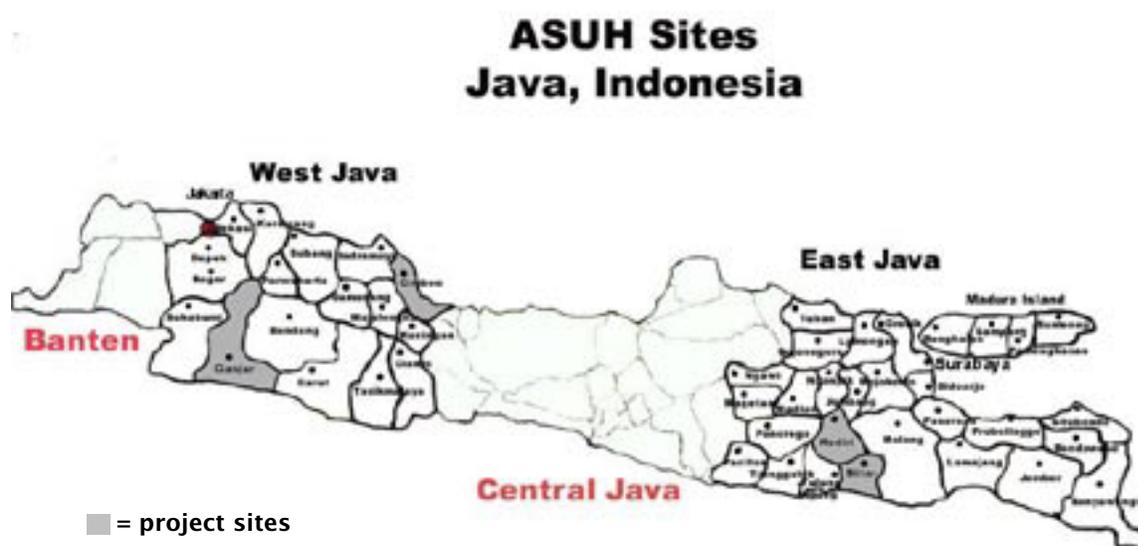
West Java was selected because it was the largest province in Indonesia in terms of population in 2000, and at 60.6 per 1000 live births, its infant mortality rate was substantially higher than the national average of 52.2. High levels of poverty, chronic nutritional deficiencies, maternal deaths, and population density also made the province a high priority. Furthermore, ASUH wanted to build on the link with USAID's Maternal and Neonatal Health program, which was working with the Ministry of Health in this province to improve the health of mothers and newborns from birth through six hours.

East Java was selected for two reasons. First, PATH and the Ministry of Health were already working in ten districts in East Java to introduce hepatitis B vaccine via the Uniject™ device, a single-use, prefilled injection device. Second, provincial health staff in East Java expressed a desire to replicate a package of newborn interventions using their own financial resources. PATH and the Ministry of Health hoped that providing training and guidance to provincial-level staff would extend the reach and contribute to the sustainability of ASUH activities.

Within the two provinces, the Ministry of Health and PATH selected four districts based on health need, opportunity for coordinating directly with the Maternal and Neonatal Health (MNH) program in Cirebon, West Java, and opportunity to build on the PATH-funded hepatitis B introduction activities in East Java. The districts (Blitar and Kediri in East Java and Cirebon and Cianjur in West Java) had a combined population of 6.2 million people.

## Key partnerships

Key partners were the Indonesian Ministry of Health at the central, provincial, and district levels, who with PATH formed the ASUH teams at each level; USAID; and several local nongovernmental organizations (NGOs). Other important partners were JHPIEGO, Management Sciences for Health, STARH (Sustaining Technical Achievements in Reproductive Health), Save the Children, and Helen Keller International—all organizations implementing USAID-funded cooperative agreements. Local and international consultants provided technical assistance.



# Program Implementation

This section describes ASUH program activities and their implementation, the structure of the ASUH program, the evolution of project goals, and methods PATH used to monitor progress and collect data on measures of success.

Table 1 presents a timeline of program activities. Attachment A contains a list of materials developed. These materials are available on CD-ROM.

**Table 1. ASUH Timeline**

	2000	2001				2002				2003		
	Nov-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep
<b>Site Selection</b>	■				■							
<b>Launch</b>	■											
<b>Development of teams</b>	■	■	■	■								
<b>District Health Office Capacity</b>												
Participatory planning		■	■	■		■						
Conduct training					■	■	■	■	■	■	■	
Problem-solving TA								■	■	■	■	■
<b>Midwife capacity</b>												
Citra Diri training			■	■	■	■	■	■	■			
Clinical training								■	■	■	■	
Supervision, 2-mo. mtgs										■	■	■
<b>Community Empowerment</b>												
Training, orientation, preparation						■	■	■	■	■		
Village dialogues, actions										■	■	■
Media, district events, & messages									■	■	■	■
Supervision and problem solving										■	■	■
<b>Monitoring &amp; Evaluation</b>												
KAP household surveys							■			■		
Sentinel monitoring										■	■	■
Qualitative assessments											■	■
Review workshop												■

## ■ Building the capacity of village midwives

During participatory planning workshops with district health officers, community members, and village midwives, the ASUH teams identified a lack of mutual trust and respect between village midwives and their clients. Community members described midwives as snobbish and complained that midwives used language they could not understand. Midwives reported a frustrating inability to motivate individuals to adopt healthier behaviors and a lack of respect from traditional birth attendants. Clearly, midwives would need skills for building better relationships with their clients.

Midwives also described a lack of self-confidence and a desire for better clinical abilities related to newborn care. Their clinical training had focused on delivery and the first two to six hours of a newborn's life, and although Ministry of Health initiatives provided algorithms for caring for sick children two months and older, there were no established protocols for managing younger infants.

Based on this information, PATH and the Ministry of Health partners at all levels designed a three-pronged approach to building the capacity of village midwives to provide care and to counsel their clients. To facilitate shifts in midwives' perceptions, behaviors, and attitudes and thus open the door for meaningful communication with community members about newborn health, PATH designed the *Citra Diri* training for midwives, and trained district health officers as facilitators. To increase the clinical skills of midwives, PATH coordinated a multi-partner group to design a curriculum on newborn care and trained physicians to conduct trainings. To follow up on and reinforce training for midwives, PATH took advantage of opportunities to work with the midwife supervisors to improve their abilities to support and supervise midwives.

### *Citra Diri* training

*Citra Diri* training for self-awareness, self-confidence, and communications was an interactive training designed to help midwives identify ways to build upon their strengths and successes, increase their skills in interactive dialogue when providing clinical services and when working with communities, and develop concrete steps for empowering families and communities to improve the health and nutrition of children.

**Development.** PATH drafted modules for *Citra Diri* training based on clinical skills and interpersonal counseling and communication training materials from Healthy Start and on additional collective learning and adult learning principles.

District health officials reviewed the clinical curriculum for content, and Maternal and Neonatal Health staff provided additional clinical review. PATH revised the modules during a three-day workshop with ASUH government representatives from all four districts, both provinces, and the national ASUH team. PATH and partners then pre-tested the training and materials in each district and revised them as necessary.



**Content.** The three-day training began by exploring the midwives' personal strengths, experiences, opportunities for professional growth, opinions about the adequacy of health facilities, and sources of support for their work from the health system, their supervisors, and their communities. Training facilitators encouraged an open, nonthreatening discussion, so that participants would feel comfortable and would develop skills in listening and accepting feedback. Role-play exercises and discussions allowed midwives to examine their strengths and successes and provided opportunity for self-reflection.

On the second day, participants learned communication theories and practiced interactive communication. The session began with a video, developed by the Healthy Start program, that illustrated effective communication. Next facilitators coached the group in interactive dialogue, to help midwives and clients identify, understand, and overcome obstacles to healthy behaviors. The group discussed the value of starting dialogue with clients during pregnancy and childbirth—rather than waiting for postpartum visits. In addition, participants learned to use the Uniject™ device for administering the birth dose of hepatitis B vaccine in the first week of life.

The third and final day of training consisted of small groups of midwives and trainers visiting new mothers to practice new communication and clinical skills during home visits, then analyzing the practice visits as a group. By the end of the day each midwife developed a personal action plan for the ensuing three months.

Throughout the training, facilitators emphasized the role of the village midwife in identifying unhealthy behaviors and helping clients overcome obstacles to better newborn care. They used role playing and reflection to actively engage participants in problem-solving, modeling interactive communication techniques that midwives could use when counseling their own clients.

Training materials distributed to participants included:

- Three job aids—a checklist on characteristics of effective communication, a checklist for observing a midwife’s interaction with the mother, and a form to guide and record planning of midwives’ goals and next steps.
- A booklet summarizing key points for interactive dialogue with clients and reminders of clinical interventions during pregnancy, delivery, and the postpartum period.
- A calendar with tips on the first neonatal home visit, breastfeeding, interactive dialogue, and partnering.
- A Uniject™ kit, with one sticker reminding the midwife to make a home visit and another one describing how to look at the vaccine vial monitor to assess whether the vaccine has remained cold.
- Two leaflets with questions and answers about hepatitis B vaccine and the Uniject™ device.
- Other leaflets and materials supporting the village midwife’s communications with families and communities.

**Implementation.** PATH facilitated a pre-test of the *Citra Diri* training to 100 midwives and supervisors in November 2001. After revisions to the curriculum were incorporated, PATH facilitated the formal four-day training of *Citra Diri* facilitators. These facilitators were interested district officials, including at least one physician per district. Across five districts, these facilitators trained more than 1,800 village midwives, their supervisors, and nurses who served villages that lacked a midwife. In addition, ASUH conducted abbreviated trainings for health center directors,

who coordinated and supervised village midwives’ supervisors. Training staff refined the curriculum based on feedback from participants, results of pre- and post-training tests of knowledge and attitudes, and observation. When revisions were compiled and integrated, the final modules were provided to all facilitators for future work.

A midwife supervisor in Cirebon reported that before the *Citra Diri* training midwives did not talk much with the mothers or families about caring for newborns, so families did not understand the reasons behind what the midwife was doing and did not pay attention. She concluded that helping mothers to understand and correctly perform cord care reduces the midwife’s task because the mother no longer has to depend on the midwife.

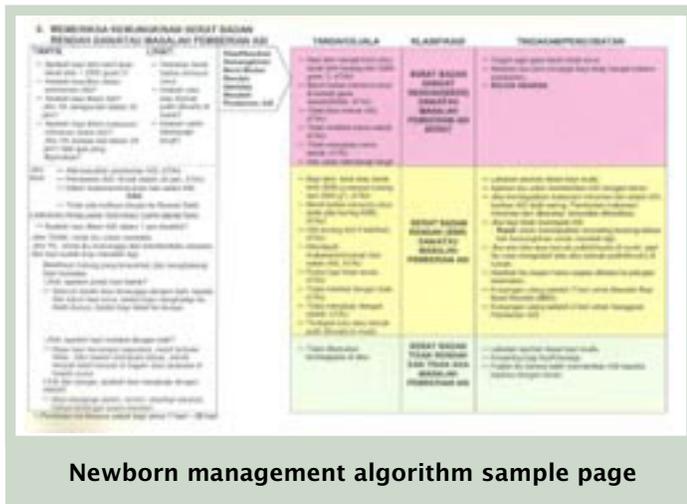
—Midwife supervisor after *Citra Diri* training, October 2002

### Clinical training—integrated management of young infants

During planning workshops and *Citra Diri* training, the ASUH teams and village midwives identified a number of areas where midwives’ clinical skills in caring for newborns could be improved. The Indonesian Pediatricians Association also conducted a field assessment of the clinical skills needed by village midwives during the first neonatal visit using paper-and-pencil tests and direct observation. Findings highlighted a need for improved knowledge on maternal nutrition and better skills in managing newborn health. Results informed the development of ASUH’s clinical training course on newborn care.

**Development.** To develop the curriculum for clinical training, PATH first worked with the Ministry of Health, the Maternal and Neonatal Health program, the Indonesian Pediatricians Association, and WHO to review Indonesian policies in reference to WHO standards and to identify best practices for the first neonatal visit. PATH then worked with a wide range of partners—including the Indonesian Midwives Association, the Indonesian Obstetrics and Gynecology Association, and USAID—to develop, pretest, and revise the newborn management algorithm and training

curriculum, for incorporation into Indonesia’s national Integrated Management of Childhood Illness Program.



Newborn management algorithm sample page

**Content.** The curriculum—Integrated Management of Young Infants (*Manajemen Terpadu Bayi Muda, MTBM*)—filled a gap in Indonesia’s childhood health program, which originally addressed care only for sick children aged two months and older. Although the curriculum addresses care for infants up to two months old, the examples and case studies in the curriculum represent mainly the critical first week of a newborn’s life. The core of the curriculum is an algorithm for midwives to use for classifying infants and making informed decisions on referral, treatment at home, or well-newborn care.

The four-day training began with two days of instruction by a physician trainer on the algorithm’s eight topics: convulsions, breathing disturbances, hypothermia, bacterial infection, jaundice, digestive tract disturbances, diarrhea, and low birthweight and feeding problems. Although instructors used a standard didactic approach to train, they added opportunities for participatory discussion in order to build on and strengthen participants’ experience with the topics. On days three and four, under close supervision by the physician trainer, participants practiced examination, classification, and management of individual newborns in clinics and hospitals prepared as practicum sites.

Trainers used the following materials to guide the MTBM sessions:

- A trainer’s guide for implementing the training.
- A guide for leading the clinical practice at an in-patient site.

- Wall charts of each algorithm.
- A booklet of color photos illustrating cases where referrals would be needed.
- Videos on breastfeeding position, breathing difficulties, infection, and the skin-to-skin method of keeping the baby warm.
- A doll.
- Various forms and checklists for the midwives and supervisors.

Training materials developed by ASUH and distributed to participants included:

- The algorithm book for classifying sick infants that also contained key background information for the midwife.
- A book of more detailed supporting information (such as doses of medications).
- A pad of classification forms to guide the midwife in recording her classification of the infant.
- An ASUH bag to hold the materials and supplies for the home visit.

**Implementation.** To conduct the training, the ASUH team first oriented doctors and staff in referral hospitals to the training theory and the algorithm. These referral hospitals hosted the training practicum. The 24-member

Table 2. *Citra Diri* and MTBM clinical training inputs

Category	Inputs	Data sources
<i>Citra Diri</i> Training	<ul style="list-style-type: none"> <li>■ 118 district health office staff from 8 districts trained as facilitators</li> <li>■ 1,804 midwives and supervisors in 8 districts trained</li> </ul>	Activity reports, attendance sheets
Clinical Training	<ul style="list-style-type: none"> <li>■ 24 pediatricians trained as master trainers</li> <li>■ 74 physicians trained as clinical trainers</li> <li>■ 147 midwife supervisors trained</li> <li>■ 1,260 village midwives trained</li> </ul>	Activity reports, attendance sheets

master trainer team consisted of pediatricians from each province (6 from East Java and 18 from West Java). A five-day training of trainers took place in each district. A total of 74 doctors were trained as Integrated Management of Young Infants clinical trainers; they in turn trained 147 midwife supervisors and 47 additional hospital and private midwives to increase the application of the Integrated Management of Young Infants system. By the end of the second quarter of 2003, clinical trainers had trained a total of 1,260 village midwives, covering 95 percent of villages in the four districts. ASUH facilitated official accreditation by the Ministry of Health's Center for Health Manpower Education and Training for this training of trainers and for the training of midwives. Each participant received one credit of continuing education.

### Supportive supervision

To continually reinforce both *Citra Diri* and the MTBM clinical training in newborn care, the ASUH team took advantage of two convenient opportunities to mentor midwives and their supervisors. The first opportunity occurred during routine monthly meetings of midwives and their supervisors where district ASUH team members modeled and applied problem-solving techniques to strengthen supervision. Guidelines on problem solving were provided (see materials referenced on p. A-5). In addition, ASUH supported a special supervision meeting for midwives every other month at each health center where, together, village midwives and their supervisors discussed their successes and challenges from the field. Facilitated at first by PATH staff and then by midwife supervisors, these meetings were excellent venues for solving problems, encouraging midwives and supervisors in their new skills, and reinforcing progress toward ASUH goals.

The second opportunity occurred during field visits by supervisors to assess and support the village midwife's work. A one-page supervision form for recording observations during home visits was developed by ASUH to guide observations. Midwife supervisors committed themselves to visiting each midwife at least once every three months. To get this process started, PATH supported supervisors' transportation costs. In reality, supervisors made only half the number of intended visits. To partially compensate, midwives from several health centers began using the observation instrument for assessing their own performance. They discussed the self-assessments during supervision meetings at the health centers.

**“Wait—was that supervision? It was really different. It didn't make my heart pound like it usually does. When can I have another visit?”**

*—Village midwife in Bangle, Kediri, after a supervisory visit*

### Empowering families and communities

The success of the village midwife depends on families wanting her assistance and on communities setting up systems for notifying midwives of pregnancies and births. In addition, individual health behaviors—such as breastfeeding—play an important role in ensuring the health of newborns.

ASUH worked at both village and district levels to empower families and communities to participate in the health system and maintain healthy practices.

These social mobilization activities included:

- Training (three days in class, two days' field practice) and supporting specialized community facilitators in selected villages.
- Working at the district level through existing community (government and nongovernmental) organizations with reach to villages.
- Reinforcing project messages through media.
- Assisting community members to address malnutrition among children under five years old using the positive deviance approach.



ASUH focused on five newborn care topics:

- Community notification of midwife on pregnancies and births.
- Home visit in first seven days.
- Hepatitis B vaccination in first seven days.
- Early initiation of breastfeeding.
- Exclusive breastfeeding.

### Supporting specialized community facilitators in selected core villages

In four core villages in each district, ASUH trained and supported five volunteer community facilitators (including the village midwife) who established or adapted notification systems for vital events such as pregnancy and birth, and promoted newborn care at the village level. Two additional facilitators from the subdistrict were responsible for expanding successes to neighboring villages. ASUH trained facilitators in the five topics above, in community organizing, and in interactive dialogue. ASUH also supplied the facilitators with job aids and informational materials on newborn care, organizing the community, and interactive dialogue.

To establish notification systems, community facilitators held village dialogues where interested villagers discussed the need for pregnancy and birth notification and developed their own systems. Core villages within each district agreed on a common system. Villages in Cirebon and Cianjur designated volunteers for notifying midwives of pregnancies and new births, while other villages used different colored flags (Blitar) or colored signs (Kediri) to announce such events. Facilitators also used village dialogues to solve problems of village-level barriers to good newborn care. To promote good newborn care, facilitators also worked through existing village groups such as religious study groups.

### Working through community organizations

In villages that were not selected for the specialized community-facilitator approach to social mobilization, ASUH worked through existing governmental and nongovernmental organizations, networks, and alliances by briefly training facilitators in these organizations for one day and assisting them to identify partner villages. Beginning at the district level, these organizations worked through their own channels down to the village level to inform and motivate communities regarding

ASUH's five newborn care topics. Some of their activities were as follows:

- *Fatayat* and *Muslimat* included ASUH activities as a part of their organizational missions and added messages from *Al Qur'an* on social responsibility; they chose several villages with strong chapters where they used their own resources to promote maternal and neonatal health.
- The Family Welfare Movement (*PKK*) incorporated ASUH's empowering *Citra Diri* personal-growth approach. They used routine meetings of district members to share ASUH messages and *PKK*'s community plans in support of district health office community programs, especially regarding home visits, breastfeeding, and notification systems.
- Religious groups in two districts developed a *Buletin Jumaat* (Friday Bulletin) for disseminating ASUH messages at Friday prayers.
- The Maternal and Neonatal Health Facilitators Forum expanded on the MNH promotion of notification systems and the alert husband and community (*siaga*) messages.



ASUH partners in community mobilization activities used newborn-centered guidelines in a process based on successful mobilization efforts. ASUH provided each partner organization and village midwife with a video CD and discussion guide on breastfeeding and the home visit, print materials, and mobilization guides. Each partner organization participated in an early lessons learned workshop held with teams from the grassroots approach villages. Following these activities, the village facilitators developed a plan of action. ASUH provided limited financial support for these activities. A series of meetings with representatives of these villages stimulated partnerships with village midwives, resulting in the formation or strengthening of notification systems and in the promotion of newborn care.

### Using media to support behavior change

ASUH used radio, newspapers, videos, and educational materials to support change in interpersonal communications among facilitators, midwives, clients, communities, and district health officers.

**Mass media.** ASUH team members developed and broadcasted radio spots on the five newborn health topics and participated in talk shows on four or five radio stations in each district. ASUH team members also stimulated the interest of newspaper reporters in events and issues and served as sources for their newspaper articles.

**Small media.** Another primary communications tool was a video CD (VCD) and its companion discussion guide on the five topics, with special emphasis on breastfeeding and the home visit. ASUH team members pre-tested and revised the VCD and guide before distributing more than 3,000 copies to ASUH facilitators, village midwives, health centers, and partnering community organizations. The VCDs were then shown at formal and informal gatherings. Other small media included leaflets (Attachment B) covering the five newborn care topics and posters on breastfeeding and on the notification system—all developed by PATH with the assistance of government partners. Village midwives, community facilitators, and partner organizations used these items to support interpersonal communication with community members in large and small groups.



### Piloting the positive deviance approach

The identification of high rates of malnutrition in preschool children in Cianjur District led to a final social mobilization effort—using the positive deviance approach to assist a pilot village, Gekbrong, in solving the problem of malnutrition among children younger than five years old. The positive deviance approach is a community-based method for identifying and emulating positive health behaviors. For example, among a community of similarly

poor families, there are well-nourished children. A positive deviance approach to decreasing malnutrition in the community is to identify the unique behaviors of the families with well-nourished children and to help other poor families learn and practice these new behaviors in group nutrition education and rehabilitation sessions alternating with home practice. The cycle of group sessions and home practice continues over several months until the children's nutritional status has improved.

To select the pilot village and train ASUH partners to use the positive deviance method, PATH enlisted the help of Jerry Stermin, an internationally recognized expert in positive deviance. Partners from the district health office, local health centers, community leaders, and village health post volunteers, as well as representatives from other USAID-funded private organizations, participated in this initial training. Gekbrong Village established a positive deviance program committee and blocked out a schedule linking routine monthly weighing of children at village health posts with selection of children for the next nutrition education and rehabilitation session gathering of mothers and young children at the health center to learn about the key positive deviance behaviors and to practice them during a shared meal.

Through an in-depth inquiry into positive deviants' behaviors, the community identified several as key: making sure children younger than five eat three or four meals a day, paying attention to the child during feeding ("active feeding"); making sure the caretaker provides the child with a nutritious local snack between 7 a.m. and 1 p.m., when mothers are working away from home; and washing hands before eating.

In close partnership with staff from the district health office, PATH developed and implemented a four-day training for community volunteers that covered positive deviance theory and the detailed management of the nutrition-education sessions for ten hamlets within Gekbrong Village. Following this training and several village meetings to increase awareness and support, Gekbrong's first nutrition-education session began in one hamlet in December 2002. As of September 2003, ten other hamlets were actively conducting sessions. To identify successes and challenges, every month the village holds a review meeting, including village and hamlet leaders, health post volunteers, district health officers, and health center staff.

### Finding What Works: A Positive Deviance Approach to Malnutrition in Village Communities

Off a rutted road in a small hamlet half-way up Gede Mountain in West Java lives a family in a small but clean house. Ibu Onah and her husband work hard to provide enough food for their children. She bundles up vegetables for him to sell in the hamlet.

For many months she and her husband worried about their daughters, Mala, two and a half years old, and Lala, one year old. Both were so malnourished that their hair was falling out, and their constant crying kept the family awake and tired.

Ibu Onah was exhausted. She traveled to see doctors and consulted traditional healers. She bought expensive medicines to try to cure her daughters, but nothing seemed to help. Then, in January 2003, during a monthly growth-monitoring session, local health center staff invited Ibu Onah to attend a new nutrition and education program called Anak Sehat Ibu Hemat, or Healthy Child, Thrifty Mother.

Based on the perspective that solutions already exist within the village, the new program helped Ibu Onah's community discover what works—what some families do to keep their children healthy and well nourished, even though their situation is the same as other families whose children suffer from malnutrition. In this hamlet solutions included frequent meals, healthy snacks, and adding dried fish to the meal.

For two weeks each month, Ibu Onah and six other mothers met every day at a central location. They brought the identified local foods and together cooked a meal and fed it to their children. The children are weighed at the beginning and at the end of the two weeks. Then the mothers spent two weeks practicing the new behaviors at home.

Mala and Lala gained weight during the group sessions, and without depending on free supplements, they continued gaining between the sessions as Ibu Onah continued to practice the new behaviors at home with economical, nutritious local foods.

By seven months later, Mala and Lala had stopped crying all the time. They played together and with other children. Their hair had grown back and was shiny. They slept through the night.

The success of the nutrition and education sessions piloted by ASUH motivated the Cianjur District Health Office to apply this “positive deviance” approach throughout the district. The office is currently exploring ways to apply the approach to other health issues such as anemia and exclusive breastfeeding.



Isrowandi Buonowidarto

A total of 45 local volunteers attended trainings on running the nutrition-education sessions. During trainings, the ASUH team used its *Citra Diri* training approach to facilitate participatory learning among volunteers to build on successes, motivate volunteers, and improve their communication skills with parents and community leaders. As a result, the volunteers gained skills they could take back to their district health centers. Attachment C contains a detailed report of the activity.

### Strengthening district health offices

With decentralization of the health care system, district health officers had increased roles in policy development, planning, resource allocation, and supervision. During planning workshops, ASUH teams discovered that, although familiar with their constituents, district health officers did not have access to sufficient data on local

health needs, nor had they been trained in how to plan and implement health programs.

ASUH helped build the capacity of district health officers to design and administer programs by helping them increase skills in participatory planning, training, and collecting and using data for decision-making.

### Participatory planning

Partners began planning for ASUH with a two-day workshop for program officers from the districts, provinces, central Ministry of Health, and PATH. The workshop allowed all participants to become acquainted with ASUH's objectives and its strategy of participatory planning and training.

With extensive coaching in adult learning methods by PATH staff, each district ASUH team conducted a series of four experiential workshops—the “participatory planning safari.” In these workshops the district health office team facilitated an interactive process of involving subdistrict and village representatives in decisions about local health programs. Each district developed an activity plan for maternal and child health that was discussed during provincial and national ASUH team workshops; activities relevant to ASUH objectives were agreed upon for funding. Throughout these planning exercises and all following activities, PATH emphasized the value of using health data as well as other local information to identify and solve problems in district health programs.



“The new thing felt by the [Cianjur] district health office is that there has been a change in the approach and way to develop programs with community empowerment.”

—Independent external evaluator

### Facilitating collective learning and participatory supervision

PATH staff led the training of a team of 68 district *Citra Diri* facilitators (10 to 20 training facilitators in each of the four districts). As ASUH trainers, these district health officers learned and practiced adult learning principles and effective communication approaches. In leading their district's three-day training, these district officers honed their skills in facilitating the collective learning approach that is essential to the *Citra Diri* training and follow-up supervision. PATH assisted these facilitators in training more than 1,500 village midwives and supervisors in four districts (plus another 304 in Mojokerto). District officers also participated in the materials development process and training for the clinical management of newborns.

A facilitator from the Cianjur District Health Office noted that the training with the adult collective learning approach was new and different. She said that the facilitators were becoming real facilitators of learning, adding that usually they were called facilitators but acted as teachers who train.

—Cianjur training of trainers, January 2002

District health officers improved their supervisory skills through their experience with ASUH in three ways. First, the district health officers who attended *Citra Diri* training were exposed to a new way of interacting with village midwives and supervisors—more as helpers than as critics. Second, PATH worked with provincial and district health officers to develop guidelines that applied ASUH's collective learning and problem-solving approaches to village midwife supervision. Finally, district program officers mentored by PATH gained practical supervisory experience by accompanying midwives on home visits periodically and by facilitating routine meetings with village midwives and their coordinators.

## Facilitating social mobilization

Through the ASUH activities, district health officers had the opportunity to strengthen their skills in guiding social mobilization efforts and working with NGOs. With coaching from PATH, district health officers directly supported the social mobilization efforts of villages and spread lessons learned among surrounding villages. Through formal training and informal coaching, district health officers learned to network with other government sectors and NGOs and to work collaboratively with community members. PATH offered local social organizations the opportunity to carry out some of the specialized social mobilization activities that districts were not able to undertake. This interaction benefited both groups; districts increased their experience and ability in working with these nongovernmental resources, and the NGOs themselves gained experience working with district governments. District health officers in Cianjur gained hands-on experience in applying the positive deviance approach to nutrition through a variety of trainings in positive deviance, repeated site visits with positive deviance experts, and the year-long implementation of the pilot positive deviance program.

A member of ASUH's Blitar social mobilization team contrasted the previous lack of coordination and linkages with the current integrated ASUH approach: "Both in activities and in organization we didn't feel we were in our own boxes, but we became one group in care for communities."

## Evidence-based decision-making

PATH coached district health officers in collecting, interpreting, and using routine coverage statistics, information from supervision, and the results of special studies that would be useful for decision-making. The district health office reviewed their own routine data and followed up on problems by collecting clarifying information from internal clients such as midwives and supervisors and from external clients such as mothers and community leaders. They provided input into ASUH's baseline evaluation survey and helped prioritize the information needed (such as to strengthen ASUH implementation).

For example, ASUH survey data showed that immediate and exclusive breastfeeding rates were low and that

health providers were sometimes recommending infant formula to new mothers. Village midwives expressed concern about the pressure to sell products from formula-producing companies and requested support from their health department. In response, the head of the district health office issued strong official letters instructing all providers in the district to promote immediate and exclusive breastfeeding and to stop promoting formula.

## Special studies

ASUH conducted a number of special studies to assess costs associated with various project elements and to lay groundwork for future activities. These studies were funded through subawards or leveraged through cost-share contributions. See p. 26 for results.

### Village midwife program financing study

PATH subcontracted the Center for Health Research at the University of Indonesia to assess the ramifications of continuing or discontinuing support for the village midwife program in Kediri, Blitar, and Cianjur districts.

### Cost of pneumonia treatment

PATH conducted a cost analysis of the *Haemophilus influenzae* type B (Hib) vaccine as part of the Hib vaccine study in Lombok. The purpose of the study was to provide information for policymakers on the costs of vaccination, referral, and case treatment for children younger than two years with severe pneumonia and meningitis, and on the cost-effectiveness of introducing Hib vaccine as a way of reducing severe pneumonia and meningitis. The study included an assessment of the cost of hospital care for illness due to pneumonia and meningitis and measured indirect costs to families and the community.

### Uniject™ device cost study

PATH staff conducted a cost study based on a rapid assessment of the actual start-up and recurrent costs of introducing Uniject™ devices pre-filled with hepatitis B vaccine (HBV-Uniject™) in three provinces in Indonesia.



### ■ Program structure

PATH designed ASUH with Ministry of Health partners to fully integrate with the health system at central, provincial, and district levels and to capitalize on opportunities for collaboration with other USAID partners and NGOs.

#### PATH's ASUH team

Two organizational charts are provided in Attachment D—one showing PATH's ASUH team and the other showing its relationship to government health counterparts. The PATH team in Jakarta included program management; technical expertise in training, social mobilization, communications, and health information systems; and financial and administrative support. The team director provided leadership and managed all program activities, including donor reporting. The deputy director served as a liaison with government and other partners, guided provincial coordinators, and represented the team director, as needed.

A Jakarta-based training specialist coordinated all training activities. Working with the social mobilization specialist who provided leadership to the many and varied social mobilization activities, the communications specialist coordinated all mass and small media work. The health information specialist, supported by a junior assistant and consultants, facilitated the processing of information for monitoring, feedback, and reporting.

PATH's provincial staff in East and West Java provided technical assistance at both provincial and district levels. PATH staffing at the provincial level covered program management (provincial coordinator), technical support (training and social mobilization specialists who worked with Jakarta specialists), financial management, and administrative support.

At the district level, staffing included a finance assistant and a senior program assistant, both reporting directly to the provincial coordinator. The finance assistant was responsible for all financial reporting from the district level, including government expenses. At first one and later two senior program assistants coordinated, monitored, and supervised district activities and prepared district-level activity reports. PATH staff from other offices provided consultation and technical assistance as needed.

### Coordination with other USAID-funded partners

PATH worked with other USAID partners to make efficient use of resources, experience, and data:

- ASUH and **Maternal and Neonatal Health (MNH)** met frequently to collaborate on the following three areas: preparation of the training of village midwives in skills for the first neonatal visit, social mobilization efforts, particularly in Cirebon District, and development of communication materials. MNH was an active member of the team that developed the MTBM clinical training for midwives on the first neonatal visit.
- **STARH (Sustaining Technical Achievements in Reproductive Health)** incorporated messages on newborn health designed as part of ASUH into their own radio spots.
- **Management Sciences for Health (MSH)** worked in all four ASUH districts, collaborating closely in building the capacity of district health officers to use data for making decisions. PATH and the Ministry of Health worked with MSH to develop and implement workshops to disseminate the results of a baseline survey on knowledge, attitudes, and practices.
- **Helen Keller International (HKI)** and PATH exchanged data, and PATH distributed extra HKI-printed materials on vitamin A to community health centers.
- PATH worked with **Save the Children** to coordinate and distribute the translation of positive deviance materials, to access international experts Jerry and Monique Sternin (who provided technical assistance to PATH and other agencies), to attend or host several technical meetings, and to provide technical assistance to a positive deviance program implemented by Save the Children and other USAID-funded organizations.
- PATH facilitated three workshops for midwives on improving breastfeeding and complementary feeding programs, led by Academy for Educational Development experts from the USAID-funded **LINKAGES Project**. These workshops covered the latest developments in breastfeeding programming, assessment of the health issues in Indonesia, and recommendations. Participants included the Ministry of Health and local and international NGOs, including USAID partners. In addition, ASUH translated two of the LINKAGES breastfeeding materials into Bahasa Indonesia.

- Other NGOs carried out some of the specialized activities that districts were not yet able to undertake. For example, PATH organized a breastfeeding network which included World Vision, Church World Services, Mercy Corps, and CARE, as well as MNH, HKI, STARH, Save the Children, the Ministry of Health, other Indonesian NGOs, BK KP-ASI for breastfeeding promotion, and Perinasia for perinatal health.

### Subaward partners

PATH awarded subcontracts to the following partners:

- The **Center for Health Research** conducted a study of the economic costs of the village midwife program and assisted in the cost study of pneumonia treatment (associated with the PATH study being conducted on Lombok on the disease burden of *Haemophilis influenzae* type B).
- The **Indonesian Pediatricians Association** conducted the assessment of village midwives' clinical skills for the home visit in the first week after birth.
- **PUSKA-UI** (Center for Family Welfare Research, University of Indonesia) worked with PATH to develop the evaluation survey on knowledge, attitudes, and practices and then conducted the fieldwork for household and village head surveys in 2002 and 2003.
- The **Faculty of Public Health at the University of Indonesia (FKM-UI)** conducted qualitative evaluations of ASUH's activities. A team of qualitative researchers led by a faculty member at the University of Indonesia conducted focus group discussions to assist ASUH in refining breastfeeding messages.
- **HotLine Advertising** worked with PATH and the Ministry of Health to produce the series of five, one-minute minidrama radio spots. **MACS909 Advertising & Communications** developed a rap-like song reminding village midwives to visit all mothers within a week of birth, and **ADA Production** worked with ASUH in developing and producing the video.
- Various consultant experts contributed to ASUH activities. Public relations and social marketing consultants enriched the team's communications experience. Evaluation consultants assisted in the

design of the surveys, in analyzing data, and in assessing community mobilization activities. A nutritionist provided input on iron. In coordination with MNH, pediatrics and neonatal specialists (local and international) assisted in developing neonatal care guidelines, including cord care and clinical standards for the home visit. An international positive deviance expert conducted the training for nutrition; another offered insights on breastfeeding, and two long-term advisers supported the positive deviance pilot.

### ■ Evolution of project goals

During a mid-term review, PATH and partners re-focused the goals of the ASUH program. ASUH began as a life-cycle program focusing on the health and nutrition of infants and children one to five years old, the health and nutrition status of pregnant women, use of family planning services, and readiness for pregnancy among young women. However, information gathered during participatory planning processes, the impact of decentralization on government systems, and shifts in funding priorities led to a narrowed focus on the newborn home visit (including the notification system and hepatitis B) and immediate and exclusive breastfeeding in order to allow for more effective and sustainable program activities. PATH was able to build on the extensive groundwork laid in building relationships with government partners, identifying cultural beliefs and current clinical standards, developing strategy and curricula, and recruiting appropriate staff.

### ■ Monitoring and data collection

ASUH used a variety of qualitative and quantitative methods to monitor and evaluate the success of project activities.

### Activity reports

PATH developed standard forms for its district-level staff to report on training sessions, staff supervisory visits, and community meetings, particularly to identify problems needing attention. These reports, along with oral reports, were discussed in PATH/ASUH monthly meetings at provincial offices.

### Health center and district supervisory reports

To monitor progress in midwives' communication and clinical skills and identify areas needing attention, PATH staff reviewed monthly forms from supervisory visits to first neonatal visits and notes from monthly meetings of village midwives at health centers.

### KAP surveys

To evaluate changes in the knowledge, attitudes, and practices of families and village leaders, PATH subcontracted the Center for Family Welfare at the University of Indonesia (PUSKA-UI) to conduct interviews for knowledge, attitudes, and practices (KAP) surveys. These surveys collected information related to pregnancy, delivery, newborn care, use of health services, exposure to media, and socio-demographic characteristics.

PUSKA-UI conducted the first round of the survey (KAP-1) in all eight districts in March and April 2002, before most project activities began. They conducted the second round (KAP-2) in six of the eight initial districts (the main four districts—Cirebon, Cianjur, Kediri, and Blitar—plus Mojokerto, which completed *Citra Diri* training, and Ciamis, where only initial orientation and planning activities occurred) in March and April 2003. Trained interviewers administered both surveys using structured questionnaires developed by PATH and PUSKA-UI. Ten percent of mothers were re-interviewed by a different interviewer as a quality control measure.

Even though they were involved in the questionnaire development, at first some district officials were defensive about ASUH's household survey results for their districts. Later, when they saw that they were not blamed for low results and saw how the data could be used to help them make programming decisions, most welcomed the survey information. All districts asked for complete tables and for raw data for their own analysis.

—Observations by PATH and PUSKA-UI researchers

PUSKA-UI surveyed mothers of infants younger than 12 months (born during April 2001 to March 2002 for KAP-1 and April 2002 to March 2003 for KAP-2) in 450 households per district—a sample size that was sufficient

to detect a change of ten percentage points in measured rates, such as houses with a first neonatal visit, infants receiving a birth dose of hepatitis B vaccine, and mothers beginning breastfeeding immediately. Interviewers also administered a special survey to the head village administrator in each village where mothers were interviewed. To select villages for the survey, a two-stage cluster sampling approach was used, with 30 villages selected in each district (using probability proportionate to population) and 15 eligible households randomly selected in each village.

Researchers used EpiInfo 6.0 to check initial results and SPSS 10.1 for more detailed analysis. Data from KAP-1 and KAP-2 surveys were entered (10 percent of questionnaires were double-entered to monitor accuracy) and then compared to determine whether there were any significant changes after the interventions of 2002 (primarily *Citra Diri* training and activities for strengthening district health officers). Because the survey questions were primarily categorical, researchers used the chi-square statistic to test for significant differences in proportions. The KAP-2 results for Mojokerto and Ciamis (two districts in which only a few project activities had been implemented) provided a useful comparison to the original four districts. Where the four original districts had similar outcomes on a variable, results were pooled; where there were substantial variations among the districts, results were considered separately. Where multiple variables addressed the same issue in the survey, researchers checked for internal consistency and validity (generally there was good agreement). To analyze progress on three measures—first neonatal visits, birth dose of hepatitis B vaccine, and immediate breastfeeding—while controlling for the effect of other factors such as mother's age and education, prenatal care, or birth attendant, logistic regression models were used.

### Sentinel surveys

To obtain data on the effects of project activities such as the media campaign and clinical training for midwives—activities that occurred in the final months of the program, after the KAP-2 survey was complete—PATH consultants conducted brief surveys with mothers of infants two months old or younger. As with the KAP surveys, trained interviewers used a structured questionnaire to ask about newborn care and other factors. Many of the questions were from the KAP surveys; however, these interviews collected additional information on the quality of the first neonatal visit, other postnatal contacts, and birth notification.

Interviewers performed four rounds of interviews from January to July 2003 in the original four ASUH districts. Six subdistricts in each of the four program districts were purposively selected to represent the districts. From these subdistricts, 26 villages *without* intensive social mobilization activities and 4 core villages *with* intensive social mobilization activities were selected (for a total of 30 villages). In Rounds 1 and 4, to estimate the effect of frequent interviewing (although different mothers were interviewed each time), researchers added 15 villages in three subdistricts, for a total of 45 villages per district. Within each village, four new mothers were randomly selected from a list of new mothers. In all, a total of 180 mothers per district in Rounds 1 and 4 and 120 mothers per district in Rounds 2 and 3 were interviewed.

To check for internal and external validity of the results, researchers analyzed several aspects of the sentinel survey results. Results from the 15 villages monitored only in Rounds 1 and 4 were compared with the 30 monitored in all four rounds to check for any potential effects of frequent monitoring (returning every two months to the same village, but surveying different mothers). Because there was no clear biasing effect from frequent monitoring, results from frequently and less frequently monitored villages were pooled. Where the sentinel survey questions were identical to those of the KAP surveys, the responses from Round 2 (conducted in March 2003) were compared with responses from KAP-2 (which was conducted around the same time). In general, the proportion of positive responses to questions from the sentinel survey tended to be 10 to 20 percentage points higher than for KAP-2 responses in the same district, perhaps due to the inclusion of more villages with intensive social mobilization (which tended to have higher positive response rates than villages without intensive social mobilization).

To evaluate changes in results over time from Round 1 to Round 4, researchers used a linear trend for proportions test based on the chi-square statistic. To estimate the effect of the social mobilization activities, the intensive core social mobilization villages were compared with the non-intensive villages using the chi-square statistic. Where the districts had similar outcomes on a variable, results were pooled; where there were substantial variations between them, results were considered separately.

## Pre- and post-tests

ASUH used pre- and post-tests to evaluate the effects of *Citra Diri* training and MTBM clinical training. To collect information on knowledge and self-reported practice, PATH administered questionnaires to all village midwives just before and immediately after participation in *Citra Diri* training. To determine midwives' clinical care knowledge, their adherence to procedures, and the accuracy of their assessments, ASUH contracted independent clinician observers to evaluate 120 midwives before they participated in clinical training and three months after it. The clinical evaluation consisted of 30 knowledge questions and 29 tasks. A t-test was applied to evaluate difference in mean scores on the pre- and post-training tests.

## Weighing children

To evaluate the success of positive deviance activities, all children attending nutrition education and rehabilitation sessions were weighed at the routine monthly health post. Weights were standardized using z-scores (weight for age) and evaluated to determine how many children in each session gained weight. In addition, researchers analyzed the change in nutritional status group on each child's health record (Road to Health chart, KMS) kept by the family.

## Qualitative evaluation of program activities

In June 2003, three months before the end of ASUH funding, to explore more of the context behind outcomes identified in the KAP surveys, a team of researchers from the faculty of the School of Public Health at the University of Indonesia conducted a combination of in-depth interviews and group discussions with project stakeholders and partners. Using a semi-structured guide, the team conducted in-depth individual interviews with health officials at district, subdistrict, and village levels; with village midwives and their coordinators; village volunteers from the Family Health Movement; NGO and other community leaders; and mothers. The topics explored included the content and general acceptability of the first neonatal visit, *Citra Diri* training, clinical training, immediate and exclusive breastfeeding, reporting of vital events, emergency preparedness, and district management. In addition, group discussions were conducted with the district ASUH management teams and with groups of village midwives.

In each of the four program districts, the research team selected two villages without intensive social mobilization activities but with resident midwives based on records in the local PATH office, so that one village had a midwife who was in the first *Citra Diri* training and the other village had a midwife who was in the fifth or later training. For convenience, both villages were in the same subdistrict. In the four districts a total of 180 stakeholders and partners were interviewed, including three mothers (two with first neonatal visits and one without) from each village.

### Qualitative observations by PATH staff

PATH staff working at the central, provincial, and district levels recorded their assessments of changes in capabilities at district, subdistrict, and village midwife levels in trip reports and field notes as they conducted project activities. PATH management staff reviewed these written reports and notes along with specific lessons and conclusions made by PATH and government partners in the last few months of the program.

### End-of-project workshops

As part of the transition from external funding, ASUH held a series of one-day evaluation and lessons learned workshops in August and September 2003. The workshops began in each of the four ASUH districts, then moved to the provincial level in East and West Java. Finally, representatives of each ASUH team—district, province, center—came together in Yogyakarta in mid-September 2003 to share experiences and plans and to develop recommendations. Participants included not only Ministry of Health partners representing nutrition, family health, communicable disease, and health promotion programs, but also representatives from other government sectors and from local and international NGOs, as well as USAID. Participants reflected on the outcomes and sustainability of ASUH.

## Results

Through its combined efforts at central, provincial, and district levels, the ASUH team achieved substantial results on a variety of intermediate outcomes that can reasonably be expected to indicate real improvements in newborn health and survival. Both quantitative and qualitative data suggest gains in the skills of health workers and improved health services. However, districts varied in the type and extent of progress, and not all activities were equally successful.

### ■ Building capacity

Increases in capacity were evident in all three groups targeted by the program: village midwives, community members (especially mothers), and district health staff. Capacity can be measured by changes in knowledge and attitudes, by observed changes in practices or behavior, and by tangible outcomes related to the enhanced performance.

#### Village midwives

Results from pre- and post-tests from *Citra Diri* and clinical trainings, increased demand for clinical services, and information from clinical evaluators demonstrate that the ASUH program resulted in improved communication and clinical skills for midwives.

**Improved communication skills from *Citra Diri* training.** Pre- and post-training test scores for *Citra Diri* training suggest that the training increased the capacity of midwives to communicate with their clients. In the pre-test before *Citra Diri*, village midwives rated themselves relatively low on five dimensions—three related to knowledge of interactive communication regarding birth, postpartum care, and newborn care, and one each on knowledge of counseling for danger signs and knowledge of self-esteem. Midwives in Kediri and Blitar were particularly low in their ratings (less than 20 percent positive on all dimensions) in the pre-test, but nearly 100 percent of midwives in all four districts answered “good” or “excellent” on all areas of the post-training self-assessment. Midwives also showed significant gains in knowledge about communication principles and self-esteem, with average scores for the four ASUH districts rising from 54 percent to 80 percent correct on a 15-question test.

Qualitative evaluation suggests that *Citra Diri* training was well accepted by midwives and their supervisors, government partners, and training facilitators. Encouraging the midwives in improved listening, communications, and confidence led to changes in how they interacted, not only with their clients but also with their colleagues and supervisors. They are now more active in meetings, and health center doctors are getting more information about field conditions, according to district supervisors and ASUH staff.

**Improved clinical skills and greater demand for midwife services.** Pre- and post-test scores for clinical training suggest that, in all four districts, midwives also gained knowledge in the clinical care of newborns. On a test of 30 questions, scores climbed from 55.8 percent correct before training to 69.4 percent correct after training ( $p < .0001$ ). Three months after the training, a clinical observer using a structured checklist noted a substantial increase in adherence to clinical steps during the newborn exam (for example, in Blitar and Cianjur, average scores rose from 67.5 percent to 87.7 percent) and in the accuracy of midwives’ clinical classifications (in Blitar and Cianjur, average scores rose from 32.7 percent before training to 70.4 percent correct after training).

Both the frequency and quality of first neonatal visits increased (this increase is discussed in more detail below), suggesting that midwives were more motivated and confident about the value of their visits. Mothers also seemed to value the midwives’ visits more: in sentinel surveys, the percent of mothers who said they would like the midwife to carry out first neonatal visits for neighbors if they were giving birth rose from 53.4 percent in Round 1 to 76.3 percent in Round 4 (a few months after the clinical training). In the KAP-2 survey, 87 percent of village leaders interviewed in ASUH districts rated the dedication and loyalty of their village midwife as “good,” while only 72 percent of leaders in comparison districts did so ( $p < .05$ ).

Although it was not the focus of the ASUH program, the increased skills and confidence of the midwives may have played a role in increasing requests for village midwives to attend deliveries. The proportion of births attended by village midwives increased modestly but consistently (about 5 percentage points) in all

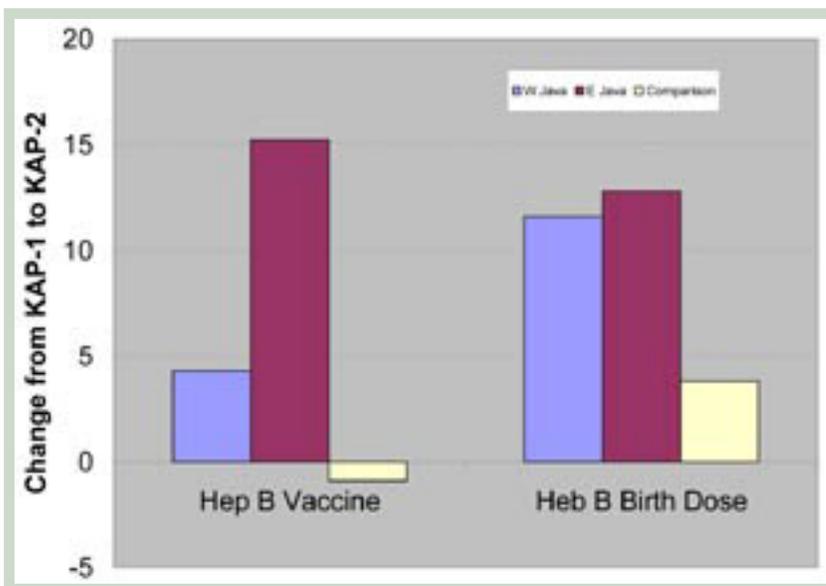
four districts, while it dropped in Mojokerto and rose in Ciamis (where strong political support for village midwives arose in response to activities done as part of the introduction to the ASUH program).

**Empowering families and communities**

KAP and sentinel surveys and community involvement in ASUH activities demonstrate improvements in knowledge of key health messages, increased valuing of midwife services, and increased community actions.

**Increased knowledge of good newborn care.** Data from KAP and sentinel surveys suggest that ASUH activities to increase families’ knowledge of newborn care were successful. After only six months of social mobilization activities, sentinel surveys showed increases in demand for home visits, in mothers intending to take action to inform the midwife of a neighbor’s delivery, and in home visits with newborn hepatitis B vaccine given within seven days of birth. Qualitative assessment in core social mobilization villages in June 2003 confirmed the increased coverage of the visit and high acceptability of the early hepatitis B immunization. By one year after *Citra Diri* training and the introduction of hepatitis B vaccine via the Uniject™ device, mothers’ knowledge, as measured in the KAP surveys, had increased significantly ( $p < .001$ ) in the ASUH districts compared to the comparison districts of Mojokerto and Ciamis (Figure 1). Similarly, after the clinical training of midwives, there was a modest increase in the sentinel surveys (about five percentage points) in mothers’ knowledge about skin-to-skin warming in three of the four ASUH districts.

**Figure 1. Percentage change in number of mothers with immunization knowledge.**



Mothers’ knowledge of the value of immediate breastfeeding showed little or no change in the first year as measured by the KAP surveys, but the sentinel surveys in the final months reflect the effects of the social mobilization efforts. In three of the four ASUH districts, the number of mothers in Round 4 knowing the importance of immediate breastfeeding increased 10 to 15 percent percentage points over the numbers in Round 1. About 15 percent more mothers in all four districts were more knowledgeable about the value of giving colostrum by Round 4, as compared with Round 1. Those who reported having heard the radio spots were more knowledgeable than those who had not.

Mothers were also more aware of the value of exclusive breastfeeding by the end of the project, as recorded in the sentinel surveys. During the period reflected in the KAP surveys, there was a modest increase in mothers’ awareness of the value of exclusive breastfeeding through four months in the ASUH districts (10 to 15 percentage points), while the increase in the two comparison districts was much smaller (2 to 4 percentage points). The sentinel surveys showed a continuing increase in the ASUH districts, with levels climbing by 20 to 25 percentage points between Rounds 1 and 4.

The value of exclusive breastfeeding through six months was much less well known during the KAP surveys, but after the government’s change to a policy of recommending six months exclusive rather than “four to six months” and after the launch of social mobilization activities related to breastfeeding, there was a significant rise ( $p < .05$ ) noted in the sentinel surveys in mothers’ knowledge about it in three of the four ASUH districts. In three of the four districts, mothers in Round 4 of the sentinel surveys who had heard the radio spots answered correctly about exclusive breastfeeding through four and through six months more often than mothers who had not heard them. For example, in Kediri, 48 percent of those who had heard the radio spots knew that six months of exclusive breastfeeding was recommended as compared with only 28 percent of those who had not heard them.

As might be expected given the short time for follow-up after the clinical training of midwives and social mobilization efforts within communities, there were areas where

data from the KAP surveys do not yet show effects of the ASUH program. For example, mothers' knowledge about newborn danger signs like weakness, difficulty breathing, seizures, jaundice, and abdominal distention remained low. KAP surveys suggested that less than 5 percent of mothers in all districts were aware of the danger signs. More mothers knew about diarrhea, fever, and sudden unwillingness to breastfeed at the time of the first survey; however, the number of mothers recognizing these danger signs did not increase by the second KAP survey. Knowledge and practices related to appropriate cord care were generally low (less than 5 percent of mothers correctly answered questions on this) except in Cianjur, where the number of mothers who were knowledgeable about and practiced good cord care increased slightly between the first and second KAP surveys (knowledge, from 5 up to 13 percent; practices, from 5 up to 8 percent).

**Increased demand for health services.** Sentinel surveys suggest a high level of satisfaction with and increased demand for midwife services. The number of mothers who received first neonatal visits and wished for their neighbors with new babies to receive similar visits increased between Round 1 and Round 4 (after clinical training and social mobilization activities), from 83 percent to 93 percent ( $p < .0001$ ). Similarly, in nearly all districts, there was an increase in the number of mothers who agreed that pregnancy and births were events that should be reported to health workers (Table 3). However, according to mothers participating in the sentinel survey, not many villages had a formal system for such notification. The village facilitators were beginning to develop such systems as the program drew to a close. The qualitative assessment in the core social mobilization villages concluded that each village had a system but that not all community members were aware of it.

**Table 3. Change in the percent of mothers who know to report vital events: results from sentinel surveys.**

District	Percent of Mothers Who Know to Report Pregnancy			Percent of Mothers Who Know to Report Births		
	Round 1	Round 4	Change	Round 1	Round 4	Change
Cirebon	32.2	37.5	5.3	89.1	96.7	7.6*
Cianjur	32.2	55.0	22.8**	39.4	73.0	33.6**
Kediri	6.3	11.0	4.7	16.6	31.8	15.2*
Blitar	18.6	53.2	34.6**	43.1	41.0	- 2.1

\*  $p < .05$  \*\* $p < .01$

**Increased base for community action.** In addition, through the social mobilization training and activity implementation, the ASUH program mobilized more than 3,000 community facilitators as change agents. This action will have widespread benefits in health and other areas for years to come. A corps of 26 social mobilization trainer-facilitators and 138 district-level facilitators from government and nongovernmental organizations (in eight districts) will serve as a capacity-building base on which district health officers and others can draw for continued development of community activists.

The positive deviance activity in Cianjur gave participating mothers valuable new knowledge and skills regarding toddler feeding and growth. By working with community volunteers and each other, they gained the ability to enhance their children's health using their own skills and resources.

**“This is the very first time the government has facilitated and empowered communities to actively involve us in solving our health problems.”**

—Community facilitator, Cirebon

### Strengthening district health offices

Qualitative evaluation suggests that district health officers demonstrated improved skills in participatory planning, problem-solving, and using data for decision-making.

District health officers reported that their hands-on involvement in ASUH activities increased their understanding of new concepts of adult learning and community involvement in planning and had a noticeable effect on their commitment to participatory training methods and motivation to supervise and support midwives. Central and provincial Ministry of Health staff observed that district health officers were more likely to inquire about supporting data when making decisions or resolving problems.

District health office staff took an active role as trainers for *Citra Diri* training (68 facilitators), newborn clinical care (74 trainers), and social mobilization (about 16 facilitators were from district health offices). According to observations by

senior PATH staff, district health officers demonstrated good mastery of the principles of adult collective learning and were more likely to use two-way communication in both meetings and training sessions. They shifted from a reliance on lecture methods to more use of group discussion, use of better visual aids such as PowerPoint presentations, and role-playing during training.

In Cianjur, where the positive deviance approach was introduced, district health office staff (especially nutrition officers) became knowledgeable and enthusiastic about this method. Local staff are now able to organize rehabilitation sessions, train local volunteers, and also apply the approach to health problems other than malnutrition.

### ■ Improving outcomes in health services and behaviors

The primary expected health benefits from the ASUH program were increases in:

- The proportion and quality of neonatal visits within one week of birth (KN-1).
- The proportion of infants receiving a dose of hepatitis B vaccine within the first week of life.
- The proportion of mothers initiating early breastfeeding.
- The proportion of mothers practicing exclusive breastfeeding for at least one month after birth.

Other potential benefits included an increase in mothers having a skilled attendant at their delivery and a reduction in malnutrition among young children in the villages where the positive deviance method was implemented.

### Increase in first neonatal visits

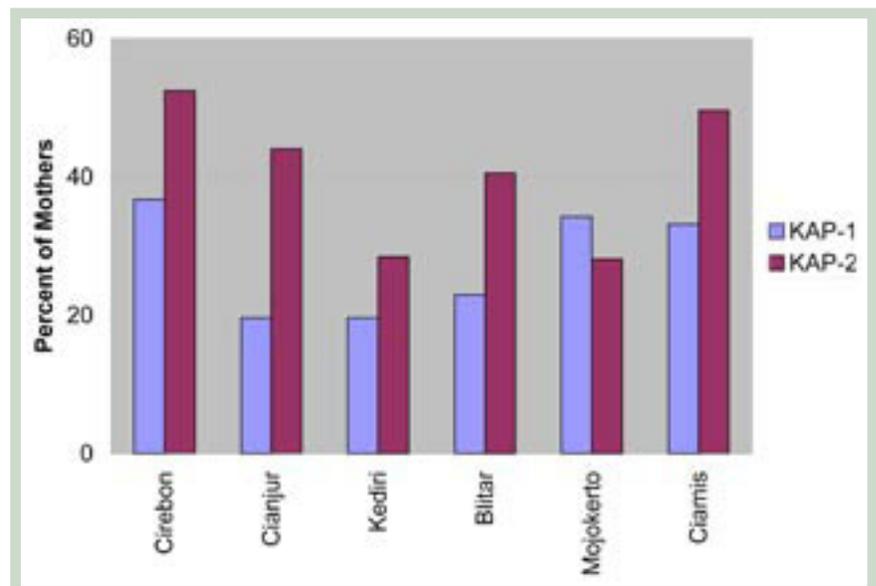
In all four ASUH districts, the increased capacity of midwives to provide health services and increased community demand resulted in substantial increases in the numbers of neonatal home visits

made by village midwives (Figure 2). Overall, the number of first neonatal visits noted in the KAP surveys increased by more than twice as much as those in the two comparison districts (17 percentage points versus 8 percentage points).

In the comparison districts that did not receive the full ASUH program, results were inconsistent: visits by village midwives declined in Mojokerto while they increased in Ciamis. Although Ciamis did not receive the full package of midwife training, local government officials took a particular interest in the first neonatal visit during the early project orientation, providing midwives with access to low-interest loans for purchasing motorcycles to facilitate outreach and home visits and urging midwife coordinators to promote the first neonatal visit. In addition, there was a large increase in Ciamis in the number of deliveries being attended by village midwives, according to KAP data.

Results from a logistic regression analysis of KAP survey data that controlled for the multiple factors that could affect the number of first neonatal visits (including prenatal care and delivery by the village midwife, family economic status, and maternal education) suggest that women in the ASUH districts were 2.9 times more likely to report a first neonatal visit during the KAP-2 survey (after implementation of project activities) than during the KAP-1 survey. Women in the comparison districts were only 1.5 times as likely to report a first neonatal visit during the KAP-2 survey as during the KAP-1 survey. During the period covered by the sentinel

**Figure 2. Number of neonatal visits within seven days of birth, by district**



surveys (January to July 2003) the number of timely first neonatal visits continued to increase significantly in every district, rising an average of 17 percentage points ( $p < .0001$ ).

Regardless of who attended the delivery, the percentage of mothers in ASUH districts reporting a first neonatal visit increased significantly—from 15 to 25 percentage points (all  $p < .001$ ). In comparison districts, there was a smaller increase in first neonatal visits among women with a delivery attended by a family member or a traditional birth attendant.

In addition to increased coverage, there was improvement in the quality and completeness of the neonatal visit. More midwives in ASUH districts administered hepatitis B vaccine (see below) and nutritional supplements, according to KAP and sentinel surveys. Vitamin A administration increased by 141 percent in the ASUH districts (from 10.4 percent to nearly 25.2 percent in the KAP surveys), while in the comparison districts there was a much smaller (31 percent), nonsignificant increase. Similarly, 67 percent more mothers reported receiving iron supplements during the second KAP survey than during the first, while the percent declined by 33 percent in Mojokerto and rose by only 12 percent in Ciamis. The relatively minor increases in iron supplementation during pregnancy in Cianjur (ASUH) and Ciamis (non-ASUH) as compared with the postpartum improvements support the supposition that the improvements during the home visits were related to ASUH efforts. Postpartum iodine distribution rose sharply in Kediri and Blitar while remaining constant in comparison and West Java ASUH districts. The proportion of midwives doing a newborn exam during neonatal visits at baseline KAP survey in both project and comparison districts was already 80 to 90 percent, and there was a modest improvement in all districts.

KAP surveys suggested little change in the various topics midwives discussed during neonatal visits, except in Kediri where there were significant improvements, possibly due in part to special training that midwives in that district received in 2002 on use of the maternal and child health handbook called *Buku KIA*, supported by the Japan International Cooperation Agency (JICA). However, during the

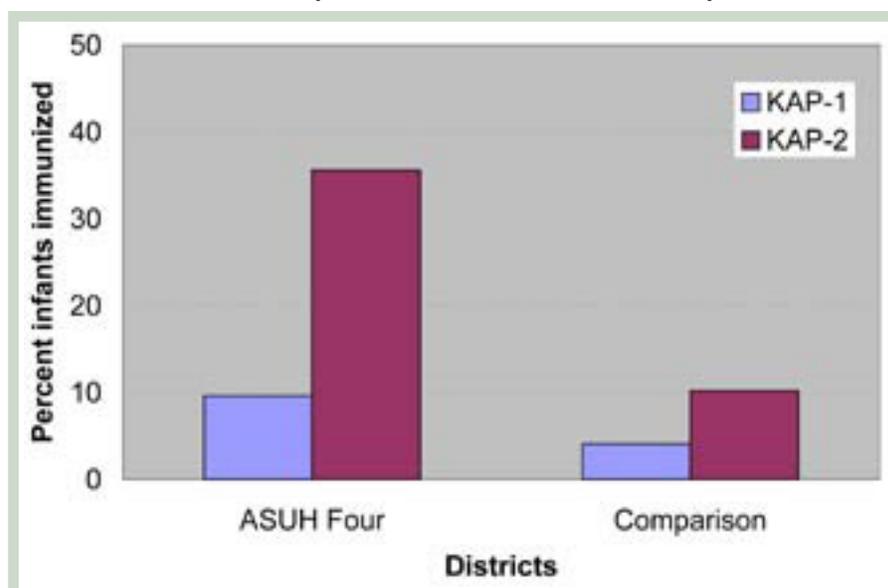
period covered by the sentinel surveys, significantly more mothers ( $p < .05$ ) in the ASUH districts reported village midwives discussing breastfeeding, skin-to-skin warming, newborn danger signs, and maternal danger signs during home visits after the clinical training. When sentinel survey mothers were asked about aspects of midwives' interactions during the home visit, improvements were noted in three out of four districts with regard to explaining the purpose of the visit, listening to the mother, and helping mothers solve problems.

### Increased coverage of hepatitis B vaccine

One of the most outstanding successes of the ASUH program was the dramatic rise in coverage of newborns with a dose of hepatitis B vaccine in the first week of life. Village midwives were responsible for 78 percent of the total increase. ASUH districts in West Java that started with relatively low coverage levels (3 percent and 12 percent at KAP-1) showed the most improvement, while the East Java districts that already had some experience with hepatitis B still made substantial gains (Figure 3). Gains in comparison districts Mojokerto and Ciamis were much lower, and only 56 percent of the increase was due to village midwives.

A logistic regression analysis that controlled for the starting differences between project areas, for prenatal and delivery care by the village midwife, and for family economic status and maternal education confirmed that the infants in the ASUH districts were 8.4 times as likely to get hepatitis B vaccination within seven days postpartum at KAP-2 as they were at the baseline KAP-1

**Figure 3. Infants immunized against hepatitis B by the village midwife within seven days of birth: results of KAP surveys**



survey regardless of all other factors. In the comparison districts the likelihood increased only 1.4 times between the KAP-1 and KAP-2 surveys.

In the six months covered by the sentinel surveys, coverage of hepatitis B vaccine continued to increase in the four ASUH districts. By July 2003, 63 percent of mothers with a newborn in the preceding two months reported their baby had received a birth dose of hepatitis B vaccine.

## Rates of immediate breastfeeding begin to increase

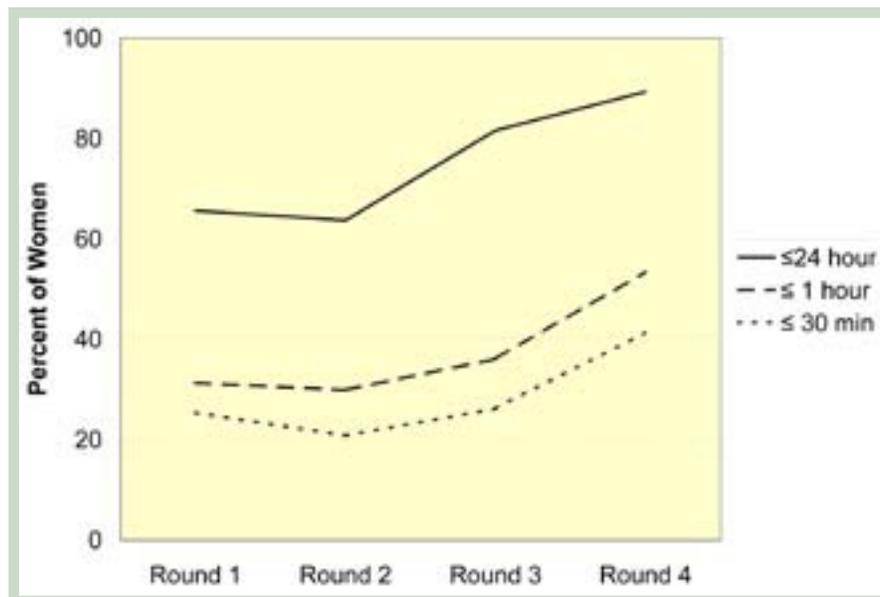
Breastfeeding habits are strongly related to cultural customs that vary from district to district and are still not well understood by health professionals. Data from the KAP-2 survey indicated a reduction in the proportion of women reporting the initiation of breastfeeding within the first 30 minutes or first 60 minutes after birth in five of the six districts surveyed; only the comparison district Ciamis showed an increase. However, a logistic regression analysis of the data that controlled for prenatal care, birth attendant, family economic status, and maternal education suggested that, once these other factors were taken into account, there was no significant drop in immediate breastfeeding in the ASUH districts, while there was a 49 percent drop in non-ASUH comparison districts. Also, there were slight improvements (2 to 4 percentage points) in the number

of mothers who reported initiating breastfeeding *within the first day* in three out of four ASUH districts, although the percentages declined by 3 to 8 points in Blitar and the two comparison districts.

Results from the first two rounds of sentinel surveys also showed stagnant levels of immediate breastfeeding. These findings led district health office teams and health center doctors to formulate specific action plans. For example, when it became apparent that midwives were promoting the use of formula in one district, the head of the district health office issued a special directive to forbid this practice. Radio campaigns about the importance of immediate breastfeeding also began in May 2003. The stepped up activity around breastfeeding appeared to work: there was a significant increase ( $p < .05$ ) in the rates of early breastfeeding in Rounds 3 and 4 (Figure 4).

The proportion of mothers who reported giving colostrum to newborns during the KAP surveys remained constant in the two comparison districts and in three out of four ASUH districts. The number of mothers who reported giving their children colostrum rose only in Cianjur, from 81 percent (KAP-1) to 90 percent (KAP-2). During the period monitored by the sentinel surveys, all four ASUH districts reported increases in the proportion of newborns receiving colostrum, with gains varying from 5.3 to 16.6 percentage points over the four districts.

**Figure 4. Initiation of breastfeeding of newborns: results of sentinel surveys, January to July 2003**



## Rates of exclusive breastfeeding begin to increase

As with immediate initiation of breastfeeding, the KAP surveys yield mixed results for early effects of ASUH activities on exclusive breastfeeding, while sentinel surveys show signs of improvement in the last few months of program activities. According to data from KAP surveys, the number of mothers reporting giving only breast milk in the first three days postpartum increased in only one ASUH district. The number stayed about the same in two ASUH districts and in the two comparison districts; it declined in the remaining ASUH district. However, in the sentinel period there was a significant increase ( $p < .05$ ) in mothers reporting exclusive breastfeeding in the first three days after birth in two districts (Cirebon and Blitar).

Customs regarding giving infants substances other than breast milk can be quite local and resistant to change. For example, during the first KAP survey, more than half of mothers in Cianjur and more than a third in Ciamis reported giving water to their infants, while 40 percent of mothers in Cirebon fed honey to their infants. Furthermore, mothers reported that village and private midwives sometimes promoted formula use. A local formula company carried out an aggressive marketing campaign especially targeting midwives from 2001 to 2003.

Overall, based on 24-hour recall about what they fed infants, the proportion of mothers with infants 5 to 8 weeks old and still exclusively breastfeeding (a proxy measure for those who practiced exclusive breastfeeding for at least one month) increased by 14 percentage points ( $p < .05$ ) in ASUH districts between KAP-1 and KAP-2 surveys, while those in the comparison districts reported a smaller, nonsignificant increase of 8 percentage points. In all four ASUH districts, more mothers of infants up to one month old reported exclusive breastfeeding in Round 4 of the sentinel survey, as compared to Round 1 (Figure 5).

On the other hand, mothers with infants with four or six completed months showed only slight, nonsignificant increases in ASUH districts, while in the comparison districts significantly more mothers reported increased exclusive breastfeeding

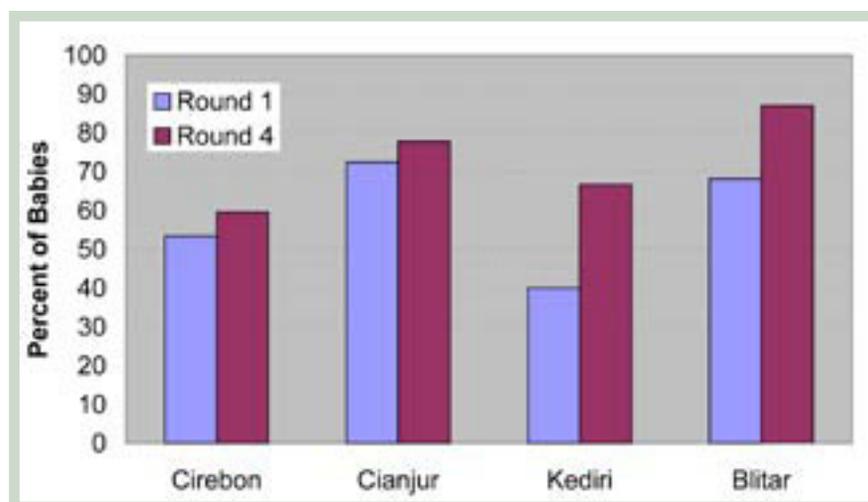
at four months in the KAP-2 survey. Among all infants younger than one year old in the KAP surveys, the proportion exclusively breastfed increased in KAP-2 in both ASUH and comparison districts and continued to increase significantly ( $p < .01$ ) in ASUH districts in the sentinel surveys.

Qualitative assessments suggested that interruptions in exclusive breastfeeding occurred frequently due to the influence of parents or parents-in-law and the search for solutions when the infant cried unrelentingly.

## Child nutrition improved through positive deviance

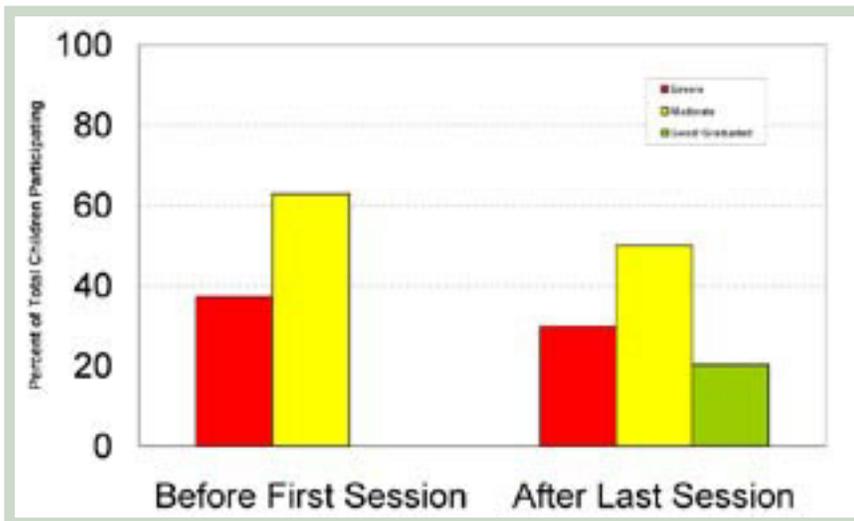
PATH conducted the positive deviance pilot project on a small scale in Cianjur, and it provided a powerful demonstration of the usefulness and feasibility of this approach. Of the 94 undernourished children who participated in one or more rehabilitation sessions, the 35 severely malnourished children made even better average gains in weight for age (as measured by Z-scores to standardize to expected age-appropriate weights) than the 59 moderately malnourished children. Of the children who entered the program with documented malnutrition (weight-for age Z-scores [WAZ] less than  $-2.0$ ), 11% “graduated” into an acceptable weight-for-age class (at three consecutive weighings) and an additional 10% achieved “good” weight-for-age at one or two sessions at least. Within a few months, a substantial number of children in the severely malnourished group achieved weight gains sufficient to move them up to the “moderate” malnutrition category (Figure 6). Among 40 children who participated fully in six rehabilitation

**Figure 5. Exclusive breastfeeding during first month postpartum (based on 24-hour recall): results of sentinel surveys**



sessions, there was a steady rise in average weight-for-age except for one period when a drought was going on and a factory closing led to widespread unemployment and hardship. By the end of the six months, the temporary loss had been recovered and the average Z-score achieved its highest level, having climbed from -3.2 at the beginning to -2.7 by the end. In a preliminary analysis of data from the better established positive deviance groups (ones that held at least seven sessions), 90% of those children who attended all sessions experienced at least some WAZ gain, while those who had incomplete attendance (missing one session or more but returning) and those who dropped out (missing at least two sessions and not returning) had somewhat lower proportions with increased WAZ scores (83% and 79%, respectively).

**Figure 6. Changes in nutritional status for positive deviance program participants, Gekbrong, January-August 2003 (n=94)**



## Special studies

### Village midwife program financing study

In assessing the ramifications of continuing or discontinuing support for the village midwife program, the Center for Health Research at the University of Indonesia found that both the local Parliament and the district health offices were supportive of the village midwife program—that village midwives reach many people and serve them directly. If the program were to be discontinued, the local governments and district planning boards would look for ways to maintain the program with local government funding. However, budget limitations would likely restrict its continuation in some districts to only remote, isolated, and poor areas.

The district health offices wanted advance notice if the program were to be discontinued so that they could begin planning alternative ways to finance or alter the program. The study, referenced in Attachment A, Materials Produced by ASUH, also noted that discontinuation of the village midwife program would lead to workload increases in health centers. Properly trained and qualified nurses could potentially replace village midwives, if such nurses were available and willing.

### Cost of pneumonia treatment

PATH’s analysis indicated that Lombok Hib study interventions appear to have dramatically increased the referral of meningitis and pneumonia cases. The observed 40 percent decline in infant mortality rate in the original 40 Hib study villages—from 89 to 53 per 1000

live births—during the six-year period is striking. Analysis of the Hib vaccine study is expected to be complete in the next few months, at which point estimates will be made on Hib vaccine pricing needed in order to obtain cost savings.

### Uniject™ device cost study

The findings from an incremental cost analysis show that introducing hepatitis B vaccine-Uniject™ devices is cost-saving at immunization coverage levels prior to ASUH. In addition, introducing a birth dose of hepatitis B vaccine using midwives to administer the injection within seven days of birth during a home visit is also cost-saving, despite additional costs of labor and travel related to the

midwife visit. The study shows that cost savings increase as coverage for children zero to seven days old increases. The findings in this analysis are consistent with and complement other recent studies that show hepatitis B-Uniject™ devices are cost-effective compared to vaccine in multidose vials and disposable syringes.

## Other measures of success

The ASUH program was successful in terms of effective use of resources as demonstrated by program inputs, leveraged funding, sustainability and replicability of program activities, and the unique partnership it forged with government health systems.

Table 4. Program inputs

Category	Inputs	Data Sources
Training	<ul style="list-style-type: none"> <li>■ 55 Citra Diri training sessions for village midwives and their coordinators</li> <li>■ 148 clinical training sessions for village midwives and their coordinators</li> <li>■ 2,688 sets of Citra Diri training and clinical training materials for midwives</li> <li>■ 432 sessions for social mobilization facilitators</li> <li>■ 32 trainings of facilitators for district health officers (for Citra Diri training, clinical training, social mobilization campaigns, positive deviance training)</li> <li>■ 13 trainings on social mobilization for NGO partners</li> </ul>	Activity reports, attendance sheets, financial reports
Technical Assistance	<ul style="list-style-type: none"> <li>■ 8 international visits by PATH staff and other international consultants</li> <li>■ 376 visits to field by PATH staff in Jakarta and consultants to field sites</li> <li>■ 777 visits by PATH provincial office staff to field</li> <li>■ 134 person-months of assistance from PATH technical staff</li> <li>■ 9 person-months of assistance from international consultants</li> <li>■ 56 person-months of assistance from local consultants</li> </ul>	Activity reports
Subawards	<ul style="list-style-type: none"> <li>■ 2 rounds of surveys, mothers and village leaders, 2002 and 2003, in each district—total interviews: 6,253 mothers with an infant younger than 1 year, and 328 interviews of village leaders</li> <li>■ 1 study of the cost-effectiveness of the village midwife program</li> <li>■ 1 qualitative evaluation of ASUH's key interventions</li> <li>■ 1 qualitative evaluation of the positive deviance pilot program</li> <li>■ 1 evaluation of the social mobilization village program</li> <li>■ facilitated discussions on breastfeeding and potential for notification system</li> <li>■ social mobilization facilitation</li> </ul>	Subcontracts and subagreements
Community Mobilization Support	<ul style="list-style-type: none"> <li>■ 1,066 village social mobilization meetings facilitated</li> <li>■ Rp 125,745 (US\$14,970) distributed as seed grants to organizations and village activities</li> </ul>	Activity reports, financial reports
Media Materials and Activities	<ul style="list-style-type: none"> <li>■ 297,000 pieces of promotional material disseminated</li> <li>■ 6 radio scripts developed</li> <li>■ 21,117 individual 1-minute radio broadcasts or talk shows aired</li> <li>■ 3,500 VCDs with discussion guides disseminated</li> </ul>	Purchase orders, subcontract reports
Supplies	<ul style="list-style-type: none"> <li>■ 168,848 Uniject™ devices and vaccine vial monitors for birth dose of hepatitis B vaccine</li> <li>■ 10,000 water-filled Uniject™ devices for training</li> </ul>	Purchase orders, provincial receipts

## Inputs

Tracking the number of inputs—training sessions, technical assistance visits, NGO and community organization subawards—serves the accountability function of evaluation, demonstrating that program resources were appropriately and effectively used. Table 4 lists selected inputs. Information on these inputs comes mainly from activity reports and financial records. The table does not include the many inputs contributed by the government, such as *Citra Diri* training sessions funded by the district health offices in Mojokerto and Blitar.

## Cost-share contribution

In addition to the significant resources the Government of Indonesia has expended for its part of ASUH, PATH was able to leverage USAID funding by raising US\$555,567 in direct donations and in-kind contribution of goods and services from non-federal sources. This amount exceeded the required contribution (\$417,442) by 33 percent. Table 5 contains a breakdown of contributions.

**Table 5. Direct donations and in-kind contributions to the ASUH program.**

Category	Donor	Amount (U.S.)
Introduction of hepatitis B vaccine in Uniject™	Gates Foundation	292,261
Evaluation & technical input	Mellon Foundation & UW faculty and intern plus volunteer time for data analysis	22,795
Special studies to improve vaccine delivery: cold chain, cost studies	Gates Foundation	125,975
Discounted radio air time	HotLine Advertising	5,398
Technical assistance to ensure sustained funding for HepB-Uniject™ devices and other immunizations	Gates Foundation	109,138
<b>Total</b>		<b>555,567</b>

These contributions were instrumental in achieving program objectives. Of particular note are the introduction of hepatitis B vaccine via the Uniject™ device, which jump-started the birth-dose coverage

in East Java; PATH technical assistance to the Global Alliance for Vaccines and Immunization process in order to ensure continued funding for hepatitis B vaccines; studies identifying critical cold-chain problems, leading to actions to prevent freezing of the sensitive hepatitis B vaccines; and significant technical input into evaluation by University of Washington School of Public Health faculty and an intern through a Mellon Foundation grant.

## Sustainability and replicability of ASUH activities

Because of PATH's close partnership with the Ministry of Health in Jakarta, provincial-level health authorities in East and West Java, and district-level health officers, these government partners strongly support and understand the ASUH model and its applicability to a wide range of health topics. Furthermore, the health office staff in four districts have a cadre of staff trained in facilitating participatory planning, *Citra Diri* training, clinical training, and social mobilization. These staff can continue to help implement the approach in their districts and coordinate and monitor replication wherever local interest exists and resources are available. An array of products such as ASUH project descriptions, training curricula, job aids, and promotional materials is available for adaptation and adoption in other locales. This material is available in hard copy and on a CD-ROM provided to each district, province, and the central level. In addition, Cianjur District is planning and budgeting to be a premier demonstration site for the positive deviance approach.

The central government, provinces, and districts have already adopted the ASUH model, including its learning approach. The sample of government-funded replications below occurred without PATH financial support well before ASUH ended, indicating rapid acceptance and ownership of the program:

- After the introduction of ASUH, Mojokerto District facilitators completed the *Citra Diri* training of all its village midwives.
- The Blitar District *Citra Diri* facilitator team trained 29 staff of the Safe Motherhood Project in five East Java districts (Jombang, Trenggalek, Ngawi, Sampang, and Pamekasan).
- After adapting the *Citra Diri* training for nurses, the Blitar ASUH team trained 42 nurses from health centers and auxiliary health centers.

- The East Java provincial health office provided *Citra Diri* training to the Maternal and Child Health section heads in all East Java districts.
- The central Ministry of Health used the *Citra Diri* training approach to build the counseling skills of staff in its nutrition section.
- Three East Java health districts (Jombang, Sampang-Madura, and Gresik) began MTBM clinical training for village midwives.
- The East Java provincial ASUH team conducted MTBM clinical training for health center directors in two districts (Sidoarjo and Sampang-Madura).
- West Java facilitators trained 20 West Java staff to facilitate MTBM clinical training.
- The Jakarta City health department trained clinical facilitators, who began training midwives throughout the city.
- ASUH-related activities were included in Blitar’s Maternal and Child Health checklist used by district supervisors and health center doctors to supervise village midwife activities.
- An ASUH facilitator from the West Java Provincial Health Office applied the *Citra Diri* training module to improving neighborhood security.
- The MTBM clinical training has been conducted in two sub-districts in West Lombok, with the intention of further expansion.

“Becoming a facilitator using the participatory planning approach is an extraordinary experience which can be seen as an investment, useful for other activities.”

—Health Center Director, Ciamis District, after ASUH introduction

Throughout program implementation, PATH provided information on ASUH to partners such as various professional organizations, local planning boards, and local parliaments. Formal information dissemination included presentations to the WHO Southeast Asian Office consultation meeting on newborn health in New Delhi and to the Ministry of Health’s Making Pregnancy Safer donors’ meeting, attended by representatives from the World Health Organization, the World Bank, UNICEF, AusAID, and the Canadian International Development Agency. Finally, ASUH’s health

department partners led final workshops in each province and district on the ASUH approach, results, lessons learned, and tools available for program replication and adaptation. Materials for replication were available on CD as well as in hard copy.

## ■ Lessons learned

ASUH offers the following lessons learned gleaned from the end-of-project workshops and from overall experience in implementing project activities.

Participants in end-of-project review workshops concluded that ASUH successfully developed commitment to newborn health and that the *Citra Diri* training approach was crucial for enhancing receptiveness to new learning and other training. Specifically, participants agreed that ASUH’s strengths included:

- Implementing focused and integrated activities.
- Strengthening the existing system; empowering cross-program and cross-sector collaboration without disturbing the existing system.
- Fostering shared commitment across health workers, communities, local government, and NGOs.
- Addressing supply and demand sides of health care simultaneously.
- Achieving results that directly benefit the community.
- Bringing a new paradigm of honesty and transparency to health districts.
- Using simple, appropriate technologies, methods, and data.
- Implementing strong supervision and monitoring systems.

Workshop participants identified the following weaknesses:

- Too narrow a focus on the home visit, resulting in a missed opportunity for optimal use of a good approach.
- Too short a period to assess replication and scale-up.
- Too limited a period for social mobilization activities.
- Confusing changes in direction and scope in the first two years.

Complementing these are lessons learned from implementation:

- In addition to the usual complex set of start-up activities—recruiting and orienting staff, building relationships with counterparts and partners, identifying specific activity sites, and developing internal management structures—developing relationships with the many district health offices and the communities they serve required time. This process required approximately 12 months of relatively low spending and few quantifiable outputs, but it paid off in the long run in terms of ownership of the ASUH approach by all three stakeholder groups.
- While funding was adequate, time in the three-year cooperative agreement was too limited, not only to assess effective ways to scale up the model to other districts but also to implement longer-term social mobilization interventions, to make more progress in breastfeeding, and to evaluate behavioral changes over a longer term.
- *Citra Diri* training, with its innovative personal growth component, was well received by participants and was replicated in a variety of settings. Both quantitative and qualitative data suggest real changes in behavior among midwives, supervisors, and facilitators.
- The direct participation of district health office staff resulted in their ownership of the training and its results and in their increased ability to guide program implementation. Their resulting attention supported village midwife motivation and skills as well as the sustainability of activities.
- ASUH government partners appreciated that PATH did not attempt to push too hard for externally determined, rigid “best practices.” Starting from the partners’ considerable experience and making incremental improvements strengthened the partnership, ownership, and sustainability of improvements.
- The main constraint to supervisory field visits at first appeared to be transportation costs, but funding these visits was not enough to get supervisors to the field. They said they lacked the time to make these visits. A review of the supervisor’s job description, supervision guidelines, and priorities may help health centers allocate appropriate time and resources to field supervision.
- Making improvements in exclusive breastfeeding practices will require more effort because of cultural and commercial pressures to give the infants substitute food and drink. Future effort will need to include district health officers (for policy, regulation, support), providers (for counseling and supporting families with solutions to breastfeeding problems, including creative ways to deal with crying), professional organizations (for modeling support of breastfeeding and countering the powerful formula industry), local NGOs (for mobilizing communities), and communities (for changing social norms).

## Recommendations and Conclusions

### Recommendations

For follow-on programming, the ASUH team recommends that attention focus on management issues, for example:

- Continue the ASUH approach to participatory, integrated strategies for sustainability, remembering to prioritize and allocate sufficient time for the development of collaborative programs among the stakeholders. Documenting process and progress during the development phase is essential.
- Continue to build from the ASUH platform already established in four districts on Java to improve health in other topics such as malnutrition, health information systems, immunization, tuberculosis, and malaria.
- Adapt flexible training modules and schedules that help reduce a midwife's opportunity costs and reduce the impact on the community of her extended absence. Modules should be integrated into a long-term in-service training (learning) plan.
- Strengthen the system for mentoring-style supervision. Consider ways to optimize quality and coverage of supervision during routine meetings and during special site visits. Supervisors need special training in supervision and commitment from their own supervisors.

The following technical points concerning newborn health continue to need attention:

- Broaden the focus on newborns to include the mother-baby dyad from conception through the first month of life. To accomplish this, vertical programs and projects both inside and outside the government must be consolidated, and health care providers, communities, and district health offices must actively collaborate. An integrated approach and actions will help reduce Indonesia's two main causes of newborn death—low birthweight complications and asphyxia.
- Provide access to newborn resuscitation equipment and ongoing training and refresher training so that village midwives are prepared to handle asphyxia.
- Increase community attention to keeping all babies warm and recognizing danger signs.

- Assess and improve referral systems and sites for newborns and mothers.
- Provide sustained attention to immediate and exclusive breastfeeding. Interventions should be integrated among the government, professional associations, and NGOs.

### Conclusions

ASUH achieved its objective of improving the care of newborns in Indonesia. An integral part of the health system at several levels, the program is sustainable and serves as a model that can be applied to other types of health programs.

#### Objectives achieved

In less than three years, PATH and its partners galvanized the participation of communities and the health system in four of Indonesia's largest districts to improve newborn health: in just one year, the number of newborns receiving a first neonatal visit within seven days postpartum increased from 25.3 percent to 42.4 percent, and the number receiving a vital birth dose of hepatitis B vaccine increased from 9.6 percent to 35.6 percent. These changes reflect a significant shift in local participation in the health system and in increased capacity among midwives, families and communities, and district health office staff to identify and solve their own health concerns.

The ASUH program began as a technical assistance program to provide innovative solutions in maternal and child health and quickly evolved into an approach that engaged three stakeholder groups—village midwives, communities, and district health office staff—transforming them into active collaborators. As one community facilitator in Haurwangi Village reflected, *“Before, we worked in the same village but not as partners. Through ASUH, we really worked as a team.”* The process of nurturing these relationships and capacities was time-consuming and difficult to measure initially, but it paid off.

The innovative *Citra Diri* training successfully tackled some of the most challenging behavioral issues—communications style and attitudes—that prevent midwives from being accepted by communities.

Appropriate to decentralization and democratization, ASUH approaches fostered local adaptation based on local information, community involvement, and collaboration with multiple government health programs (in the areas of family health, nutrition, immunization, and health promotion) and multiple sectors (including BKKBN, local planning boards, and local parliaments). Communities began mobilizing through the initial process of designing village-level systems to gather basic information on vital events.

The development of new capacities within the community represents one of the most exciting features of the ASUH program. In trying out new approaches—including social mobilization teams, direct collaboration with NGOs, and positive deviance—PATH helped identify methods of empowering people in Indonesia to act on behalf of their own health and their children's health.

### Chief sustainable elements

ASUH has facilitated policy and strategy development in newborn management and breastfeeding by central, provincial, and district levels; strengthened management systems and skills; and improved the implementation of activities addressing newborn health. By focusing on activities during the first critical weeks of life, the program filled a gap in existing maternal and child health programs. Its monitoring and evaluation systems have, within a very short time, been able to test and document the effectiveness and sustainability of this approach for catalyzing change in the care of newborns. This work leaves behind a platform on which to continue within ASUH program areas and to expand beyond them. Multiple examples of government-funded replications of the ASUH approach already exist. Through its replication of various activities, East Java fulfilled its commitment made during proposal development to apply the lessons from ASUH activities more broadly.

### Benefits beyond newborn health

In an era of decentralization, ASUH serves as a model and a set of tools for testing new approaches to capacity building, to district planning and management, and to community mobilization. The skills, tools, and approaches ASUH developed for newborn health can be adapted and applied to other public health programs. These are documented on a CD available through national Ministry of Health and ASUH provincial and district health offices.

ASUH's lasting impact and legacy are stronger relationships, a flexible approach to participatory planning and implementation of public health programs, and tools that enable communities and health systems to work together to meet their own needs.

---

# Attachments

**A Materials Produced by ASUH**

**B ASUH Leaflets**

**C Positive Deviance Final Report**

**D ASUH Organizational Charts**





*asuh*

Awal Sehat Untuk Hidup Sehat  
**Final Report**

***path***

[www.path.org](http://www.path.org)