

# The Health Bulletin

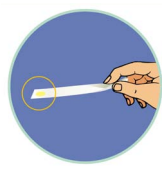
SHOWCASING NEPAL'S HEALTH INNOVATIONS AND PARTNERSHIPS : USAID SPECIAL PUBLICATION

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## Empowering women, saving lives

*After 25 years, Nepal's Female Community Health Volunteers (FCHVs) shine as the nation's preeminent crowning achievement in public health.*

ONE of Meena Arya's many goals is to become a role model for other women in her village. The 37 year-old represents a gradual shift in Nepal's gender dynamics, as many women increasingly search for employment opportunities outside of the home.

For Arya, it started with her position as a Female Community Health Volunteer in her village in Banke district situated close to the Indian border. She is among a cadre of about 52,000 women who are constantly helping to strengthen the country's health system from a grassroots level. The Government of Nepal started the program in 1988 with support from USAID, UNICEF, UNFPA and local non-governmental organizations. What began as a community-based project is now the pride of the public health sector.

On December 5, 2013, during the program's 25-year anniversary event, Nepal's then Minister of Health and Population, Vidhyadhar Mallik, acknowledged the efforts of this indispensable group of female leaders.

"You've helped us achieve the [United Nations] Millennium Development Goals and put Nepal on the global map of success," he said.

FCHVs like Arya are a large reason for why Nepal is one of the few countries "on track" to meet the Millennium Development Goals of reducing maternal and child mortality, as per the MDG Progress Report 2013.

Dressed in her blue sari patterned with concentric circles, a striking uniform that is recognizable to every Nepali, Arya performs an array of health services. She and her fellow FCHVs promote safe motherhood and institutional deliveries, educate families about contraceptive methods, and serve as the focal points for government-led health campaigns addressing the primary killers of mothers and children throughout Nepal.

Over the years, the FCHVs have played an integral role in scaling up innovations that have put Nepal in the global spotlight. They remain at the forefront of efforts promoting the use of chlorhexidine to prevent umbilical cord infection in newborns, one of the major causes of neonatal deaths in Nepal.

The community-based health interventions the FCHVs implement,



Meena Arya (left) and Parvati Tharu reflect the changing status of women in society. They credit the FCHV program for their growth.



FCHVs' roles, among others, include counseling women on safer motherhood and proper childcare.



such as the distribution of oral rehydration salts for diarrhoea, Vitamin A and pneumonia treatment,

According to Dr. Kiran Regmi, Director of the Family Health Division that administers the program, their role as an FCHV has established them as prominent figures in society; some of them have even joined politics.

"One of our FCHVs has also been elected as a parliamentarian," Regmi said. "It is because of the trust and respect they have earned from the community that has directly shaped their empowerment in society."

Arya is but one example of the accuracy of Regmi's words. She has gradually shifted from her FCHV role to being the president of a local community club, and she also enrolled at a school.

"The idea of helping other women and saving lives of mothers and children motivated me to join the workforce," Arya said.

"This has really made me more confident," said Arya, now an eighth-grader at a local school.

Initially sceptical of her capabilities when she started as an FCHV, Arya now wants to influence and inspire other women along the way.

"Women shouldn't be left behind," Arya said. We need to be confident and look forward. If we work together, we can achieve anything." ■

have helped to reduce under-five mortality by more than 50 percent in the last 15 years.

While these women have worked tirelessly to improve the nation's health and wellbeing, FCHVs are proud of the fact that their role has allowed them to prosper personally. After all, FCHVs are more than health care providers. They are also trusted members of the community who view them as empowered female leaders.



## Message from the Mission Director



**Beth Dunford**

USAID/Nepal Mission Director

Welcome to the 'Showcasing Nepal's Health Innovations and Partnerships' event. We are so proud to showcase five innovations that USAID has supported at various stages of development. It's through partnerships, public and private, local and international, that true progress is possible. While each of the five projects outlined in this bulletin tells a unique story, all contribute to our overall goal of ending preventable child and maternal deaths in Nepal. These innovations exemplify the developmental path that USAID has supported over the years, starting from pilot projects that lead to new policies, and then ultimately to scale up of programs.

Under the leadership of the Ministry of Health and Population, Nepal has been an early adopter of new technologies that have propelled the country to achieve Millennium Development Goal (MDG) 4, reduce child mortality, and remain on track to meet MDG 5, improve maternal health. Although these key indicators have decreased markedly, Nepal still ranks as one of the 24 countries with the highest burden of maternal and child deaths. By focusing our collective efforts on new innovations grounded in research, I believe we'll see improvements in these numbers. When we're able to leverage our comparative advantages and work together, we can make a real difference in the lives of Nepalis throughout this remarkable country.



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# Research to Policies to Programs

*The Nepal Nutrition Intervention Project – Sarlahi (NNIPS) is an example of how the results of rigorous research serve as the basis for national health policies and programs benefitting millions of people.*



FOR the past 25 years, NNIPS, a project carried out by Johns Hopkins University (JHU) Bloomberg School of Public Health in collaboration with the Nepal Netra Jyoti Sangh, has been a leader in researching life-saving innovations.

During its long history, NNIPS' large community trials in the Sarlahi District of Nepal have contributed significantly to the establishment of programs contributing to the country's significant reductions in maternal and child deaths.

In Nepal, during the 1990s, approximately eight percent of preschool-aged Nepali children experienced severe vitamin A deficiency. A much larger percentage of Nepali children experienced moderate deficiencies and the concomitant health and mortality risks associated with not having enough vitamin A.

NNIPS' first large study conducted from 1989 through 1991, with funding from USAID, demonstrated that periodic high-dose vitamin A supplementation can achieve a 30 percent reduction in child mortality in children between six months to five years of age. Encouraged by this and similar results from large trials in India and Africa, the Government of Nepal initiated the Nepal National Vitamin A Program in 1993.

By 2003, all 75 districts were included in the program that aims to reduce child mortality and morbidity related to vitamin A deficiency by providing twice-yearly supplements of vitamin A capsules to children, at a cost of approximately \$ 1.25 per child.

"An estimated 20,000 to 25,000 child lives are saved each year in Nepal, with hundreds of thousands of lives having been saved since the inception of the vitamin A program," said Steven C. LeClerq, Field Director of NNIPS and JHU

Representative to Nepal.

At the 25-year anniversary event commemorating NNIPS' research program's success in Nepal, Dr. Alfred Sommer, Dean Emeritus of the Johns Hopkins Bloomberg School of Public Health, credited the Government of Nepal for taking the lead as the first country in the world to initiate such a program.

Vitamin A saves an estimated

**20K to 25K**  
children's lives each year.

During the 1989-1991 trials in Nepal, there was a

**30% reduction**

in child mortality in children between 6 months to 5-years.

Currently the Vitamin A program reaches to nearly

**1 million children**

in more than  
**50 countries**  
around the world.

### Past and current research studies by NNIPS

- Birth attendant and maternal hand washing with soap and water lowered neonatal risk of death by 41 percent.
- Impact of a sunflower seed oil or traditional mustard seed oil message on neonatal morbidity and mortality
- Evaluation of the ability of improved and traditional cook stoves to reduce indoor air pollution, respiratory problems and low birth weight
- Influenza vaccination of pregnant women to determine if such vaccinations provide a protective effect to newborn babies in terms of reducing mortality and morbidity

"The definitive study proving that twice yearly supplements of vitamin A could reduce child mortality by one-third was conducted here in Nepal," Sommer remarked during the anniversary commemoration.

The vitamin A distribution campaigns now reach nearly 1 billion children in more than 50 countries around the world.

NNIPS' impressive body of work does not stop with vitamin A. A decade ago, the NNIPS' published the results of a randomized controlled community trial of chlorhexidine as an antiseptic for cleaning a newborn's umbilical cord to prevent infection. These results demonstrated that, if applied within 24 hours of birth, chlorhexidine can produce a 34 percent reduction in neonatal mortality.

These promising results encouraged the government to implement the Nepal Chlorhexidine Cord Care Program in 2011. This program has now been expanded to 41 districts, with imminent plans to include all 75 districts. Globally, several African and Asian nations have already put plans in motion to expand the use of chlorhexidine to include their countries as well.

"The Government of Nepal has been an early adopter of the research, and launched appropriate programs that serve as a model for the rest of the world," Sommer said. "It is important to note how helpful it has been to conduct these innovative research studies that have led to policy development and then program implementation in Nepal." ■



# A one-cent test could save thousands of women's lives

*With eclampsia a leading factor in maternal death in Nepal, USAID is supporting Jhpiego and the Johns Hopkins Center for Bioengineering Innovation and Design to develop an improved and affordable innovation that women can use at home.*

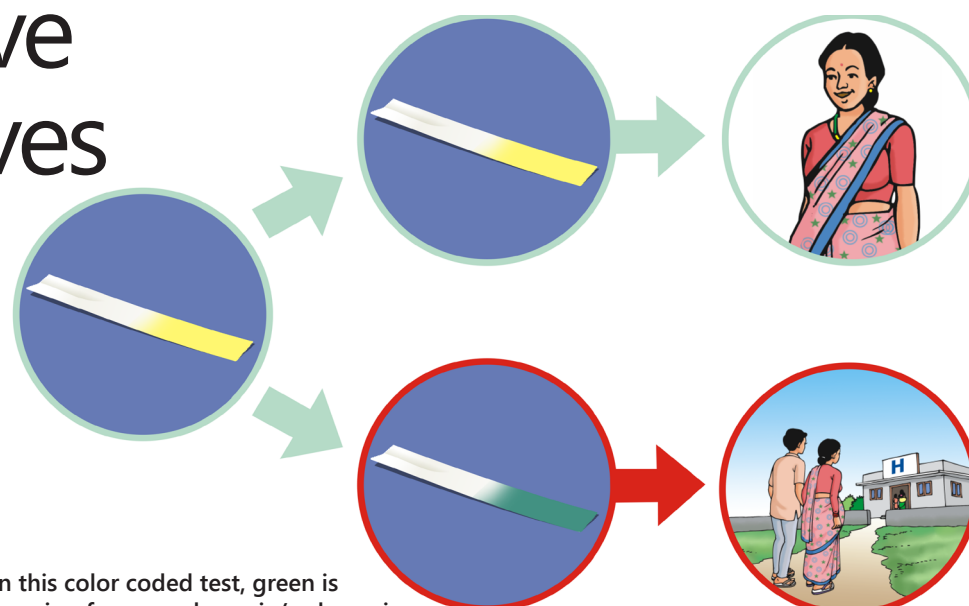
**KOSHI** Zonal Hospital in Morang district is similar to many health facilities in Nepal. Sister Geeta Koirala, in-charge of the antenatal clinic, worries constantly about the large influx of women who visit the facility after having developed eclampsia. Eclampsia, a progression of pre-eclampsia, is a serious condition characterized by high blood pressure and proteinuria (protein in urine) during childbirth.

A mother's risk of dying from eclampsia is more than 300 times that of women living in developed countries. Nepal is no exception to this challenge, with eclampsia still a leading cause of maternal death. At a time when most public health facilities are lacking standardized testing tools for pre-eclampsia and eclampsia, USAID and Jhpiego are honing an easy-to-use, improved screening tool.

Using a simple dropper, this new testing technique is effective, low-cost and a self-diagnosis method that women can use at home without having to go to the health facility. As Sister Koirala remarks, "the new dropper method, which is currently being tested at the hospital, is easy and convenient."

The dropper dispenses a color-changing reagent on paper to test for pre-eclampsia and eclampsia. Similar to a pregnancy test kit, a pregnant woman urinates on the paper and obtains the result instantaneously. While yellow signifies a negative result, green is a warning that there is protein in their urine and that the expectant mother should visit the health facility.

In this developmental phase, USAID and Jhpiego are training a group of Female Community Health



In this color coded test, green is warning for pre-eclampsia/ eclampsia, prompting immediate intervention.

Volunteers who will take this testing to would-be mothers. "This is an intervention that will save mothers and also prevent newborn deaths," Jhpiego's Regional Technical Advisor, Kusum Thapa, said. "We're taking this care directly to the women."

The Maternal Mortality and Morbidity Study 2009 suggests that 21 percent of deaths in Nepal are attributed to eclampsia. Considering the high prevalence in the Tarai region, the project is conducting the field study in Morang district—Koshi Zonal Hospital and Manglabare PHC— with financial support from USAID and the Morton K and Jane

Blaustein Foundation.

One the final operational research results become available, Jhpiego plans to develop a standardized design for manufacturing, obtain needed Department of Drug Administration regulatory approval and conduct nationwide pilot studies.

The cost of this innovation, according to Thapa, would drastically bring down the testing cost of pre-eclampsia and eclampsia. The current approach of using a dipstick is 25-40 times the estimated cost of the dropper method currently being tested.

"We can save a lot of women's lives for 1 cent per test," Thapa said. ■

# GIS: Mapping Nepal's Health Facilities

**CONVENTIONAL** micro-planning methods for routine health service delivery and national immunization campaigns involve public sector and non-governmental organization health workers who work to create social maps. Sketched on paper, these maps do not show the proximity of population and health service centers at scale.

A geographic information system (GIS) can provide an efficient method of developing social and health service maps, which is geographically scaled and positioned. Using handheld devices, one can record the exact geographic positions (longitude and latitude) of various points (hospitals, health posts, sub health posts, polio booths, Female Community Health Volunteers, and Traditional Birth Attendants, etc.) and draw/measure paths between these points.

Supported by USAID and the World Health Organization, the Ministry of Health and Population (MOHP) is mapping the country's health facilities. The result will be the most advanced geo-referenced maps of its kind in South Asia.

"The idea is to survey every health facility in the country and show it on a map in an interactive way," said Madhav Adhikari, a GIS Expert at the South Asia Institute for Policy Analysis and Leadership (SAIPAL).

According to Adhikari, the highly interactive map will also provide scientific data on roads, locations of health services and workers in relation to population and health service centers.

Previously conducted in 57 districts with technical and financial support from World Health Organization, this Health Facility Mapping Survey, with support from SAIPAL and USAID, is adding the remaining 18 districts to the database. The mapping exercise will make GIS the ultimate tool for decision makers in analyzing data by visual means.

*The most advanced digital health mapping system in South Asia will help Nepal improve healthcare and influence policy reforms.*



It will help key decision-makers allocate resources effectively and also serve as a reference to response organizations in times of disaster.

"During a disaster, GIS will help the government to locate and also assess the condition of health facilities, and condition of bridges, roads leading to them," said Dr. Ramesh Adhikari, Research Consultant for SAIPAL.

Regarded as Nepal's "Health Atlas," the project, once completed, will have the most cutting-edge, geo-enabled data system on health infrastructure, location and equipment in the region. ■

## The map will help answer the following:

- Are Nepal's health facilities located where they can serve people best?
- Are the birthing centers located within a convenient distance to reduce delays in possible fatal deliveries?
- If and when a disaster strikes, which health facilities would be accessible and what kind of services would they provide?
- Who needs to have access to this type of information and when?
- What percentage of health facilities have access to road, electricity and running water?



# A Public-Private Partnership Saves Lives

*Navi Malam, an ointment developed and manufactured in Nepal, is an innovative solution to save hundreds of thousands of newborns at risk of umbilical cord infection globally.*



Nepal's public health system, are the main channel to counsel pregnant women and distribute CHX tubes during the eighth month of pregnancy.

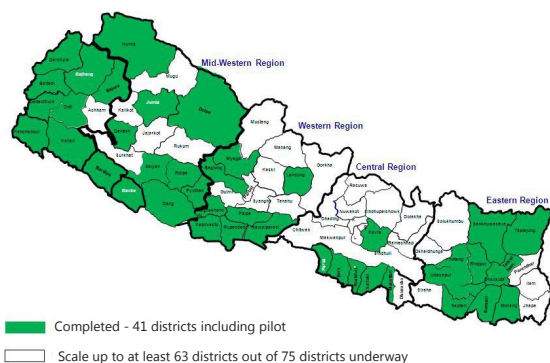
"Having a Nepali pharmaceutical company manufacture CHX offered the opportunity to substantially reduce the cost of the program, which is an important factor for program continuity in the public sector," a study from JSI Research and Training Institute, Inc., a Boston-based non-profit working in Nepal, noted.

When the program is fully scaled up through the public health system, Lomus estimates Nepal would require about 800,000 tubes annually – one for each birth. Currently, the pharmaceutical company produces around 20,000 tubes per day, which cost Rs. 18 (approximately \$0.18) apiece.

Since 2009, Lomus has delivered more than 775,000



## Chlorhexidine implementation status in Nepal



A majority of Nepal's population, especially in remote parts of the nation, still use traditional remedies for newborn umbilical cord care. The latest Demographic and Health Survey estimates that more than 41 percent of babies had materials such as mustard oil, turmeric, and ash applied to their umbilical cord.

Such practices may contribute to Nepal's neonatal mortality rate of 33 deaths per 1,000 live births. With about two-third of deliveries conducted at home, mostly in unhygienic conditions, newborns are highly vulnerable to neonatal infections, which are a leading cause of neonatal deaths in Nepal.

But chlorhexidine (CHX), known locally as Navi Malam, is an antiseptic that reduces bacterial colonization on the skin and on the umbilical stump of newborns.

Saves preventable neonatal deaths from umbilical cord infection

## 33/1000 births

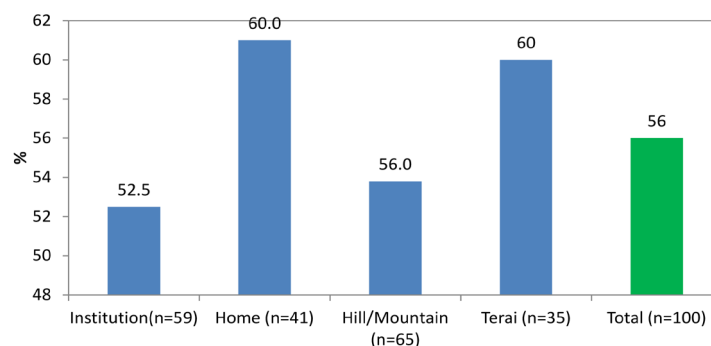
Child Mortality in Nepal reduced by Chlorhexidine

## 23%

Out of 75 districts, the intervention has reached

## 41 districts

## Use of Chlorhexidine in Nepal (Midterm assessment, 2013)



A pooled analysis of three randomized controlled trials of use of CHX immediately after cord cutting done in Nepal, Bangladesh and Pakistan shows that the application of Chlorhexidine reduces neonatal mortality by 23 percent and reduces serious infections by 68 percent.

In 2011, Nepal's Ministry of Health and Population became a global pioneer to scale up the use of CHX for newborn cord care at the national level through the Chlorhexidine Cord Care Program.

The intervention that has now reached 41 of the 75 districts started as a pilot project in 2009 using the antiseptic manufactured by a Nepali company, Lomus Pharmaceuticals, along with technical support through USAID and Nepal Family Health Program/JSI. Female Community Health Volunteers, the backbone of

tubes within Nepal. The company is also in the process of exporting 240,000 tubes to countries like Nigeria, Madagascar and Liberia.

Prajwal Jung Pandey, Head of Marketing at Lomus Pharmaceuticals, said, "a socially committed private manufacturer can make a significant change in public health issues in partnership with the public sector."

Leela Khanal, Project Manager for CNCP, sees this model partnership as "an established living university for the world." Moreover, she adds, "Other countries suffering from high neonatal mortality, are now replicating Nepal's success."

There continue to be imminent challenges in Nepal in order for CHX to become a standard practice throughout the country. The nationwide expansion, procurement, distribution and tracking of this life-saving product still needs to be fully institutionalized.

But public health officials are optimistic.

"Unless we have important progress in decreasing neonatal mortality, we cannot have further reductions in child mortality," said Dr. Praveen Mishra, Secretary, Ministry of Health and Population. Indeed, the excellent work done by a variety of public and private sector partners is an excellent building block for achieving further reductions in preventable child deaths. ■