



# Vietnam: Progress Beyond High Coverage

Increasing  
immunization  
program quality,  
safety, and  
efficiency

January 2007



Vietnam is proud of its National Expanded Program on Immunization (NEPI), and with good reason— NEPI has achieved coverage levels well above 90 percent for many years. At the same time, the program understands that there is always room for improvement. That is why PATH, in close partnership with NEPI, has collaborated since 2003 to increase the quality, safety and efficiency of immunization services. Much of the work was done in Ha Tinh and Thanh Hoa provinces, but PATH also worked with NEPI at the national level to update and improve policies, train staff, and increase community knowledge and demand for vaccination.



*Vietnamese parents value immunization and place high levels of trust in health workers.*

Specific areas of focus included:

- Updating vaccinator skills and knowledge.
- Developing new and more effective supervisory systems.
- Improving cold chain management to help ensure vaccine potency and reduce wastage.
- Increasing access to the first dose of hepatitis B vaccine within 24 hours after birth.
- Improving injection safety with needle removers.
- Behavior change communication for improved consumer compliance and demand.
- Assisting NEPI with advocacy for increased support for immunization, GAVI Alliance-mandated financial sustainability planning, the national interagency coordinating committee, and the 2003 Expanded Program on Immunization (EPI) review.

### Updating vaccinator skills and knowledge

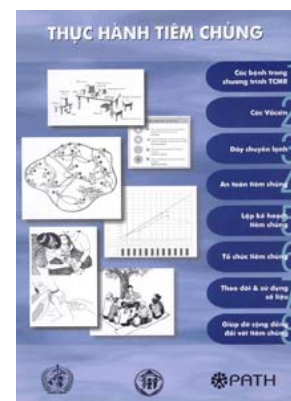
Ha Tinh Province, population 1.4 million, was selected as a model province where NEPI, with support from PATH, could test, modify, and promote best immunization practices. The goal was to enable provinces facing similar challenges to conduct study tours to Ha Tinh and learn from their peers.

Because staff turnover is high, health workers in the province required refresher training—updating skills and knowledge became a top priority. Sixty-three provincial and district level staff received extensive technical updates and training as trainers. For the first time they experienced, and mastered, interactive training methodologies based on established principles of adult learning. Equipped with their new skills, the managers in turn conducted three-day trainings for commune and district health staff. Training topics included hepatitis B vaccine introduction, injection safety, vaccine management, and microplanning. The sessions were evaluated very positively by trainees across the board.

Since the initial work in Ha Tinh, five additional provinces have benefited from similar training. Over the course of the project 215 master trainers were deployed. They trained 3,396 provincial, district, and commune health workers and 3,520 village health workers.

And to ensure continuing in-service updates for national and regional staff, NEPI also added a “development day” to their quarterly Expanded Program on Immunization meetings. The time is used in different ways according to need: sometimes for training workshops, sometimes for less formal information-sharing and problem-solving.

Medical school staff also suffered from long gaps in refresher training—for some it had been as long as ten years! To help ensure that new graduates had the most updated information, 18 professors from medical universities and 82 teachers from secondary medical schools were retrained under the project. This effort covered all medical and secondary medical schools of Vietnam.



*Vietnam was one of the first countries to adapt the new version of WHO's Immunization in Practice. 16,000 copies were distributed nationwide.*

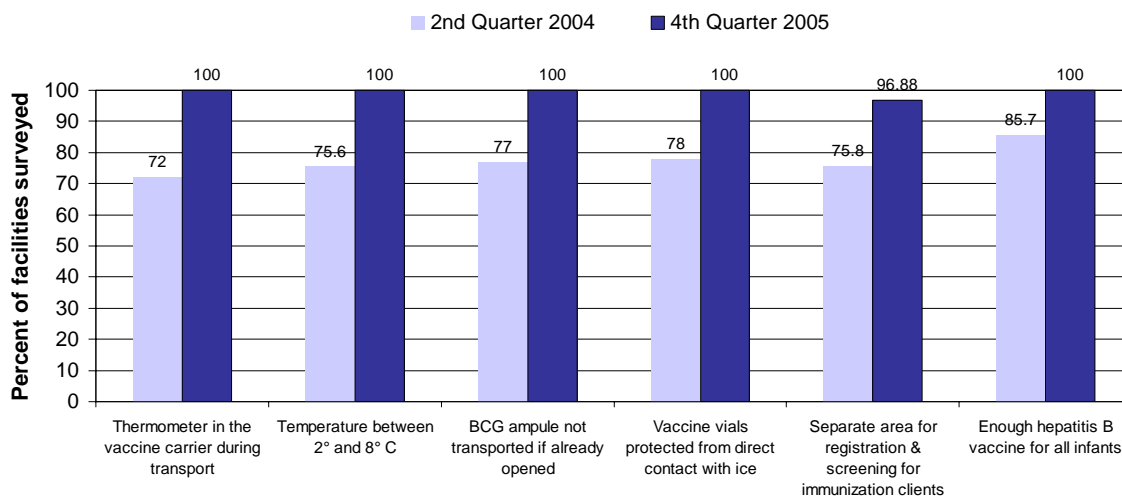
## Developing more effective supervisory systems

Traditionally in Vietnam, staff supervision meant traveling infrequently to commune health centers, looking for mistakes. This approach encourages staff to hide problems, not solve them. But in five districts of Ha Tinh, managers adopted a different approach. “Supportive supervision” is designed to improve program quality and performance through collegial problem-solving, on-the-job training, routine coaching, and use of standardized supervision checklists. The new system was so well received that the government decided to expand it province-wide. And recently UNICEF asked NEPI to help the national nutrition program integrate supportive supervision into their programs.

*“The supervision checklists are very helpful. Previously different supervisors used to visit at different times and talk about different things. Sometimes one would contradict the other. Now the support is consistent. In fact the lists are so good we asked PATH to add them to the local version of Immunization in Practice.”*

*Dr. Nguyen Van Cuong, NEPI*

Evaluation results documented impressive changes in many aspects of the immunization program, as shown in this chart.

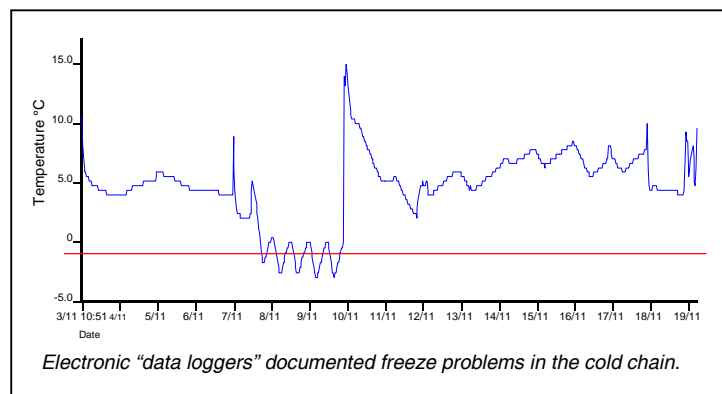


## Ensuring vaccine potency and reducing wastage

Vaccines are biological products that must be stored at 2°C to 8°C degrees to ensure potency. Some vaccines are very sensitive to heat, others become damaged if frozen. Vaccine vial monitors (VVMs)—labels that change color when exposed to too much heat or light—helped ensure that staff would not use any heat-compromised vaccine. But studies conducted by NEPI and PATH in two provinces suggested that vaccine freezing may have been a greater problem than suspected. PATH worked with NEPI to adapt training and point-of-storage job aids to improve refrigerator monitoring and mitigate the problem.

Supervisors also trained and monitored staff to ensure that:

- Refrigerator temperatures were checked twice per day, seven days a week, including holidays.
- Vaccines were properly loaded into cold boxes and vaccine carriers, with insulating material between the ice packs and vaccines.
- Ice packs were effectively and routinely “conditioned” prior to use in vaccine carriers.
- Appropriate actions were taken in the event that refrigerator temperatures moved out of the correct range.



Another concern was that health workers have difficulty understanding the English-language expiry dates printed on vaccine vials. This could result in incorrect use of expired vaccine—which might not protect the child—or premature disposal of vaccine that had not yet expired, resulting in unnecessary wastage. So PATH created a simple translation sheet designed to be adhered to vaccine carriers. Over 12,000 of these translation stickers have been distributed nationwide.

### **Increasing access to hepatitis B vaccine within 24 hours after birth**

Hepatitis B vaccine was first added to the national immunization program in 1997, but supply constraints limited availability to a small number of districts. Fortunately, over the past few years vaccine supplied by GAVI has enabled national introduction. Still, protecting newborns within a day after birth—when they are at high risk of mother-to-child infection—remains a daunting challenge because most commune health centers do not have refrigerators to store the vaccine.

PATH and NEPI decided to test a birth dosing system which has proven successful in other countries. Because hepatitis B vaccine is not highly heat sensitive, it can be kept at tropical room temperatures for up to one month. A pilot study in Thanh Hoa assessed storage of the vaccine this way, “out of the cold chain.”



*Because mothers know their children are at risk, they readily accept hepatitis B vaccination shortly after birth.*

Single-dose vials of vaccine with VVMs are collected from district cold stores twice a month, depending on the commune’s projected birth rates for that period. If there is no refrigerator in the health center, the vaccine is kept outside the cold chain for up to two weeks. Babies born in the centers are vaccinated there. And for the 20 percent of babies born in their homes (primarily in mountainous districts among ethnic minorities), midwives or parents notify the commune health worker about the birth immediately. The vaccinator then visits the home the next day.

Commune health staff are positive about the system for two reasons: they no longer have to travel to the district store to pick up vaccine every time a child is born, saving time and effort, and more children are being protected, more rapidly, than ever before. Families also appreciate the improved service. An evaluation of the strategy, including blood testing to confirm that the out of the cold chain vaccines effectively conferred protection, was conducted near the end of 2005. It documented a 37.3 percent increase in the percentage of infants vaccinated within 24 hours of birth after initiation of the “out of cold chain” strategy (from 45.3 percent to 82.6 percent), with no decrease in immune response.

### **Improving injection safety with needle removers**

Contaminated needles and syringes can pose a serious health problem in the community if they are not properly disposed of after use. Simple, hand-operated devices called needle removers or “defangers” quickly and cleanly separate needles from syringes, and secure the sharps in puncture-proof containers. They have made a significant difference in PATH projects in India. And needle removers offer benefits in addition to segregating dangerous sharps. They reduce the incidence of needle-stick injuries among health workers. So NEPI and PATH decided to assess the potential for using needle removers in Vietnam as well.



*Simple needle removers help health care workers at the commune level safely manage injection waste.*

A six-month pilot project was initiated in Ha Tinh from June to December, 2005. Ninety-eight injection providers in eight communes were trained to use needle removers immediately after providing injections. “Defanged” syringe barrels were tossed into standard EPI safety boxes, which were later burned and buried. The needles, collected safely in the base of the remover, were dumped into secure, underground safety pits.

Evaluation results at the end of the study period showed that:

- Of health workers surveyed, 93 percent approved of the needle removers and wanted to continue using them.
- They said that the devices were easy to operate, were safe, functioned well, and that using them did not take extra time.
- They felt that needle removers were an appropriate solution to the problem of sharps waste at the commune level.

One challenge for the future is to identify a sustainable source of needle removers. PATH and NEPI are looking into various options to meet the need.

### Behavior change communication for improved consumer compliance and demand

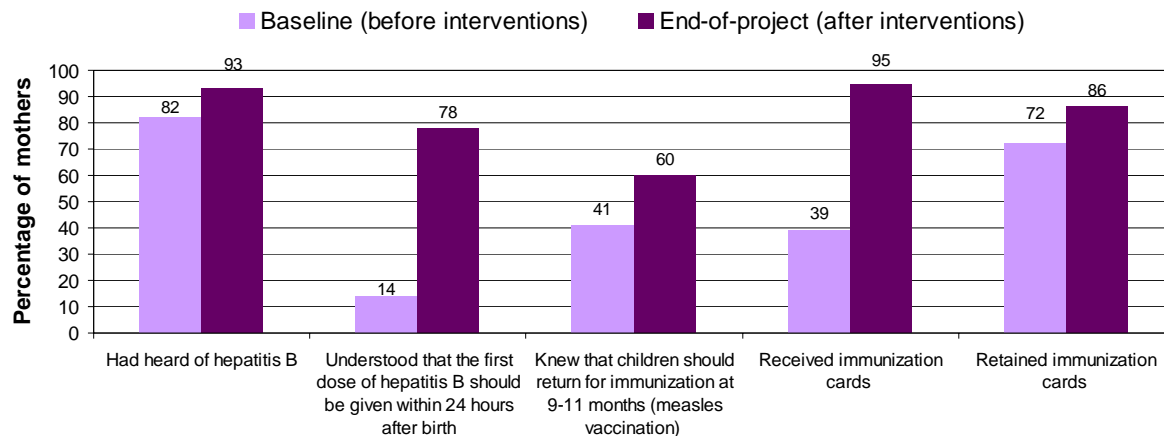
PATH and NEPI also have implemented extensive community education activities relating to immunization using a range of dynamic media strategies:

- Vietnam's leading TV channel broadcast a special immunization quiz program during their popular "Sunday at Home" show. Three families competed in front of a national audience. Vietnam TV also broadcast a series of immunization spots regularly for six months; then the ads were shared with local stations.
- The "Voice of Vietnam" radio station broadcast another quiz program—this time for national participation. Nearly 1,000 listeners submitted responses.
- Local radio spots were designed especially for H'mong and Giarai ethnic minorities living in remote and mountainous areas.
- Forty reporters were oriented on immunization issues and new NEPI-PATH initiatives.
- Numerous articles were placed in local and national newspapers during the project period. Topics included neonatal tetanus, hepatitis B birth dosing, measles and rubella campaigns, immunization rumors and misinformation, and the importance of community support for polio eradication.
- The infant immunization card was redesigned with more information and an easier-to-use format. Special media messages were developed to motivate mothers to carefully retain the cards and bring them to the next immunization session.
- District officials organized advocacy meetings with local leaders and community mobilization meetings with village women.
- Illustrated flip charts were created for use by facilitators during community meetings.
- PATH and NEPI designed posters, pamphlets, cassette tapes, and radio and TV spots explaining the importance of hepatitis B birth dosing.



*First prize in the TV quiz was a new refrigerator!*

These communication interventions seem to have created a significant impact, as documented in the baseline and post-project evaluation results below.



## Field evaluation of a rapid hepatitis B surface antigen test

NEPI was interested in evaluating the effectiveness of its hepatitis B program—but how? The World Health Organization (WHO) recommends measuring reductions in hepatitis B surface antigen (HBsAg), but serology surveys are logistically difficult, expensive, and unpopular at the community level.

Instead, PATH and the national immunization program decided to evaluate the ease of use and accuracy of the Abbott Determine HBsAg “quick test” in a field setting. The study demonstrated that the test has very good sensitivity and excellent specificity when used to assess HBsAg rates in the field, so it can be used to evaluate hepatitis B vaccination programs simply and economically. These findings have important implications for Vietnam and for other countries as well. For example, based on the Vietnam findings, in March 2006 the Cambodian National Immunization Program used the “quick test” to assess HBsAg rates in their country.

## A productive, satisfying, and long-term relationship

PATH’s first projects with the Vietnamese government began in the 1980s, focusing on contraceptive supply and technology transfer for local contraceptive manufacture. Since then we have had many different kinds of collaboration, with the immunization partnership described in this paper being one of the most extensive. While that project has come to an end, new opportunities have arisen, such as our innovative project with the National Institute of Hygiene and Epidemiology (NIHE), NEPI, and others to assess the most effective ways of immunizing teenage girls against cervical cancer, using the new HPV vaccines.

*“I have always been impressed with the close working relationship between PATH and NEPI. It is not always that way in these kinds of Ministry of Health-foreign partnerships. PATH is at our side, working shoulder-to-shoulder with us. And not only at the national level, PATH also is there with our staff in the field.”*

*Dr. Nguyen Van Cuong, NEPI*

*“Often in international partnerships we are constrained by inflexible, multi-year plans. With PATH we also plan, but usually there is more flexibility—we are able to respond to changing situations and adjust our course as necessary. This is a big benefit.”*

*Associate Professor Dr. Do Si Hien, NEPI*

One era ends and another begins....

For more information:

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PATH is an international, nonprofit organization that creates sustainable, culturally relevant solutions, enabling communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, PATH helps provide appropriate health technologies and vital strategies that change the way people think and act. For more information, visit [www.path.org](http://www.path.org).

This project was supported by the Bill & Melinda Gates Foundation.

Photo credits: Philippe Blanc, except the needle remover courtesy of Dr. Huong Vu and the TV quiz show courtesy of VTV3.



## **Key accomplishments in Vietnam**

### **Updating vaccinator skills and knowledge**

- A total of 215 senior staff were trained as core immunization trainers with a focus on modern training methods. A total of 6,916 health workers received refresher training.
- Eighteen medical university professors and 82 teachers from secondary medical schools also were trained.
- A development day for continuing education has been added to every quarterly EPI meeting.
- PATH and NEPI adapted, translated, printed, and distributed 16,000 copies of the 2004 update of WHO's *Immunization in Practice* modules.

### **Developing more effective supervisory systems**

- A supportive supervision strategy was developed and implemented, first in five low-performing, mountainous districts. Since then the successful system has been expanded to the entire province and may go nationwide.
- UNICEF has asked NEPI to help national nutrition programs integrate the system.

### **Ensuring vaccine potency and reducing wastage**

- Freeze studies identified failures in appropriate cold chain management. Staff training and increased monitoring have mitigated the problems.
- Supervisors added cold chain topics to their field visit checklists.
- A simple translation card on each vaccine carrier helps non-English speakers accurately interpret vaccine expiry dates. The program distributed 2,000 sets of “no freeze” job aids.

### **Increasing access to hepatitis B vaccine within 24 hours after birth**

- Taking hepatitis B vaccine out of the cold chain has increased access to hepatitis B vaccine very early in life—even for those born at home. Health workers and families applaud the system.
- Birth doses given within 24 hours increased 37.3 percent as a result of the new system.

### **Improving syringe safety with needle removers**

- EPI staff welcomed use of needle removers to increase safety.

### **Behavior change communication for improved consumer compliance**

- A special EPI quiz show was broadcast on Vietnam's leading TV channel during their popular “Sunday at Home” show. Vietnam TV also broadcast a series of immunization spots regularly for six months; then the ads were shared with local stations.
- An EPI quiz for the general public was broadcast over the “Voice of Vietnam” national radio station. Local radio spots were designed for ethnic minorities living in remote areas.
- The infant immunization card was redesigned with more information and in an easier-to-use format.
- Advocacy meetings were held with community leaders at all levels and community mobilization meetings were organized with village women. District officials organized advocacy meetings with local leaders and community mobilization meetings with village women.
- PATH and NEPI designed posters, pamphlets, flipcharts, cassette tapes, and radio and TV spots explaining the importance of hepatitis B birth dosing.

### **Technical assistance to NEPI**

- PATH assisted with the national EPI review, financial sustainability planning, and support for the national Interagency Coordinating Committee.

## **PATH immunization publications**

These documents are available from [www.path.org](http://www.path.org)

Most are available in both English and French; some are available in Spanish and Russian as well.

Use the site search engine to locate titles of interest

(or click on the titles below if you are reading an electronic version).

### **Advocacy for immunization**

- *The Case for Childhood Immunization*
- *Fragile Lives—Immunization at Risk (film)*
- *Childhood Immunization: A Worthwhile Investment (PowerPoint show)*
- *Advocacy for Immunization*
- *Childhood Immunization: What You Need To Know (for parents)*
- *Hepatitis B Vaccine Introduction: Lessons Learned in Advocacy, Communication and Training*
- *Realizing the Full Potential of Childhood Immunization: How Health Professionals Can Make a Difference*
- *Helping Young People Become Youth Advocates for Immunization*

### **Immunization management and training**

- *Immunizing Children Against Hepatitis B*
- *Immunizing Children Against Haemophilus influenzae Type B*
- *Immunizing Children Against Japanese Encephalitis*
- *Immunization and Child Health Materials Development Guide*
- *Preventing Vaccine Freezing in the Cold Chain*
- *Guidelines for Supportive Supervision*
- *Training Vaccinators in a Time of Change*
- *Advanced Immunization Management (AIM) e-learning modules*

### **Injection safety**

- *Giving Safe Injections*
- *Proper Handling and Disposal of Auto-Disable Syringes and Safety Boxes*
- *Designing Safe Syringe Disposal Systems for Immunization Services*
- *Using Uniject™ to Increase the Safety and Effectiveness of Hepatitis B Immunization*
- *Unsafe Injections, Fatal Infections*
- *Practical, Local Solutions for Safely Managing Contaminated Syringes and Other Medical Waste*
- *Technologies for Vaccine Delivery in the 21st Century*
- *Perceptions About Injections and Private Sector Injection Practices in Central Nepal*
- *Immunization Injection Safety in Nepal*

### **Other papers describing PATH's immunization solutions**

- *Andhra Pradesh—Building a Model Immunization System*
- *Cambodia—Coverage Improvement Planning Pays Off*
- *Senegal—Changing the Face of Immunization in West Africa*
- *PATH's Children's Vaccine Program—Increasing Coverage, Improving Safety, Expanding Protection*