CELEBRATE LIFE!
VACCINATION IS PROTECTION
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Nearly 36 million children are born every year in the WHO South-East Asia Region, accounting for one quarter of all births globally. Every newborn and child, wherever they live, and to whatever community they belong, has a right to access the life-saving benefits vaccines bring, and the long term protection they confer. The WHO South-East Asia Region is committed to strengthening immunization systems to protect and promote health throughout the lifecourse, and to achieve three of its eight Flagship Priorities: accelerating reductions in maternal, neonatal and under five mortality, eliminating measles and rubella, and achieving universal health coverage.

The Region has in recent years made substantial progress. Today, more than 32 million infants are fully immunized annually. More than 90% of the population has access to vaccines. The Region has maintained its polio-free status for almost 10 years, and polio immunization and surveillance performance continue to remain high. All countries have maintained the elimination of maternal and neonatal tetanus and most are implementing post-elimination sustainability plans. By mid-2020 four countries had controlled hepatitis B through immunization, five had eliminated measles, and six had controlled rubella. The Region is committed to ensuring all women and girls have access to the HPV vaccine, which is crucial to protecting against cervical cancer.

The Region’s achievements and its ongoing progress are an immense source of pride for WHO and its Member States and are testament to the commitment and hard work of health leaders, doctors, nurses and millions of health workers and volunteers supporting immunization programmes. The stories contained herein provide a snapshot of the perseverance, patience and dedication that made this progress possible, and which will help maintain it as we respond to COVID-19 together while ensuring essential health services are operational and accessible to all.

The ongoing efforts of millions of health workers – including Krishna and Rekha from India, Razia and Shaina from Bangladesh, and Sinta from Nepal, whose work is documented in these pages – will be critical to supporting community health in these challenging times. For many communities, health workers and volunteers responsible for immunization are the most trusted sources of health information. They are effective communicators and understand community concerns. They can reach the unreached and underserved. They often have detailed knowledge of a patient’s health history. We must continue to harness the Region’s immunization infrastructure, both routine and supplementary, to advance the health and wellbeing of all, and to strengthen the emergency response.

WHO and its Member States remain committed to achieving the Region’s Flagship Priorities, contributing towards WHO’s “triple billion” targets, and advancing progress towards the Sustainable Development Goal targets. Immunization is one of the most cost-effective ways for us to achieve these objectives, and to make immediate and lasting gains for the health of individuals, communities and countries. Our vision is of a South-East Asia Region free of vaccine-preventable diseases, where all people have equitable access to high-quality, safe, efficacious and affordable vaccines and immunization services. Together we must make that vision a reality, and maintain our winning trajectory.

Dr Poonam Khetrapal Singh
Regional Director

FOREWORD
Health workers in the South-East Asia Region are on the front lines delivering immunization and other essential health services. Our joint success combating vaccine-preventable diseases is a result of your work.

The health workers depicted here in Celebrate Life! Vaccination is Protection embody the unswerving commitment of health workers everywhere.

We all depend upon you at some point in our lives, but too often we take your commitment for granted.

Your dedication, passion and courage deserve our deepest gratitude and admiration.

Your service to people and communities saves countless lives and makes a difference every minute of every day. This is especially true now as we tackle the COVID-19 pandemic.

We vow to work with you and support you to end the pandemic, and continue in our quest to achieve a world in which all peoples attain the highest possible level of health.
BANGLADESH
A NEWBORN TRAGEDY
NEVER TO BE REPEATED
FARDIN

Fardin stares right at you. He looks intensely ready for the world. Dark hair frames his tiny face, and a blanket of pink, yellow and white cradles his new body. His pudgy hand reaches to a single delicate thumb. His mother’s. Jesmin.

Fardin came into the world on October 10, 2018. He was born at his grandparent’s house in Gazipur district, a semi-rural area just north of Dhaka. When he was born, the person helping Jesmin to deliver cut Fardin’s umbilical cord with a shaving blade.

“He was very well, very normal,” says Jesmin.

Little Fardin died on October 21, 2018—eleven days after his birth. He died suffering violent convulsions that thrust his body into a backward arch, a locked jaw he couldn’t open to feed, and fever. He succumbed to neonatal tetanus.

Jesmin clutches his photograph. It’s the only one she has. Then she looks away, and wipes the tears forming in the corners of her eyes.

This tragedy isn’t only Fardin’s death. It is that his death could have been prevented.

Fardin is the rare newborn to die of neonatal tetanus in Bangladesh. The disease was eliminated from the country in mothers and newborns in 2008.
TETANUS

Tetanus is an acute infectious disease caused by the spores of the bacterium Clostridium tetani. The bacterium lives in the everyday environment – in soil and ash, in rusted tools, nails or barbed wire, on human skin, in the intestinal tract, in human feces, and in manure. A person can be infected when the bacterium enters the body, normally through a cut in the skin. The disease can affect anyone but is particularly common and serious in newborn babies and in pregnant women who haven’t been immunized with tetanus toxoid vaccine.

Bangladesh’s success in eliminating what is known as “MNT” – maternal and neonatal tetanus – is largely due to a country policy that recommends women of childbearing age be vaccinated at least five times with a tetanus toxoid-containing vaccine between ages 15 and 49, and to the efforts of health workers who see that policy through in every community.

This tragedy isn’t only Fardin’s death. It is that his death could have been prevented.

Razia Sultana, a health assistant, prepares a tetanus toxoid-containing vaccine. The young woman waiting is meant to receive five doses of this vaccine between the age of 15 and 49.
HIGH COVERAGE

Down a leafy pathway in Boktarpur village, seven young women sit on a bench in a small community centre, listening to Razia Sultana, their health worker. She explains the role vaccines play to protect them and their future babies.

“What is tetanus?” Razia asks. One woman responds using her body, mimicking the rigour of the whole-body spasm typical of tetanus disease. The other women nod—they also knew the grim answer.

After the conversation, these women will be vaccinated against tetanus. For some it will be the second or third time as young women. They are on track to protecting themselves and their future newborns against the disease. They are like most Bangladeshi women—WHO and UNICEF estimate that 98% of newborns are protected from tetanus at birth.

“I enjoy and love this work,” says Razia, who at 30, isn’t much older than some of the women present. “I’m protecting my community. I’m helping them.”

The women trust Razia, but they don’t love the injection. The tetanus toxoid vaccine is given by intramuscular injection—meaning, the needle penetrates, for just a second or two, deep into the muscle. Afterwards, the spot may be tender to the touch. A woman may feel nauseous, be tired or have joint pain for a few days. For some, that pain seems too much. A 2016 study for example, showed that about four in ten rural Bangladeshi women feared the tetanus toxoid vaccine.¹

Jesmin was one of them.

JESMIN’S STORY – FROM DESPAIR TO NEW LIFE

Jesmin Akter was 17 when she married her husband, Samin Mohammed, four years her senior. He drives a rickshaw and she stays at home.

Jesmin’s mother is also a housewife, and her father is paralysed and can’t work. Jesmin says she never received any vaccinations, even as a child. She has a grade six education. She says she loves to watch movies when she has free time, especially Hindi movies.

Jesmin became pregnant shortly after she and Samin Mohammed were married. She went for two antenatal visits, where a pregnant woman is typically weighed, blood pressure is taken, supplements such as iron and folic acid may be given, and tetanus toxoid vaccine would be recommended.

“I didn’t have any of the tetanus vaccinations,” she says. When asked why, she says she was afraid they would cause pain.

Her friends were vaccinated, she explains. But she was scared. And because antenatal visits indicated that the baby was healthy, she went for just two visits, and not the four recommended by health workers.

She felt unwell with the pregnancy – typical symptoms such as nausea and fatigue – and decided to travel back to her parents’ house in a different village where she remained for the pregnancy.

And it was at their house that little Fardin was born on October 10, 2018, healthy and well. There was no skilled birth attendant present, which is typical for about four in ten Bangladeshi women.2

Fardin was well until he was six days old. On the seventh day, Jesmin says he began to have a fever. His body convulsed and he couldn’t suckle. His condition worsened. And then began a nightmare of trying to get medical care.

Her family took him to a local hospital, but Jesmin says there was a strike, and no doctors were present. The family travelled to a children’s hospital, but there were no beds available. They returned to the parent’s home, where Fardin only

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became sicker. They then went to a private hospital, which admitted Fardin in the intensive care unit for one day. On the way home from that hospital, little Fardin died.

Jesmin cries as she tells this story. The health worker sitting with her, Shaina Sultana, tears up as well.

After all, seeing the photograph of this tiny baby, hearing Jesmin’s desperate story, her sorrow, and knowing that simple vaccination would have prevented all of this—well you can’t help but cry.

It’s difficult to say if Fardin was infected with tetanus from the razor blade used to cut his umbilical cord, or through some other route. Without proper care, the umbilical cord is a dangerous route of infection of tetanus and other pathogens. A study of 520 women in rural Bangladesh showed that 42% of births involved unclean cord care.3 This can include use of unsterilized instruments to cut the cord, applying nonhygienic substances (such as mustard oil or ash) and hand washing without soap. As an unskilled person brought Fardin into the world, any of these things could have happened.

But one thing is sure, if Jesmin had been protected with tetanus toxoid vaccine, Fardin wouldn’t have been infected. And while she went only twice for antenatal care, Jesmin’s health worker might have spent more time talking with Jesmin, to convince her that tetanus vaccine was safe and essential to her newborn’s health.

Jesmin is a priority to us. We will stay with her so she and her baby remain healthy.

THE GOOD NEWS

Here’s the good news. Jesmin became pregnant again. When we met with her in late August 2019 she was eight months along and feeling good. She was staying with her husband’s family and had regular antenatal care. She was up to date with her tetanus toxoid vaccinations. The health worker, Shaina Sultana, assured Jesmin she and the entire community health team would be with her every step of the way through delivery of her new baby.

“Jesmin is a priority to us,” explained Shaina. “We will stay with her so she and her baby remain healthy.” And they did.

On October 21st 2019 at about 3 pm Jesmin gave birth to a baby girl at the Kaliganj Upazila Health Complex. There were complications at the last stage of her pregnancy – Jesmin’s waters broke early and the amniotic fluid became too low – so doctors performed a caesarean.

And now, Jesmin and Samin have a healthy new daughter. She weighed 2.8 kilos at birth and has beautiful bright eyes. Jesmin and Samin named her Sumi.
Jesmin’s story is atypical in Bangladesh. WHO and UNICEF estimate that the overwhelming number of newborns (98%) are considered protected at birth from tetanus.

The number of newborns dying of tetanus has declined 95%, from an estimated 29,000 in 1990, to 700 in 2015. This is excellent progress, though behind every newborn death is the tragedy of potential unreached and tremendous loss and pain for a family.

Bangladesh eliminated maternal and neonatal tetanus in 2008 – an important public health achievement. This means that in every district of Bangladesh, no more than one baby in 1,000 born suffers tetanus. The country continues to show impressive results with high coverage of at least two doses of tetanus toxoid vaccine.

We must thank Jesmin for telling her story. She relived a terrible experience so that we can all be reminded to do better for mothers and their newborns in the future.

Expectant parents should attend antenatal care eight times, ideally, and this should be available within easy travel distance. Health workers need the tools – including the tetanus vaccines and the communication skills – to ensure pregnant women and their newborns are protected from tetanus. Women should ideally deliver in well-equipped health centres that provide quality care; and at the very least, with a skilled birth attendant at home.

It’s up to a country’s health sector, and ultimately government and its development partners to ensure women like Jesmin can have safe deliveries every time, with newborns like Sumi, who thrive.

A MISSION TO REACH EVERYONE WITH IMMUNIZATION

INDIA
MISSION

The two women, Krishna in red, and Rekha in pink walk with purpose. One carries a phone, the other a list. These community health workers are on a mission to find Renu – a young mother who has newly arrived in Nadi neighbourhood in Badshahpur village. She’s one of about 45,000 people who move in and out of Badshahpur for work.

Badshahpur is in Gurugram district in Haryana State, and borders New Delhi’s south-west. It’s known for “Cyber City” – a series of modern buildings hosting Fortune 500 companies, luxury car dealerships and condominiums housing India’s ever-growing middle class.

This area is different. Here, a searing sun reflects off the roofs of dozens of low tin sheds. Only a few tall trees provide shade. New construction surrounds this shanty village — the skeletons of high rises emerging from former farms and village squares.

Dr Bindu Yadav gestures to the tin sheds. “The people who live here are the workers who build the high rises.” They arrive with their families from all over India. New construction sites and new communities spring up all the time.

“Many weren’t on any map,” says Dr Bindu, a Surveillance Medical Officer for the WHO’s India Office. “They may be here for months or years. You never know for sure.”

“It’s these people we have to work very hard to reach with primary health services including immunization,” she says. “It’s not easy, but the health teams are doing it.”

Krishna and Rekha make their way through a construction worker community to remind a mother to bring her children for immunization.
Labourers work to straighten rebar at one of the many building sites in Badshahpur. While the men work, women are generally home with the children in shanty communities. People come from all over India to work here and may stay just a few months.

Up a dusty road, the community health workers have found Renu. She lives in a tin shed that doubles as a shop selling snacks and basic provisions. She emerges from the house carrying Raza – her baby boy of eight months.

The women chat. Renu explains that she’s recently arrived from the state of Uttar Pradesh and that she and her family travel back and forth between states regularly, depending on where her husband finds work. The community health workers ask Renu about Raza’s immunization record. They tell Renu not to worry too much if she doesn’t have his record – they would understand given how much she travels. But Renu dashes back into the house, and within moments she is back with the record. It shows that Raza is up to date with all his vaccines.

Krishna reminds Renu to bring him to an immunization session at nine months, when he’ll be vaccinated against measles and rubella. Renu says she knows – she’ll be sure to be there, and she thanks Krishna for the reminder.

A few years ago, very few children like Raza would have been up to date on their vaccines. A survey of Gurugram district in 2015 showed fewer than one in four children had received all scheduled vaccines.\(^5\)

Now, more than 80% are fully vaccinated – a huge increase. Dr Bindu attributes the success to “Mission Indradhanush” – a painstaking effort that has put these transient families on the map for primary health services.

COMMUNITY HEALTH WORKERS
MAKING A CONNECTION

Mission Indradhanush translates as “Mission Rainbow”. Encouraged by India’s massive success eliminating polio, the Prime Minister launched the plan in 2014, aiming to fully immunize 90% of India’s young children. In October of 2017 an “Intensified” Mission Indradhanush (IMI) was launched, doubling the effort to reach the ambitious immunization goal in 201 high-risk districts in particular.

“A major issue was missing children who lived in migrant families,” explains Dr Rashmi Batra, a dental surgeon who oversees the work at the Badshahpur Primary Health Centre. She’s responsible for about 67,000 people who live year-round in the area – together with the additional 45,000 migrant workers who come and go here as well.

Their children can be overlooked by a system that traditionally planned services for the “fixed” population.

“Here in Badshahpur we worked for days on end, through Sundays and holidays, to map out the migrant worker communities,” says Dr Batra.

The team mapped new or previously left-out communities. They talked to workers and labour foremen. Community workers including ASHAs and Anganwandi workers went door to door to conduct a head count survey of every person living in the household. The government added compensation for their work and included financial incentives for the surveys and for ensuring children were fully immunized.

Krishna, an Accredited Social Health Activist (ASHA) talks with Renu about her son Raza’s immunization record.
Health workers have reliable access to all the commodities they need – vaccines, oral rehydration salts, vitamin A, weigh scales, iron and folic acid supplements for pregnant women. They also provide paracetamol routinely and instruct parents to give children tablets if they run a fever – a fairly common occurrence after vaccination.

“For these migrant labour communities, missing one day of work is one day of lost wages, so families wouldn’t bring their children for immunization for fear of them getting sick afterwards,” explains Dr Bindu. “Paracetamol is one way to help stem this fear.”

So is basic awareness. A survey published in the British Medical Journal showed that about 45% of parents who didn’t immunize their children in India were simply unaware of immunization services.

Mission Indradhanush included communication in the programming so that people were more likely to hear about immunization on the radio or on community billboards. The actor Amitabh Bachchan, whose image is inimitably linked to polio eradication and immunization, lent his picture and messages to posters and advertisement for routine immunization.

Encouraged by India’s massive success eliminating polio, the Prime Minister launched Mission Indradhanush in 2014.

INTENSE ACTION LEADS TO LONG-TERM BENEFITS

Mission Indradhanush was initiated as a push to map communities and intensify immunization sessions for those people who were missing out. In Gurugram district, the outcome result is dramatic. A coverage evaluation survey of the Intensified Mission Indradhanush in Gurugram shows that coverage increased from just 23.6% of children in the district to 83.8% by December 2018. This is a 60% increase – one of the most striking results in all of India.

The short-term impact of the campaign is the protection of children and women against vaccine-preventable disease, and healthier pregnancies for women. In the longer term, a key change is the inclusion of communities that were once neglected onto the routine immunization outreach schedule.

“Here in Badshahpur we had 74 regular vaccination sites before,” explains Dr Batra. “Now we’ve added 63 sites into our regular outreach.” That’s 63 new sites where community members can attend regularly scheduled outreach services where there were none before. “The fact these services are regularly scheduled helps a lot,” says Dr Batra. “People know they can count on us.”

Under the shade of the few tall trees in this Badshahpur community, mothers and children are gathering for immunization services. An auxiliary nurse midwife records their information into her register while her colleague prepares the vaccines.

INTENSIFIED MISSION INDRADHANUSH COVERAGE EVALUATION SURVEY 2018, MINISTRY OF HEALTH AND FAMILY WELFARE, GOVERNMENT OF INDIA. JANUARY 1, 2019.
Little Karishini should be fully vaccinated by now, but according to Sushanti, she’s had just the tuberculosis vaccine (known as BCG) and maybe one dose of pentavalent vaccine containing diphtheria, tetanus, pertussis, hepatitis B and *Haemophilus influenzae* type B vaccine. She should have had three by 14 weeks of age. Today, she’ll have several different vaccine doses including another pentavalent injection, oral polio vaccine and one to protect her from measles and rubella, together with a small spoon of vitamin A to boost her immunity.

Karishini isn’t thrilled to be receiving so many shots at once, but once it’s all over, she brightens and smiles together with her mother.

“People coming and going are hard to track,” says Dr Bindu of WHO. “Thanks to the ASHA we knew about Sushanti and her baby. And thanks to Mission Indradhanush, we know about this community.

“People will come and go here, but we will come back and offer services to anyone living here whether for a few weeks, months or years.”

Thanks to the ASHA we knew about Sushanti and her baby. And thanks to Mission Indradhanush, we know about this community.
NEPAL
TOWARDS MEASLES ELIMINATION
"When I trained as a paediatrician, we would go to the local hospital to study measles," says Professor Dr Shrijana Shrestha. "There were always children with measles in the wards."

Today, Professor Dr Shrestha, a paediatrician and professor in Kathmandu, says her students learn about measles from textbooks. "They’ve seen photos of children with measles, but no actual cases."

Her colleague, Professor Dr Imran Ansari, says he can’t remember the last time Patan Hospital, where he is the Medical Director, admitted a child with confirmed measles. "It may be years," he says. "There have been children with fever and rash and we report those, but none have been confirmed measles."

Downstairs in the Patan Hospital paediatric screening area sits Sparshika, a 15-month old reason for Nepal’s growing success against measles. Young Sparshika’s mother, Radhika, reviews her daughter’s vaccination history with a nurse. Sparshika is up to date with her vaccinations, and today it’s time for her second dose of measles-rubella vaccine.

Radhika carries Sparshika to queue at the vaccination room. Rows of parents and children wait on benches outside, while the nurse in the room works efficiently to attend to each child. In Nepal, the demand for vaccination is high.

"Nepalis know how important vaccines are," says Professor Dr Shrestha. "During the conflict period in the mid-1990s, immunization services continued. Everyone knew the population would be unhappy if vaccination was stopped."

**MEASLES USED TO BE COMMON IN NEPAL**
Sparshika sits on her mother’s knee as her mother and a nurse review vaccine records. She’s 15 months old and will receive a 2nd dose of measles-rubella vaccine.

Measles, which can travel through the air on infected droplets from person to person, is one of the most infectious viruses on the planet. One person with measles could infect up to 18 other people if they weren’t already immune.

The virus can also be deadly for young children, particularly those who are malnourished or have weaker immune systems. Globally, measles and its complications killed about 545,000 people – mostly young children – in 2000.

Since then, measles vaccination has prevented more than 21 million deaths globally.4

The measles vaccine is very effective. One dose confers at least 85% immunity. With two doses, almost 100% of children are fully protected. Because the virus is so infectious, achieving high coverage with that second dose of measles vaccine is critical to ‘eliminate’ measles – to reduce measles cases to zero in any given country. The WHO South-East Asia Region has committed to eliminating measles by 2023. Nepal is working towards this goal.

In 2003, more than 5,000 Nepali children became sick with measles. At that time, measles vaccine coverage was about 75% and no second dose was given – far from the 95% coverage required with two doses of measles vaccine.

Nepal introduced a 2nd dose of measles-

containing vaccine into its regular schedule in 2015. When a vaccine is in the official schedule, it’s offered across the country free-of-charge.

In 2018, just 260 cases of measles were confirmed in Nepal – representing a massive drop in cases, putting measles elimination in clear view.

“Not only do we rarely see measles cases here in the hospital,” says Professor Dr Ansari, “we don’t see the longer-term complications either.” “We have more resources to treat children for other conditions.”

And there’s more. Nepal introduced rubella vaccine as part of a combined measles-rubella or “MR” vaccine in 2013 in its routine immunization programme and carried out a wide age range campaign in the same year. Rubella generally causes a mild illness – but if a pregnant woman is infected, it can cause serious issues for the baby developing in the womb. Rubella infection of a pregnant mother can lead to miscarriage or stillbirth, and lifelong ear, eye and heart conditions for the newborn.

Through vaccination, Nepal has now officially ‘controlled’ rubella, meaning rubella cases have dropped by more than 95% in 2017 as compared to 2008. There were only 34 cases in the entire country in 2018.
Nepal isn’t a very large country – it’s under 1,000 kilometres long, around 200 kilometres wide from north to south and has a population of about 29 million people. It’s also not a rich country and is considered one of 47 “least developed.”

Yet Nepal prioritises primary health care for its citizens, including immunization. Through the Immunization Act, vaccines are free to all Nepalis.

The Himalayan nation also has some of the least accessible terrain in the world. Thousands of villages – some with just a few households – are perched up and down Nepal’s valleys and mountains, connected by steep, narrow footpaths.

Under Nepali health policy, each of those villages is meant to be fully immunized. Achieving “Fully Immunized” status is a kind of pact between the community, the government and the health workers to reach every child with all vaccines.

About twenty kilometres outside of sprawling Kathmandu city, the terrain changes, and one needs a sturdy vehicle to reach the villages that hopscotch up and down the hills. It’s August and the fields are bright green.

Inside the Tathali health post, mothers, grandmothers, a few fathers, big sisters and babies listen as the senior health worker tells them about the benefits of vaccination and answers their questions.

Today senior health leaders from the Federal Ministry of Health and Population are present as well, together with senior ward health and political leaders. They each take turns to speak, congratulating the local health workers and community for using the primary health services, including vaccinating their children. It’s well-deserved praise.
Sarita Thapa is a driver of this success. She’s one of more than 50,000 women across the country connecting her community to the health system.

*Tathali has the distinction of being the first village in the Kathmandu valley to have achieved “Fully Immunized” village development committee status. That means every infant has had every vaccine offered by Nepal’s public health programme.

Sarita Thapa is a driver of this success. She’s a “Female Community Health Volunteer” – instantly recognizable in Nepal with her bright double-blue sari. She’s one of more than 50,000 women across the country connecting her community to the health system. They’ve been called the backbone of the health system, the “Florence Nightingales of Nepal.”

“I wanted to be a nurse,” Sarita explains. “But I started a family early and put my further education on hold. I still wanted to serve the children of my community.”

Sarita could certainly still be a nurse. She knows her job inside and out – from the details of supporting women to have healthy pregnancies, to ensuring their children receive the care which helps them thrive.

She keeps a close eye on every baby born in her community. She helps to monitor their growth, provides supplements like vitamin A, gives counsel if they become sick, and reminds parents when to take children for immunization.

Sarita Thapa says she remembers measles from when she was a child but doesn’t see cases anymore. “I know it’s very dangerous,” she says. “So, when I see a child with fever and rash, I report that to the health unit.”

Sarita remembers the measles from when she was young. “I didn’t know what it was then, but I know now it’s very dangerous for children.” She doesn’t see it anymore – but like Dr Imran, the paediatrician in Kathmandu, she reports every time she sees a child who has fever and a rash – the marker for measles. This reporting helps to ensure that any potential measles case is investigated, and samples are taken for laboratory confirmation.

She talks about her role helping her community, Tathali, to demonstrate it was “Fully Immunized.” Normally, she volunteers about three hours a day – already substantial for a volunteer job. “Sometimes I spent three and four days just searching for one person.” She says her hard work paid off. Tathali was recognized in 2017 as having immunized all its children with all the vaccines in the national immunization scheme and Sarita says, “it was well worth it.”

Inside the Tathali vaccination room, Hem Lama prepares a vaccine as baby Sabin Magar look on. He’s careful and slow with each child – waiting for them to settle before administering a second vaccine. “I love my job,” he says. “I love serving my community.”

It’s this kind of passion for the work from volunteers and health workers that will keep Nepal moving towards measles elimination.

The WHO South-East Asia Region has committed to eliminate measles by 2023.
AN UNEVEN PATH

There is still some hard work to do. Coverage with the first dose of measles vaccine is at 90% or above in Nepal for several years in a row, barring a dip in the year after the devastating earthquake in 2015. However, the 2nd dose coverage sits just below 70%. Nepal has been working through a major change to its state and municipal administration – decentralising funds and responsibility to a newer system of local self-governance through urban and rural municipalities. The country is working to match the new administrative system with oversight and delivery of health services including immunization.

The measles virus will resurge wherever there are children insufficiently immunized in the world – whether in North America, Europe or South Asia. Raising measles vaccine coverage to over 95% will guard against outbreaks, wherever they originate.

Sarita Thapa, a Female Community Health Volunteer, holds a child who lives in Tathali. “I want to serve the children of my community,” she says. One way to do this is ensure parents know when to take the child for immunization.
Radhika holds Sparshika’s immunization card. With her second dose of measles-rubella vaccine, Sparshika’s childhood vaccinations are complete.

**A PROMISING FUTURE**

Back at Patan Hospital in Kathmandu, 15-month-old Sparshika receives her second measles-rubella vaccine. Like most toddlers, she wasn’t terribly happy about the injection itself, but her mood improves, and she is smiling again moments after.

Her mother, Radhika is happy too, as Sparshika had completed all of her routine childhood vaccinations. She’s protected against diseases like measles that used to result in child illness and death in Nepal.

By the time Sparshika is an adult, measles may be a distant memory in the country.

Kamala Poudel and her baby Bipina share a moment as nurse Hem Lama prepares a vaccine for her, putting Bipina on the road to becoming fully immunized.
HEPATITIS B: FROM ‘HYPER-ENDEMIC’ TO NATIONAL CONTROL

THAILAND
Yupawan Siri can’t stop looking at her new baby. Sitting on the porch of her home in the Thai countryside, she cradles him and gazes into his little face. Her husband, Boonjun Kimklang is also smitten and reaches to stroke the baby’s smooth cheek. Just two-months-old, Thanakorn is peaceful and sleeping.

“Thanakorn is very healthy,” says Yupawan. “He was born in hospital at full-term, and was a healthy weight,” she says. “And, he’s had all of his vaccinations so far, including, of course, for hepatitis B.”

In previous years, little Thanakorn would have been at high-risk of hepatitis B infection as his mother, Yupawan, is a hepatitis B carrier.

Hepatitis B is a viral disease spread through the blood – whether from mother to newborn, unsafe injections, or wounds. It can lead to immediate illness – but the most dangerous aspect of hepatitis B is the long-term damage it can do to the liver. A person may be chronically infected with hepatitis B for decades and find out only when it’s too late – once they have liver cirrhosis or cancer. An infected newborn has a 95% chance of developing a chronic infection.

Globally, WHO estimates about 257 million people have a chronic hepatitis B infection. The resulting liver disease kills about 887,000 people every year. In the WHO South-East Asia Region, about 39 million people are chronically infected. Most people don’t know they have the virus.
When I learned I had hepatitis B before my first child was born I was so worried. But the doctor told me everything would be ok.

**YUPAWAN KNEW**

Yupawan is 28 years old and grew up in Saraburi Province, about two hours north of Bangkok. She works in one of the many manufacturing plants in the province as a quality control specialist in a company that makes hard drives for computers. About nine years ago, she learned of her hepatitis B status when she was first pregnant, through pre-natal screening for hepatitis B at the local health centre.

“When I learned I had hepatitis B before my first child was born, I was so worried,” explains Yupawan. “But the doctor told me everything would be ok – that my baby would just need one extra dose of hepatitis B vaccine at birth, and he would be protected.”

Chronic hepatitis B infection is becoming increasingly rare in Thailand – a huge shift in a country where the viral infection used to be “hyper-endemic.”
A study in 1986 estimated that about five million Thais – from 5 to 10% – were chronic hepatitis B carriers. Liver cancer, a common longer-term outcome of hepatitis B infection, was the most frequent cancer in men and third most common in women. Three of four babies born to mothers who were hepatitis B carriers were likely to be infected by three months of age. This perinatal transmission, from mother to newborn, was the most common route of transmission of the virus.

These grim statistics started to turn around just a few years later, when Thailand began to immunize all babies against hepatitis B, including a timely ‘birth dose’ for newborns.

“We started with a pilot project in two provinces in 1988,” explains Professor Yong Poovarawan – a lead hepatitis B virologist in Thailand. “This expanded nationally in 1992. By 1999 we were vaccinating about 95% of newborns in this country. We’ve sustained that high coverage ever since.”

Dr Poovarawan is rightly pleased as he shows data from studies after 1992. His research led to a refinement of the hepatitis B vaccination schedule and included breakthrough long-term studies of vaccine efficacy for the same people over the course of twenty years. He also led research that demonstrated a sharp decline in hepatitis B infection amongst those who had been immunized.

“In 1999 we showed that after the vaccine had been introduced universally in Thailand, just 0.7% of children were infected with hepatitis B, compared with 3.4% before vaccination.”

**THAI RESEARCH GETS RESULTS**

Professor Yong Poovarawan is a leading hepatitis B vaccine expert. His research has shaped hepatitis B vaccine policy in Thailand and helped to inform global evidence.

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This means that Thailand has controlled hepatitis B for many years. The World Health Organization defines control as recording one percent or less of children aged five or above infected with the virus, demonstrated through a blood survey.

In 2014, the most recent blood survey in Thailand showed that fewer than one percent of people under twenty years of age were hepatitis B carriers – demonstrating that universal vaccination had been successful for at least twenty years.\(^1\)

On 26 July 2019, the WHO South-East Asia regional office verified Thailand’s achievement, together with that of Bangladesh, Bhutan and Nepal.

“Unwavering determination to reach every child, everywhere, every time has resulted in hepatitis B control in Thailand.” said Dr Poonam Khetaopal Singh, the WHO South-East Asia Regional Director.

Dr Singh went on to praise health workers for their efforts to reach every mother and child.

Professor Dr Kulkanya Chokephaibulkit talks with Aoithip and Akachai, after examining their baby Nattanitcha. Her mother, Aoithip is a hepatitis B carrier but the baby will be completely protected from infection thanks to vaccination.

Indeed, backed by the right policies, the vaccines and other tools they require health workers are on the front lines of hepatitis B control.

In Thailand, one effective strategy is screening every pregnant woman for hepatitis B, whether they live in the countryside or the city.

At the Siriraj hospital in Bangkok – Thailand’s oldest and one of the largest – we’re shown the entire journey of controlling hepatitis B, from screening and counseling of pregnant women, to giving that all-important birth dose of hepatitis B vaccine, following up to ensure full vaccination of the child, and care for any mothers who may have hepatitis B.

In the paediatric ward, Professor Dr Kulkanya Chokephaibulkit presses a stethoscope to the tiny chest of Nattanitcha Thongaram as her father holds her. The little girl, now several weeks old, is doing very well. Her vital signs are all normal, she is feeding and gaining weight just as she should.

Her mother, Aoithip Phiromnoy, wouldn’t expect any less. She trusts her doctor. Like Yupawan from north of Bangkok, Aoithip is also a hepatitis B carrier. They share the same experience of learning this during screening of their first pregnancy.
Baby Nattanitcha cries a little after receiving her second dose of hepatitis B vaccine, and she stops moments later as nurses swaddle her and pass her to father.

“When I first found out twelve years ago I was shocked,” says Aorithip. “I cried. I was so worried I would pass the virus onto the baby,” she continues. “But the doctor told me not to worry. The vaccine would protect the baby.”

And like her first child, Nattanitcha also received a birth dose of hepatitis B vaccine. She’s here at hospital today to receive her second dose. Three doses will give her full protection against hepatitis B for at least twenty years, and probably for life.

Professor Dr Chokephaibuikit, an expert on pediatric infectious disease, talks with Aorithip’s husband, Akachai. She explains that his blood tests show he has no immunity against hepatitis B, and recommends he be vaccinated as well on the same day as his baby. Akachai agrees. “I’m not worried at all,” he says. “I trust the doctor’s advice.”

And so baby Nattanitcha receives her vaccine. She cries with the prick of the needle, and then calms quickly as the nurses swaddle her in soft blankets. It’s Akachai’s turn. He smiles through it all and moments later is cradling his baby again.

The doctor told me not to worry. The vaccine would protect the baby.
Now that Thailand has controlled hepatitis B in children, the next step for the country, and other countries of the WHO South-East Asia Region, is to eliminate hepatitis B – a global goal for 2030.

Vaccination with three or more doses is the best way to prevent the disease. But other measures, including ensuring blood safety and providing safe injections for drug users is also important. Another elimination strategy is universal testing of adults who may be at risk – rapid diagnostic tests are now inexpensive and can be administered almost anywhere. Hepatitis B can also be treated with affordable antivirals that stop the virus from replicating in the blood. Some countries are starting to take these measures. India, for example, has announced plans to mass test and treat both hepatitis B and C.

Still sleeping on the front porch in leafy Khaeng Koi district north of Bangkok, baby Thanakorn may be dreaming. As it begins to rain, his dad, Boonjun, jumps up to pick clothes off the line – a dozen pastel bibs and sleepers, all lovingly washed by Thanakorn’s mother, Yupawan.

He won’t remember the nurses who were there for him just after he was born, the concerns about Hepatitis B, or the prick of the vaccine needle providing that all-important birth dose. He’ll simply grow, learn to crawl, then to walk and talk, ride a bike, and play with his friends.

When asked what she’d like Thanakorn to do when he’s older, Yupawan replies: “anything he wants.”

NEXT: ELIMINATION

Boonjun (in orange), Yupawan (green) and their baby Thanakorn, together with Jumnian Leusak, the nurse who will give Thanakorn his future vaccinations as per Thailand’s immunization schedule.
Countries are committed to a world where everyone, everywhere, at every age fully benefits from vaccines for good health and well-being.

Immunization Agenda 2030. Leave no one behind.