

Focus on Asia

H i b F o c u s s p e c i a l i s s u e

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Note from the director

It has been a remarkable summer and the future looks much brighter for Hib vaccine. A total of 14 additional countries will be introducing Hib-containing vaccine this year, thus increasing the total number of GAVI eligible countries that have introduced the vaccine to 45, and promising to make 2010 a year where the significant impact of these vaccines on bacterial meningitis and pneumonia will be observed worldwide.

Though many of the recent introductions took place in the African continent, a significant progress has been observed in Asia as well, with many GAVI eligible countries recently making a decision to introduce Hib vaccine. So far, four countries in South and South-East Asia have introduced Hib-containing vaccine and two more are expected to introduce by the end of the year. The recent recommendation by the Government of India to include Hib and pneumococcal vaccines in the Universal Immunisation Programme (UIP) has truly made this a remarkable year, and increased dramatically the numbers of children who will have access to these life-saving vaccines in developing countries.

To celebrate the progress in Asia, this issue of our newsletter focuses on Asia, to inform our readers on the variety of recent activities ongoing in these countries for prevention of pneumonia and meningitis and adoption of appropriate vaccines.



Rana Hajjeh
Director of the Hib Initiative

New vaccines for India

Infants in India will have access to vaccines considered by child health experts to be a key preventive measure against the two leading causes of severe and fatal childhood pneumonia and meningitis—Haemophilus influenzae type b (Hib) and S. pneumoniae (pneumococcus).

For a country with over 27 million births each year, the largest birth cohort worldwide, these life-saving vaccines are a major step toward preventing childhood diseases that

cause over 200,000 deaths a year in India. The recommendation to adopt Hib and pneumococcal vaccines places India in a better position for achieving Millennium Development Goal 4: reduce by two-thirds the under-five mortality rate by 2015.



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In June 2008, the National Technical Advisory Group on Immunization (NTAGI) recommended to the Government of India the expedited introduction of Hib-containing pentavalent vaccine in order to combat the childhood disease known as Hib, a life-threatening and debilitating disease that causes pneumonia and meningitis in children under 5. In addition, a phased introduction of pneumococcal vaccine was recommended to begin in 2010.

The Ministry of Health and Family Welfare formed NTAGI in 2001 to advise the Government on policies, practices and implementation of the Universal Immunization Programme (UIP), the country's national immunization program.

The NTAGI has representation from a wide range of child health and immunization experts including the Ministry of Health and Family Welfare, state departments, national organizations on child health policy and research, professional medical organizations and individual child health experts.

The NTAGI concluded that there was sufficient evidence to warrant the immediate introduction of pentavalent vaccine to all children with the goal of national coverage prior to 2012. The government is working closely with partners to make introduction a reality beginning in 2009. The introduction of liquid pentavalent vaccine is planned to begin in the first 10 states that have already introduced Hepatitis B vaccine.

This recommendation comes after due deliberation of the evidence by a subcommittee of NTAGI who reviewed data on global, regional and local disease burden due to Hib. Mortality and morbidity data, the number of cases of Hib and life-long disabilities caused by Hib pneumonia and meningitis, are important in terms of cost effectiveness and the positive impact of Hib vaccine introduction on the health care system. The subcommittee reviewed data showing the efficacy of Hib vaccine (>95%) in diverse populations and the benefit due to herd immunity, possible even with relatively low immunization coverage.

It is estimated that Hib and pneumococcus cause over 200,000 deaths of Indian children every year.

Hib vaccine has been used in private practice by Indian pediatricians for over ten years. And it was approximately 10 years ago that the Indian Academy of Pediatrics issued a

recommendation to the government for the inclusion of Hib vaccine into the UIP. In recent years, both pediatricians and other child health experts in India have advocated for national use of Hib vaccine.

Pediatrics ER at Christian Medical College



Hospital, Vellore, India

Both supply of Hib-containing vaccine and purchase from Indian manufacturers have been issues important to the decision and planning introduction of new vaccines. Purchase through GAVI requires WHO pre-qualification of vaccines that cost U.S. 0.30 cents per dose compared to prices in the private market which are reported as \$US8-10 for Hib monovalent. It was important news when earlier this year the World Health Organization pre-qualified two Hib-containing pentavalent vaccines manufactured by Indian pharmaceutical companies. Pre-qualification enables UN agencies, such as UNICEF, to procure the vaccine for the global market. This brings the world's demand for Hib vaccine to the doors of Indian vaccine manufacturers and impacts the supply situation that is a consideration for implementation of Hib vaccine in India. These and other important issues were considered by NTAGI including data that show the safety and immunogenicity of locally manufactured Hib vaccines.

In addition to the recommendation for Hib vaccine, NTAGI has advised the Indian government on the importance of pneumococcal vaccine for India. Both Hib and pneumococcus (*Streptococcus pneumoniae*) are the leading causes of severe and fatal

pneumonia and meningitis in Indian children under 5. According to estimates, about 140,000 children die in India every year due to severe pneumonia and meningitis caused by *S. pneumoniae* bacteria. In order to evaluate the impact of pneumococcal vaccine and working with the reality that India's needs would likely far outpace supply of pneumococcal vaccines until emerging suppliers enter the market after 2015, NTAGI recommended a phased introduction of pneumococcal vaccine to begin in 2010, starting with a pilot in one state. The Government of India has tasked a committee to review necessary changes to the UIP including available resources, cold chain needs and training of health care workers. The introduction of pentavalent vaccine may impact the UIP system favorably in that it is a one-shot vaccination. Just one shot provides immunization against DTP-HepB-Hib (diphtheria, tetanus, pertussis, Hepatitis B and Hib) antigens.

With consideration of expertise from a range of child health specialists in India, the Indian government has made a difficult, yet critical recommendation toward the improvement of the health and welfare of the entire nation but particularly for the infants who do not have a voice in their own survival.

Interest in the recommendations in India has been increasing. Although Government of India has declined to make an official announcement, the press has been very interested, generating both positive and negative media fuelled by the anti-vaccine lobby. Although it has been challenging to not respond to every negative media report, we have found that education efforts on the part of experts and partners within India and only selected responses on an as-needed basis to specific claims have not hampered any support of new vaccination programs and could in fact lead to strengthened interest in vaccines as the recognition of the

value of vaccines increases. In-depth media about the serious threat of pneumonia and meningitis and need for prevention as well as advocacy efforts and publication of NTAGI's recommendations are already underway. Watch future issues of Hib Focus for updates.

Photo credit: Walidah Willoughby, the Hib Initiative, 2008

EPI managers meeting in South-East Asia

EPI programme managers and immunization partners came together for the WHO South East Asia Regional Meeting in Kathmandu, Nepal, August 20 – 22, 2008.

EPI program managers from 11 South East Asia Region (SEARO) countries, as well as partners representing UNICEF, USAID, CDC, GAVI, Hib Initiative, PneumoADIP, PATH (to name a few) were in attendance.

The objectives of the 3-day meeting were to share country status and experiences on a wide range of topics, including: reaching the millions unreached with routine immunization; experiences with vaccine introduction and lessons learned; strengthening immunization systems; eradication/elimination/control of vaccine preventable diseases; and monitoring and evaluation. A special panel discussion on "building partnership" was held with the various donors to get their feedback on how to best foster partnership and what partners' expectations are. There was also a breakout group work session with the various countries to work on measles and rubella surveillance guidelines. The final day included a session on updates from the GAVI supported projects. One of

the memorable highlights of the meeting was a dinner organized by the WHO Nepal office, complete with a lovely traditional Nepali dinner, folk dancing, as well as entertainment provided by all the meeting participants.

Pentavalent – a preferred combination

Recent country introductions of Hib-containing vaccines in Asia: Solomon Islands, Papua New Guinea, Sri Lanka and Mongolia (countrywide) as well as impending introductions in Pakistan and Kiribati.

A number of GAVI-eligible countries in Asia have or will be revising their national immunization program to include Hib vaccine, including Solomon Islands and Papua New Guinea (PNG). Mongolia, who partially introduced in 2005, expanded vaccine use nationwide in January 2008. Pakistan and Kiribati plan to introduce Hib vaccine within the next few months.

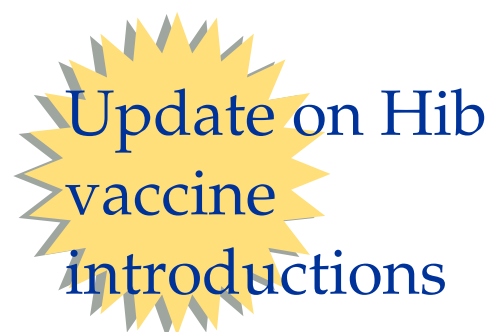
For the first time, the Solomon Islands began inoculating its young children against Hib. The government made the decision to include the pentavalent vaccine into the country's national immunization programme and on August 1 began vaccinations with a "one shot" vaccine. The pentavalent vaccine gives children protection against diphtheria, tetanus, pertussis, hepatitis B and Hib all in one shot so that children do not have to make additional visits to complete their immunization schedule.

In April, PNG introduced tetravalent vaccine (DTP-Hib) and has plans to switch to pentavalent vaccine in 2009. In a statement to the GAVI Alliance, the Acting Director of Health

Improvement in PNG, Dr. Bill Lagani said about the decision to adopt the vaccine,

"We became convinced of the efficacy and cost-effectiveness of the Hib vaccine after reviewing promising data from countries where the vaccine had been introduced, as well as studies of Hib incidence in Indonesia and within PNG. Vaccines such as this one are vital in helping us meet our commitment to protect our nation's most important resource—our children."

In Pakistan an estimated 23,000 children die each year from Hib. With technical and financial support from the government and international agencies working in the health sector, the Ministry of Health has made a commitment to improve immunization services throughout Pakistan with service delivery strengthening and adoption of new vaccines. Health care workers have been undergoing training for the introduction of the pentavalent vaccine and it is expected that immunizations using pentavalent vaccine will begin in September.



This year, seven countries have introduced Hib vaccine with Mongolia expanding their 2005 introduction countrywide this year. Fourteen more countries are expected to introduce by the end of the year. In addition, nine countries are on track for introduction in 2009. It is anticipated that 8 countries will introduce by 2010: Bhutan, India, Indonesia, Kyrgyzstan, Lao, Sao Tome

& Principe, Uzbekistan and Vietnam. Of the 72 low-income countries (eligible for GAVI co-financing support), 62 countries have or will have introduced by 2010.

New introductions 2008

Liberia
Papua New Guinea
Solomon Islands
Sri Lanka
Sudan (Northern)
Togo
Zimbabwe

Expected 2008

Central African Republic
Chad
Republic of Congo
Cote d'Ivoire
Eritrea
Guinea
Guinea Bissau
Kiribati
Lesotho
Madagascar
Moldova
Niger
Pakistan
Tajikistan

Expected 2009

Afghanistan
Bangladesh
Cameroon
Comoros
DR Congo
Mauritania
Mozambique
Nepal
Tanzania

Advocacy in action

The Hib Initiative and PneumoADIP have collaborated to provide support and training to child health experts from low-income countries to further advocacy efforts towards the prevention of childhood pneumonia.

Training workshops have brought together child health experts and activists to sharpen their advocacy skills with the objective of creating awareness about the leading causes of childhood pneumonia. In addition, sessions included methods to engage and mobilize policy makers to identify and implement priority activities to reduce pneumonia mortality. Additionally, a small grants program has further enabled advocates to design and implement advocacy activities.

Workshops were conducted in Tanzania and Indonesia to bring together a total of 48 child health experts and activists. Participants came from Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Nigeria, Tanzania, Uganda and Zimbabwe; and from the Asia region from Bangladesh, Cambodia, China, Indonesia, Nepal, Pakistan, Philippines and Vietnam.

Through group work discussion and presentations participants developed shared visions, customized messages and materials for specific audiences and created action plans in addition to discussing the benefits of enlisting champions and importance of forging strategic partnerships. Through this process of sharpening advocacy skills and providing support for activities, these agents for change are better prepared to plan activities and mobilize others to advocate for pneumonia prevention leading to better sustainability in policy decisions.



Workshop participants in Tanzania and Indonesia

The small grants program, made available to participants of the advocacy workshops, has awarded funds to 10 advocates. Activities range from face-to-face meetings with high-level ministry of health officers to informational sessions with pediatric staff at hospitals. Meetings and workshops have been conducted with ministry of health, international NGOs and the medical community to build collaboration across the public and private sectors. The media has provided a channel for creating awareness and informing the general population about the causes, treatment and prevention of childhood pneumonia.

The advocacy work has taken form in other innovative and creative ways. Pediatricians were interviewed on two popular television health programs. An e-course on causes and interventions was offered to health professionals through cable television. Newspaper opinion editorials by and interviews with child health experts have been published in local papers. Material—posters and flyers—have been designed to provide “quick facts on pneumonia prevention” to medical staff and their clients, disseminated at hospitals and in grand rounds seminars, material that supports informational sessions conducted for the same audiences.



ADVOCACY IN CAMBODIA

An advocacy plan has been designed to increase knowledge and awareness among health professionals, policy makers and donors on the burden of pneumonia, interventions available for reducing deaths, and costs and feasibility for each intervention. Experts will present local data and international experiences on pneumonia prevention at a two-day seminar that will include ministry of health, programme managers and medical professionals. A half-day seminar will be held with local NGOs and funding agencies to reach a common understanding on interventions to how to best support the government toward these goals.

ADVOCACY IN NIGERIA

Advocacy activities will take different approaches towards two primary goals: focus on national and state health officials to increase awareness of the leading causes of pneumonia in order to advocate for an increase in health care financing and for the inclusion of new vaccines (Hib and pneumococcal) in the national immunization programme. Child health experts will conduct a seminar for ministry officials and the medical community. The Nigerian press will be invited to cover the event and given the opportunity to conduct interviews with participants of the seminar. Members of the seminar will issue a communiqué that will be hand delivered to the Ministry of Health. Other activities include presentations on pneumonia prevention and control at PANCONF 2009, a well-attended

annual international scientific conference of the Pediatric Association of Nigeria. In addition, opinion editorials will be placed in local newspapers to inform a wider audience and to bring attention to the successes of countries in the region on the impact of Hib vaccine.

IN THE PRESS

Media advocacy is being used by child health activists to create awareness on the important issues regarding pneumonia prevention. The following are examples of press generated by advocates that attended the Hib Initiative-PneumoADIP advocacy training workshops. These [news clippings](#) can be viewed from the Hib Initiative Web site. (<http://www.hibaction.org/hibactivities/advocates.php>)

“Pneumonia kills 2 million children yearly” newspaper article with quotes from Dr. Adegoke Falade (This Day, Nigeria, August 18, 2008)

“Pneumonia – the forgotten top child killer” newspaper article with quotes from Dr. Eric Wobudeya (The New Vision, Uganda, August 17, 2008)

“Children of a lesser God” newspaper article on the child mortality rate in Pakistan and interview (page 4) with Dr. Anita Zaidi (Dawn Sci-tech World, Pakistan, July 26, 2008)

“Pneumonia: Indonesia’s forgotten child killer” opinion editorial by Dr. Sri Rezeki S. Hadinegoro (The Jakarta Post, Indonesia, July 3, 2008)

“We must work to protect children from infectious diseases” opinion editorial by Niklas Danielsson, Chan Theary and Hong Rathmony (Cambodia Daily, June 17, 2008)

“Vaccine successful in eliminating deadly disease in Uganda” opinion editorial by Dr. A. G. Falade (Sunday Sun, Nigeria, May 4, 2008)

“Hib vaccine: wakeup call to

Nigeria” opinion editorial by Dr. Adegoke Falade (Nigerian Tribune, April 11, 2008)

“Towards enhanced vaccination” opinion editorial by Dr. Adegoke Falade (This Day, Nigeria, April 4, 2008)

New resources

On www.HibAction.org



New and updated materials are continually being added to the Hib Initiative’s Web site. Some of the new or updated information that is currently being highlighted includes:

[Frequently Asked Questions \(FAQ\)](#)

about Hib disease and vaccines provides concise information in a question and answer format. The FAQ can be used as a resource for countries developing material for introduction of Hib vaccine as well as used in advocacy presentations, information packets or press kits. The FAQ discusses a range of topics including basic information about Hib pneumonia and meningitis, symptoms and diagnosis as well as information on vaccines, formulations and vaccine effectiveness and safety. Questions on vaccine financing, decision making and burden of disease are also discussed.

[Advocacy in action](#) (reviewed in a separate article on page 4) gives a description of the activities conducted by child health experts and activists

from 18 countries. These advocates for the prevention and control of pneumonia attended an advocacy training workshop conducted by the Hib Initiative in collaboration with PneumoADIP. The Web site will continually be updated with reports of activities, news clippings and photos as they become available.

Resources including factsheets and slide sets on a range of topics can be viewed or downloaded.

- Factsheets provide global and regional information on Hib disease and current research.
- Slides sets can be used “as is” or individual slides can be selected and added to your presentations.

Vaccine supply and finance section has been updated including information on the availability of pre-qualified Hib-containing pentavalent vaccines:

- [Global Vaccine Supply and Demand](#)
- [Hib-containing Vaccines: Products Currently Available and In Development](#)
- [Qualifying and Distributing Vaccines](#)
- [Demand Forecast Analysis](#)
- [Cost Effectiveness](#)
- [Financing through the GAVI Alliance](#)

Research and surveillance activities have been updated—click on the map to review R&S activities by region.

Activities – a new activities section offers current information on communication and advocacy activities as well as research activities.

The Abridged Adventures of Mathuram Santosham



Reliably modest about his wide-ranging academic and professional accomplishments, Mathuram Santosham, MD, MPH, of the Hib

Initiative's Executive Committee, is also famously fond of storytelling. For posterity's sake, we asked the Director of Hopkins's Center for American Indian Health to tell us about the fascinating journey he's taken from being a low-scoring student in Scotland to conducting groundbreaking research on Hib as a young Indian-born doctor in Apache country. The rest, as they say, is history.

Journeys over Himalayas in a Basket

When Mathu was five, his father was posted as a young diplomat in Kathmandu, Nepal. There was no direct flight. To join his family, Mathu, whose grandmother had delivered him into this world in Vellore, India, journeyed by train for two days from Delhi to Calcutta (now Kolkata), and took a bus through winding Himalayan cliffs to the Nepal border for an additional day. He was carried the rest of the way by Ghurkhas, in a basket. He remembers anxiously looking out from the basket, at the way down—way down. It was while shopping at outdoor markets in Nepal, a young Mathu gained insight into what would be his life's work. Regarding the local children, with visible malnutrition, skin infections and draining ears, his mother said, “one day you must become a children's doctor and treat these kids.” Dr. Santosham pledged to devote his life to pediatrics.

Considers a Carpentry Career

Dr. Santosham might not have made it to secondary school, much less med school, if it hadn't been for a Scottish teacher called Miss Grant. Boarding at a boys hostel and attending North Kelvinside Secondary School while his father was posted in Germany, Mathu had been playing catch up since being enrolled late in school—perhaps to make up for the journey-in-a-basket, his mother had let him stay home until he was 8. At 11, students in Scotland took a placement test to secure seats in either secondary school or vocational training. The brightest students received “S1” on a S1-S3 scale and advanced to high school; those who scored lower, from J1-J4, went on to learn a trade. When Mathu scored a “J3”, his headmaster suggested he become an auto mechanic or a carpenter. Miss Grant, Mathu's teacher, convinced the headmaster to appeal to the school board to allow Mathu to retake the exam. After she tutored him for a year he scored S3 and finished high school.

Bound for Baltimore

Fast-forwarding several years, Dr. Santosham was posted in a pediatric emergency room rotation as a medical student at Jawaharlal Institute of Post Graduate Medical Education and Research (JIPMER) at Madras University, of the Indian city now known as Chennai. Each day, he faced a room of small babies with diarrhea and vomiting. Aided by one nurse, he worked diligently to provide IV therapy. But with a limited supply of IV bottles and tubing, children died every day. Vowing to learn how to save more young lives, he took off in 1970 with a newly minted MBBS degree for Baltimore, Maryland. Since graduate programs in pediatrics were then rare in India, Dr. Santosham had accepted an internship at the now-defunct Church Home and Hospital, near Hopkins. Mathu found Church Home Hospital through an advertisement stated that they were a

teaching college affiliated with Johns Hopkins Hospital, just a “stone’s throw away.” But there was little teaching at Church Home. Foreign graduates were tasked with writing sleeping pill prescriptions. After applying for pediatric residency training at Johns Hopkins Hospital Mathu was told they didn’t take foreign graduates in their program. Fortunately for him, a private practitioner at Church Home referred him to Dr. Harold Harrison, who was the chief of pediatrics at the Baltimore City Hospital—known now as Bayview.

Helps Develop Life-Saving Rehydration Therapy

Dr. Harold Harrison was the world’s leading researcher on fluid and electrolyte therapy. During the 1st half of the 20th century, doctors believed that oral fluids should not be given to children with diarrhea; in fact, IV fluid the only available treatment until the 1970s. Contrary to these beliefs, Dr. Harold Harrison demonstrated that oral rehydration solutions (ORS) instead of IV therapy could be used safely in children with diarrhea. The therapy got a bad reputation after an American formula company decided to market ORS, dispensing it in powder form with an increased carbohydrate content to improve taste. Ironically, the resultant solution was hyperosmolar and aggravated diarrhea. To make matters worse, many parents added excessive amounts of ORS powder. Children died of the complications of hypernatremia, elevated sodium level in blood, or developed serious neurological sequelae. Thereafter, ORS use was discouraged by leading pediatricians in the USA. Later, in the 1970’s and 1980’s, Dr. Santosham and others conducted numerous studies in the US and in developing countries that demonstrated the efficacy and safety of ORS to treat diarrhea. In a recent interview, Dr. Santosham said “[Harrison] inspired me to work on oral rehydration therapy (ORT), which has literally saved millions of

lives around the world.”¹ ORS has been considered “potentially the most important medical discovery of the 20th century” and, thanks in large part to this recent research, now saves millions of children around the world from deaths due to diarrhea.

Travels to America’s West

Planning to work on ORT with a cholera-focused Hopkins project in Calcutta, India, Dr. Santosham changed plans when American-based projects were ejected from India after the US sided with Pakistan in 1971’s Indo-Pakistan war. Instead, he joined a Hopkins team studying diarrheal diseases using ORT in the Native American White Mountain Apache population of Arizona. He was shocked at the status of child health. “Children were dying of diarrhea, pneumonia and meningitis, just like in India and other developing countries,” he said. He remembers seeing five Hib cases, three of which were meningitis cases in a birth cohort of 200—at a rate 50 times higher than the national average. The tribal council told him they were aware of the high disease burden. They knew babies here had died or experienced paralysis or hearing loss as a result of infection. They asked for him to do something. This marked the beginning of Dr. Santosham’s long-term relationship with the tribe, which would lead to his founding of the Johns Hopkins Center for Indian American Health—and the beginning of his focus on Hib disease.

Becomes Healer to Native Americans

With a team of researchers and local community members, Dr. Santosham conducted a pivotal Hib vaccine trial in the mid-1980s. Navajo and Apache infants received a new conjugate Hib vaccine that linked the *Haemophilus influenzae* type b capsular polysaccharide to the outer membrane protein complex of *Neisseria meningitidis* B. The vaccine conferred 95% protection against Hib disease.² This trial established the efficacy of

conjugate vaccines that are now used worldwide.³

Passage Back to India

Come January, those swollen-bellied children Dr. Santosham remembers in Nepal will be a bit better off, having gotten the newly-introduced Hib vaccine with their routine immunizations. In fact, one could say Dr. Santosham’s career has now come full circle, now that the Indian-born, US-trained pediatrician has, with Hib, stepped up efforts to bring the US-tested conjugate Hib vaccine to all Indian children.⁴ “It’s been so gratifying to see this disease disappear due to widespread use of the vaccine,” he said about his work with the Hib Initiative. What’s next for Dr. Mathu Santosham? We couldn’t say, but it’s a safe bet there’ll be some good stories along the way.

¹ Kurzweil, Jenny. ‘International Science for a Global Community.’ SACNAS NEWS. Society for the Advancement of Chicanos and Native Americans in Science. 2006. Vol 9 No. 1

² M Santosham, M Wolff, R Reid, M Hohenboken, M Bateman, J Goepf, M Cortese, D Sack, J Hill, W Newcomer, and et al. The efficacy in Navajo infants of a conjugate vaccine consisting of *Haemophilus influenzae* type b polysaccharide and *Neisseria meningitidis* outer-membrane protein complex. Volume 324:1767-1772. June 20 1991.

³ Moulton LH, Chung S, Croll J, Reid R, Weatherholtz R, Santosham M. Estimation of the indirect effect of *Haemophilus influenzae* type b conjugate vaccine in an American Indian population Int. J. Epidemiol. 29: 753-756.

Hib Focus newsletter

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Please contact:

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Thanks

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Walidah Willoughby,
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Johns Hopkins Bloomberg School of
Public Health

The Hib Initiative unites experts from Johns Hopkins Bloomberg School of Public Health, the London School of Hygiene and Tropical Medicine, the U.S. Centers for Disease Control and Prevention and the World Health Organization to advance evidence-informed decision-making regarding the introduction and use of Hib vaccination in the developing world.