

VACCINES FOR ALL

Help save 4 million children's lives by 2015



Save the Children

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HELP SAVE 4 MILLION CHILDREN'S LIVES
BY 2015

Save the Children works in more than 120 countries. We save children's lives. We fight for their rights. We help them fulfil their potential.

This report was written by Becky Owens, with support from Kathryn Rawe, Advocacy Officer, and Simon Wright, Head of Health and HIV, at Save the Children UK. With thanks to staff at Save the Children UK: Kitty Arie, Lara Brearley, Nouria Brikci, Rica Garde, Louise Holly, Sarah Jacobs, Ishbel Matheson, David Mephram and Patrick Watt. Thanks also to GAVI for providing inputs to the report.

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Cover photo: Baby Pinki is given life-saving injections. Delhi, India
(Photo: Rachel Palmer/Save the Children)

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IMMUNISATION IN NUMBERS

£5

A CHILD CAN BE VACCINATED AGAINST FIVE DEADLY DISEASES FOR LESS THAN £5.

6x

A CHILD IN SIERRA LEONE WHO RECEIVES BASIC IMMUNISATIONS IS AT LEAST SIX TIMES LESS LIKELY TO DIE BEFORE THEIR FIFTH BIRTHDAY THAN A CHILD WITH NONE.

7,000

VACCINES ALREADY SAVE ABOUT 7,000 LIVES EVERY DAY.

2 million

A COMPREHENSIVE PACKAGE OF NEW AND EXISTING VACCINES COULD SAVE AN ADDITIONAL 2 MILLION CHILDREN'S LIVES A YEAR BY 2015.

4 million

IN ITS FIRST DECADE THE GLOBAL ALLIANCE FOR VACCINES AND IMMUNISATION (GAVI) VACCINATED 288 MILLION CHILDREN AND AVERTED 5 MILLION DEATHS. GAVI HAS AN AMBITIOUS FIVE-YEAR PLAN TO VACCINATE 243 MILLION CHILDREN AND SAVE 4 MILLION MORE LIVES BY 2015.

£2.3 billion

GAVI'S FUNDING NEEDS ARE £4.2 BILLION FOR THE NEXT FIVE YEARS, OF WHICH ONLY £1.9 BILLION IS ALREADY PLEDGED. GAVI URGENTLY NEEDS £2.3 BILLION (\$3.7 BILLION) FOR 2011–15, OF WHICH £1 BILLION IS NEEDED FOR 2011–13.

3x

A CHILD IN THE POOREST FIFTH OF THE WORLD POPULATION IS THREE TIMES LESS LIKELY TO BE VACCINATED THAN A CHILD IN THE RICHEST FIFTH AND TWICE AS LIKELY NOT TO SEE THEIR FIFTH BIRTHDAY.

1 in 5

CURRENTLY, FOUR OUT OF EVERY FIVE CHILDREN IN THE WORLD ARE GETTING THE MOST BASIC DPT3 IMMUNISATION – THREE DOSES OF A COMBINED VACCINE TO PROTECT AGAINST DIPHTHERIA, PERTUSSIS (WHOOPING COUGH) AND TETANUS. THIS IS THE HIGHEST RATE EVER ACHIEVED. BUT ONE-FIFTH OF THE WORLD'S CHILDREN – AROUND 24 MILLION – ARE STILL MISSING OUT ON LIFE-SAVING IMMUNISATIONS!

EXECUTIVE SUMMARY

World leaders can save 4 million more children's lives by 2015, by agreeing to fully fund an ambitious global vaccination plan.

The Global Alliance for Vaccines and Immunisation (GAVI) – a health initiative that brings together governments, international organisations and pharmaceutical companies – leads worldwide efforts to improve access to vaccines. It aims to immunise 243 million children and save 4 million more lives by 2015, but is currently facing a £2.3 billion (\$3.7bn) funding gap to achieve that aim.

On June 13, the UK government, already GAVI's largest government donor, is hosting a half-day pledging conference in London where governments and donors will come together to make financial commitments to fund GAVI's life-saving vaccine work. Save the Children is calling on all donors to seize the opportunity that the pledging conference presents to close the immunisation gap.

Immunising children is arguably the greatest health success story of the last century. Vaccines are one of the most efficient, successful and cost-effective tools for saving children's lives. A child in Sierra Leone who receives all the basic immunisations is at least six times more likely to make it to his or her fifth birthday than a child with none.

Vaccines already save the lives of around 2.5 million children every year but they have the potential to save many, many more. Nearly 2 million children still die from vaccine-preventable diseases each year – a quarter of the global child death toll.

GAVI has been identified by the UK government's Multilateral Aid Review as an efficient and cost-effective use of aid money. Since 2001, GAVI's work has enabled 288 million children to be vaccinated and has already averted 5 million deaths.

With the development of new vaccines for pneumonia and diarrhoea we are on the cusp of a significant breakthrough that could dramatically reduce the number of children who die before their fifth birthday. But if GAVI is not fully funded there is a danger that its vital vaccine work to introduce these new vaccines and expand existing ones will stall or be scaled back, putting children's lives at risk. Donors must acknowledge the make-or-break nature of this pledging conference and commit enough money to ensure that the true potential of vaccines is realised.

As well as ensuring GAVI gets all the funding it needs this June, Save the Children is calling on GAVI, its donors and partners to commit to action to address three additional priorities:

- to ensure that the poorest children currently bypassed by immunisation are prioritised and that no children are left behind
- to invest in frontline health workers and healthcare services that maximise the impact of vaccines
- to lower the prices for new vaccines so scarce aid goes further.

Addressing these concerns will allow GAVI's funding to be used effectively and ensure the most vulnerable children don't miss out on these life-saving vaccines.

First, almost one-fifth of infants – 24 million children under one – currently miss out on life-saving vaccinations. It is the poorest children in the poorest countries who are least likely to have been immunised, and those same children are at the highest risk of being exposed to life-threatening, vaccine-preventable diseases like measles and meningitis. Vaccine coverage rates vary dramatically between and within countries. In Chad, 77% of children miss out on routine immunisations. In Nigeria, a child from the poorest fifth of the population is nine times less likely to be vaccinated than a child in the richest fifth. Tackling this injustice must be a central part of GAVI's plan for 2011–15, and must guide action by its donors and partners.

Second, getting vaccines distributed to the poorest children is dependent on investing in frontline health workers and in healthcare services. Vaccines don't inject themselves. The vaccine drive must include providing sufficient numbers of nurses, doctors and midwives who are properly trained, remunerated, supported and deployed. This needs to be supported by broader investment in healthcare services in poorer countries. Putting a needle into a child's arm or a drop into a child's mouth is the last stage in a long process that involves health workers, health clinics and the right equipment to make it work. Donors must address the global shortage of 3.5 million health workers and ensure that their approach to increasing vaccination coverage includes a focus on building strong, well-staffed healthcare services.

GAVI's five-year plan includes specific pots of money for work to strengthen frontline healthcare services and train health workers. This includes the Health Systems Funding Platform, an initiative working alongside other health organisations to streamline donor support to countries. This part of GAVI's work focuses on improving healthcare services to reach more children, rather than simply increasing the supply of vaccines. It is therefore a key player in the drive to provide basic healthcare to the poorest children. However, this part of the budget is most at risk if the funding gap is not met.

Finally, the cost of vaccines must be reduced so that they are affordable enough to be included in countries' health budgets for the long term. New vaccines that help prevent the two biggest killers of children – pneumonia and diarrhoea – are now available for use in poor countries, but the price is too high for many countries. While donor money is helping speed up the introduction of pneumococcal and rotavirus vaccines, to be affordable and sustainable for poor countries in the long term, prices must fall. GAVI, its donors and vaccine manufacturers need to continue to work together to further reduce the prices of new and existing vaccines. It is essential that GAVI, donors and large manufacturers provide support and incentives to low-cost manufacturers, including vaccine producers outside the big pharmaceutical companies, as well as voluntary price reductions and bulk purchasing agreements. GAVI partners must explore new procurement approaches, such as direct negotiations between developing country governments and vaccine producers, longer-term contracts, and volume guarantees – proven strategies to lower prices and ensure companies stay in the market that serves the poorest children.

A major push on immunising millions of children and introducing new vaccines in the poorest countries will dramatically accelerate progress on the Millennium Development Goal to reduce child mortality by two-thirds by 2015. This June is one of the best chances world leaders have to achieve real change for children. No child should die from a disease that could have been prevented by immunisation. The opportunity for donors to provide GAVI with the money it needs to save 4 million more children's lives by 2015, and to commit to reach every child, to increase the global number of health workers, boost healthcare services, and bring down prices must not be squandered.

SAVE THE CHILDREN'S VACCINE WORK

Save the Children's vaccine work includes boosting routine immunisation in northern Nigeria, supporting the vaccine cold chain in Pakistan, and supplying motorbikes in Liberia and Mozambique for health workers to reach the poorest children in remote areas.

We fund and repair equipment for the vaccine cold chain – supplying batteries for solar panels and spare parts for fridges. We build, refurbish and support health clinics in the poorest and most remote areas where children come to be immunised. We help train health workers, who are the backbone of a health system, to deliver vaccines.

Save the Children India has been working to improve vaccine coverage in some of the poorest parts of India, where mobile clinics tour the slums of Delhi to provide life-saving primary healthcare.

Save the Children is a member of the Partnership for Reviving Routine Immunisation in Northern Nigeria, which involves government and health organisations, and is funded by the UK and Norway. The project has seen a six-fold increase in the number of children receiving three doses of the combined vaccine for diphtheria, pertussis (whooping cough) and tetanus – known as DPT3 – in the four states where the project works.

In Mozambique we are a partner in the Mamane project in four large remote districts, where there has been a 13% increase in DPT3/Hep3 coverage through cold chain repairs, improving health delivery systems to remote areas, and providing health worker training to reach the 'final fifth' of children with immunisation services.

From repairs to the fridges that store the vaccines, to training the health workers who deliver them, we are helping to bring life-saving vaccines to children around the world.



Nine-month-old Nikita is given life-saving vaccinations in a slum area of Delhi where Save the Children runs a mobile health clinic.

LIST OF ABBREVIATIONS

AMC	advance market commitment
BCG	Bacillus Calmette-Guerin (TB vaccine)
DPT3	diphtheria, pertussis and tetanus
DPT3/Hep3	diphtheria, pertussis and tetanus/hepatitis B
EC	European Commission
EPI	Expanded Programme of Immunisation
EU	European Union
GAVI	Global Alliance for Vaccines and Immunisation
GFATM	Global Fund against AIDS, Tuberculosis & Malaria
GNI	gross national income
GSK	GlaxoSmithKline
G8	Group of Eight
G20	Group of Twenty
Hib	Haemophilus influenzae type b
HPV	Human Papilloma Virus
IFF	International Finance Facility
IFFIm	International Finance Facility for Immunisation
IHP+	International Health Partnership and Related Initiatives
JE	Japanese Encephalitis
MDG	Millennium Development Goal
NGO	non-government organisation
OPV	oral polio vaccine
PAHO	Pan-American Health Organization
PCV	pneumococcal conjugate vaccine
R&D	research and development
RED	Reaching Every District
SFDA	State Food and Drug Administration
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization

THE POTENTIAL OF VACCINATION

Immunising children is arguably the greatest health success story of the last century. Every day the lives of 7,000 children are saved by vaccines.² Vaccination has a dramatic impact on a child's chance of survival. Analysis of statistics from Sierra Leone shows that a child who receives all his or her basic immunisations is at least six times more likely to survive than a child with none.³

Immunisation is one of the most effective and cost-effective health interventions available. For a small amount per dose, governments and donors can invest in giving children life-saving vaccines against some of the world's biggest killers, and help ensure they can grow up to fulfil their potential. A child can be vaccinated against five deadly diseases for less than £5.⁴

Smallpox, which at its height affected 50 million people and killed up to 30% of those infected, was officially eradicated in 1979 through vaccination.⁵

Thanks to vaccination, only four countries still have endemic polio; outbreaks of the disease have largely been stopped in Africa.⁶ There have been dramatic reductions in measles deaths because of mass immunisation programmes – child deaths have fallen by four-fifths from 750,000 in 2000 to just over 160,000 in 2008.⁷ Maternal and neonatal tetanus will soon be eliminated in 14 of 57 high-risk countries through successful vaccination programmes.⁸

But vaccines have the potential to save millions more children's lives. Of the more than 8 million children under five who died in 2009, 2 million of them died from vaccine-preventable diseases such as measles, pertussis (whooping cough) and certain causes of pneumonia and diarrhoea.

A comprehensive package of new and existing vaccines could save an additional 2 million children's lives a year by 2015.

Figure 1: Deaths of children under five, including newborn babies (up to one month old)

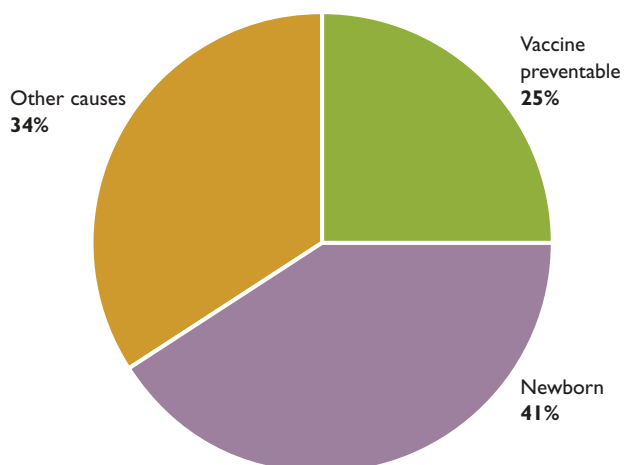


Figure 2: Deaths of children under five, excluding newborn babies

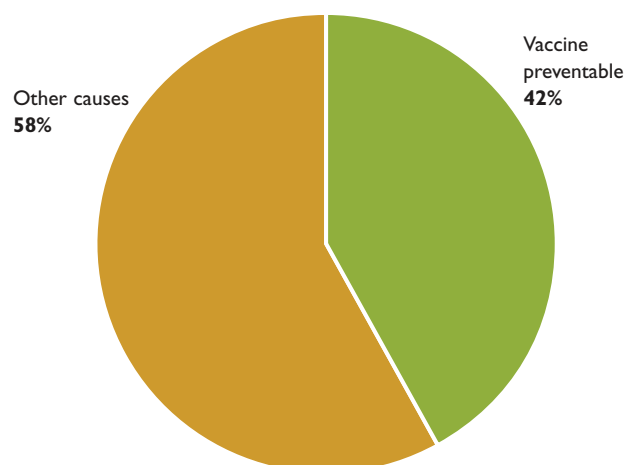
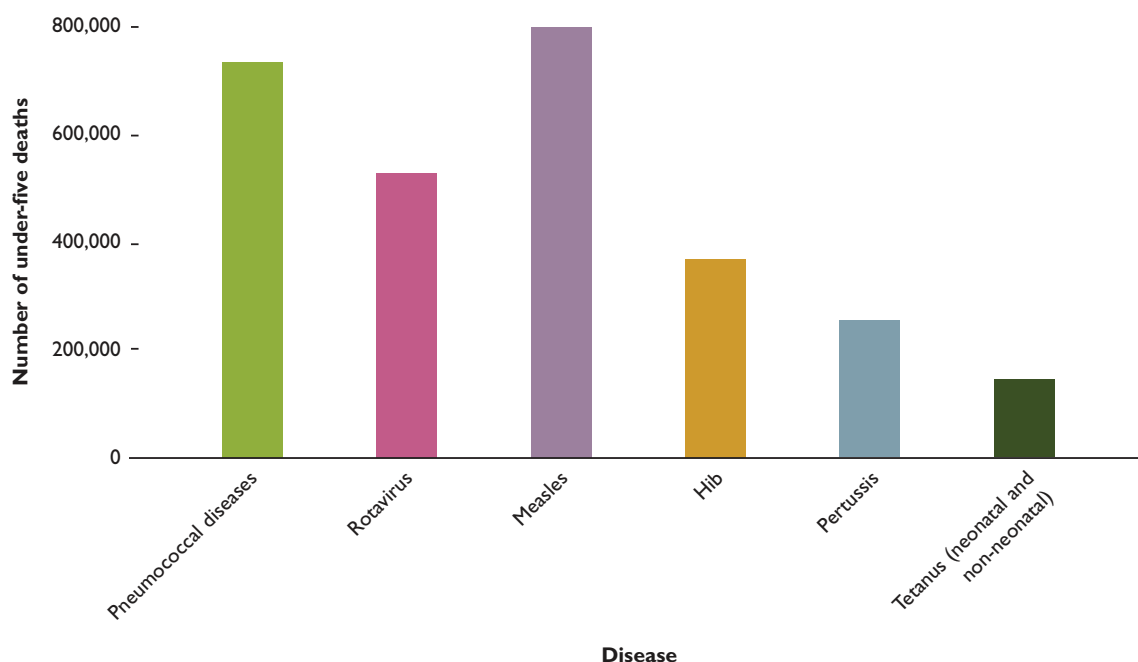


Figure 3: Leading causes of vaccine-preventable deaths in children under five years old



Source: GAVI (2011)

LOSS AND HOPE: ONE MOTHER'S STORY

"I had seven children, but four died and now I only have three," says Esperanza, from Angola. "The first two died of measles because they hadn't been given their vaccines. The second two died of malaria and loss of blood, because we had no mosquito nets in our home to protect them."

Now nine months pregnant, Esperanza attends a health clinic that has been supported by Save the Children and Reckitt Benckiser since 2006.

"During this pregnancy I've had all my vaccines and I go to the health clinic for a check-up every month," she says. "Now I know the importance of mosquito nets and vaccines. Now I know how I can protect my baby."

PHOTO: CAROLINE TRUTMANN/SAVE THE CHILDREN



The protection that vaccines give against easily preventable diseases is often the difference between life and death. As a key element of healthcare, immunisation is also the right of every child, which governments have a responsibility to uphold. The vast majority of funding for vaccination comes from national governments' budgets, but in the poorest countries financial and technical support from aid donors is critical to ensuring that children receive life-saving vaccines. A survey in April 2011 found that 91% of British people believe that every child has a right to be vaccinated.⁹

Important international commitments to immunisation have been made over the last four decades.¹⁰ In 1974, the World Health Organization introduced the expanded programme of immunisation (EPI), which set standards and gave clear guidance to countries on routine vaccination. It remains the cornerstone of global and national immunisation programmes today.¹¹ In the 1970s and 1980s, UNICEF ran its Child Survival Initiative¹² that was estimated to have saved 12 million children's lives by the end of the 1980s, and to have increased coverage of DPT3 – the combined vaccine against

WAR AND DISEASE: AMINATA'S STORY

During Sierra Leone's ten-year civil war, Aminata lost three children to diarrhoea and fever – conditions that could be easily treated with the right medicines. "During the war and we had no mosquito nets, no clinics and no medicine," she says. "That is why my children died."

Aminata now goes to a Save the Children-supported clinic where her two surviving children, Fatmata and James, have been immunised. "Before, there used to be a lot of measles, it was rampant and it killed a lot of children. But since the immunisations we have not experienced measles here," she says.



PHOTO: ANNA KARI

Table 1: A typical routine immunisation schedule (as set out in the World Health Organization's expanded programme of immunisation)

Vaccine	Diseases	Age
BCG	tuberculosis	At birth
DPT3	diphtheria, pertussis, tetanus	6, 10, 14 weeks
OPV	polio	At birth, 6, 10, 14 weeks
Measles	measles	9 months

diphtheria, pertussis and tetanus – from 20% to 75%.¹³ DPT3 is an important indicator of access to immunisation services, as it involves three doses over a period of time, thus requiring repeated contact with a health worker.

However, in the 1990s donors lost some of their enthusiasm for immunisation. Some of the major gains of the 1980s were reversed and immunisation

rates stagnated. DPT3 coverage fell to 71% by 1999.¹⁴ Funding and attention ebbed and flowed as a result of changing priorities of the government and institutional donors who funded vaccination programmes. This had inevitable consequences on child vaccination rates and meant many children died needlessly from vaccine-preventable diseases in this period.¹⁵

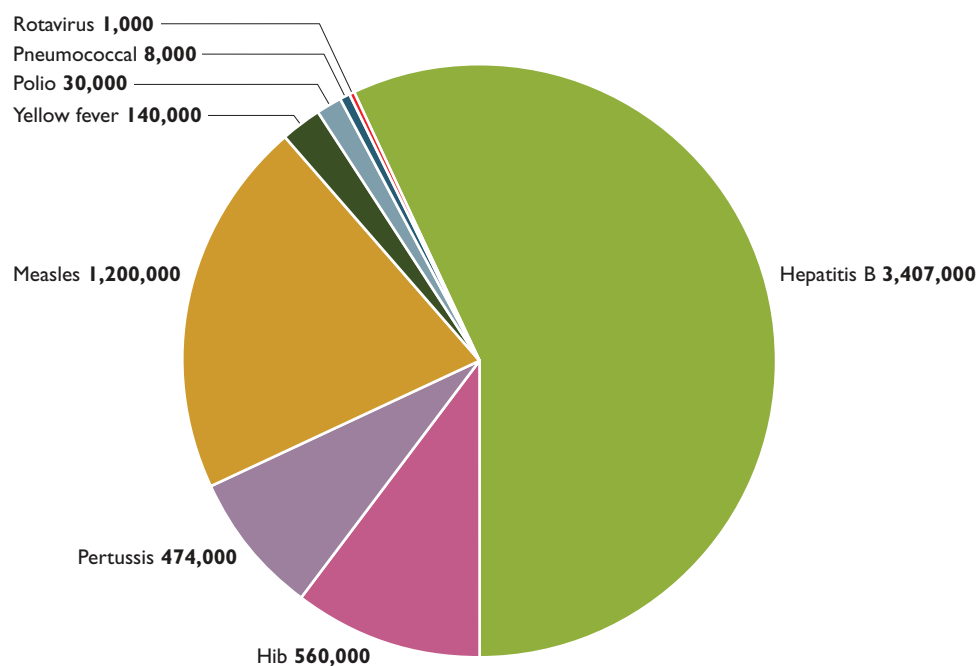
THE GLOBAL ALLIANCE FOR VACCINES AND IMMUNISATION

In 2000, immunisation received a new boost with the creation of the Global Alliance for Vaccines and Immunisation (GAVI), a new public–private global health initiative. The alliance brought together governments, international organisations and the vaccine industry with the overarching goal of introducing new vaccines and increasing coverage of existing ones.

The decade since 2000 has seen another major push on immunisation. Coverage has climbed steadily to the highest-ever levels, with DPT3 and measles coverage both reaching 82%.¹⁶ For the first time, four out of every five children are protected by the basic package of vaccines.

The launch of GAVI dramatically changed the vaccine landscape and has given new impetus to immunisation as a global priority. GAVI has brought additional funding and political priority to vaccination, and disbursed £1.75bn (US\$2.9bn) to 72 countries for vaccine purchase and delivery between 2000 and 2010.¹⁷ GAVI's work built on the foundation of the World Health Organization's basic immunisation programme and supported countries to provide additional vaccines that stop children from dying of yellow fever, meningitis and hepatitis. In its first decade it has vaccinated 288 million children and averted 5 million deaths.¹⁸

Figure 4: More than 5 million deaths averted by GAVI: results from routine immunisation and one-off tactical investments, by vaccine



Source: GAVI

NEW VACCINES AGAINST DIARRHOEA AND PNEUMONIA

Some of GAVI's more recent activity has involved introducing new vaccines against major causes of pneumonia and diarrhoea – the two biggest killers of children under five. This has great potential to save lives. At the start of 2011, pneumococcal vaccines that protect against the bacteria responsible for 30–50% of pneumonia cases were introduced for the first time in Africa – in Sierra

Leone, Kenya and Mali. The rotavirus vaccine was introduced in Latin America in 2010 and will reach Africa later this year. These two new vaccines could save up to 1 million children's lives every year.

GAVI, the World Health Organization, UNICEF, the Bill & Melinda Gates Foundation and other partners have launched a Decade of Vaccines for the period 2011 until 2020. This initiative aims to boost immunisation goals and reach milestones in research and development, building on the Global Immunisation Vision and Strategy.

2011: INTRODUCING THE PNEUMOCOCCAL VACCINE IN KENYA

In the photo below, Dr Silas Agutu examines three-month-old Marianne, who was admitted to hospital in Nairobi, Kenya with severe pneumonia. "Right now we have 105 children in the paediatric ward, and over half of them have some form of pneumonia," said Dr Agutu.

Pneumonia causes 15% of all deaths of children under five in Kenya. In 2008, 30,000 children here died from pneumonia, with up to half of these deaths attributable to the pneumococcal bacterium. The introduction of the pneumococcal vaccine to Kenya in 2011 could prevent more than half of deaths caused by pneumococcal infection.



PHOTO: COLIN CROWLEY/SAVE THE CHILDREN

GAVI'S FUNDING GAP

GAVI has an ambitious five-year plan to scale up its work and vaccinate 243 million children and save 4 million more lives by 2015.¹⁹ Its work will make a significant contribution to achieving the Millennium Development Goal of reducing child mortality by two-thirds (MDG4). However, it faces a £2.3bn (US\$3.7bn) funding gap if it is to achieve this goal, of which £1bn (US\$1.7bn) is needed for the first two years.²⁰

The total cost of GAVI's five-year plan is around £4.2bn (US\$6.8bn); only £1.9bn (US\$3.1bn) has so far been committed. The secured funding comes from previous financial pledges from existing donors, including rich country governments like the UK and Norway, the Bill & Melinda Gates Foundation and other private donors, and through the International Finance Facility for Immunisation.

THE GAVI LONDON PLEDGING CONFERENCE

In June 2011, world leaders have a make-or-break opportunity to save 4 million children by 2015. GAVI is co-hosting a half-day pledging conference in London, chaired by the UK government, where governments and donors will come together to make financial commitments to fund GAVI's vital vaccine work. Unless the funding gap is addressed at this vital pledging conference, we risk repeating the mistakes of the past and reversing the gains made in saving children from deadly diseases.

For the London pledging conference to be a success a number of steps need to be agreed:

- The vaccine industry must reduce its prices to GAVI to ensure that the poorest countries in the world have access to the lowest possible prices
- GAVI donors must provide additional resources
- Developing countries must increase national funding dedicated to immunisation, including making the required vaccine co-payments.

Table 2: GAVI's £4.2 billion plan to save 4 million children's lives

How much?	To be spent on?	Why?
£1bn	pentavalent vaccine	a five-in-one vaccine that protects children against diphtheria, tetanus, pertussis, Hib (Haemophilus influenzae type b causing meningitis and pneumonia) and hepatitis B
£1.4bn	pneumococcal vaccine	to protect children against a bacterium that causes 30–50% of pneumonia cases
£400m	rotavirus vaccine	to protect from rotavirus, which causes up to 39% of diarrhoea deaths in children
£200m	other vaccines	to protect children from yellow fever, measles and rubella
£260m	investing in meningitis and yellow fever vaccine programmes	to develop a sufficient stockpile of the yellow fever and meningitis A vaccines to respond to an emergency epidemic, plus preventive campaigns, surveillance, risk assessment and country support
£520m	country support programmes	to train and support health workers who deliver vaccines, including government workers and civil society organisations who deliver up to 60% of vaccines in 20 countries, investing in infrastructure needed to deliver vaccines, such as storage fridges, and ensuring ongoing safety and quality of vaccination services
£412m	programme implementation and mission support	to support GAVI's partners working on the ground to procure vaccines and implement vaccination programmes
Total: £4.2bn (of which £3bn on vaccines)		

WHO HAS SUPPORTED GAVI?

As this report went to press the funding gap for GAVI's vaccines plan stood at £2.3bn. The information below and the data in the funding table found in the annex was the latest available, but is subject to change as governments refine their financial commitments ahead of the pledging conference.

The UK government has been a leading supporter of GAVI and is currently the largest overall government funder. In its Multilateral Aid Review in February 2011, the UK Department for International Development found that GAVI was a "highly cost-effective health intervention" and "played a critical role in the delivery of MDG 4". It was therefore recommended strongly for increases in UK aid.²¹

As host of the pledging conference the UK has important roles to play in leveraging funding from other G8 and G20 donors for GAVI, and in encouraging commitments on vaccine pricing and universal immunisation coverage. The UK, together with other leading donors, such as Norway, must

use its increased pledge to lever match-funding from other governments.

France has historically supported GAVI, but mainly through its long-term commitment to the International Finance Facility for Immunisation (see box below). So far it has not come forward with additional funding that GAVI needs to roll out the new vaccines for pneumonia and diarrhoea. While Germany has recently increased funding to GAVI, it has not traditionally been a strong funder of GAVI, and is being encouraged to give more. Canada and the Netherlands have been among the major funders but need to make significant increases to keep pace with GAVI's ambitions.

Japan is expected to make a small contribution to GAVI this year, reflecting a continued commitment to overseas aid, despite the earthquake and tsunami in March 2011. This will be the first time that the Japanese Ministry of Foreign Affairs has included a contribution to GAVI in its annual budget.

Although the USA has funded GAVI since 2001, it has given less than many other donors, relative to the size of its economy, and is being pressured to

THE INTERNATIONAL FINANCE FACILITY FOR IMMUNISATION

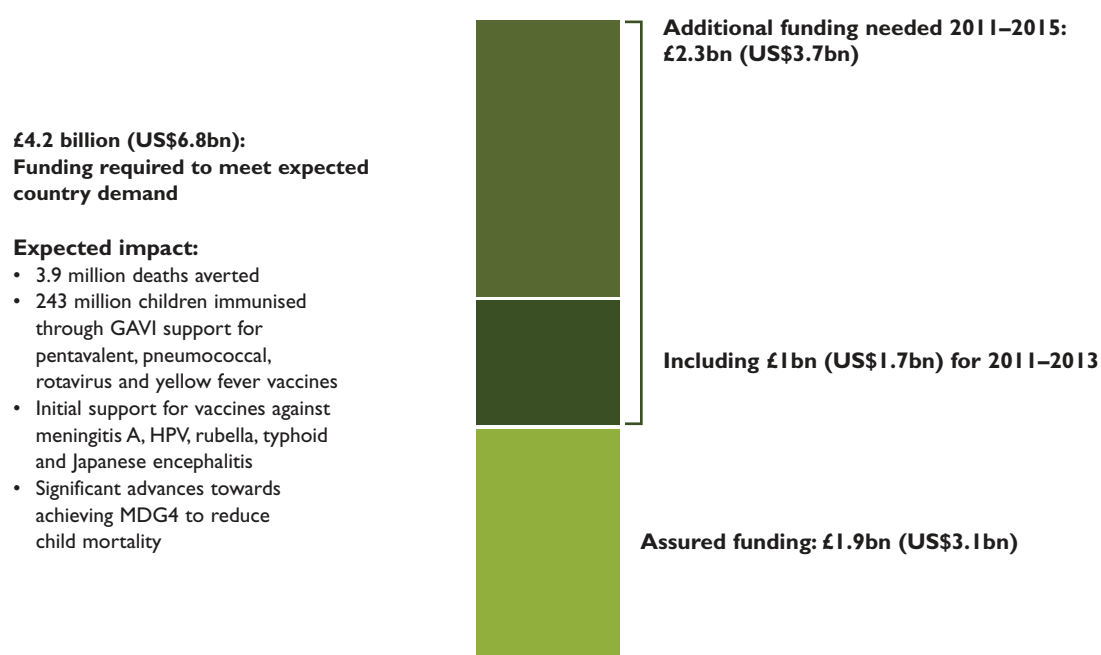
The International Finance Facility for Immunisation (IFFIm) is an innovative way of raising money for vaccination programmes. It has raised over £1.8bn (\$3bn) for GAVI's use so far and, when its total disbursement of £2.4bn (\$4bn) is achieved, will have funded immunisation for an additional 500,000 children and averted as many as 4 million premature deaths.²²

Established with UK leadership in 2006, the IFFIm works by issuing bonds in capital markets so that donors' long-term pledges are converted into money that is immediately available. It is attractive to donors as it frontloads and converts their contributions so that large amounts are

available from the markets for spending immediately, while at the same time spreading their payments of lower annual commitments over a longer period to repay the bonds.

The potential downside is that the IFFIm commits future donor aid for very long periods and may 'tie up' donor money and discourage donors from contributing more when funding is urgently needed.

GAVI primarily needs direct contributions in this London pledging conference in June 2011 to meet the funding gap for the next five years.

Figure 5: GAVI funding challenge 2011–2015 (as of November 2010)

Source: GAVI (2011)

make a big increase at the June 2011 conference. Other donors in the spotlight include Spain and Sweden. The European Commission has announced new funding for GAVI for 2012, and is expected to increase its funding further still, possibly with an emphasis on a new EC budget for GAVI for 2014–15. It is also hoped that Brazil and Russia will come forward with pledges at the conference. Details of previous funding commitments to GAVI can be found in the appendix (on page 31).

GAVI held a smaller event calling for additional financial resources in New York in October 2010, where new funding pledges totalling £92.4m were announced by Australia, Canada, Korea, the European Commission, Luxembourg and Ireland. Since then, GAVI has received additional support from Ireland (£8.1m or €9.2m), Spain (£1.8m or €2m), Germany (£17.7m or €20m), Denmark (£3m or DKK50m) and Sweden (£14.8m or SEK150m). The Crown Prince of Abu Dhabi has made a pledge of £20.2m, which was matched by £20.2m from the Bill & Melinda Gates Foundation.

However, as this report will demonstrate, financing GAVI, while critical, is not sufficient on its own to make the vaccine strategy a complete success.

World leaders, senior politicians, health officials, donors and representatives of the pharmaceutical industry meeting at the pledging conference must also commit to further action in three vital areas that will be discussed in the next sections:

- prioritising the hardest to reach children
- investing in health workers and healthcare services
- reducing the price of vaccines.

Save the Children is strongly supporting GAVI's pledging conference and at the same time is calling for continued action to maximise the impact of that funding for the poorest children for the long term.

RECOMMENDATION

All donors are encouraged to increase their direct contributions to GAVI and to make longer-term direct commitments rather than ad hoc contributions, allowing GAVI to support immunisation programmes that last for a number of years.

THE IMMUNISATION GAP

More children than ever before are being given life-saving vaccines. The fact that more than four in five children across the globe – 82% – currently receive three doses of the combined diphtheria, pertussis and tetanus vaccine, known as DPT3, is especially impressive compared to other health interventions that have much lower rates of coverage. Only 39% of children receive the recommended treatment of oral rehydration for diarrhoea and only 27% of children with suspected pneumonia receive treatment with antibiotics.²³

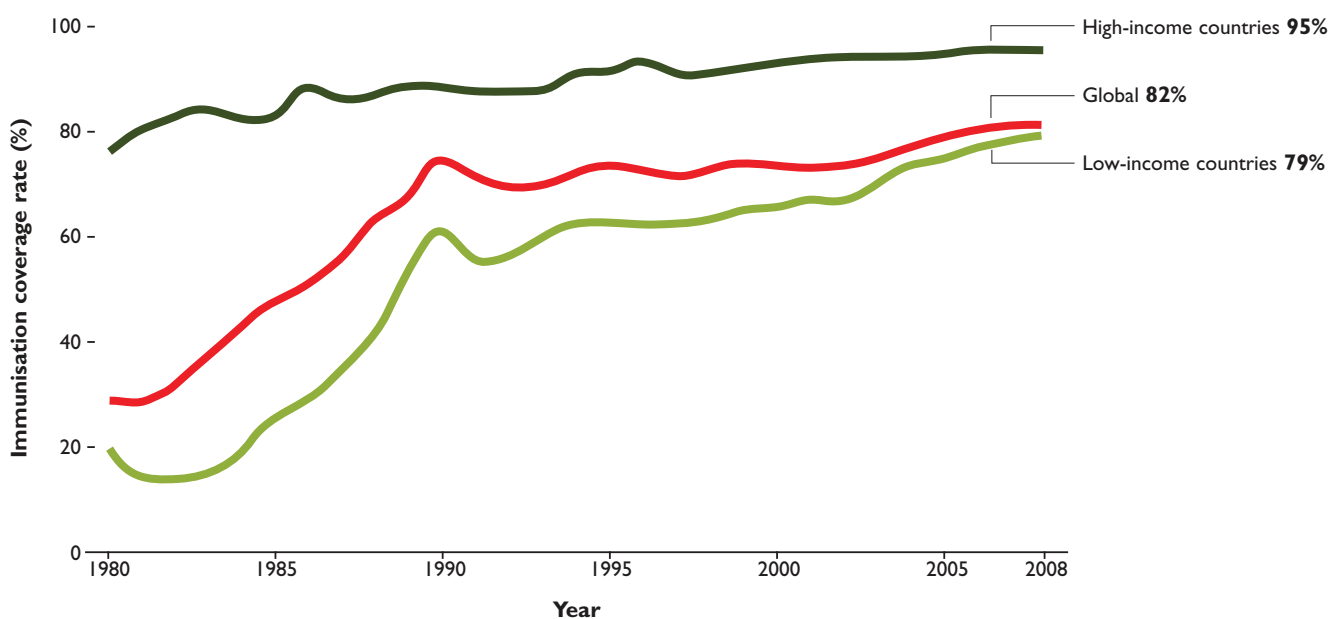
ONE CHILD IN FIVE

In spite of the increase in coverage rates, today one fifth of infants – 24 million one-year-olds – miss out on routine immunisations.²⁴ They are missing out on cheap and proven vaccines that could save their lives.

This global average of 82% coverage masks great inequality between countries. Children in the poorest countries are much less likely to have been vaccinated than those in richer countries.

Three-quarters of unvaccinated children live in just ten countries, ones with relatively low rates of immunisation and large population sizes.²⁵

Figure 6: Increasing global immunisation coverage



Source: Country income categories (World Bank) as of July 2009 (2008 GNI per capita); annual coverage estimates (WHO/UNICEF) weighted by annual number of surviving infants (UNDP)

Table 3: Countries with the highest percentage of unvaccinated children (DPT3)²⁶

	Country	% unvaccinated	Number unvaccinated
1	Chad	77	391,160
2	Somalia	69	277,380
3	Equatorial Guinea	67	17,420
4	Nigeria	58	3,526,980
5	Gabon	55	22,000
6	Papua New Guinea	48	99,840
7	Central African Republic	46	70,840
8	Guinea	43	170,710
9	Lao People's Democratic Republic	43	73,960
10	Haiti	41	112,340

Table 4: Countries with the highest number of unvaccinated children

Country	Number of children unvaccinated with DPT3
India	9,107,580
Nigeria	3,526,980
Pakistan	810,450
Indonesia	751,320
Democratic Republic of the Congo	673,900
Ethiopia	657,720
China	548,820
Uganda	540,720
Chad	391,160
Kenya	382,500
Total in top ten countries	17,391,150

INDIA'S POOREST CHILDREN MISSING OUT

India's huge population and relatively low vaccine coverage mean it contributes significantly to the global number of children who are not protected from deadly diseases. More than 9 million infants in India have not had their DPT3 vaccinations. In addition, 29% of Indian children are not vaccinated against measles, and more than 80,000 of them die from the disease each year – 69% of the total child deaths from measles worldwide.*

Save the Children India has been working to improve vaccine coverage in some of the

poorest parts of India. Mobile clinics tour a number of slum areas in Delhi to provide life-saving primary healthcare, including vaccinations.

"People are getting their children vaccinated, when before they didn't," says Sangeeta Ranj, a community health volunteer with a mobile clinic. "Now they know that if they don't give their children a vaccine the child will get ill. They know which vaccines a child should get up to the age of five. They now know what causes diseases."²⁷



PHOTO: RACHEL PALMER/SAVE THE CHILDREN

* Black, R E et al (2010) 'Global, regional and national causes of child mortality in 2008: a systematic analysis', *The Lancet*, 375, 1969–87

Immunisation inequality within countries

There are enormous disparities in vaccine coverage *within* countries, as well as between countries. In many cases the poorest children are missing out on their right to vaccination. In Nigeria, while 76% of children in the richest fifth of the population are receiving DPT3, only 8.2% in the poorest fifth are

covered. In Liberia, there is a similar 'immunisation gap', with just under a third of the poorest children immunised compared with over two-thirds in the richest fifth. In Pakistan, just over a third of children in the poorest fifth are immunised compared with 78% in the richest fifth. Tackling this inequality must be a central part of immunisation programmes in every country.

Of the GAVI countries where household wealth has been measured in the last five years, the five countries with the biggest immunisation gap between the richest and the poorest are Nigeria, the Republic of Congo, India, the Democratic Republic of Congo and Pakistan (largest first). Among GAVI countries, the gap is smallest in Honduras, Rwanda, Bangladesh, Armenia and Azerbaijan (smallest first).²⁸

Measles coverage rates confirm this huge disparity. In west and central Africa and in south Asia, children from the richest fifth of households are almost twice as likely to be immunised as the poorest fifth.²⁹

Perversely, it is the same poor children, living in the least healthy conditions – with the worst sanitation and who are least able to visit a health centre due to cost or distance – who are at most risk of contracting the diseases that the vaccines are designed to prevent.

Analysis of the difference in immunisation coverage by different wealth groups in society shows that the wealth of the family is the greatest determinant in access to vaccines.³⁰ However, children in rural areas are also less likely to be immunised than children in urban areas; for example, in Pakistan, rural children are on average 1.4 times less likely to be immunised than children in urban areas.³¹

Gender differences in vaccine coverage are less predictable and vary in different regions. More boys than girls are immunised in south Asia, but this pattern is reversed in some African countries.

Fragile and conflict-affected states

Many unvaccinated children live in fragile or conflict-affected countries – 18 of the 25 countries with DPT3 coverage below 70% are in this category.³² The reason for the concentration of unvaccinated children in fragile states, such as Somalia, Chad or

Figure 7: The ten countries with the biggest immunisation gap – DPT3 coverage in the highest and lowest income groups²⁹

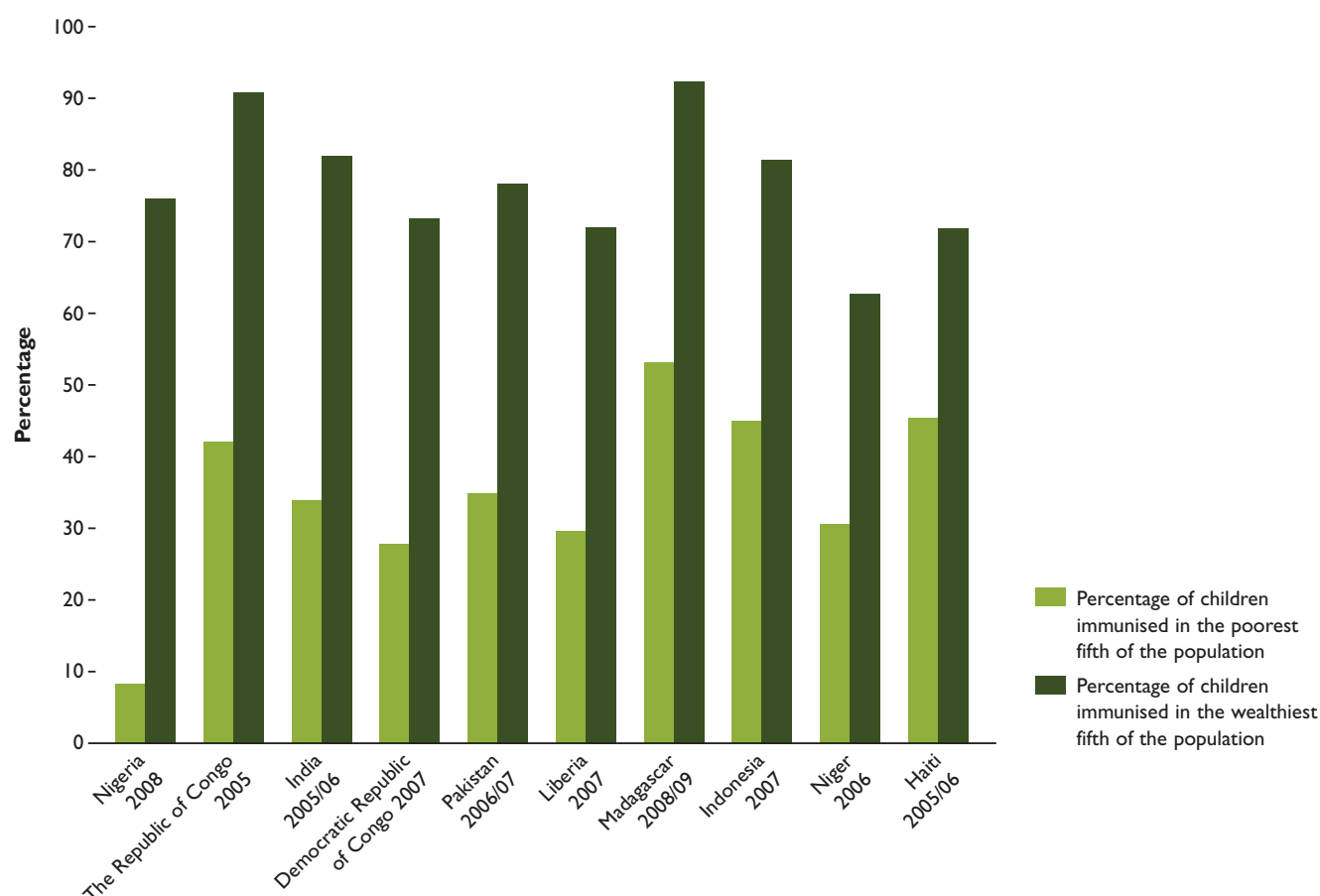




PHOTO: COLIN CROWLEY/SAVE THE CHILDREN

Vials for vaccines on the floor of a hospital in Ivory Coast that was looted during fighting in April 2011

the Democratic Republic of Congo, is that the government is unwilling or unable to provide good-quality healthcare services, including immunisation. In many of these countries years of conflict have destroyed the healthcare infrastructure: health clinics, hospitals and the roads providing access to them have been targeted for attack or fallen into disrepair; doctors and nurses have fled the country or been killed; and generations of children have missed out on their education, so even when the war is over there is a desperate shortage of suitable people to train as medical professionals to fill the gap.

Ongoing violence and insecurity means that other organisations that are capable and willing to provide immunisation services, like NGOs or UN agencies, are unable to work safely. And finally, donor countries are less willing to support fragile states with sufficient amounts of long-term predictable aid because of perceived high levels of corruption, and because of the uncertain future.

Middle-income countries

There are still many unvaccinated children in middle-income countries, such as India and Brazil, where the gap between the richest and poorest is often very wide. There is a danger in these countries that the challenge of providing widespread

immunisation coverage for children appears to have been largely met, whereas in reality national averages conceal high numbers of unvaccinated children in the poorest parts of the population and in remote geographical areas. For example, in Indonesia, which has a gross national income per capita of £1,350 (\$2,230), the national DPT3 immunisation rate is 82% – the same as the global average – but in the poorest fifth of the population only 45% of children have been vaccinated, and in the province of Western Papua only 35%.³⁴ In contrast, Bangladesh (see opposite) and Nepal have been able to close the immunisation gap through targeted campaigns.

CLOSING THE IMMUNISATION GAP

To reduce inequalities in immunisation, policy-makers must focus on implementing vaccination strategies that aim for truly universal coverage, and that reach the poorest and most marginalised children, rather than simply targeting those who are easiest to reach. Reaching the poorest sections of society is often challenging, especially in rural areas, and may not yield the same political rewards as providing healthcare to better-off populations.

BANGLADESH: AN IMMUNISATION SUCCESS STORY

Bangladesh has reached 94% immunisation coverage of DPT3 – a rate comparable with the UK, and an increase of 11 percentage points between 2001 and 2009. The government, working with GAVI and the World Health Organization, has achieved this success by targeting the poorest and hardest to reach children – no district in Bangladesh reported less than 50% coverage in 2008.³⁵

Immunisation coverage has been expanded through 'Reaching Every District' (RED), which addresses common obstacles to increasing immunisation coverage such as poor-quality planning, low-quality and unreliable healthcare services, and poor monitoring and supervision of health workers. RED, launched in 2002 by UNICEF, the World Health Organization and GAVI partners to boost immunisation in areas of low coverage, includes regular community outreach sessions, increasing support, supervision and training of frontline health workers, building links with communities, and improving management of data and resources.³⁶ RED works in tandem with the Integrated Management of Childhood Illness approach, launched in 1995, which has been rolled out across Bangladesh.

The government is committed to vaccines as a central part of its efforts to save children's lives. In 2006, it constructed a factory near Dhaka to manufacture all the country's auto-disable syringes and safety boxes as part of their commitment to safer injection practices and to ensuring a sustainable supply of vaccine syringes. And in 2009, Bangladesh introduced the five-in-one pentavalent vaccine, which was the first time Bangladeshi children were given life-saving protection against the deadly *Haemophilus influenzae* type b (Hib) bacterium that causes some severe forms of pneumonia



PHOTO: PETER CATON

and meningitis. It is estimated that the Hib vaccine can save about 20,000 children's lives annually in Bangladesh.

In coming years, with support from GAVI, Bangladesh is also planning to introduce into its national immunisation programme the pneumococcal vaccine, rotavirus vaccine, and a dose of the hepatitis B vaccine to babies at birth.³⁷

The high levels of vaccination coverage have contributed significantly to Bangladesh's dramatic reduction in the rate of child mortality from 149 deaths per thousand children under five in 1990 to 52 in 2009, making it one of the few countries that are on track to meet the Millennium Development Goal to reduce child deaths by two-thirds by 2015.

Tackling inequality will require governments to plan services that can reach rural and poorly served areas. Governments will also need to address those demand-side barriers to access that result in people in the poorest areas not seeking vaccination services – either because they do not know of them or because it is too difficult for them to access those services.

In its strategy for 2010–15, GAVI adopted a target to reduce the number of its countries where the immunisation gap between richest and poorest is more than 20 percentage points. While this is an important recognition of the disparity that exists, it does not go far enough in ensuring immunisation for all. GAVI currently has a coverage threshold that states that 50% of children must have received their DPT3 vaccine before a country can be eligible for the introduction of new vaccines. In practice, this means a country can reach 50% with very high coverage in some parts of the population, while

only achieving very low coverage in others. Save the Children is calling on GAVI to create incentives to reduce the immunisation gap between rich and poor, and to ensure vaccines get to the hardest-to-reach children. The roll-out of the new vaccines for pneumonia and diarrhoea should be connected to a country's ability to reduce its immunisation gap.

Closing the immunisation gap requires a pro-poor approach, using innovative ways to reach remote and poor communities. Unless the way that vaccines are delivered is improved, any new vaccines that are introduced will continue to benefit better-off children and fail to protect the poorest.

At the same time, child mortality is, of course, driven by many factors, including nutrition, living conditions, access to water and sanitation. Vaccination alone cannot remove these threats; the social determinants of child mortality need to continue to be addressed.³⁸

IMPROVING ROUTINE IMMUNISATION IN NORTHERN NIGERIA

Save the Children is a member of a partnership that aims to improve routine immunisation rates and strengthen the health system in four states of northern Nigeria: Katsina, Jigawa, Yobe and Zamfara, with an estimated combined population of 17 million. The Partnership for Reviving Routine Immunisation in Northern Nigeria – Maternal Newborn and Child Health involves government and health organisations, and is funded by the governments of the UK and Norway.

The partnership works to improve immunisation and strengthen the health service by:

- improving human resource policies and practices
- improving management and information systems
- boosting supplies
- upgrading health infrastructure and equipment.

A significant investment is dedicated to support communities to make better use of the services through an emergency transport scheme.

By the end of 2010, the programme had achieved some impressive results. The number of one-year-old children immunised against measles had increased from 126,439 to 539,521; the number of children who received the DPT3 vaccine increased from 59,611 to 370,388; and the number of children who had received the polio vaccine increased from 88,933 to 330,765. The number of health facilities providing immunisation on a weekly basis had increased from 89 to 298.

The UK and Norwegian governments have agreed to extend funding until the end of 2013.

Healthcare services and the health worker gap

Improving vaccine coverage and reaching the poorest children requires investment in stronger healthcare services and more health workers. Often the main barrier to making sure every child is vaccinated is not a shortage of vaccines; rather, it is that children don't have access to health services. Most unvaccinated children live in what are termed 'healthcare deserts', excluded from even the most rudimentary health services. More than 40 million children under five live in healthcare deserts.³⁹

Ensuring equitable coverage of vaccines depends on the many different parts of a country's healthcare service working together, from suppliers right down to village level. Vaccination should not be delivered in isolation. The staff, supply chains, storage facilities, buildings and vehicles used to provide basic primary healthcare, including maternal and child health services, should also be used to ensure children are vaccinated.

Immunisation efforts should be used to strengthen the healthcare service, by helping put in place the basic components of primary healthcare. Even in rural areas, immunisation days should be

combined with a range of preventive, diagnostic and curative health services, so that the community's commitment to vaccinating their children is harnessed to support other health needs. For example, mothers bringing young children to be immunised should also access family planning; children being immunised should be assessed for their growth and development, and checked for any signs of malnutrition.

Even governments with very limited health budgets tend to make immunising children a high priority, and often sustain their programmes in very difficult circumstances. Vaccination is a clear 'public good', in the interests of the whole society, not just those who receive it. Higher immunisation rates mean fewer people are ill, and so society is exposed to fewer life-threatening diseases; in countries with high coverage and smaller disparities in immunisation (which tend to be richer countries), the unimmunised as well as the immunised are protected through 'herd immunity'. As with other essential health services, it is vital that vaccination is always free, to ensure that poor people are not excluded. Governments must ensure that the health services that people receive are not linked to the size of the contribution they have made to the health service through tax or national health insurance.

"Most vaccines need to be kept at a cool temperature in order to remain effective – this poses an extra challenge to delivering vaccines to remote places," says Dr Hussein Abdullahi, District Medical Officer in Wajir South in Kenya. "We don't have a back-up generator at this hospital, so if there is going to be an electricity outage, we ask the electric company to give us ample warning. If the electricity is going to be out for more than six hours, we have to make arrangements to move the vaccines to another facility."



PHOTO: COLIN CROWLEY/SAVE THE CHILDREN

LIBERIA: IMMUNISATION BY MOTORBIKE

In Liberia, Save the Children helped vaccinate more than 40,000 children against the major childhood killer diseases in 2009/10.

Aloise, an outreach worker at the government health clinic located in Yangaya, has to visit many remote areas to vaccinate children. "I spend one week at the clinic and the next doing outreach activities," he says. "Children up to nine months old need injections against measles, yellow fever, tuberculosis, diphtheria, whooping cough and poliomyelitis. Pregnant women also need tetanus injections to protect their babies.

"Many of our patients are poor and busy farmers and only come to us when their children are really sick, especially during rainy season. Many of them live very far away and a lot of the roads are in bad

condition, so it's a hard journey to make. It's not easy to make parents understand that, despite all this, their children need to be immunised against diseases.

"To reach those who don't come to the clinic, I have to go to visit them in their communities. Before, I used to walk. I had to leave out the more remote ones. Since Save the Children gave the clinic a motorbike I've extended the area I cover. My target used to be to reach 200 children per month, but with transport I've been able to reach 450.

"Some parents I've met during my outreach visits have started to come to the clinic for their children's injections. That's proof that they're getting the message."



PHOTO: RACHEL PALMER/SAVE THE CHILDREN

Ensuring the right numbers and types of health workers are available and deployed is fundamental to successful vaccine delivery; vaccines do not inject themselves. However, there is a global shortage of 3.5 million health workers, and 61 countries – 41 of them in Africa – face a critical shortage, falling below the United Nations standard of 23 health workers for every 10,000 population.⁴⁰ Support to these countries to recruit, train, pay and deploy more doctors, nurses, midwives and community health workers is imperative in order to deliver vaccines to the poorest children and close the immunisation gap. Health workers need to be paid a fair and living wage, and funding needs to be in place to recruit additional staff.

Save the Children, along with other NGOs, such as the White Ribbon Alliance and Malaria No More, and the UN Foundation, is campaigning for world leaders meeting at the UN General Assembly in September to make specific commitments to fill the 3.5 million health worker gap, as part of delivering on the UN Secretary-General's Every Woman, Every Child strategy. The campaign is encouraging donor governments, especially those in the European Union and the G8/G20, to put health workers at the heart of their ongoing development work, and ensure every country with a critical health worker shortage is supported to develop and implement an effective human resources plan.

INVESTING IN HEALTHCARE SERVICES

GAVI has a strong record of supporting activities to strengthen health systems. It began offering specific funding for projects to improve countries' healthcare services in 2005.⁴¹

Then, in 2009, GAVI, the Global Fund to Fight AIDS, Tuberculosis & Malaria (GFATM) and the World Bank, working with the World Health Organization, began aligning their work to strengthen health systems. The Health Systems Funding Platform aims to align the different procedures that exist from different government

and international donors for funding, monitoring, procurement, governance and technical support in a way that reflects national plans and strategies, and therefore reduces the administrative burden on countries. It is an ambitious attempt to enact the Paris Principles for Aid Effectiveness, a set of commitments made by donors to improve the way they give aid.

As an interim step, GAVI and GFATM put in place a common application process for countries seeking funding to strengthen their healthcare services. Eventually this application will become part of a wider initiative, the International Health Partnership and Related Initiatives (IHP+), where, alongside the funds provided through the World Bank's lending, funding should be made available to governments to support their jointly approved national health plans.

While progress is slow, Save the Children believes that this move to streamline funding of national health plans should be strongly supported. It is essential that multilateral and bilateral donors help countries to build well-staffed, sustainable health systems that can get immunisation to all children.

In 2009, Australia, Norway and the UK pledged an additional £167 million, £170m and £250m respectively to an expanded Innovative Finance Facility (IFF) mechanism for health systems. These contributions are intended for the Health Systems Funding Platform, which supports health systems strengthening in developing countries.

The GAVI board has now incorporated this funding into its budget for 2011–15, with a commitment that a minimum of 15% and a maximum of 25% of the total £4.2bn GAVI five-year budget will be used to support health systems. If GAVI is successful in raising its overall budget target of £4.2bn, then we can be confident that £600m, which is the amount it has pledged for health system strengthening, will be used as intended. If it fails to reach this target, Save the Children is concerned that more of this money will be redirected to cover the shortfall in funding for the purchase of vaccines.

REACHING THE UNREACHED IN MOZAMBIQUE

Despite reducing under-five child mortality rates, Mozambique still has one of the world's highest rates: 142 per 1,000 live births (2009).

The Mamane Project set out to reach the poorest fifth of children with immunisation services in four remote districts of Mozambique's northern Gaza region. The project (which Save the Children supports) set up a fund to ensure that the 'cold chain' for vaccines is working properly – including supplying batteries for solar panels and spare

parts for fridges. We equipped district health offices with new motorbikes to help vaccine teams travel to remote areas. We have helped significantly increase immunisation outreach services and raised awareness among communities of the importance of vaccination.

Between 2009 and 2010, consultations for children under five increased by 58%; the number of children receiving DPT3/Hep3 vaccines increased by 13%.

RECOMMENDATIONS

On 13 June 2011, at the pledging conference in London, GAVI and its donors must prioritise reaching the poorest children, and ensure that the introduction of new vaccines does not replicate the uneven distribution of existing programmes. In particular, they should create incentives for countries to reduce the immunisation gap between the rich and the poor to ensure that vaccines reach every child. The roll-out of the new vaccines should be linked to such reductions.

GAVI and its donors must invest in healthcare services so that GAVI's vaccines can be delivered to the poorest and hardest-to-reach children. This should be done in three ways: through GAVI's activities, through governments' own bilateral work in recipient countries, and through the Health System Funding Platform. At the very minimum, GAVI and its donors must make an explicit

commitment that the £600m from the expanded International Finance Facility allocated to improving healthcare services will be spent as intended, and not diverted to cover a shortfall in other parts of the budget.

Save the Children is calling for donors and partners at the GAVI Pledging Conference to address the 3.5 million health worker shortage. Every country with a critical health worker shortage should be supported to develop and implement an effective human resources plan. This must involve raising more funding through fair mechanisms and ensuring aid given to governments is predictable. In addition, governments must press the International Monetary Fund to support flexibility on public sector spending so poor countries can expand their health workforce, and must not actively recruit health workers from countries with critical health worker shortages.

MAKING NEW VACCINES AFFORDABLE

Much attention has rightly been given recently to the discovery of new vaccines against strains of pneumonia and diarrhoea, which could have a huge impact on reducing child mortality, saving millions of children's lives. Pneumonia and diarrhoea are the two biggest killers of children in poorer countries, accounting for around one-third of children's deaths globally. The new vaccines against pneumococcal and rotavirus are undoubtedly exciting new developments. However, prices of the vaccines need to come down to ensure countries can afford to include them as part of their health budgets year after year. Reducing the cost of these vaccines is one way to shrink GAVI's £2.3 billion funding gap.

The pneumococcal and rotavirus vaccines are expensive, because their prices reflect the cost of research, development and manufacturing of these complex vaccines. The current private sector market price for the pneumococcal vaccine is as high as £58 per dose in developed countries. By contrast, measles and polio vaccines cost less than £1 a dose; the five-in-one pentavalent vaccine is £1.60 per dose through GAVI, so less than £5 for the full three-dose vaccination of a child. In recent years, GlaxoSmithKline (GSK) has been identified as the pharmaceutical company with the best record on promoting broader access to medicines through its pricing, research and development, management and patenting practices.⁴² These principles need to be replicated and applied by GSK and other manufacturers to the vaccines market to ensure better access to these life-saving tools.

The World Health Organization estimates that a comprehensive package including existing routine vaccination and both pneumococcal and rotavirus vaccines could have a huge impact on reducing child mortality, saving an additional 2 million children's lives a year by 2015. It is therefore vital that the introduction of the new vaccines, central to GAVI's strategy for 2011–15, has strong support from donors and international bodies.

THE NEW GENERATION OF VACCINES

Pneumococcal

Pneumococcal infection is the most common cause of pneumonia in under-fives worldwide. It accounts for 30–50% of pneumonia cases, most of them in poorer countries, while Hib, which children are routinely vaccinated against, causes only 10–30% of pneumonia cases.⁴³ Globally, 10.6 million children suffer from pneumococcal infection each year and 720,000 die of the disease.⁴⁴ GAVI estimates that accelerating the introduction of the pneumococcal vaccine, which is estimated to prevent up to 77% of pneumococcal deaths,⁴⁵ could prevent almost half a million children from dying by 2015. It could reduce under-five deaths by 9% and the world's incidence of pneumonia by between 23–35%.⁴⁶

It is important that the pneumococcal vaccine is introduced alongside other actions, such as improved nutrition and hygiene, to prevent and treat pneumonia, including cases of pneumonia that are not caused by pneumococcal bacteria.

Pneumococcal roll-out

GAVI's roll-out of the pneumococcal vaccine began in Nicaragua in December 2010 – just over a year after it was first introduced in the USA. As it usually takes 10 to 15 years for a vaccine to come to market in developing countries, this is a great achievement. Overall, GAVI has approved 19 countries for the introduction of pneumococcal vaccines, and

secured financial commitments until 2015. GAVI and partners are still working with two countries, Madagascar and Pakistan, to determine which vaccine is most appropriate for them, and introduction dates. Countries that receive the vaccine pay for part of its cost during the introduction period, depending on their ability to pay.

Table 5: GAVI countries introducing pneumococcal vaccine⁴⁷

Country	Status	Date	Mortality rates from pneumococcal per 100,000 <5
Nicaragua	introduced	2010	71
Guyana	introduced	2011	62
Kenya	introduced	2011	323
Sierra Leone	introduced	2011	819
Yemen	introduced	2011	not known
Mali	introduced	2011	507
Democratic Republic of Congo	introduced	2011	524
Honduras	introduced	2011	74
Gambia	switching to GAVI (from previous donation of PCV7 from Wyeth)	2011	171
Rwanda	switching to GAVI (from previous donation of PCV7 from Wyeth)	2011	821
Central African Republic	introducing	2011	578
Benin	introducing	2011	307
Cameroon	introducing	2011	382
Burundi	introducing	2011	664
Ethiopia	introducing	2011	460
Malawi	introducing	2011	756
Republic of Congo	introducing	2012	134
Madagascar	awaiting confirmation of agreement	TBC	280
Pakistan	awaiting confirmation of agreement	TBC	not known

Rotavirus

Rotavirus infection is common in every country. Healthier, well-nourished children with better living conditions usually survive infection and develop immunity, but rotavirus can lead to fatal diarrhoea for children in the poorest living conditions. Approximately 39% (663,000) of all diarrhoeal deaths in children under five are caused by rotavirus.⁴⁸ The World Health Organization recommends that the vaccine be introduced wherever diarrhoeal deaths account for more than 10% of under-five deaths. The introduction of the rotavirus vaccine should be made alongside other effective interventions to reduce diarrhoeal deaths, such as oral rehydration therapy, and improvements to water and sanitation infrastructure. The new vaccine is estimated to prevent almost three-quarters (74%) of rotavirus deaths and could save a total of 2.4 million lives by 2015.

Rotavirus roll-out

GAVI support for rotavirus became available in 2007. By 2009, four countries had been approved for GAVI funding: Bolivia, Guyana, Honduras and Nicaragua. The roll-out of vaccines in other GAVI countries is planned for the second half of 2011, starting with Sudan.

Pentavalent

The pentavalent vaccine contains five basic vaccines in one dose: diphtheria, pertussis, tetanus, Hib and Hep B. Prices for pentavalent vaccine have so far reduced from £2.20 (\$3.65) per dose in 2004 to a forecast price of £1.56 (\$2.58) per dose in 2011, a reduction of 30%. Typically, GAVI and the recipient country share the price of the vaccine, with developing countries paying 10–20 pence per dose. However, the price of the pentavalent vaccine has not fallen as quickly as originally expected. This is due to a slow increase in demand for the vaccine and to the longer time than originally anticipated that it has taken for a competitive supplier base to build up – there are currently three qualified suppliers; several more are expected to emerge in the next one to two years.

Meningitis A

GAVI also funds the new MenAfriVac vaccine against the meningitis A strain most prevalent in Africa. Relatively cheap to produce and roll out at a cost of around 30 pence (\$0.50) a dose,⁴⁹ the vaccine should be relatively easy to sustain in routine programmes. As of November 2010, the GAVI board has already approved £51.1m (US\$84.7m) for a programme to eliminate meningitis epidemics from the countries that make up the 'meningitis belt' in west Africa. GAVI has spent £38.3m (US\$63.5m), including £28.6m (US\$47.5m) on a stockpile of medicines, plus £9.7m (US\$16.0m) on the introduction of the vaccine (covering costs of vaccines and operational costs), in eight countries including Burkina Faso, Chad, Mali, Niger and Nigeria. A recent study in Burkina Faso showed the average economic cost of meningitis A to a household where one or more members contracts the disease to be £56 (US\$90).⁵⁰

VACCINE PRICING

The high prices of the new pneumococcal and rotavirus vaccines are one of the main barriers stopping most poor countries from introducing them. Although the World Health Organization recommends new vaccines are included in all routine programmes, the decision is always one a country must make itself, based partly on local epidemiology, partly on cost-effectiveness and sustainability. For vaccines to be sustainable in the long term, the prices developing country governments pay must be substantially reduced.

Developers of new products certainly have the right to recoup the cost of their research and development costs and capital costs, such as manufacturing plants. All manufacturers need profits to motivate them to continue work on new vaccines and ensure a predictable supply.

There is very little demand in developed countries for the vaccines that GAVI supports as they are designed to protect against diseases that are more common and more serious in developing countries.

Vaccine companies say it is hard to justify the significant upfront investment in these vaccines before demand materialises, and because prices are very low it takes time for them to recoup costs. GAVI and vaccine manufacturers therefore need to use pricing strategies and innovative financing mechanisms to drive down prices as quickly as possible, so that countries can afford to commit to introduce these new vaccines. The meningitis A vaccine for Africa is a good example of how this can be done. It has been produced by the Serum Institute of India, and developed by the Institute and PATH (a public-private partnership to fund global health, primarily funded by the Bill & Melinda Gates Foundation, with an emphasis on vaccines).

Another way prices can be brought down is through competition from low-cost suppliers. Vaccine manufacturers in emerging markets have become increasingly significant players in global markets. Their emergence is viewed by GAVI as a way to foster greater competition in vaccine markets. Efforts are being made – though not as quickly as anticipated – to ensure that these suppliers are positioned to compete effectively in offering safe and effective vaccines at affordable prices.

The Bill & Melinda Gates Foundation and other public health organisations offer technical assistance and grants to speed vaccine development among potential low-cost suppliers. This assistance is offered in exchange for guarantees of very low prices for the poorest countries. For example, GAVI partners are investing in emerging-market suppliers to improve manufacturing processes – and reduce costs – for the Hib component of the pentavalent vaccine, are providing clinical trial support for the pneumococcal vaccine, and have invested to ensure timely entry of next generation rotavirus vaccine.

New vaccines were a small percentage of GAVI's expenditure for 2005–10, but as the new, more expensive vaccines are introduced into countries' routine immunisation schedules they are making up a greater part of the funding needs for 2011–15. The main driver in the increase in GAVI's vaccine expenditure over the next five years is the cost of procuring pneumococcal, rotavirus and pentavalent vaccines. The main growth in volume and expenditure

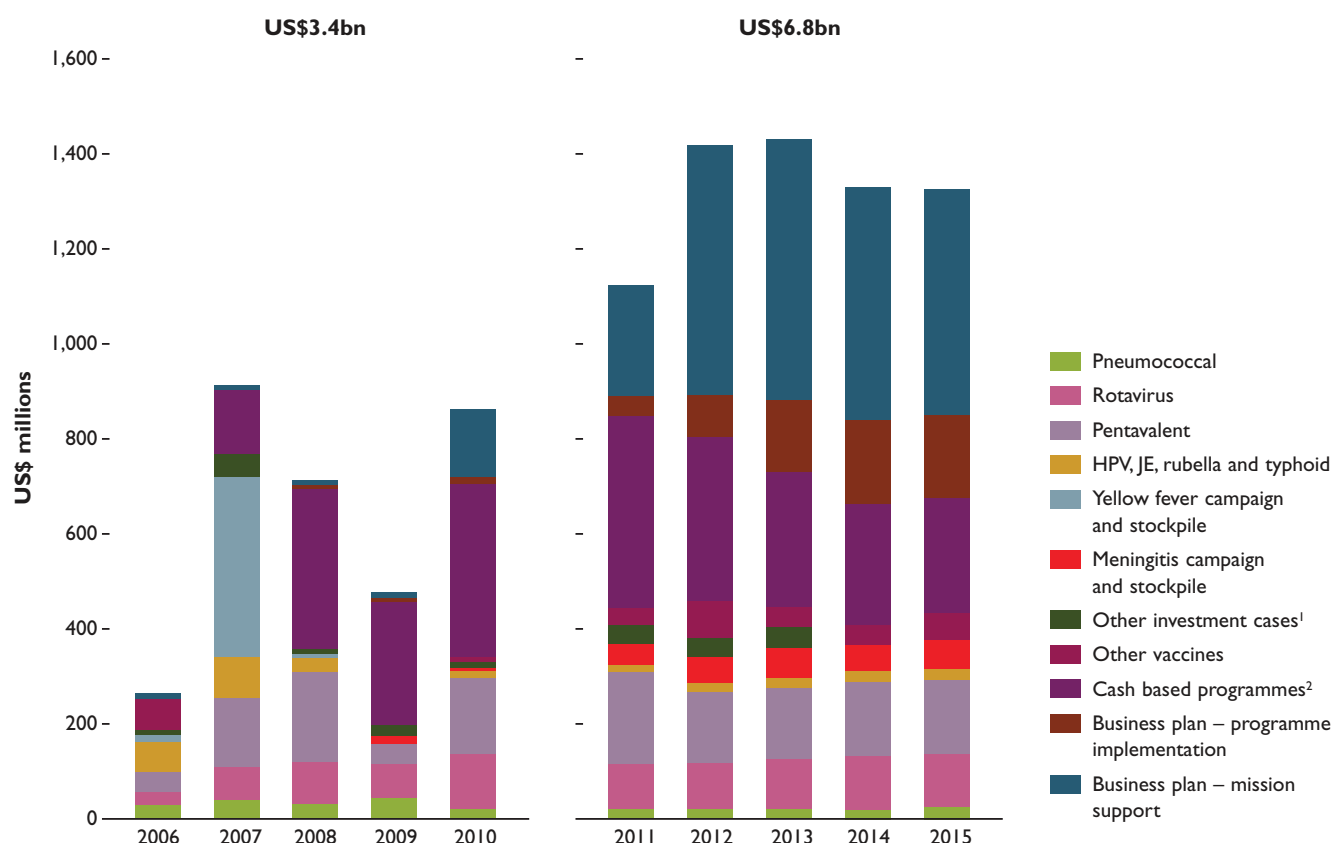
is from the new pneumococcal and rotavirus vaccines, which are also the biggest opportunity to save lives. The demand for the pneumococcal vaccine is forecast to grow from 14 million to 112 million doses; rotavirus vaccine demand is expected to grow from 3 million to 68 million; and pentavalent from 106 million to 133 million.

The only procurement of the pneumococcal vaccine for a group of developing countries has been for relatively small volumes of the vaccine for Latin American countries belonging to the Pan-American Health Organization (PAHO – an international public health agency for the countries of North and South America). In 2009, the price of the pneumococcal vaccine was £12.60 (\$21) per dose. An advance market commitment (see page 25) has reduced this price to £4.40 (\$7).

GAVI has not yet negotiated the cost of rotavirus vaccine, which has so far only been introduced in the four Latin American countries in PAHO. The organisation has separate pricing agreements with manufacturers, and tendered a price of around £3.32 (\$5.50) per dose for the three-dose vaccine in Latin America in 2009, and £4.53 (\$7.50) for the two-dose vaccine. With a step-up in funding – assuming it occurs – GAVI should procure the rotavirus vaccine to meet the potentially high demand. Since the technology for rotavirus production is similar to the oral polio vaccine and is simpler than that of the pneumococcal vaccine, the combination of lower production costs and the potential for high-volume procurement may result in significant price decline.

Strategies to reduce prices of vaccines

A number of pricing strategies and innovative financing mechanisms have been introduced with the aim of making vaccines more affordable for low- and middle-income countries. In its strategy for 2011–15, GAVI has for the first time introduced a strategic goal to reduce prices. 'Push' funding reduces the cost and risk to manufacturers of the research and development of new vaccines. 'Pull' funding guarantees a market. A range of mechanisms have been developed that aim to address both 'push' and 'pull' factors.

Figure 8: Actual and projected expenditures (2006–2015), US\$ millions, as of November 2010

¹ 2007 Other investment cases 'spike' resulted from an investment in Measles Campaign (\$147m) and in Polio stockpile; both were funded by IFFIm bond proceeds.

² Includes: health systems strengthening, civil society organisations support, immunisation support services, incentives for routine immunisation services, injection safety support and vaccine introduction grant.

Advance market commitment

The advance market commitment (AMC) is a 'pull' mechanism set up to guarantee manufacturers an early market for new products, in order to guarantee demand for new vaccines before they have even become available. This removes the risk that manufacturers will not be able to sell their products and recoup their research, capital expenditure and development costs.

There are currently two pneumococcal vaccines that the World Health Organization has pre-qualified for use – PCV10 and PCV13, manufactured by GSK and Pfizer respectively. The price negotiated by GAVI with GSK and Pfizer for the pneumococcal vaccine through the AMC is £4.40 (\$7), which is a 95% reduction on the market price rich countries are charged.

Subsidies from GAVI's funds for the AMC cover half the cost of the vaccines, so GAVI can provide the pneumococcal vaccine to poor countries for only £2.20 (\$3.50). As with all GAVI vaccines, the government of the country that receives the vaccines pays for a small part of their cost on an increasing scale according to what they can afford. The recipient contribution starts from 12 pence per dose on an increasing scale right up to the full cost, with the average contribution from developing countries being 20 pence per dose for pneumococcal vaccine. Countries that are 'graduating' from GAVI to pay for vaccines without support will still have access to the vaccine for the 'tail price' (the amount that manufacturers agree countries can buy the vaccine for after they have graduated).

The advance market commitment on the pneumococcal vaccine is paid to companies in direct proportion to the number of doses of the vaccine they supply. GSK and Pfizer have each committed to supply 30 million doses, which is 15% each of the guaranteed annual demand of 200 million doses. In exchange, they receive a 15% proportional share of the AMC funds of £0.9bn (US\$1.5bn) – ie, £136.4m (US\$225m) for the initial period of the AMC. This is in addition to the price of the vaccine set by the company, which will be either equal to or less than the tail price, capped at £2.20.

It is estimated that GSK and Pfizer will have received this subsidy of £136.4m (US\$225m) each by approximately 2014, assuming they deliver according to what is forecast. Then from 2015 to 2023, the vaccines will be procured at a maximum of £2.20 (US\$3.50) per dose, with no top-up, as per the supply agreements, through GAVI standard procedures. GSK and Pfizer will not receive any additional payment from the AMC funds, unless a new supply agreement is signed for further doses.

Once GSK and Pfizer have used up their share of AMC funds after the entire ten-year period of the AMC, they continue selling the remaining doses of the vaccine under their supply agreement at a 'tail price' that is capped at £2.20 (\$3.50). This 'tail price' was agreed with UNICEF and GAVI at the time the supply agreement was signed. This will apply for the length of the ten-year supply commitment. Developing countries always provide some co-financing for vaccines they take. During the period of time the AMC subsidy is available, the top-up comes from AMC funds.

There are concerns about the advance market commitment, including that its specifications are too technical and could create a barrier to developing cheaper and more cost-effective vaccines. It has also been criticised for having no arrangement for the acquisition of intellectual property or technology transfer, which would allow competitors to start manufacturing the product and so lower the price naturally through competition.

There is also criticism that the advance market commitment does not stimulate new research for new products for the poor world but concentrates on products that already exist.⁵¹ A Médecins Sans Frontières study argued that profits of £374m to the companies are too high and that an "acceptable" profit level was £250m.⁵²

Although originally envisaged to support vaccine development, the AMC has functioned more as a procurement mechanism for a vaccine that already existed. It is questionable how the price and technical specifications of an undiscovered vaccine could be set so far in advance. However, the AMC for pneumococcal is a pilot and the model continues to offer an innovative way to get products into use in poor countries much faster than the market could on its own. Save the Children believes the AMC still has potential to boost the supply of vaccines to poor countries and to encourage pharmaceutical companies, donors and governments to continue working together. The landscape for pneumococcal conjugate vaccine development now shows multiple companies based in India, Latin America and China investing in future production, partly due to the presence of the AMC.

Procurement policies

Manufacturers naturally charge different prices in different markets. This has been formalised by GAVI and developing country governments with pharmaceutical manufacturers, with specific prices tied to countries' income.

There are wide variations in prices of vaccines, not only between different vaccines, but between different procurement mechanisms. UNICEF, PAHO, GAVI and the AMC negotiate different prices from the same suppliers, according to the different levels of demand and duration of the purchase agreement. Suppliers have charged PAHO more than they have GAVI for pneumococcal vaccines. Middle-income countries purchasing through UNICEF pay prices close to those paid by GAVI, while others pay much more.

Evaluations have documented a lack of progress by GAVI in its goal to shape the vaccine market to reduce prices further and improve vaccine access.⁵³

Multiple suppliers and strong demand will be critical in stimulating greater competition and economies of scale. The entry of emerging producers to the market has been slower than expected, and some prices remain prohibitively high, such as for the HPV vaccine for cervical cancer.

GAVI has recently undertaken a joint project with UNICEF to refine their supply strategy and procurement approaches. The new strategy to promote access to immunisation is to include a more tailored approach for each vaccine and an expanded toolkit of innovative supply and procurement approaches. These will include direct negotiations between developing country governments and vaccine companies, multi-round tendering (where suppliers are invited to supply vaccines for several rounds or years), longer-term contracting, and volume guarantees.

Emerging suppliers

Although competition has been slower than expected, new suppliers have come forward in developing country markets, in particular in Brazil and India. Panacea Biotec and the Serum Institute of India have both registered to participate in the advance market commitment for pneumococcal.

However, they will not be in a position to compete with GSK and Pfizer in the next few years. Emerging suppliers are proficient at scaling up manufacturing processes for mass production, but are weak in the earlier stages of research and development, and well behind the multinationals in technology, know-how and regulatory expertise.

In March 2011, the World Health Organization officially confirmed that China's National Regulatory Authority, the State Food and Drug Administration (SFDA), had achieved international standards. The result is that the SFDA is compliant in all areas required to provide regulatory oversight of vaccines, and vaccine manufacturers in China are now eligible to apply for prequalification with the World Health Organization. It is expected that some vaccines from China could be prequalified (ie, considered safe and effective) in less than two years' time. The opportunity for organisations to procure good-quality vaccines from Chinese manufacturers is expected to bring down prices and have a beneficial impact on the global vaccine supply.⁵⁴ However, Chinese rotavirus and pneumococcal conjugate vaccines are not likely to be prequalified before 2016.

GAVI COUNTRIES BY INCOME GROUP AND CONTRIBUTION

Different income groups pay different amounts according to what they can afford for pneumococcal vaccines. These categories defined by GAVI are:

- **Low-income countries**, in line with World Bank's definition of countries with a per capita annual income of less than £621 (US\$995), will be required to pay 12 pence (20 cents) per dose. GAVI will make up the rest of the approximately £2.20 (US\$3.50) per dose.
- Intermediate countries, with a per capita income of £621 to £935 (US\$995 to \$1,499) (this is the lower half of the World Bank's

definition of middle-income countries, which is US\$996–3,945), will be required to pay 12 pence per dose for the first year, increasing by 15% each successive year. GAVI will make up the rest of the £2.20 (US\$3.50).

- Graduating countries, with a per capita annual income of £921 (US\$1,500) and above (ie, those countries that have crossed GAVI's eligibility threshold and can no longer apply for new vaccine support), will be required to pay the full £2.20 (US\$3.50) cost within five years, but the amount they pay will gradually increase each year up to that point.

RECOMMENDATIONS

GAVI, donors and manufacturers need to do more to reduce the prices of new vaccines and existing vaccines, notably pentavalent and rotavirus. This needs to include:

- voluntary price reductions
- support for multiple suppliers
- negotiated lower prices for bulk purchases.

Innovative financing, such as the advance market commitment for pneumococcal vaccines, can be used to reward manufacturers for investing in research and development, and to move towards long-term sustainability. Technology transfer strategies should be an essential part of accelerating research and development, and of the entry of new suppliers to the vaccine market.

GAVI and its donors need to strengthen their efforts to drive down vaccine prices, setting clear targets for price reduction over a five-year period. Many more children will benefit from full funding of GAVI if the average price of vaccines is reduced.

GAVI and partners need to support technology transfer to speed the entry of new suppliers to the vaccine market. The means of doing this include:

- setting up technology 'trusts' and 'hubs', to enable manufacturers to access and share technical know-how and equipment⁵⁵
- carrying out buyouts of partial rights (in intellectual property and access to technology) to manufacture vaccines
- developing licensing agreements
- facilitating technology transfer through cost-lowering strategies, such as for the cost of production.

Increased market demand, economies of scale, and effective market regulation will also be key to encouraging new, good-quality suppliers.⁵⁶

CONCLUSION AND RECOMMENDATIONS

VACCINES SAVE LIVES

Increasing immunisation coverage in countries where children are dying in terrible numbers from vaccine-preventable diseases is one of the best and most cost-effective ways of saving children's lives. The global immunisation drive led by GAVI is the best and most cost-effective way of increasing immunisation coverage. The GAVI Pledging Conference in London in June 2011 is a crucial opportunity for governments and donors to ensure that GAVI can deliver on its ambitious plan to save 4 million more children's lives by 2015.

A comprehensive package of vaccinations could save 2 million lives a year by 2015 – a quarter of the global child death toll, which currently stands at 8.1 million. Increasing immunisation coverage is not only a moral imperative; it would also put the Millennium Development Goal to reduce the number of child deaths by two-thirds by 2015 within reach.

Providing sufficient funding to enable GAVI to carry out its vital vaccine work is only part of meeting this challenge. The principle of 'vaccines for all' requires donors and governments to focus on the hardest-to-reach children in order to achieve truly universal coverage. Every person involved in the process of

getting a child immunised – from the chief executive of the pharmaceutical company to the community health officer in the village clinic, and all those in between – must be focused on how to reach the most vulnerable and hardest-to-reach children.

Effective and inclusive immunisation programmes rely on a strong, functioning healthcare service, with enough health workers, who are well-trained, well supported and adequately paid. Often the challenge in expanding immunisation coverage is less about a shortage of vaccines and more about barriers and bottlenecks in the health system, such as a lack of staff to perform injections, a lack of equipment or the fact that children live too far away from a health clinic. As this report shows, welcome moves have been made to strengthen health systems and to prioritise funding projects that address these barriers.

Finally, lower prices for vaccines would enable GAVI to do more for its money and would ensure that vaccines are an affordable part of countries' health budgets for the long term, saving the lives of future generations of children. Big pharmaceutical companies have a critical role to play, alongside innovative forms of financing and additional approaches to procuring vaccines by donors and governments, to benefit the poorest children.

RECOMMENDATIONS

1. Meet the vaccine funding gap

Donor countries, vaccine manufacturers and recipient countries must maximise the opportunity offered by the GAVI pledging conference. They must fully fund the £2.3 billion (US\$3.7bn) funding gap to save the lives of 4 million more children by 2015.

2. Prioritise the hardest to reach children

Developing countries, GAVI and its donors must strengthen their commitment to truly universal coverage of immunisation. They must reduce and eventually remove the disparity in coverage rates between rich and poor children by implementing pro-poor approaches, to close the 'immunisation gap' in countries.

An approach that focuses on reaching the poorest children and reducing inequality must be front and central of GAVI's strategy. National averages can mask disparity in immunisation coverage rates. Save the Children is calling on GAVI to create incentives for countries to reduce inequity to ensure the poorest children don't miss out, and that the roll-out of new vaccines is linked to such reductions.

3. Invest in health systems and health workers to deliver vaccines

GAVI has committed to spend up to a quarter of its budget on projects that strengthen and support countries' healthcare services, so they can deliver vaccines more effectively. Donors must ensure that their approach to funding protects this vital work and that GAVI is able to continue its support for the Health Systems Funding Platform.

More health workers are needed to increase immunisation coverage. Donors must make specific commitments to help developing countries to recruit, train, pay, support and deploy more doctors, nurses, midwives and community health workers to fill the global 3.5 million health worker gap.

4. Bring down vaccine prices in conjunction with innovative financing

GAVI, civil society, donors and vaccine manufacturers must do more to reduce the prices of new and existing vaccines.

Vaccine manufacturers should consider voluntary price reductions, and should work with GAVI and its partners to negotiate lower prices through bulk purchasing and innovative mechanisms.

Donors should support and explore expanded innovative financing and procurement methods at the G8 and G20 Summits. GAVI and its donors should also encourage the entry of new significant suppliers to the vaccine market.

APPENDIX

DONOR CONTRIBUTIONS AND COMMITMENTS AS OF 15 APRIL 2011 IN US\$ MILLIONS BY CALENDAR YEAR

- 1-year agreement
- 2- to 3-year agreement
- 4-year agreement or longer

Donor	GOVERNMENT AND EC CONTRIBUTIONS										GOVERNMENT AND EC COMMITMENTS										Total contributions and commitments
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*	2012*	2013*	2014*	2015*	2016–2019*	Direct funding 2000–2019	IFFIm 2006–2030**12	AMC 2009–2020 ¹³	
Australia ¹							5.0	5.0	5.0	5.0	8.6	20.6	20.6	20.6				90.5	256.1		346.5
Canada			1.9	4.8	6.0	130.9	5.2				20.7	10.3	10.3	10.3				200.3		200.0	400.3
Denmark ²		1.1			3.3	3.4	4.4	4.7	9.1	1.8	9.2							37.1			37.1
European Commission (EC) ³			1.3				4.8	23.1	28.6				41.6					99.5			99.5
France ⁴					6.0		12.6											18.7	1,719.6		1,738.3
Germany ⁵						5.3	5.9		5.7	5.1	28.2							50.3			50.3
Ireland ⁶			0.5	0.6	0.7	0.8	7.9	8.3	3.8	3.5	3.6	3.2	3.2	3.2	3.2			42.8			42.8
Italy																			600.5	635.0	1,235.5
Japan																					0.0
Luxembourg						0.6	1.3	0.8	1.4	1.2	1.1	1.2	1.2	1.2	1.2			12.3			12.3
Netherlands			24.1	13.4	16.5	17.3	15.9		33.5	38.9	31.2	25.1						215.9	114.4		330.3
Norway ⁷			17.9	21.3	21.8	40.9	39.5	65.0	86.2	65.4	82.8	76.5	5.8					523.1	264.5	50.0	837.6
Republic of Korea											0.4	0.3	0.3					1.0			1.0
Russian Federation																				80.0	80.0
South Africa																			20.0		20.0
Spain ⁸									40.5			2.7						43.2	240.4		283.6
Sweden			1.9	1.1	2.4	4.9	12.7	14.6	15.5	19.2	13.8	36.5	23.7					146.2	37.7		184.0
United Kingdom ⁹	4.5		15.0	5.6	18.5	6.6	23.2	48.1		15.9			4.8	38.5	38.5	141.4		360.6	2,979.9	485.0	3,825.5
United States of America		48.1	53.0	58.0	59.6	64.5	69.3	69.3	71.9	75.0	78.0							646.7			646.7
Total	4.5	93.1	106.3	110.9	157.4	274.9	213.8	282.3	269.3	256.0	252.6	115.6	77.2	40.1	53.2	39.6	141.4	2,488.1	6,233.1	1,450.0	10,171.2
	OTHER CONTRIBUTIONS										OTHER COMMITMENTS										
Bill & Melinda Gates Foundation ^{10, 11}	325.0	425.0	3.5	5.0	154.3	75.0	75.0	75.0	75.0	75.0	89.1	83.8	85.1	75.0				1,545.8		50.0	1,595.8
His Highness Sheikh Mohammed bin Zayed Al Nahyan ¹¹																		33.0			33.0
"la Caixa" Foundation									5.8	5.9	4.0			14.1	8.8	10.1		15.7			15.7
Other private	0.02		1.6	2.6	1.8	0.5	1.9	1.1	0.8	1.0	1.0	0.2						12.6			12.6
Total	325.0	425.0	1.6	6.1	6.8	154.8	1.9	76.1	81.6	81.9	80.0	103.4	92.6	95.2	75.0			1,607.0		50.0	1,657.1
GRAND TOTAL	329.5	518.1	107.9	117.0	164.2	429.7	215.7	358.4	350.9	337.9	332.6	219.0	169.7	135.3	128.2	39.6	141.4	4,095.1	6,233.1	1,500.0	11,828.3

* Exchange rates as of 31 March 2011

** Converted as of date of commitment

Source: GAVI Alliance website: www.gavialliance.org/about/donors/index.php

See also notes overleaf

Notes to appendix

¹ Australia's 2011–2013 pledge of US\$ 61.9 million (60 million Australian dollars) is subject to the signing of the grant agreement.

² The contributions from Denmark for 2008 and 2009 were both received in 2009. US\$4.7m (25m Danish Krone) of Denmark's 2010 commitment was received by GAVI in January 2011. Denmark's 2011 commitment of US\$4.4m (25m Danish Krone) is expected to be received by GAVI before the end of 2011.

³ The contributions from the EC are in the form of reimbursable grants that cover activities over more than one year. Part of the EC's 2012 contribution is subject to the signing of the contribution agreement.

⁴ The contribution from France for 2005 was received in 2006.

⁵ Germany's 2011 figure includes its €6 million signed agreement and an additional €14m pledge announced in April 2011 to be matched by the Bill & Melinda Gates Foundation.

⁶ €525,000 of Ireland's 2006–2009 agreement was received in 2010.

⁷ Norwegian Prime Minister Stoltenberg pledged an annual contribution of 500 million Norwegian Kroner towards global immunisation efforts between 2006 and 2015. US\$5.8m (34.2 million Norwegian Kroner) of a pledge made by Norway in 2010 was received by GAVI in January 2011.

⁸ The contribution from Spain for 2008–2009 was received in one instalment in 2008. All of Spain's US\$2.7m 2010 commitment (€2m) was received by GAVI in January 2011.

⁹ The contribution from the UK for 2006–08 was received in two instalments in 2006 and 2007.

¹⁰ The Bill & Melinda Gates Foundation made an initial 5-year pledge of US\$750m and a pledge of US\$ 75 million per annum from 2005 up to 2014.

¹¹ In January 2011, His Highness Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, and Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation, announced that they are working together to provide life-saving vaccinations to children in Afghanistan and Pakistan. The partnership commits US\$66m to the GAVI Alliance. The Bill & Melinda Gates Foundation's contribution to this partnership (US\$33m) is included in their total contribution figures for 2011–2013.

¹² IFFIm commitments include new pledges announced in 2009 by Australia, Norway and the UK.

¹³ As per the grant agreements, AMC funds must be received by the World Bank between 2009 and 2020.

Immunisation in numbers

¹ World Health Organization (2011), *State of the World's Vaccines and immunisation 2011*

1 The potential of vaccination

² UNICEF (2010) *Progress for Children*

³ This is calculated by the World Health Organization, private correspondence (2011). The calculation uses a case fatality rate for measles of 6% for Sierra Leone. In this setting, a vaccinated child will have an 85% chance of developing protection. Refs: Wolfson, L. et al. (2009) 'Estimates of measles case fatality ratios: a comprehensive review of community-based studies', *International Journal of Epidemiology*, 38: 192–205. World Health Organization (2009) 'Measles Vaccines WHO Position Paper', *Weekly Epidemiological Record* 84, 349–360.

⁴ This represents the cost of three doses of the pentavalent vaccine that costs £1.60 a dose and protects against five diseases – Haemophilus influenzae type B (Hib), hepatitis B, diphtheria, pertussis and tetanus.

⁵ World Health Organization (2011) 'Smallpox: Historical significance', Media Centre Factsheet <http://www.who.int/mediacentre/factsheets/smallpox/en/>.

⁶ World Health Organization (2010) 'Global Immunisation Vision and Strategy', Report of the Secretariat. Executive Board EB128/9 128th Session 25 November 2010 Provisional agenda item 4

⁷ See note 6.

⁸ WHO (2005) 'Immunisation against diseases of public importance', Factsheet No. 288. March 2005

⁹ ONE, 'Cameron urged: act now to help save 4 million children in 5 years', press release, 12 April 2011, <http://www.one.org/c/international/pressrelease/3718/>

¹⁰ The 1978 Alma Ata Declaration identified immunisation as a basic function of primary healthcare and vital to its call for Health for All by 2000.

¹¹ The guidance the World Health Organization provides steers the delivery of vaccines around the world. This includes identifying which vaccines should be introduced in which circumstances, depending on epidemiology, effectiveness and national capacity.

¹² This included oral rehydration therapy, breastfeeding and clean water, as well as immunisation.

¹³ Lawn, J. et al. (2008) 'Alma-Ata 30 years on: revolutionary,

relevant, and time to revitalise', *The Lancet*, Vol 372 September 13, 2008 pp 917–27

¹⁴ *ibid*

¹⁵ *ibid*

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¹⁶ UNICEF (2011) *State of the World's Children 2011*

¹⁷ GAVI (2011) 'GAVI disbursements to countries by type of support and year (2000–2010)', <http://www.gavialliance.org/performance/disbursements/index.php>

¹⁸ GAVI (2010) 'Financing Country Demand for Life-Saving Vaccines', http://www.gavialliance.org/resources/Financing_Country_Demand_GAVI_Alliance_August_2010.pdf.

¹⁹ GAVI (2011) 'GAVI Alliance welcomes UK multilateral aid review', press release, March 2011.

²⁰ GAVI funding challenge 2011–2015 (as of November 2010).

²¹ Department for International Development (2011) *Multilateral Aid Review: Assessment of GAVI Alliance*. February 2011, <http://www.dfid.gov.uk/Documents/publications11/mar/GAVI-Alliance.pdf>

²² Data from IFFIm website, <http://www.iff-immunisation.org>, accessed 17 April 2011

3 The immunisation gap

²³ UNICEF/World Health Organization (2009) *Diarrhoea: Why children are still dying and what can be done*

²⁴ World Health Organization (2011) *State of the World's Vaccines and Immunisations 2011*

²⁵ UNICEF (2011) *State of the World's Children 2011*. This table shows DPT3 coverage by annual number of births to represent immunisation coverage and under 1 population.

²⁶ Countdown countries. Source: UNICEF (2011) *State of the World's Children 2011*. DPT3 is used as a proxy for vaccine coverage as it is the most common and well established vaccine. If a child has not had this vaccine they are highly unlikely to have received others.

²⁷ TrustLaw '100 Years of International Women's Day – Boosting community health care in Delhi', 8 March 2011, <http://www.trustlaw.org/trustlaw/blogs/100-years-of-international-womens-day/boosting-community-health-care-in-delhi>

²⁸ Demographic and Health Survey data, accessed 18 April 2011, showing DPT3 coverage per wealth quintile for the 36 GAVI countries for which data was available through Demographic Health Survey in the last five years.

²⁹ Demographic and Health Survey data, accessed 18 April 2011. This table shows DPT3 coverage per wealth quintile for the 36 countries for which data was available through Demographic Health Survey in the last five years.

³⁰ UNICEF (2010) Progress for Children No. 9, Achieving the MDGs with Equity, September 2010

³¹ In 2008, the World Health Organization confirmed through the Demographic Health Survey and Multiple Indicator Cluster Survey conducted over 20 years in 96 countries and covering more than 1 million children that most unvaccinated children live in poorer households or have caregivers who are less educated, lack the capacity to make decisions or have partners who are less educated or a combination of the above.

³² UNICEF (2010) *Progress on Children*

³³ World Health Organization, Vaccine-Preventable Diseases: Monitoring System 2009; 2007 list of Conflict-Affected and Fragile States taken from World Bank IDA 15 definition, used in <http://www.oecd.org/dataoecd/50/30/42463929.pdf>

³⁴ Indonesia Demographic and Health Survey 2007

³⁵ GAVI Bangladesh Fact sheet http://www.gavialliance.org/resources/Bangladesh_GAVI_Alliance_country_fact_sheet_June_2008_ENG.pdf

³⁶ World Health Organization RED Strategy Factsheet. http://www.who.int/immunization_delivery/systems_policy/RED-FactSheet.pdf

³⁷ GAVI Bangladesh Annual Progress report 2009, http://www.gavialliance.org/resources/Bangladesh_apr_2009.pdf

³⁸ Demographic and Health Surveys (2010). www.measuredhs.com/aboutsurveys/dhs/start.cfm. This is based on data from 25 countries showing numbers of children under five in the poorest and richest quintiles receiving no vaccines.

³⁹ Measured by lack of immunisation coverage or access to treatment of diarrhoea: Save the Children (2011) *No Child Born to Die: Closing the gaps*

⁴⁰ Save the Children (2011) *No Child Born to Die: Closing the gaps*

⁴¹ 'HSS Funding Window', GAVI HSS Core Task Team report 2007

4 Making new vaccines affordable

⁴² Access to Medicines Index <http://www.accesstomedicineindex.org/>

⁴³ Rudan, I and Boschi-Pinto, C (2008) 'Epidemiology and etiology of childhood pneumonia', *World Health Bulletin* March 2008. <http://www.who.int/bulletin/volumes/86/5/07-048769/en/index.html>

⁴⁴ Black, R (2003) 'Where and why are 10 million children dying every year?' *The Lancet*, Volume 361, Issue 9376, Pages 2226–34

⁴⁵ See note 43.

⁴⁶ Munos, M (2010) 'The effect of rotavirus vaccine on diarrhoea mortality', *International Journal of Epidemiology*

⁴⁷ PneumoAction 2011, Global disease interactive map http://www.preventpneumo.org/data-tools/GDB_interactive_map.cfm

⁴⁸ See note 46.

⁴⁹ Agence de Médecine Préventive (2011). Cost of meningitis to households in Burkina Faso. February 2011

⁵⁰ *ibid*

⁵¹ Light, D (2010) Saving the Pneumococcal AMC. Draft discussion paper. Stanford University, Programme in Human Biology, December 2010

⁵² Schoen-Angerer Tv, 'Questioning the 1.5 billion vaccine deal', *Development Today*, 2008

⁵³ Second GAVI Evaluation Report, 13 September 2010. Prepared by CEPA LLP, in association with Applied Strategies

⁵⁴ The World Health Organization, 'Chinese national regulatory authority meets international standards', March 2011 http://www.who.int/immunization/newsroom/newsstory_China_NR_A_feb2011/en/index.html

⁵⁵ The World Health Organization and the Netherlands Vaccine Institute are establishing a 'technology hub' for influenza vaccines that will enable multiple manufacturers to acquire the necessary know-how and materials.

⁵⁶ Médecins Sans Frontières (2010) *Giving Developing Countries the Best Shot: An overview of vaccine access and R&D*

VACCINES FOR ALL

Help save 4 million children's lives by 2015

Nearly 2 million children still die from vaccine-preventable diseases each year – a quarter of the global child death toll. However, as *Vaccines for All* sets out, the development of new vaccines for pneumonia and diarrhoea means we are on the cusp of a significant breakthrough that could dramatically reduce the number of children who die before their fifth birthday.

The Global Alliance for Vaccines and Immunisation (GAVI) – a health initiative that brings together governments, international organisations and pharmaceutical companies – leads worldwide efforts to improve access to vaccines. It aims to immunise 243 million children by 2015 and save 4 million more children's lives.

But GAVI is currently facing a £2.3 billion funding gap. If GAVI is not fully funded there is a danger that its vital vaccine work will stall or be scaled back, putting children's lives at risk.

On 13 June 2011, the UK government is hosting a half-day pledging conference in London where governments and donors will come together to make financial commitments to fund GAVI's life-saving work. Save the Children is calling on all donors to seize this opportunity to close the funding gap.

In addition, we urge GAVI, its donors and partners to commit to:

- prioritise the hardest-to-reach children
- invest in health systems and health workers to deliver vaccines
- bring down vaccine prices and promote innovative financing methods.

savethechildren.org.uk



Save the Children