

Working Together for the Health of Mothers and Children

Executive Summary

GlaxoSmithKline (GSK) is committed to playing its part in the global effort to reach the Millennium Development Goals (MDGs) 4 and 5, which address child and maternal mortality. This paper sets out our commitment – with a particular focus on developing countries – to improving the health of mothers and children.

GSK's contribution is wide-ranging and sustainable. It spans our whole portfolio, as well as the entire supply chain from R&D to products to partnerships for delivery:

- In R&D, we are committed to researching medicines addressing the specific needs of children and women and ensuring paediatric trials are conducted to a high and child-friendly standard. We are actively researching preventive and curative measures against malaria, HIV/AIDS and cancer.
- In our product portfolio, we have a strong track record in disease prevention for children as well as ensuring our treatments are safe and effective for them. We are working to make our medicines and vaccines relevant and more widely available to the developing world's mothers and children. Our consumer healthcare division also makes a contribution to the daily lives of children through Over-The-Counter medicines and nutritional products.
- In our partnerships, we strive to engage with multilateral organisations, NGOs and civil society to address financing, delivery and infrastructure problems. With our partners, we focus on capacity-building with healthcare workers and education of mothers and children to achieve lasting reach to communities.



For decades, GSK has produced safe and effective products to help reduce the burden of disease and improve the lives of children and mothers. With our partners, we are constantly challenging our business model to find new ways of researching and delivering our products in order to provide sustainable solutions that reduce mortality in mothers and children and break the cycle of decline from illness. Better health leads to better economic development. If we keep mothers and their families well now, we can improve the health and economy of future generations. However, companies like GSK cannot tackle this challenge alone. This paper therefore includes a “call to action” for all involved in tackling this challenge:

- To support the development of products that address the need of the world's most vulnerable groups such as mothers and children. R&D is critical, and companies need to conduct more research into paediatric medicines.
- To ensure that vulnerable people have access to products. Governments, multilateral agencies and the private sector need to collaborate in generating and sustaining affordable pricing, funding and the infrastructure for healthcare interventions to be delivered to mothers and children.
- To create the policy interventions and political will to generate the funding and commitment necessary to support the global health agenda, especially mother and child health. Through partnerships, all involved must create the political will to keep a spotlight on the need for continued focus on mother and child health.

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The Challenge

Each year more than 500,000 women die in pregnancy or childbirth. Just under nine million children die before their fifth birthday, of which four million die in the first month, three million die in the first week and two million die on the first day. The vast majority of these deaths occur in low and middle income countries: in developed countries, nine mothers die for every 100,000 live births, whereas in developing countries the death rate is 450 and in sub-Saharan Africa it is 950.

The deep-rooted causes of child and maternal mortality and the need for a multifaceted approach to solving this problem and ultimately lifting populations out of poverty led to the creation of the UN Millennium Development Goals (MDGs) 4 and 5. MDG 4 commits to reduce the under 5 mortality rate by two thirds between 1990 and 2015. MDG 5 aims to reduce the rate of maternal mortality by three quarters in the same time period and to achieve universal access to reproductive health by 2015. In practical terms, the achievement of these MDGs, along with additional funds mobilised by the WHO Partnership for Maternal, Neonatal and Child Health (PMNCH), should translate into saving the lives of three million women and seven million children by 2015.

Some progress is being made – nearly 27% fewer children died before their fifth birthday in 2007 compared to 1990, and maternal deaths have dropped by 35% between 1980 and 2008.¹ But much more still needs to be done on both fronts. The lack of progress stems from a broad failure by policy makers and other stakeholders to prioritise women and children's health and to recognise that they disproportionately suffer from poverty. Progress is also limited due to a lack of implementation of specific interventions proven to significantly increase their chances of survival. Such interventions include in the case of children basic vaccination and in the case of women benefiting from the presence of a skilled healthcare practitioner during delivery. The global community must maintain and increase momentum to improve the health of mothers and children, and GSK remains committed to playing its part in the global effort to reach the MDGs 4 and 5 through our R&D, our products and our partnerships.

R&D

We shape the development of GSK's products around the lives of children and women:

- *GSK has an established commitment to researching and developing vaccines and medicines addressing unmet medical needs in children and women.*
- *GSK works with academics, Public Private Partnerships and healthcare development organisations to negotiate the complex scientific and ethical environment surrounding healthcare for children in order to conduct paediatric trials to high ethical standards and in a child-friendly fashion and to create products that are safe and effective.*

1. Children

Developing paediatric formulations for as many of our products as possible is an established commitment for GSK. Clinical trials to achieve these indications are conducted according to international and national regulatory requirements and in a child-friendly fashion. GSK continually seeks to develop R&D collaborations with academics or Public Private Partnerships to negotiate the complex scientific and ethical environment surrounding healthcare for children (for more details, see our public policy statement on Paediatric medicines at: <http://www.gsk.com/reportsandpublications-policies.htm>). Our R&D addresses a number of key areas for child health:

- **Malaria** is a disease that kills at least one million children every year in Africa. Overall, it affects up to 500 million people, mostly young children in Africa. GSK has invested over US\$300 million to develop our candidate malaria vaccine RTS,S in partnership with the Malaria Vaccine Initiative at PATH. Phase III clinical studies started in 2009, and the vaccine is likely to be a world first when launched. We have also launched a

¹ Hogan et al. Maternal mortality for 181 countries, 1980-2008: a systematic analysis of progress towards Millenium Development Goal 5. Lancet.

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groundbreaking new ‘open innovation’ strategy, which includes making 13,500 malaria compounds freely available to researchers around the globe - this could lead to the development of new treatments for malaria.

- **HIV/AIDS** medicines still have an insufficient amount of products adapted for use in babies and children. In 2009, GSK allocated £10 million seed funding to support a public-private partnership into the research and development of new HIV/AIDS medicines specifically for children.
- **Vaccines** are an area of continued investment for GSK. For example, we are currently investigating a heptavalent combination vaccine (for Neisseria meningitis C, Haemophilus influenzae type b, diphtheria, Hepatitis B, tetanus, pertussis and poliomyelitis). By reducing the number of injections, we increase the comfort of our young patients and the level of protection achieved through better compliance.
- **Rare diseases** in children are of increasing importance for GSK. We are working on an asset about to enter Phase III clinical trials for Duchenne Muscular Dystrophy, a severely debilitating childhood neuromuscular disease that affects one in 3,500 newborn boys. These young boys suffer from the progressive loss of muscle strength often making them wheelchair-bound before the age of 12, and most die in early adulthood due to respiratory and cardiac failure.

2. Women and Mothers

GSK is also increasing its involvement in diseases affecting women. There is a multiplier effect to protecting the health of women, as families as a whole benefit from mothers not being taken away by illness from their duties of care during their child-rearing years and beyond. GSK's R&D pipeline includes a Phase I biopharmaceutical and a Phase III asset Votrient (pazopanib), both aimed at treating ovarian **cancer**, and further work is under way on treatments for breast cancer. Prolia (denosumab) is another biopharmaceutical recently submitted to regulatory agencies, which aims to tackle post menopausal osteoporosis.

Products

We strive to establish a portfolio designed to supply a wide range of products for mothers and children:

- *Mother and child health is a common thread running through our business for communicable and non-communicable disease.*
- *We've been working for decades on preventing and treating disease – 25 years on HIV/AIDS, 40 years on polio eradication and 50 years on oncology.*
- *We need to do more, for instance, by continually increasing our investments in vaccines and by looking for paediatric applications to our therapeutic treatments.*

1. Vaccines

Paediatric vaccines are the cornerstone of our Biologicals division, which is now the world's leading supplier of vaccines. Over 30 GSK vaccines are currently available worldwide, more than half of which are combination vaccines to protect children or older age groups against up to six diseases at the same time:

- GSK supplies vaccines against **diphtheria, tetanus, pertussis** (whooping cough), **polio, measles, hepatitis B** and **Haemophilus influenzae type b**, all infectious diseases included in the WHO's Expanded Programs on Immunization (EPIs) for the most vulnerable children around the world.
- **Pneumococcal disease** is one of the leading killers of children - nearly one million children each year - and makes millions more sick. GSK is ready to be one of the first companies to supply vaccines in 2010 through the innovative financing mechanism of the Advanced Market Commitment (AMC). We are prepared to supply up

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to 300 million doses of our vaccine, Synflorix, over the next 10 years – enough to help protect up to 100 million children worldwide from paediatric pneumococcal disease.

- **Rotavirus** disease has caused more than five million deaths in infants and young children worldwide over the last decade. Three episodes of severe rotavirus gastroenteritis and therefore potential death were prevented for every 100 infants vaccinated with Rotarix during the first year of life in African babies. This makes it an important measure in reducing severe diarrhoea and mortality and the ensuing impact on public health resources.²
- **Polio eradication** is a field in which GSK has been working for the last 40 years by providing effective vaccines to prevent this disease. In 2009 alone, we supplied to UNICEF over 700 million doses of polio vaccine. GSK was the first to supply the vaccine to the vaccination campaign conducted in Afghanistan in December 2009, and more generally the World Health Organization (WHO) has recognised GSK for the speed with which we provide the vaccine to the endemic countries.

A disease affecting mothers during their child-caring years is **cervical cancer**. It is now vaccine-preventable, including with the GSK vaccine Cervarix. As the mortality burden is highest in developing countries where 80% of deaths occur, we have put in place an innovative pricing policy, reducing the cost of cervical cancer vaccination by an average of 30% across Middle Income Countries. Cervarix is now also WHO prequalified, making it available for purchase by procurement agencies on behalf of developing countries.

2. Pharmaceuticals

Paediatric medicines are an important part of our pharmaceuticals portfolio. We have developed indications for use in at least one paediatric age group for at least 70% of potentially relevant products, covering disease areas such as asthma, HIV/AIDS, cancer, infectious diseases, epilepsy and eczema. Specific examples include:

- **Antiretrovirals** (ARVs) for treatment of HIV/AIDS were often unsuited in dosage for children, so GSK developed scored tablets for the key ARVs Efavirenz, Zidovudine and Combivir. Since liquid formulations are currently the only way to treat babies and very young children, GSK also developed a number of ARV liquid formulations for use in children. All ARVs are available at not-for-profit prices in the world's poorest countries. We've also sought to increase distribution of these life-saving products through eight voluntary licences for companies to manufacture our ARVs in Africa.
- In **antibiotics**, Augmentin is a broad-spectrum antibiotic suitable for the treatment of a wide range of common bacterial infections and is particularly effective against respiratory tract infections. Augmentin ES-600 is an extra strength suspension specifically designed to treat children with recurrent or persistent middle ear infections.
- Within **respiratory products**, we have developed our treatments to help tackle childhood asthma as well as developed programmes through our collaborations with patient advocacy groups to increase awareness and compliance in young age groups.
- **Lymphatic filariasis** is being tackled in part thanks to GSK having already donated over one billion albendazole treatments to 40 countries, reaching over 100 million people, 30 million of whom are children. In addition to donating albendazole (estimated to be over 5 billion treatments over 20 years), GSK also provides £1 million per year in grants and is a founding partner of a Global Alliance to Eliminate Lymphatic Filariasis, with 40 partner organisations from the public, private and academic sectors.

Women also benefit from these medicines, as well as from most of GSK's portfolio. However, women's health is also more specifically addressed through the field of **cancer care**, where GSK has developed Tykerb (lapatinib) for treatment of advanced breast cancer, thereby contributing to the treatment of one of the most common causes of cancer deaths

² Madhi SA, Cunliffe NA, Steele D, Witte D, Kirsten M, Louw C et al. Effect of human rotavirus vaccine on severe diarrhoea in African infants. The New England Journal of Medicine 2010; 362: 289-98.

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in women worldwide. Tykerb is the first, and only, once daily, oral treatment option of this kind for this patient population. Hycamtin is another product used in the field of oncology as a second line treatment for ovarian, cervical and small cell lung cancer.

More generally, GSK is evolving its business model to deliver sustainable and affordable products for all people, including mothers and children. For more details on GSK's initiatives covering aspects such as pricing and collaborations on vaccine financing, production and delivery in low and middle income countries, see the Appendix.

3. Consumer Healthcare

Beyond life-saving medicines and vaccines, GSK's Consumer Healthcare division is also making a difference to the daily lives of millions of women and children through our **oral healthcare** products and with **Over-The-Counter medication** such as Panadol for children, a major brand in the developing world for pain relief. We also contribute to child health through **nutritional products** such as Horlicks, widely used by mothers in India as one of the sources of important nutrients for children under 5.

Partnerships

We work in partnership with others to increase access by mothers and children to healthcare by supporting capacity building programmes:

- *GSK continues to engage with governments, multilateral organisations, NGOs and local organisations to address infrastructure problems on the ground and get better healthcare to mothers and children.*
- *GSK focuses on education to improve the health outcomes of mothers and children - educating healthcare workers, children and mothers about the importance of good healthcare practices by developing education programmes that achieve real cut-through in communities.*
- *Through our partnerships and sustained investment, we seek to develop innovative and intelligent ways to increase access to these hard to reach groups, involving an increasing amount of our employees directly.*

1. Capacity Building

GSK is increasing its support to **healthcare infrastructure development**, a vital element in improving maternal and child health:

- We are reinvesting **20% of our profits from medicines in the Least Developed Countries** back into those same countries, making a sustainable long term funding commitment to support infrastructure. First projects include: providing motorcycle ambulances for pregnant women in Sudan, providing community-based maternal and neonatal support in Ethiopia and supporting improvements in neonatal and child health in the Democratic Republic of Congo.
- We are also working in partnership with WHO, UNICEF and national Ministries of Health on **Integrated Management of Childhood Illness (IMCI)** programs in South Africa, Ethiopia, Nigeria, Ghana and Namibia. The programme aims to reduce mortality rates by improving the case management skills of healthcare workers, the health systems (including drug management) and family/community practices - with a strong focus on capacity building.
- In Vietnam, we support a project to **train birth attendants** to bring maternal healthcare services to rural villages. The project aims to reduce childbirth complications and decrease newborn fatality from the unacceptably high level of 6 per cent. During the first phase of the project, between 2004 and 2007, over 520 midwives have graduated with a government-recognised qualification.

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- The **GSK African Malaria Partnership** awarded four new grants in 2009, a total donation of £1.5 million over three years. They include funding to enable Save the Children UK to reduce malaria outbreaks in flood-affected communities in Kenya, by indoor spraying with insecticide, distributing bed nets, raising awareness in communities and at clinics, and training health professionals to prevent malaria and manage its symptoms.
- Under the new company ViiV created by GSK with Pfizer, we are investing up to £50m over ten years in a new **'Positive Action for Children Fund'** - supporting NGOs and others working with community groups to try and prevent mother-to-child-transmission (PMTCT) of HIV in the developing world with a particular focus on orphans and vulnerable children in Sub-Saharan Africa.

GSK is also engaged on partnerships focussing on **children's education**. GSK has developed PHASE – Personal Hygiene and Sanitation Education - a simple hygiene and hand-washing programme designed to teach children how to prevent the spread of germs and parasites. This has already educated over 500,000 school children and has been recognised by the United Nations as a valuable intervention in helping to meet the MDGs.

2. Employee Involvement

Each year 50 to 100 GSK employees are working full-time for a period of three to six months with partner NGOs, many of which focus on maternal and child health such as Save the Children and Direct Relief International. GSK employees use their professional expertise in areas such as logistics, IT, finance, project management and communications to build positive, sustainable change in impoverished communities around the world as part of the **PULSE** Volunteer Partnership Programme.

Barretstown is a specially designed camp in Ireland run by Hole in the Wall, helping children with serious illnesses to regain their confidence and self-esteem. It provides a programme of adventure, activities and fun which is backed by the medical world as helping towards their recovery. During 2009, 50 GSK employees volunteered for Barretstown camps, attended by over 1,500 children.

Call to Action

No single organisation can produce a solution to making a meaningful difference to the health of mothers and children, especially in the developing world. Responsibilities need to be shared across governments, multilateral organisations, the private sector including pharmaceutical industry and civil society. Priority areas for collective action are:

- **To support the development of paediatric medicines.** The challenges of paediatric research, including the many scientific, ethical and logistical complexities involved, have traditionally made paediatric studies more costly than those conducted in adults. The market for paediatric medicines is inevitably also more limited than the adult market. As a result, there are far fewer paediatric indications than adult indications for medicines. A number of steps have been taken to address this. For example, the US and EU reward testing for certain indications in children with patent terms extensions and extended marketing exclusivity. Other important initiatives include a partnership approach such as the one led by the WHO's "*make medicines child size*" campaign and the development of the Essential Medicines List for children, which aims to establish priority areas for the development and provision of paediatric medicines. Such measures to incentivise research and ensure a coordinated and consultative approach to paediatric medicines should be promoted and replicated in more countries to mitigate some of the complexities and additional costs associated with paediatric research.
- **To ensure that vulnerable people have access to products.** Governments, multilateral agencies and the private sector need to collaborate to generate and sustain funding for healthcare interventions, and to work together to remove financial barriers to access. Pricing policies need to reflect affordability for the populations to be reached. These need to be combined with the development and maintenance of adequate infrastructure for healthcare interventions to be delivered to mothers and children, including capacity building on healthcare workers,

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especially birth attendants and trained healthcare workers. Healthcare interventions need to be adapted to mothers and children and delivered in ways suited to their needs. This involves, for example, using participatory methodologies that are owned and managed by communities, thus ensuring their healthcare preferences are taken into account and are sustainable over the long term. Where appropriate, the involvement of the private sector needs to be encouraged to form part of adapted solutions for healthcare delivery.

- **To create the necessary political will** and policy interventions to ensure maternal and child health remains a policy priority. Through partnerships, all involved must create the political will to keep a spotlight on the need for continued focus on mother and child health. More specifically, GSK supports the UN Secretary-General's *Joint Action Plan for Women's and Children's Health*. Through involvement with the Joint Action Plan, the private sector can increase its support and contribution to saving the lives of millions of women and children. All stakeholders involved in initiatives addressing mother and child health should also commit to being accountable for reporting the progress and ultimately results of their work on a regular basis with agreed measures and to share lessons learned.

By working together, we can build on existing efforts and find new ways of researching and delivering healthcare in order to provide sustainable solutions that reduce mortality in mothers and children and break the cycle of decline from illness. Better health leads to better economic development. If we keep mothers and their families well now, we can improve the health and economy of future generations.

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Appendix

GSK is evolving its business model to deliver sustainable and affordable products for all people, including mothers and children, in low and middle income countries:

- *10GSK uses pricing models so that medicines and vaccines can be more widely distributed and accessed by different parts of society.*
- *GSK relies on Public Private Partnerships (PPPs) to reach for new and wider capabilities in developing, financing and distributing products in the developing world.*
- *Where it makes public health and economic sense, GSK is creating a number of joint ventures and other collaborations, such as transferring our technology in groundbreaking deals with other companies, so more capacity can be created to meet the growing demand of developing countries, especially for paediatric vaccines.*

GSK tries to ensure the widest possible access with tiered pricing for vaccines – where the poorest countries pay the least. GSK pioneered a tiered pricing approach for vaccines in the mid-1980s and has applied it ever since. Prices are varied across markets according to countries' income and ability to pay as measured by their Gross National Income (GNI) as defined by the World Bank, as well as by the volumes of vaccine purchased and the duration of the purchase commitment. As a result, paediatric vaccines in the world's poorest countries are typically 10-20% of the prices in high income countries. In January 2010, GSK pledged to create a sustainable pricing model for the world's most advanced malaria candidate vaccine, covering costs and providing a small return, which will be invested straight back into R&D for second-generation malaria vaccines or vaccines for other neglected tropical diseases.

GSK is also tiering prices on its medicines. Following on from a long-standing commitment of not-for-profit pricing on HIV/AIDS and malaria medicines in key vulnerable countries affected by the disease, GSK reduced the prices of eleven GSK patented brands in Least Developed Countries in April 2009. This amounted to an average 45% price reduction for 110 individual product lines and formulations, many of which have paediatric indications. Following the price decreases, we have seen significant increases in patient uptake for the majority of products. Uptake has often doubled, and in some instances they are eight times higher when comparing sales at the higher prices in the first three months of 2009. Building on this, we introduced more flexible pricing for some of our innovative brands in Middle Income Countries. In over 80 countries, we have now reduced the price of Avamys between 15 -50% (around a 45% reduction on average), helping to treat more children with allergic rhinitis. We are also taking steps to reduce the prices of our non-patent protected Classic Brands on a country-by-country basis, for both private and public markets, thereby striving to increase the affordability of a wide range of commonly used medicines.

GSK works with partners such as the GAVI Alliance, PAHO and UNICEF to facilitate vaccine financing and delivery.

These organisations work to plan, source, fund, supply and deliver high quality vaccines via extensive vaccination campaigns across developing world countries. Since the GAVI Alliance was formed in 2000 to support immunisation in the poorest countries, it has reached over 200 million children and saved over 3 million deaths from vaccine preventable diseases. In 2009, half of our 1.4 billion doses of vaccines produced went to the Global Alliance for Vaccines and Immunisation (GAVI).

GSK has launched a unique R&D and technological partnership with the Brazilian Government and Fiocruz (the Oswaldo Cruz Foundation attached to the Brazilian Ministry of Health, which researches and produces vaccines) based on long term collaboration agreements begun in the late 1990's for the production of some key paediatric vaccines against diseases affecting Brazil's population: polio, Hib, measles, mumps, rubella and rotavirus. A new research and development collaboration programme is under way to develop a vaccine for dengue fever, which predominantly affects children, and Fiocruz will be provided with access to our technology, to produce its own brand of our conjugate vaccine Synflorix.