



gapps

an initiative of Seattle Children's

GLOBAL ALLIANCE TO PREVENT
PREMATURITY AND STILLBIRTH



Realizing the 2015 Global Action Agenda
on Preterm Birth & Stillbirth:
The Five-Year Strategic Plan for GAPPS



The Global Alliance to Prevent Prematurity and Stillbirth (GAPPS) was founded as an initiative of Seattle Children's.



Crises Requiring an Interdisciplinary Commitment and Urgent, Global Action:

13 Million Preterm Births & Three Million Stillbirths

Although child health has improved worldwide in the last few decades, little progress has been made in maternal and newborn health.

Maternal, fetal, newborn, and child health outcomes are intertwined. More than half a million women die during pregnancy and childbirth, and many of these deaths are linked with stillbirths. Nearly one million stillbirths occur during labor, just minutes or hours before birth, and could be prevented with existing interventions. Prematurity is the leading cause of newborn death. Babies born before 37 completed weeks of pregnancy are not fully developed, and many who survive have serious short- and long-term health risks.

Preterm births and stillbirths occur in all countries and across all settings and income levels. Even a mother who has had state-of-the-art prenatal care can—for unknown reasons—deliver a baby prematurely. Preterm birth rates are increasing in middle- and high-income countries such as the United States. Stillbirths are most common in low-resource settings, yet in all settings stillbirths are rarely discussed and are often invisible.

More Lives Can Be Saved

GAPPS is forging a collaborative, global commitment toward preventing prematurity and stillbirth. Objectives include increasing awareness, fueling investments, accelerating innovative research and intervention development, and promoting effective health policies that will improve maternal, newborn, and child health.

Realizing the 2015 Global Action Agenda on Preterm Birth & Stillbirth

In May 2009, GAPPS convened the International Conference on Prematurity & Stillbirth with the Bill & Melinda Gates Foundation, March of Dimes, PATH, Save the Children, UNICEF, and the World Health Organization. Nearly 200 experts in maternal, fetal, newborn, and child health attended the conference. Participants represented 35 nations and included researchers, healthcare practitioners, UN and government agencies, nonprofits, policymakers, and funders.

The International Conference resulted in the 2015 Global Action Agenda on Preterm Birth & Stillbirth. Six key initiatives are summarized below.

Understand the magnitude and impact of preterm birth and stillbirth

Understanding the prevalence of preterm birth and stillbirth is a critical first step to increasing awareness and prioritizing actions to reduce these deaths. Global estimates are often based on poor quality or missing data; most countries do not have adequate birth or death records. Researchers who track populations to determine estimates, causes, and impacts face formidable barriers in collecting and analyzing data on prematurity and stillbirth—particularly in South Asia and sub-Saharan Africa, where two-thirds of the deaths are thought to occur. Regions with the highest risks of death have the least information available.

Build research capacity in low- and middle-income countries

Researchers need high-quality information from pregnant women and newborns from places with the highest burden of prematurity and stillbirth. This will require significant investments in health research infrastructure in low-resource settings.

Catalyze diagnostic, treatment, and prevention innovations through discovery science

The biological processes of pregnancy and childbirth, and therefore many causes of preterm birth and stillbirth, are poorly understood. This is the largest barrier to the development of diagnostic, treatment, and prevention

strategies for preterm birth and stillbirth. New scientific tools and technologies are now available that, when applied to pregnancy and fetal development, will allow researchers to understand why some pregnancies end in preterm birth or stillbirth—so that targeted diagnostic, treatment, and prevention strategies can be developed.

Develop and deliver effective, low-cost, and low-tech interventions¹

The GAPPS international team of researchers assessed more than 80 preterm birth and stillbirth interventions that are relevant for use in low-resource settings. Only 25 percent of the interventions reviewed were judged to be effective in preventing preterm birth or stillbirth in those settings. Some interventions were shown to be ineffective. Others require more evidence of effectiveness or cost too much to be widely distributed.

The use of existing, evidence-based, and cost-effective interventions must be increased to reduce preterm births and stillbirths in the short-term. At the same time, effective interventions that are now only available in high-income countries need to be adapted for use in low-resource settings. GAPPS will work to ensure widespread use of recommended interventions, to help discontinue ineffective or harmful treatments, and to explore promising but unproven interventions.

Increase visibility and awareness of preterm birth and stillbirth

Many global health policy leaders remain unaware of the magnitude of the health problems and economic consequences caused by preterm birth and stillbirth, and their relationships to maternal, child, and societal health. Survivors of preterm birth have long-term health consequences that may not be evident until adulthood. Other global health leaders are aware of the problems, but have not known what to do. Improving awareness, helping leaders understand what can be done, and securing an international commitment are crucial steps to reducing global prematurity and stillbirth.

Unlock the resources necessary to reduce preterm birth and stillbirth

Significant funding, commitment, and coordinated efforts are needed to define the full magnitude and impact of prematurity and stillbirth; to identify and scale up effective interventions that can make a difference in the short-term; to enable the creation of diagnostic, treatment, and prevention strategies; to establish research capacity in low- and middle-income countries; and to raise and sustain awareness of these problems. Objective and scientifically valid evaluations of interventions that are scaled up will be crucial to optimize resources.



Preventing prematurity and stillbirth is ambitious, but possible. Greater funding, research, and attention can prevent these global tragedies and accelerate progress toward the United Nations Millennium Development Goals 4 and 5 to improve maternal and child health.

MDG 4 Improve Child Health

Reduce by two-thirds, between 1990 and 2015, the under five mortality rate.
(Prematurity is the leading cause of death in children under five)

MDG 5 Improve Maternal Health

Reduce by three-fourths the maternal mortality ratio.
(Reducing preterm birth and stillbirth will improve maternal health.)

The United Nations Millennium Development Goals (MDGs) are eight goals to be achieved by 2015 that respond to the world's main development challenges. The MDGs were adopted by 189 nations and signed by 147 heads of state and governments during the UN Millennium Summit in September 2000. MDGs 4 and 5 will not be met without major interventions to improve maternal and newborn survival.

¹ Interventions are strategies to diagnose, treat, and prevent preterm birth, stillbirth, and related maternal, newborn, and child health problems.

A Five-Year Strategic Plan for GAPPS

GAPPS is dedicated to accelerating achievements in the 2015 Global Action Agenda and the United Nations Millennium Development Goals 4 and 5. GAPPS is strengthening collaborations in maternal, newborn, and child health, and developing a unified, global focus on preterm births and stillbirths. GAPPS will build on the initiative launched by Seattle Children's—an internationally recognized leader in pediatric health and research—to achieve these primary goals:

- **Make every birth count**
- **Improve maternal and newborn health outcomes**
- **Translate discoveries into diagnostic, treatment and prevention strategies**
- **Build global health research capacity**
- **Advocate for policy changes and increased resources**

Make Every Birth Count

Better data are needed on maternal mortality, stillbirths, preterm births, and the impacts of preterm birth on newborn and child health. Preterm birth and stillbirth definitions vary across researchers and national health ministries. In many countries, preterm births and stillbirths are often inaccurately recorded or not reported at all. For example, household surveys are the main data source from countries with 75% of the global burden. The capture and quality of data from these countries must be improved.

Understand the magnitude of the problem

- Define and classify normal and abnormal pregnancy
- Establish global measures of preterm birth and stillbirth
- Improve epidemiological data collection methods to ensure consistency among global studies
- Utilize bioinformatics and apply computational tools to revolutionize research on preterm birth and stillbirth

Assess the impact of interventions for preterm birth on newborn and child health

- Assess the effectiveness of current interventions and practices
- Promote adoption of cost-effective clinical practices, and household- and community-based interventions that reduce the impact of preterm birth on newborn and child health
- Establish and promote strategies for alleviating chokepoints in scaling up cost-effective interventions in regions where they are needed most



Improve Maternal and Newborn Health Outcomes

Maternal and newborn health outcomes can be improved through a continuum of care that begins before pregnancy. Additional progress can be made if health practices that are widely used in high-income settings become available in areas where preterm births and stillbirths are most prevalent.

Relatively simple acts could save mothers and newborns. Global health organizations have identified a continuum of clinical and home care for mothers and newborns that could dramatically reduce stillbirths, improve survival for preterm newborns, and improve other maternal, newborn, and child health outcomes.

Promote a continuum of care for mothers and newborns in low-resource settings

Collaborate with global health organizations to help ensure delivery of evidence-based, scalable interventions in low-resource settings.

- **Example 1** Monitor delivery of newborns by skilled birth attendants—this would impact the survival of premature newborns as well as the three million stillbirths and half a million maternal deaths that occur during childbirth
- **Example 2** Maintain the newborn's body temperature
- **Example 3** Promote early and exclusive breastfeeding
- **Example 4** Administer low-cost corticosteroids to the mother prior to delivery, which improves lung function in premature newborns
- **Example 5** Administer antibiotics to the mother or newborn for signs of infection

Establish ongoing data collection, through a quality improvement process, to enhance the continuum of care in maternal and newborn health.

- Adopt evidence-based health care delivery, which may require changes in local practices

- Improve programs that optimize sustainable, evidence-based practices
- Scale up effective, existing interventions, and identify and evaluate new ones

Promote the best care for newborns

Partner with PATH and other global health organizations to translate scalable technologies and clinical practices in low- and middle-income settings.

Promote development and widespread use of cost effective interventions

- **Example 1** Administer surfactant to the baby during delivery: GAPPS is researching the use of a synthetic surfactant for treating preterm newborns at a fraction of the cost of the one currently used in the United States
- **Example 2** Provide respiratory support to many premature newborns: GAPPS has invented a low-cost (<\$100) mechanical ventilator that is very simple to use and maintain; standard mechanical ventilators are expensive (>\$25,000) and difficult to operate, maintain, and repair

Translate Discoveries into Diagnostic, Treatment, and Prevention Strategies

We must improve our understanding of the biological mechanisms of preterm birth and stillbirth in order to stop these global crises. An increased understanding of normal pregnancies will provide the foundation for investigating the magnitude and consequences of preterm birth and stillbirth, and for identifying diagnostic, treatment and prevention strategies.

A cornerstone of the research strategy includes the development of a perinatal biorepository at the Seattle Children's Research Institute. This unique repository network collects biological specimens linked to clinical data, with a goal of making these available to researchers around the world. The Seattle Children's Guild Association and the Fischer Foundation have provided the initial financial support for the repository.

Identify research gaps

Identify gaps in knowledge and resources to determine basic and translational research needs.

Conduct research to determine the causes of preterm birth and stillbirth

- Conduct basic research and initiate high priority projects
- Investigate relevant mechanistic hypotheses with selected experimental models of normal and abnormal reproductive outcomes
- Characterize biomarkers associated with stillbirth and preterm birth and with normal pregnancy and childbirth

Establish GAPPS Repository

Support preterm birth research by providing a standardized source of high-quality specimens linked to phenotypic data from diverse populations of women.

Develop interventions to diagnose, treat and prevent preterm birth and stillbirth

- Engage in translational development of basic scientific discoveries
- Conduct clinical studies to implement promising diagnostic, treatment, and prevention strategies



Build Global Health Research Capacity

Improving in-country research capabilities in low-resource settings requires infrastructure development. GAPPS will help create biorepositories and other infrastructure requirements to facilitate training and retaining researchers and healthcare providers. This will also enhance translation of research findings into practice improvements for maternal and newborn health research.

Promote development of Maternal and Newborn Health Research Centers of Excellence

- Evaluate in-country sites for potential development of Research Centers of Excellence
- Develop recommendations for strengthening research infrastructure in the respective countries and locales
- Link centers of excellence with population-based biorepositories
- Promote training programs to build research capacity
- Engage health care workers in processing and interpreting data from the studies in which they participate
- Establish mechanisms for efficient introduction of new or refined interventions and practice changes, as identified by translational research

Establish global research biorepositories

- Establish biorepositories in low- and middle-income countries that will link maternal samples to phenotypic data
- Promote standardization of preterm and stillbirth definitions and classifications to enable consistent research across populations and comparability of research findings across studies
- Improve accessibility to data and specimens to facilitate successful research in the Centers of Excellence

Advocate for Policy Changes and Increased Resources

GAPPS will advocate for effective health policies, the efficient use of resources, adequate funding, and rapid deployment of evidence-based interventions for preterm birth and stillbirth.

Advocacy plan

- Develop and implement a coordinated advocacy plan that communicates the poorly understood economic impacts of prematurity and stillbirth
- Develop and implement a coordinated advocacy plan that showcases the inextricable link between maternal, newborn, and child health
- Secure support from policy makers and other key stakeholders for global research efforts, for the development and rapid deployment of proven, effective interventions, and for the use of best practices in development and delivery

Expand the global health agenda

- Communicate the essential roles of the reduction of preterm birth and stillbirth as critical elements in achieving the UN MDGs 4 and 5

Partner

- Work with funders to increase financial commitments for research on the scope, causes, and consequences of preterm birth and stillbirth, and to implement and scale up of effective interventions
- Promote the integration of these strategies with core partners, such as the Bill & Melinda Gates Foundation, March of Dimes, PATH, Save the Children, UNICEF, the World Health Organization, the Seattle Children's Research Institute, and the Seattle Children's Foundation
- Engage in other carefully selected strategic partnerships and establish an international Advisory Council to accelerate achievements in the 2015 Global Action Agenda and to raise the international profile for prematurity and stillbirth
- Serve as a catalyst for the identification and efficient utilization of major funding sources to help move forward objectives in the Global Action Agenda
- Secure significant funding and support for projects and operations





Please contact us to learn how you can make a difference

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