The Next Phase of Grand Challenges

Gary Darmstadt
Senior Fellow, Bill & Melinda Gates Foundation
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EVERY PERSON DESERVES THE CHANCE TO LIVE A HEALTHY, PRODUCTIVE LIFE
Our Values

OPTIMISM

COLLABORATION

RIGOR

INNOVATION
Signature Global Health Partners & Efforts
The Case for Partnership

A Partnership based on shared values

- **Shared vision for health equity**  
  - The Bill & Melinda Gates Foundation and the Brazilian government share a commitment to health equity as a key driver of development.  
  - This commitment is reflected in Brazil’s constitution and the foundation’s mission.

- **Focus on innovations that benefit those most in need:**  
  - We engage scientists to develop new tools and interventions that will benefit the world’s poorest.
The MOH/ BMGF strategic alliance
A strong platform for collaboration

2010
• Start of TB partnership
• Tachi Yamada Visit

2011
• Discussions at Pacific Health Summit
• MOU Signed
• FAP partnership formalized (GCE Brazil)

2012
• GC partnership announcement
• Start of PATH Technical Assistance
• Start of Eliminate Dengue Brazil

2013
• GC: Preventing Preterm Birth
• GC meeting in Brazil
• MR collaboration

2014
• GC Re-launch: Brazil as key Partner
• GC: All Children Thriving
• Start of Nutrition Engagement
Brazil MOH-BMGF Strategic Alliance

2011 Memorandum of Understanding

Vaccine Production and Development
- Technical Assistance to Vaccine Manufacturers
- Measles-Rubella (MR) Vaccine Development/

Innovation & Research (including Family Health)
- GC Reducing the Burden of Preterm Birth
- GC: All Children Thriving
- Grand Challenges Explorations (GCE)
- Annual Grand Challenges Meeting 2013 in Rio

Joint Global Health Initiatives
- Tuberculosis: Uptake of innovation in TB control
- Vector control: Eliminate Dengue Project
- New: Lessons Learned from Brazil Nutrition Programs

KEY:
- Ongoing Initiative
- New Initiative
- Past/ Wrapping up
Grand Challenges Brazil

The Gates Foundation and its Brazilian partners engage Brazilian innovators to address global health challenges:

Grand Challenges Explorations (GCE)
**Partners:** 17 State-Based Research Foundations (FAPs)

**Agreement**
2011: BMGF and 17 FAPs to increase local GCE proposals

**Results**
540 proposals: 7 grantees from 7 Brazilian institutions

**Project Example**
New Technology of Planting Based on Seed Tape

Grand Challenges Brazil: Reducing the Burden of Preterm Birth (PTB)
**Partners:** MOH/CNPq (National Research Council)

**Agreement**
2011: MOU between MOH/BMGF
2013: Launch of RFP on PTB

**Results**
156 proposals submitted: 12 funded projects

**Project Example**
Metabolomics for validation of biomarkers for PTB

**Moving Forward:** MOH/ CNPq launched All Children Thriving - Brazil in November 2014, which includes the second phase of Reducing the Burden of Preterm Birth
Preventing and Managing Preterm Birth
Grand Challenge Brazil

**Biological Research**
- Expression analysis of **intrauterine transporters** to understand normal and preterm labor and pharmacology of drug treatment - UFRJ
- Vaginal **microbiota and metabolite analysis** for predicting infection-mediated preterm birth risk - UNIFESP
- Microbiota analysis (maternal vaginal and gut and infant gut) to identify risk factors of preterm birth and preterm infant infection - UFRGS

**Medical Interventions**
- Early maternal **metabolomic biomarkers** of preterm risk - UNICAMP
- Test of cervical pessary and progesterone to reduce preterm rate associated with short cervix - UNICAMP
- Oral magnesium trial to prevent placental vasculatory disorders and induction of preterm labor - IMIP, PE
- Aspirin trial to prevent preeclampsia and reduce induction of preterm labor – UNIFESP
- Development of **lyophilized human milk** product for very low birth weight preterm infants – USP

**Service Delivery/Environmental issues**
- Geographical analysis of preterm birth in São Paulo to identify risk factors Instituto de Saúde, São Paulo
- Test of Quarenta Semanas program for delivery of quality prenatal care - Fiocruz

**Behavior Change**
- Museum exhibit to change perception of healthy delivery and reduce C-section-related preterm birth – UFMG
- Neonatal unit breastfeeding program to increase rate of exclusive breastfeeding of preterm infants - USP
What is Grand Challenges?

A diverse family of initiatives and partners fostering innovation to solve key global health and development problems. Grand Challenges seeks to:

- Engage the world’s most creative minds from across sectors, organizations and geographies through open requests for proposals (now over 1,000 grants in more than 50 countries)
- Support high-risk, high-reward research on the most difficult and pressing issues that partners would not have the ability to address on their own
- Bring innovation to scale for the benefit of the world’s poor by partnering with the private sector and others to expedite the process
Grand Challenges Principles

1. Strategic and well-articulated grand challenges serve both to focus research efforts and to capture the imagination and engage the world’s best researchers.

2. Projects are selected based on public, transparent calls for proposals seeking the best ideas.

3. Projects are selected not only for scientific excellence, but also for their likelihood to achieve the desired impact, and they are milestone-driven and actively managed to that end.

4. Funders, investigators and other stakeholders actively collaborate to accelerate progress and integrate advances to ensure these advances serve those most in need.

5. Projects and investigators make global access commitments to ensure the fruits of their research are available to those most in need.
# A Portfolio of Experiments

## Grand Challenges in Global Health (GCGH)*

<table>
<thead>
<tr>
<th>Year</th>
<th>Initiative</th>
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<tbody>
<tr>
<td>2003</td>
<td>GCGH</td>
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<tr>
<td>2009</td>
<td>GCGH Point-of-Care Diagnostics</td>
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<tr>
<td>2010</td>
<td>GCGH Vector Control</td>
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<tr>
<td>2011</td>
<td>GCGH TB Biomarkers</td>
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<tr>
<td>2011</td>
<td>GCGH Preventing Preterm Birth</td>
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<tr>
<td>2011</td>
<td>GCGH Achieving Healthy Growth</td>
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<tr>
<td>2011</td>
<td>GCGH Gut Function Biomarkers</td>
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<tr>
<td>2012</td>
<td>GCGH TB Vaccine Accelerator</td>
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<td>2013</td>
<td>GC Brazil: Reducing the Burden of Preterm Birth</td>
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<tr>
<td>2013</td>
<td>GC India: Achieving Healthy Growth</td>
</tr>
<tr>
<td>2013</td>
<td>GC India: Reinvent the Toilet</td>
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## Grand Challenges Explorations (GCE)

<table>
<thead>
<tr>
<th>Year</th>
<th>Round</th>
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<tbody>
<tr>
<td>2008</td>
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<tr>
<td>2009</td>
<td>3 (4 topics) 4 (4 topics)</td>
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<tr>
<td>2010</td>
<td>5 (4 topics) 6 (5 topics)</td>
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<tr>
<td>2011</td>
<td>7 (6 topics) 8 (5 topics)</td>
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<tr>
<td>2014</td>
<td>13 (5 topics) 14 (6 topics)</td>
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## Grand Challenges Partner Initiatives*

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<th>Year</th>
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<tbody>
<tr>
<td>2009</td>
<td>GCGH Point-of-Care Diagnostics</td>
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<tr>
<td>2010</td>
<td>GCC Stars in Global Health</td>
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<tr>
<td>2011</td>
<td>USAID All Children Reading</td>
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<tr>
<td>2011</td>
<td>GCC Hypertension</td>
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<tr>
<td>2011</td>
<td>Saving Lives at Birth</td>
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<tr>
<td>2011</td>
<td>GCC Saving Brains</td>
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<tr>
<td>2011</td>
<td>GCC Global Mental Health</td>
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<tr>
<td>2012</td>
<td>USAID Powering Ag</td>
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<tr>
<td>2013</td>
<td>USAID Securing Water for Food</td>
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<tr>
<td>2013</td>
<td>USAID Making All Voices Count</td>
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<tr>
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* New initiatives and partnerships were announced in 2014. See subsequent slide.
Why use a Grand Challenges approach?

- To clearly articulate a challenge problem, that if solved could improve the lives of those most in need by:
  - Identifying new ideas, new investigators and new partners; and
  - Providing the most promising new ideas and investigators funding and other resources to test their ideas and when successful to accelerate the scaling of new interventions towards impact

- To acquire a landscape of the idea space of a priority area

- To build a portfolio of competing or complementary investments

- To use the challenge process to engage in a broad conversation with the stakeholder community
Grand Challenges Explorations

- Over 50,000 applications from 180 countries to date
- Over 1,070 Phase I awards to researchers from 60 countries
- Over 50 projects with Phase II funding

Anyone Can Apply:
- From any country and any discipline and at any level of experience
- From academia, government, non-profits or industry
- Review is “blind” and champion-based

Applying is Easy:
- Two-page application
- No preliminary data required
- Partnership with 17 FAPs provides additional $50,000-$100,000 to projects selected in Brazil

Awards are Frequent and Rapid:
- Two opportunities to apply each year
- Awards granted in 4-6 months
- Phase I funding of $100,000 can lead to Phase II funding of up to $1M
Grand Challenges Explorations Round 14 accepting applications until November 12, 2014, at www.grandchallenges.org

Round 14 Topics:

- Surveillance Tools, Diagnostics and an Artificial Diet to Support New Approaches to Vector Control
- New Approaches for Addressing Outdoor/Residual Malaria Transmission
- New Ways to Reduce Pneumonia Fatalities Through Timely, Effective Treatment of Children
- Explore New Ways to Measure Brain Development and Gestational Age
- Enable Universal Acceptance of Mobile Money Payments
- New Ways of Working Together: Integrating Community-Based Interventions
The Next Phase of Grand Challenges

- In October 2014, the Gates Foundation and partners announced the next phase of Grand Challenges

  - The founding initiative launched by the Gates Foundation in 2003, Grand Challenges in Global Health, has been renamed **Grand Challenges** to reflect its broadening scope

  - The **Grand Challenges Explorations** initiative continues with an even broader scope

- New grant opportunities are now open
Grand Challenges: Grant Opportunities

- Putting Women and Girls at the Center of Development
- All Children Thriving Platform
  - Creating and Measuring Integrated Solutions for Healthy Birth, Growth, and Development (*global request for proposals*)
  - Grand Challenges Brazil: All Children Thriving
  - Grand Challenges India: All Children Thriving
  - Grand Challenges South Africa: All Children Thriving
- New Interventions for Global Health
Grand Challenges:
Putting Women and Girls at the Center of Development

**Goal:** Strategies to effectively reach and empower the most vulnerable women and girls to improve health, development and economic outcomes, as well as gender equality

- Grants will go to investigators in low- and middle-income countries
  - Partnerships with investigators in other countries are invited
  - Applications from women-led organizations and applications involving projects led by women are particularly encouraged

- Up to US$500,000 (2-year exploratory grants) or up to US$2.5 million (4-year full grants)

- 5-page Letter of Inquiry; open for submission November 4, 2014; application deadline January 13, 2015; to apply, see [www.grandchallenges.org](http://www.grandchallenges.org)
Grand Challenges: Creating and Measuring Integrated Solutions for Healthy Birth, Growth, and Development

Goal: New measurement tools and new combinations of approaches to ensure all children thrive – meaning they not only survive, but also have the chance to live healthy, productive lives

- Grants will go to investigators in low- and middle-income countries
  - Partnerships with investigators in other countries are invited
  - **Brazilian investigators are asked to apply through Grand Challenges Brazil: All Children Thriving**
  - Indian investigators are asked to apply through Grand Challenges India: All Children Thriving
  - South African investigators are asked to apply through Grand Challenges South Africa: All Children Thriving
GC Brazil: All Children Thriving

**Focus:** New measurement tools and new combinations of approaches to ensure all children thrive – highlighting healthy pregnancy and birth, nutrition, nurturing and cognitive development and approaches that can be applied in the SUS

- In Brazil called: **Desenvolvimento Saudável para todas as Crianças**
  - Partnerships with investigators in other countries are encouraged
  - Researchers will be part of global All Children Thriving network
  - Projects selected by Brazilian and international reviewers
  - Co-funding by Ministry of Health, CNPq and Gates Foundation

- Up to R$ 500,000 (2-year exploratory grants) or up to R$ 4 million (4-year full grants)


**Applications: www.cnpq.br**
New Interventions for Global Health

Goal: Innovative concepts for vaccines, therapeutics, and diagnostics with the potential to be translated into safe, effective, affordable, and widely used interventions

- Grants will go to investigators globally, but a partnership with a pharmaceutical, biotech company or other translational partner is required for a full award

- Up to US$2 million (up to 4-year pilot awards) or up to US$10 million (up to 4-year full awards)
  - Full awards include grants, contracts, and other types of investments

- 5-page Letter of Inquiry; open for submission November 4, 2014; application deadline January 13, 2015; to apply, see www.grandchallenges.org
WE’VE COME A LONG WAY!

- Several ongoing projects co-funded, including 12 preterm birth projects
- Successful partnership in uptake of innovative health products
- Ongoing collaboration on vaccine manufacturing and development
- Pipeline of interesting opportunities ahead!