Health and Research Program (HaRP) 2.0: Testing of systems approaches to scale and sustain treatment of possible severe bacterial infections in young infants
Addendum #2

To

The Broad Agency Announcement (BAA) for
Global Health Challenges

I. Background & Problem Statement

About one in every three under five deaths in the Africa and South Asia regions occurs in the first 28 days of life, accounting for 1 million infant deaths each year. Possible severe bacterial infections (PSBI, also known as sepsis) are among the leading causes of death in this age group, causing an estimated 17% of neonatal deaths and 6-9% of deaths in children aged less than five years in the Africa and South Asia regions.

Until recently, the only recommended World Health Organization (WHO) treatment of neonates and young infants with PSBI entailed in-patient hospitalization and administration of multi-drug, multi-dose injectable antibiotics for at least 7-10 days. While this remains the gold standard according to the WHO Pocket Book of Hospital Care for Children 2013, a large number of sick young infants are not able to receive timely hospital care with appropriate therapy due to myriad household-level and health systems barriers.

WHO, Save the Children/Saving Newborn Lives, the Bill and Melinda Gates Foundation, and USAID, in partnership with leading researchers, recently supported clinical trials of simplified treatment regimens in Africa (DR Congo, Kenya, and Nigeria), and South Asia (Pakistan and Bangladesh). These studies in Africa and Asia documented that simplified antibiotic regimens on an outpatient basis were as effective as the inpatient gold standard in young infants with clinical signs of severe infection, without signs of critical illness, and whose caregivers did not accept referral for hospital admission. As a result, WHO developed guidelines on management of PSBI in sick young infants where referral is not feasible. WHO guidelines were published in September 2015 that reaffirmed hospitalization as the best option, but also recognizing that in settings where referral is not possible, the guidelines endorse two treatment approaches for newborns and young infants:

- Option 1: Intramuscular gentamicin 5–7.5 mg/kg (for low-birth-weight infants gentamicin 3–4 mg/kg) once daily for seven days and twice daily oral amoxicillin, 50 mg/kg per dose for seven days. Close follow-up is essential.

- Option 2: Intramuscular gentamicin 5–7.5 mg/kg (for low-birth-weight infants gentamicin 3–4 mg/kg) once daily for two days and twice daily oral amoxicillin, 50 mg/kg per dose for seven days. Close follow-up is essential. A careful assessment on Day 4 is mandatory.

The simpler of these two treatments is Option 2 (two days of injectable antibiotics administered on an outpatient basis as well as seven days of oral amoxicillin (liquid or tablet) and follow up with the family on Day 4).

These research findings and the related new WHO guidelines present an opportunity for promoting innovation at scale alongside careful consideration of existing health systems contexts. Successful sustainable implementation of the simplified regimens across different country settings will require policy change and systematic learning and adaptation approaches to identify and address health system readiness challenges, including human resources for health (HRH); supply chain and drug formulations; supervision and quality assurance mechanisms; changes in care-seeking norms/pathways; referral linkages; and changes to health information systems. Therefore, applying these guidelines in countries requires an implementation research approach, undertaken as part of broader efforts to strengthen primary and universal health care.

A further challenge to consider is what could be termed the health system microsystem, i.e. the interactive environment at service delivery level that includes patient, caregiver, primary care sites, and associated next level referral care such as a referral hospital. The chain of care for these sick children in this health microsystem may include a mix of private and public entities serving different functions at different times in the care process of a newborn and young child. Encounters at postnatal or outpatient department visits, strategies to follow up after discharge, the referral, and the capacity at various levels of the health system to provide care are seen as important to research and understand.

II. BAA Addendum Intent and Scope/Solutions Sought

In the pursuit of applied research USAID seeks to develop and test systems-based research for PSBI service delivery that will be used to document, test new approaches, and engage local health systems in improving their newborn and young infant PSBI activities. USAID will pursue issues such as fidelity, quality, and adherence in the existing health microsystem where countries and sites have demonstrated a readiness to implement the new guidelines, but may not have had previous exposure to the PSBI research (i.e., specific catchments associated with the prior proof of principle research sites as well as in countries where studies were not conducted). In sites that have already started implementing (e.g. Bangladesh, Ethiopia, Nigeria), the critical questions will center on understanding the enabling factors for sustaining implementation with adequate fidelity and adherence to ensure safety and impact in a cost-effective manner in the health microsystem. Countries without previous exposure will be prioritized in an effort to "jumpstart" our understanding of this implementation process: addressing important research questions of "transferring knowledge" and "sustaining programs."

USAID specifically seeks systematic and system-based solutions that will bring together promising and proven approaches incorporating the following principles:

1. Modes of delivery utilize a mixture of families, public, private sector and informal sector actors who play a role in the care seeking, treatment, and referral pathways

2. PSBI guidelines are addressed in the context of the country's micro health system
3. Safe and timely care and treatment using PSBI guidelines in marginalized, as well as difficult to reach populations, is promoted
4. Embedded research and documentation to enable continuous program learning and improvement are incorporated
5. Innovative technology and programmatic strategies are incorporated
6. A well-grounded theory of change, development hypothesis or other similar approach guides from the outset how the health system will be strengthened or improved and how changes will be tested, documented, and confirmed.

Facilitated implementation, integration, and sustainability of these programs, using the new PSBI guidelines and other system changes, may consist of re-organizing care delivery to ensure that evidence-based care is implemented reliably and continues to be safe, effective, and efficient for sick newborns and infants, their caregivers, health workers, and health system.

Through the BAA process described in Section IV.b, USAID may partner with one or more organizations with advanced research, enabling factors for implementation, and policy knowledge of the health sector and systems analysis. This partnership will design, develop, and test delivery approaches, systems analyses, multi-stakeholder initiatives, continuous learning, and information dissemination to improve the impact and sustainability of PSBI programming.

Geographic Focus

This BAA Addendum is limited to the following countries that are currently defined as USAID's Ending Preventable Child and Maternal Deaths (EPCMD) priorities: Afghanistan, Bangladesh, Burma (Myanmar), Democratic Republic of Congo, Ethiopia, Ghana, Haiti, India, Indonesia, Kenya, Liberia, Madagascar, Mali, Malawi, Mozambique, Nepal, Nigeria, Pakistan, Rwanda, Senegal, South Sudan, Tanzania, Uganda, and Zambia.

Expressions of interest are not expected to work across all of these countries though program learning should be able to inform PSBI efforts on a global scale.

III. Submission Instructions

A. Questions

Questions about this BAA Addendum may be submitted by email only to harp@usaid.gov with the subject "HaRP BAA Questions". The **deadline for question submission is August 26, 2016 5:00 PM EST**. USAID will release answers to questions received by the deadline through a posting to grants.gov and fbo.gov.

B. Expressions of Interest (EOIs)

All EOIs must be written in English and must be submitted electronically to harp@usaid.gov by the deadline indicated below.

EOIs must be no more than 4 pages in length, no smaller than 12 point font with 1" margins, and in .pdf or .docx format. Any graphics, charts or tables included with the EOI will be considered within the page limits. The title page is not part of the page limit. References and citations to academic publications or other resources are not required but are encouraged. If included, references and citations should be separate page end notes, and will not be included in page limits. Biographical descriptions and letters of support are not desired and should not be included in the response.

All EOIs must contain a title page with the following minimum information:

- Respondent Names/Group and Contact Information;
- Response Title; and
- BAA Addendum Name/Number.

The EOIs must address the following areas:

1. Demonstrate the applicant's understanding of country and sub-country specific health system challenges related to reducing newborn and young child infection; and advantages and obstacles of potential implementation sites, including the degree to which the site(s) are reflective of other parts of the country as well as the "real world" nature of the site(s) and a realistic assessment of existing infrastructure at implementation sites necessary to permit implementation research/program improvement processes.
2. Present practical initial ideas on how to incorporate the new WHO recommendations in light of country program realities, to address system challenges.
3. Identify key national and/or district-level stakeholders whose involvement is critical to the success of this effort. Application should include stakeholder name, title, employing organization, proposed role and contributions to this effort.
4. Identify up to three projects led by the applicant that demonstrate research/evaluation and/or implementation experience in "real world" contexts as opposed to more controlled research, effectiveness, or small pilot sites, and that demonstrate the applicant's ability to create partnerships and linkages among technical, policy, and service delivery stakeholders to achieve results. Projects can be currently underway or completed within the past three years.

C. Information Protection

USAID's goal is to facilitate the research that will lead to innovative, and potentially commercially viable, solutions. Understanding the sensitive nature of submitters' information, USAID will work with organizations to protect intellectual property.

EOIs should be free of any intellectual property that the submitter wishes to protect, as the EOIs will be shared with USAID partners as part of the selection

process. However, once submitters have been invited to engage in further discussions, submitters will work with USAID to identify proprietary information that requires protection.

Therefore, organizations making submissions under this BAA Addendum grant to USAID a royalty-free, nonexclusive, and irrevocable right to use, disclose, reproduce, and prepare derivative works, and to have or permit others to do so to any information contained in the EOIs submitted under the BAA Addendum. If USAID engages with the organization regarding its submission, the parties can negotiate further intellectual property protection for the organization's intellectual property.

Organizations must ensure that any submissions under this BAA are free of any third party proprietary data rights that would impact the license granted to USAID herein. This Addendum falls under the Development Innovation Accelerator Broad Agency Announcement for Global Health Challenges. Specifically, this Addendum is focused on testing of systems approaches to scale and sustain treatment of PSBI in newborn and young children.

IV. Review of Submissions and Selection Process

A. Review Criteria

Each EOI will be reviewed against the following criteria:

1. Demonstrated understanding of: country and sub-country specific health system challenges related to reducing newborn and young child infection; and advantages and obstacles of potential implementation sites, including the degree to which the site(s) are reflective of other parts of the country as well as the "real world" nature of the site(s) and a realistic assessment of existing infrastructure at implementation sites necessary to permit implementation research/program improvement processes.
2. Presentation of practical initial ideas on how to incorporate the new WHO recommendations in light of country program realities, to address system challenges.
3. Identification of key national and/or district-level stakeholders whose involvement is critical to the success of this effort. Ideally, the EOI would articulate a partnership consisting of research, policy and service delivery entities.
4. Past efforts demonstrate research/evaluation and/or program experience in facilitating implementation in "real world" contexts as opposed to more controlled research or effectiveness or small pilot sites, and demonstrate the applicant's ability to create partnerships and linkages among technical, policy, and service delivery stakeholders to achieve results.

B. Selection Process

USAID and partners will review and select EOIs submitted in accordance with the guidelines and criteria set forth in this Addendum. USAID and partners reserve the right

to disregard any EOIs that do not meet the guidelines. USAID is not obligated to issue a financial instrument or award as a result of this BAA Addendum.

Stage 1: Based on the EOIs, selected applicants will be invited to join a co-design process, which will consist of a co-creation workshop(s) in Washington, DC where USAID, partners, and selected groups will gather to collaboratively develop the project(s). This will result in one or more concept papers of 10-25 pages each.

Stage 2: Final concept papers will be submitted to USAID and reviewed for selection. Approved concept papers may proceed to Steps 3 and 4 as described in the Broad Agency Announcement for Global Health.

V. Response Date

Expressions of Interest should be submitted no later than **September 30, 2016 at 5:00 PM EST**. to harp@usaid.gov.