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*Applying Science to Strengthen  
and Improve Systems*

## USAID ASSIST Project

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# Research and Evaluation Report FY17

**Cooperative Agreement Number:**

AID-OAA-A-12-00101

**Performance Period:**

October 1, 2016 – September 30, 2017

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**DECEMBER 2017**

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**DISCLAIMER**

This country report was authored by University Research Co., LLC (URC). The views expressed do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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For more information on the work of the USAID ASSIST Project, please visit [www.usaidassist.org](http://www.usaidassist.org) or write [assist-info@urc-chs.com](mailto:assist-info@urc-chs.com).

## **Recommended citation**

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## Acronyms

AIDS	Acquired immunodeficiency syndrome
AIMGAPS	Assuring Infants and Mothers Get All PMTCT Services
ANC	Antenatal care
ART	Antiretroviral therapy
ARV	Antiretroviral
ASSIST	USAID Applying Science to Strengthen and Improve Systems Project
CDC	U.S. Centers for Disease Control and Prevention
CEA	Cost-effectiveness analysis
CQI	Continuous quality improvement
DRC	Democratic Republic of Congo
E3	USAID Economic Growth, Education, and Environment Bureau
FY	Fiscal year
HAPIE	Hospital Accreditation Process Impact Evaluation
HAI	Hospital-acquired infection
HCI	USAID Health Care Improvement Project
HIV	Human immunodeficiency virus
HSPH	Harvard T. H. Chan School of Public Health
IHI	Institute for Healthcare Improvement
IP	Implementing partner
LAC	Latin America and the Caribbean
MNCH	Maternal, newborn, and child health
MOH	Ministry of Health
NICU	Neonatal intensive care unit
OVC	Orphans and vulnerable children
PBI	Performance based incentives
PHFS	USAID Partnership for HIV-Free Survival
PLHIV	Persons living with HIV
PCIHS	People-centered integrated health services
PEPFAR	United States President's Emergency Plan for AIDS Relief
PMTCT	Prevention of mother-to-child transmission (of HIV)
Q	Quarter
QI	Quality improvement
R&E	Research and evaluation
RHITES-SW	Regional Health Integration to Enhance Services in South West Uganda
RMNCH	Reproductive, maternal, newborn, and child health
SMATS	Screening in maternity to ascertain TB status
SMaCKM	Safe male circumcision knowledge management
TA	Technical assistance
TB	Tuberculosis
URC	University Research Co., LLC
USAID	United States Agency for International Development
VMMC	Voluntary medical male circumcision
WHO	World Health Organization

# 1 Introduction

The research and evaluation (R&E) unit of the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project provides technical assistance and guidance on country-led research and synthesizes learning across country- and centrally-funded activities. Topics for investigation include the validity of improvement-indicator data, sustainability and institutionalization of improvement activities, and economic analysis of improvement interventions. The R&E unit works with the knowledge management unit to disseminate information from these studies through web-published reports, peer-reviewed journal articles, webinars, and presentations at international meetings to encourage wider adoption of improvements methods. The unit also provides training to USAID mission officers on cost-effectiveness analysis of health system improvement interventions.

There is a continued demand for evidence of the effectiveness and efficiency of improvement activities within and beyond the countries in which the USAID ASSIST Project is providing support. The rigor and thoroughness with which the evidence is collected, analyzed, and presented is important for promoting continuation of improvement activities in low- and/or middle-income countries.

In fiscal year (FY)17, the R&E unit finalized several key studies. It also began other activities in several countries, including the West Bank, Botswana, and Latin American countries where ASSIST has initiated Zika-related improvement activities.

## 2 Program Overview

What are we trying to accomplish?	At what scale?
<b>1. Validation of 25% of improvement indicators</b>	
Demonstrate that data reported by the ASSIST project are accurate, reliable and relevant	No less than 25% of total number of country reported indicators with completed validity assessment
<b>2. Collecting data from control groups for 10% of indicators</b>	
Demonstrate the attributable impact of ASSIST interventions on improvement indicators	Comparison reports on no less than 10% of country-reported indicators
<b>3. Evaluating the design of improvement activities for low- and middle-income countries</b>	
Advance learning in improvement science in low and middle-income countries	Every ASSIST country program
<b>4. Evaluation of methods and approaches for effective design and implementation of scale-up</b>	
Advance global knowledge on scale up of improvement interventions	Selected ASSIST country programs with scale-up activities
<b>5. Economic analysis of improvement activities</b>	
Advance global learning on comparative advantage and economic efficiency of QI activities	At least 1 economic analysis (may be basic cost report to full cost-effectiveness analysis) for every ASSIST country with an improvement program
<b>6. Sustaining improvements and institutionalizing the capacity to continuously improve</b>	
Contribute to global learning on sustaining and institutionalizing improvement methods to ensure sustainability beyond the life of the project	At least two studies on sustainability and institutionalization of improvement after direct involvement of the project has ceased























Technology	Useful for...	Not useful for...	Barriers to use
<b>capabilities</b> (e.g., Skype, Zoom, ECHO)			camera)
	Gauging participation levels from all members of the team		May overwhelm teams with information that is not readily documented or followed-up on
	Reviewing and interpreting data		Requires logistics and planning on both sides (coach and team)
	Communicating non-verbally		
	Recording coaching or learning sessions for teams to review or otherwise access later		
	Disseminating information		
<b>Email</b>	Getting the team to document changes, process, or interpretation of data	Discussing problem or potential solutions to test	
		Ensuring equal participation among team members	
<b>Phone/conference calls</b>	Obtaining more information/detail on data or changes tested	Breaking down existing hierarchical structures as communication is often done with a single member of the team and not the team as a whole	
		Communicating non-verbally	

From this research, we learned that: 1) It is important to tailor the virtual support to the needs of the team being supporting, including acceptability and accessibility of the platform; 2) Coaches need to be supported in developing communication skills specific to virtual platforms to make these interactions successful.

- **Evaluation of a multi-hospital collaborative improvement network in West Bank, Palestine** [19]. ASSIST is working with Gareth Parry of the Institute for Healthcare Improvement (IHI) to conduct research around the hospital-acquired infection (HAI) collaborative that was implemented in FY17 with 22 hospitals in the West Bank. Specifically, we are looking at:
  - **Measuring outcomes related to hospital-acquired infections** – Using proxy measures in five different infection control domains, we are examining the impact of the West Bank collaborative on improving infection control measures that are essential in reducing HAI.
  - **Establishing comparisons and economic data** – We are using innovative data approaches to create comparison groups for the HAI collaborative outcomes and to create cost-effectiveness measures for HAI improvement activities.

- **Looking at “holistic” impact of collaborative network** – We are using both quantitative and qualitative methods to examine the successes/challenges to improvement work in this context, with a specific focus on organizational characteristics/behaviors.
- **Gleaning broad lessons learned for replication/scale-up applications** – By synthesizing a variety of qualitative and quantitative data sources, as well as working with the implementation team to interpret findings, we aim to create actionable strategies for replicating this work in other contexts.

Data collection was completed in Q4, and report writing is underway.

- ***In the Zika countries, the QI team and R&E are working with partners at the Harvard T.H. Chan School of Public Health (HSPH) and FHI 360 to evaluate overarching Zika activities*** [37]. The research activities will include:
  - **Creation of robust outcome measures for Zika service delivery** – This research concept is still under development, but we are looking at robust ways to measure the impact of QI work on the delivery of Zika counseling during antenatal care, improving patient knowledge of Zika risks and prevention modalities, and ensuring appropriate and timely screening of newborns.
  - **Examination of differential impacts and cost-effectiveness of various training modalities in Zika** – Due to the rapid response to Zika, the teams have deployed both traditional in-person training as well as web-based virtual training applications. This study will look closely at the different impacts of each approach (looking specifically at provider knowledge retention and performance) and do cost comparisons of each.
  - **Validation of the QI data to ensure quality** – With our partners at Harvard, we will use a variety of validation measures to ensure that the routine improvement data being employed by the Zika programs is of high quality. Findings will be shared with the Zika country teams to make improvements as needed.

We expect to finalize the research approach, create protocols/tools and begin data collection early in FY18.

#### **Activity 4. Evaluation of methods and approaches for effective design and implementation of scale-up**

##### **OVERVIEW**

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Increasing the reach of improvement activities to involve a higher proportion of service delivery units is one of the goals of ASSIST. The R&E unit seeks to build the evidence base to determine the most effective and efficient ways to do this.

##### **KEY ACCOMPLISHMENTS AND RESULTS**

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- **Completed analysis of data from the *study on cost-effectiveness of the intervention to improve malaria data quality in Uganda*** (Q1) [32]. Part of the analysis is determining what the cost implications would be for nationwide scale-up. This study was conducted in collaboration with partners from the U.S. Centers for Disease Control and Prevention (CDC). These partners have been sent the completed analysis and are incorporating them into the main report, which is expected to be completed in FY18.

#### **Activity 5. Economic analysis of improvement activities**

##### **OVERVIEW**

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The economic efficiency of improvement activities often determines whether or not they will be implemented more widely and sustained beyond the period of assistance by the USAID ASSIST Project. The R&E team is actively working to conduct some economic analyses into at least one improvement activity in each ASSIST-supported country. It is also developing greater in-country capacity to perform

economic evaluations and the ability to identify and collect appropriate financial data to facilitate these evaluations.

## KEY ACCOMPLISHMENTS AND RESULTS

- **Cost-effectiveness of RHITES-SW MNCH performance-based incentives program in Uganda** [33]. See description under Activity 2.
- **The cost-effectiveness analysis of the Uganda Cost-effectiveness of Safe Male Circumcision Knowledge Management (SMaCKM) intervention study** [31] was conducted and the manuscript submitted to USAID for approval (Q2). The manuscript was submitted to *Global Health: Science and Practice* in September but not accepted for review. The manuscript was subsequently submitted to *PLoS ONE* (Sept 2017). This study was an experimental design comparing three levels of sharing of improvement knowledge for circumcision services. Participating facilities were randomized to receive 1) only a manual to be used to guide improvement activities; 2) the manual and participation in a two-day hand-over meeting; and 3) the manual, hand-over meeting and three coaching visits with an improvement expert to facilitate implementing changes to improve VMMC serviced. A cost-effectiveness component was included in the study design.

**Table 6** shows the percent improvements in the four indicators from baseline to end-line among patients who received their services from facilities in the three different groups (M = Manual only, MH = manual plus handover, MHC = Manual, handover and coaching visits). The MHC group patients were the only ones that saw improvements in history taking, anesthesia and post-op instruction indicators of quality of care.

**Table 6. Uganda: Baseline to end-line changes in improvement indicators, SMaCKM study (Mar 2015 – Dec 2015)**

Indicator	M	MH	MHC
Signed Consent	5%	6%	0%
History	18%	1%	35%
Anesthesia	-5%	-5%	20%
Post-op instructions	10%	24%	37%

- For the cost-effectiveness results (see **Table 7**), the cost of the M intervention was less than the other two levels of dissemination of improvement information. However, given that it was not associated with improvements in all indicators, it is not recommended as a stand-alone intervention.

**Table 7. Uganda: SMaCKM cost-effectiveness results for each additional \$10,000 invested**

	M	MH	MHC
Additional people who gave informed consent	443	29	17
Additional people who had 75% of history recorded	1330	NA	132
Additional people who had 75% compliance with E-B anesthesia procedure	NA	NA	31
Additional people who had 75% Post-op instructions	443	43	42

- The “ASSIST Fellow” from the Harvard School of Public Health (HSPH) drafted a study of **Cost of strengthening the community health system to improve linkages to HIV care in Botswana** (Q1) [1]. This study examined the costs involved in delivering the improvement intervention to the participating communities. The study will be published in FY18.
- **Costing study for differentiated care of community-based care in Botswana** (Q4) [2]. This study was designed to examine the costs associated with the implementation of different models of HIV service provision under the differentiated care model which has been promoted by PEPFAR. The study was commenced under the USAID ASSIST Project and will be continued under the USAID HRH2030 Project.
- **Data were collection for economic analysis in Cote d’Ivoire** (Q1) [4]. The objective of this exercise was to assess the costs of implementing quality improvement activities in 30 extension sites under the USAID ASSIST Project.
- Protocols and tools are under development for **a cost-effectiveness study on different modalities for Zika training in Latin America** [37]. We will compare/contrast traditional in-person training with web-based, virtual methods both for effectiveness of training and for cost-effectiveness.

## **Activity 6. Sustaining improvements and institutionalizing the capacity to continuously improve**

### **OVERVIEW**

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In FY17, ASSIST conducted studies on institutionalization of improvement in Mali and in Honduras (the latter through partner Harvard T.H. Chan School of Public Health). Both studies examined the institutionalization of improvement over time as well as facilitators and barriers to improvement.

### **KEY ACCOMPLISHMENTS**

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- Data collection began on the study on **institutionalization of improvement in Honduras, a study being conducted in partnership with HSPH** [6]. Interviews and data analysis were completed (Q2). This study involved interviews with key informants in the Honduran MOH to determine what improvement activities were being conducted and what institutional structures existed in the country four years following the discontinuation of donor-funded improvement activities conducted under the USAID Health Care Improvement Project.
- The proposed Ecuador component of the study above has been dropped because of changes in MOH personnel.
- **Assessing institutionalization of quality improvement Mali** [16]. A protocol and tools were developed in Q2 for an institutionalization study in Mali. Data analysis is underway (Sept 2017). The study aims to determine:
  1. Changes in keys signs of institutionalization of quality improvement since 2012 in Mali;
  2. Differences in signs of institutionalization in recent versus older project zones; and
  3. Document the application of quality improvement methods in new clinical areas in Mali.

The institutionalization framework, which was developed in 2012, was adapted to identify signs of institutionalization. The framework includes questions related to: political will/leadership, roles and responsibilities, orientation of new staff to improvement; resources, predominantly financial, to support improvement activities, monitoring and tracking of data and its use in problem identification and transfer, or the application of improvement methods to areas of service beyond those which the project supported. The study included respondents at the national, regional, district and site levels of the health system.

## **Activity 7. Generating learning from multi-country studies**

### **OVERVIEW**

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ASSIST seeks to leverage the fact that it is working on the same or similar goals concurrently in several countries, sometimes with similar methods. Learning how improvement works or not in different settings can add significantly to the body of knowledge of health systems strengthening. The studies listed below are examples of such a multi-country approach.

### **KEY ACCOMPLISHMENTS AND RESULTS**

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- The study – **Survey of improvement methods inclusion in curriculum of medical schools** – conducted in partnership with HSPH on the content in medical training in five sub-Saharan African countries was completed [36]. The study collected data from medical schools in countries where the ASSIST Project had a country presence about any health care improvement instruction or requirement in the medical school curricula. This was a pilot study that showed that there was at least some course-work and practical component for improvement of health care practice in several countries. The manuscript was published in the *International Journal of Medical Education* (Sept 2017).
- **A synthesis of all economic analysis of improvement activities over the life of the ASSIST project is underway** [38]. This report will bring together the overarching lessons learned from the cost-effectiveness research undertaken by the project. The report is in early development stages, with a draft expected in Q2 of FY18.
- **In addition to the economic synthesis, the R&E team will be consolidating learning from the validation studies run by ASSIST** over the life of the project [39]. In particular, we will be examining the utility of different validation methods to understanding improvement data. This report is in early development stages, with a draft expected in Q2 of FY18.

## **Activity 8. Capacity building for research and support to country programs**

### **OVERVIEW**

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There is limited capacity to perform rigorous evaluations of improvement interventions, including economic analysis and qualitative methods in health system strengthening. In FY17, Edward Broughton worked in collaboration with USAID technical experts from the Economic Development, Education, and Environment (E3) Division of USAID on designing courses on cost-effectiveness analysis in health programs for delivery in other settings.

### **KEY ACCOMPLISHMENTS AND RESULTS**

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- **Edward Broughton conducted a week-long class-room training with a large practical component to USAID and CDC staff in Kampala, Uganda with colleagues from the E3 Division of USAID** (Nov 2016).
- **Edward Broughton delivered in-person training for the Uganda ASSIST staff in Kampala and an online training with the Northern Uganda ASSIST staff** (Nov 2016).
- **Simon Hildebeitel gave in-person trainings to the Lesotho ASSIST staff in Maseru on data presentation and an online training to the Botswana ASSIST staff** (Jan 2017).
- **Development of the Improvement Indicator Database** (Oct 2016-Mar 2017): The Improvement Indicator Database is an online/offline, web and mobile system for collecting, analyzing, and visualizing improvement data. During the quarters, we worked with Arseneau Consulting, our subcontractor, to complete the development phase and begin alpha testing the completed system. At the end of Q3 we began Beta testing in a limited number of countries. The database is now being used for management of improvement data from the Zika country programs.

- Edward Broughton conducted a week-long class-room training with a large practical component to USAID, CDC and other implementing partner staff in Pretoria with colleagues from the E3 Division of USAID (June 2017).

## **Activity 9. Disseminate knowledge gained through ASSIST R&E activities**

### **OVERVIEW**

ASSIST disseminates insights from research and evaluation activities through peer-reviewed publications, conference presentations, and project research reports posted to the ASSIST knowledge portal at: [usaidassist.org](http://usaidassist.org).

### **KEY ACCOMPLISHMENTS AND RESULTS**

**Table 8** lists the articles published in peer-reviewed journals and submitted to peer-reviewed journals by the R&E team in FY17

**Table 8. Articles published in and submitted to peer-reviewed journals, FY17**

<b>Articles Published in Peer-Reviewed Journals</b>
Broughton EI, Hameed W, Gul X, Sarfraz S, Baig Y, Villanueva M. Cost-Effectiveness of a Family Planning Voucher Program in Rural Pakistan. <i>Front. Public Health</i> . Published 22 September 2017: <a href="https://doi.org/10.3389/fpubh.2017.00227">https://doi.org/10.3389/fpubh.2017.00227</a>
Broughton, E. The Economics of Reducing Antibiotic Use to Reduce Antimicrobial Resistance. <i>AMR Control</i> . Published August 2, 2017: <a href="http://resistancecontrol.info/2017/the-economics-of-reducing-antibiotic-use-to-reduce-antimicrobial-resistance/">http://resistancecontrol.info/2017/the-economics-of-reducing-antibiotic-use-to-reduce-antimicrobial-resistance/</a>
Alra'oof Saleem A, Hindiyeh M, Sabateen AA, Nasser D, Dolan-Branton L, Ross J, Samandari G, Kauder S. Embedding quality improvement through a learning collaborative to reduce and sustain hospital-acquired infections in the West Bank. <i>AMR Control</i> . Published August 1, 2017: <a href="http://resistancecontrol.info/2017/embedding-quality-improvement-through-a-learning-collaborative-to-reduce-and-sustain-hospital-acquired-infections-in-the-west-bank/">http://resistancecontrol.info/2017/embedding-quality-improvement-through-a-learning-collaborative-to-reduce-and-sustain-hospital-acquired-infections-in-the-west-bank/</a>
Bowser D, Abbas Y, Odunleye T, Broughton E, Bossert T. Pilot study of quality of care training and knowledge in Sub-Saharan African medical schools. <i>Int J Med Educ</i> . 2017 Jul 24;8:276-282. doi: 10.5116/ijme.595b.b38c.
Sarin E, Kole SK, Patel R, Sooden A, Kharwal S, Singh R, Rahimzai M, Livesley N. Evaluation of a quality improvement intervention for obstetric and neonatal care in selected public health facilities across six states of India. <i>BMC Pregnancy and Childbirth</i> . 2017;17(134). Published online 2 May 2017: <a href="http://bit.ly/2gD3ACu">http://bit.ly/2gD3ACu</a> .
Lunsford SS, Byabagambi B, Falconer-Stout Z, Karamagi E. Improving voluntary medical male circumcision standards adherence and post-procedure follow-up in Uganda: A mixed methods study. <i>African Journal of AIDS Research</i> . Published 2 April 2017: <a href="http://dx.doi.org/10.2989/16085906.2017.1293701">http://dx.doi.org/10.2989/16085906.2017.1293701</a>
Broughton E, Haumba S, Calnan M, Pasipamire M, Jeffries R, Maphalala G, Mazibuko S, Mirira M, Simelane B. Screening in Maternity to Ascertain Tuberculosis Status Study Protocol. <i>BMC Infectious Diseases</i> . Accepted for publication 22 Feb 2017. Published 6 March 2017: <a href="https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-017-2285-0">https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-017-2285-0</a>
Broughton E, Hermida J, Hill K, Sloan N, Chavez M, Gonzalez D, Freire JM, Gudino X. Evaluation of an Intervention to Improve Essential Obstetric and Newborn Care Access and Quality in Cotopaxi, Ecuador. <i>Front. Public Health</i> . Published 21 November 2016: <a href="http://dx.doi.org/10.3389/fpubh.2016.00247">http://dx.doi.org/10.3389/fpubh.2016.00247</a>
Broughton EI, Nunez O, Arana R, Oviedo A. Effectiveness and Efficiency of Improving HIV Service Provision for Key Populations in Nicaragua. <i>Frontiers in Public Health</i> . Published 16 November 2016: <a href="https://doi.org/10.3389/fpubh.2016.00249">https://doi.org/10.3389/fpubh.2016.00249</a>
Broughton EI, Marquez L. Perspective: "Why economic analysis of health system improvement

interventions matters." *Frontiers in Public Health*. Accepted for publication 21 September 2016.  
Published on 11 October 2016: <http://dx.doi.org/10.3389/fpubh.2016.00218>

#### Articles Submitted to Peer-Reviewed Journals

Byabagambi J., Broughton E., Hildebeitel S., Wuliji T., Karamagi E. "Assessment of a quality improvement intervention to strengthen pharmaceutical human resources and improve availability and use of HIV medicines in Uganda" submitted to *BMJ Quality*. Accepted for publication Nov 2017.

Broughton, E.I., Karamagi, E., Kigonya, A., Lawino, A., Marquez, L., Lunsford Smith, S., and Twinomugisha, A. The cost-effectiveness of three methods of disseminating information to improve medical male circumcision in Uganda submitted to *PLoS One*, September 2017

- **Conference participation**

- Edward Broughton delivered the oral presentation, "Hospital health service quality and universal health care in Indonesia" at the ISQua Conference, Tokyo Japan (Oct 16-19, 2016)
- Edward Broughton presented in the panel, "Evaluation designs for health system improvement interventions in low and middle-income countries" at the Global Symposium on Health Systems Research, Vancouver, Canada (Nov 14-18, 2016)
- Edward Broughton presented the poster, "Effectiveness and efficiency of different knowledge management strategies to improve medical male circumcision services in Uganda" at the Global Symposium on Health Systems Research, Vancouver, Canada (Nov 14-18, 2016)
- Edward Broughton presented "What we've learned from cost-effectiveness studies of improvement interventions" at the International Forum on Quality and Safety in Health Care, London, England (April 26-28, 2017)
- Edward Broughton presented two workshops on cost-effectiveness analysis at the American Evaluation Association in Atlanta, Georgia (June 6-7, 2017)

- **Office of Health Systems Brown Bags.**

- Edward Broughton presented "Get HAPIE Here! Hospital Accreditation Process Impact Evaluation (HAPIE) in Indonesia" (May 24, 2017).

## 4 Directions for FY18

The R&E unit will concentrate on finishing studies on point-of-care testing in Kenya, the people-centered care study in Mali as well as validation and comparison groups mandates. There are two studies that will commence in FY18 associated with the implementation of improvement activities in Zika-affected countries. Also in several LAC countries yet to be determined, there will be research activities to examine the validity of improvement indicator data, control or comparison group data, and economic analysis of improvement activities.







**USAID APPLYING SCIENCE TO STRENGTHEN  
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University Research Co., LLC  
5404 Wisconsin Avenue, Suite 800  
Chevy Chase, MD 20815

Tel: (301) 654-8338

Fax: (301) 941-8427

[www.usaidassist.org](http://www.usaidassist.org)