I-Catalyst Program -   Community-based Mosquito Surveillance Maternal Child Health Providers (MHPs)

GenIC Submission under OMB #0920-1158

Juliana K. Cyril, MPH, PhD
Director, Office of Technology and Innovation
Office of the Associate Director for Science
Centers for Disease Control and Prevention
Ph: 404-639-4639
Fax: 404-639-4903

Team Lead – Alba Phippard, NCEZID

Date:
11-27-2017

Contents

GenIC Package & Attachments

- Supporting Statement A
- Att. 1: I-Cat Interview Protocol Guide and Questions
- I-Catalyst Request Template

- **Goal of the Study:** To explore whether a community-based surveillance and education platform, Kidenga, would be likely to engage the public in reducing mosquito habitat by sending tailored, weather-based warnings of high-risk periods of mosquito reproduction and activity to users' smart-phones, along with cues to action.

- **Intended Use of Resulting Data:** Resulting data will be used for internal decision making regarding CDC's support of the development of the weather-based alerts and to provide suggestions for improving community engagement features of the Kidenga app. The data collection is not designed to obtain generalizable knowledge, but to inform the CDC Kidenga team's efforts among a targeted population.

- **Methods for Collecting Data:** The CDC project team will conduct 30-minute, semi-structured

management is paramount to controlling mosquito populations, and without significant community engagement, mosquito control programs have often failed. The Health Belief Model suggests that 'cues to action', in conjunction with other factors can improve the chances of the recipient of the cue performing health behaviors. In a survey conducted by partners at the Arizona Department of State Health Services, participants ranked targeted weather-based alerts of mosquito risk as a top feature that would motivate them to use the Kidenga app regularly, and over 70% of pregnant women surveyed reported interest in such weather-based alerts. Therefore, the CDC Kidenga team seeks to explore potential solutions for better engaging pregnant women, their families and Maternal-Child Health Providers (MHPs) in mosquito-control in their environments through the Kindenga app. With this innovation, pregnant women, their families, and ultimately the communities using this app may improve their capacity to take action in mosquito control at the most critical risk periods.

Federal scientific agencies, like the CDC, rely on research and findings through public health surveillance, epidemiologic assessments, and evaluations that help them develop solutions (e.g. tools) for public health problems that ultimately are disseminated to end-users and stakeholders for adoption and use. However, anecdotal and empirical data show that many data-based, robust tools are never used or adopted by the intended end-user. One reason for this is that very often federal agencies make assumptions about what our end-users want and need. Through a "customer discovery" process, the Kidenga team will explore who their end-user is, the exact problem they are trying to solve for the end-user, and how the end-user wants to receive or use the solution from the team —which the team will then explore further mainly through interviews with likely end-users. This information is important to creating usable solutions that are end-user centric and meaningful to users.

In this GenIC, NCEZID/DGQM project team requests OMB approval to conduct semi-structured interviews, with Maternal-Child Health Providers (MHPs), to explore whether a community-based surveillance and education platform, Kidenga, would be likely to engage the public in reducing mosquito habitat by sending tailored, weather-based warnings of high-risk periods of mosquito reproduction and activity to users' smart-phones, along with cues to action. These CDC activities are authorized under Section 301 of the Public Health Service Act 42 U.S.C.241.

2. Purpose and Use of Information Collection

 The CDC I-Catalyst program guides participants through a "customer discovery" process aimed at helping teams with a new solution to identify their customers. This is done by taking a team's main assumptions about who their customer is, the exact problem they are solving for the customer, and how the customer wants to receive or use the solution from the team—and turning those assumptions into hypotheses which the teams will then test (mainly through interviews with potential customers). Only conversations with potential customers (stakeholders) can provide the facts from which hypotheses are proven or disproven about whether a solution (product, process, etc.) creates value for the intended beneficiaries. It is expected that participants will leave the program with the ability to evaluate and translate their insights into solutions that have high levels of efficacy and user acceptability. The information collection is necessary to guide CDC project teams to create usable solutions that are customer centric and meaningful to users, whether it's adhering to recommendations, policies, protocols, or interventions.

The Health Belief Model (HBM), widely accepted to explain and predict health behaviors, suggests that people's health behaviors are driven by a combination of perceived severity, susceptibility, barriers and benefits of the behavior, and cues to action. The Kidenga app addresses several components of the HBM including information about the severity of Zika, dengue, and chikungunya, number of cases of these diseases in the user's county (i.e. susceptibility), and how to prevent and control mosquitoes to enhance self-efficacy. However, Kidenga does not yet provide timely cues to action, which are critical as message fatigue can lead to complacency in health behaviors. The National Center for Atmospheric Research has modelled Aedes abundance using weather inputs and other factors. These models can be used to predict the relative abundance of Aedes mosquito populations, and could be used to create geo-tailored alerts of mosquito-risk to improve individual prevention behaviors when they are most-needed. An example alert might read:

> *"Due to the recent rain in Brownsville and current temperatures, mosquitoes can hatch in 4 days. Take Action! Remove standing water from inside and outside your home. Clear your yard of anything that can collect water."*

The alert could also link to an existing interactive graphic of a home within the app, with specific recommendations on where to look for standing water, and how to treat it. Finally, the alert could be shared within the users social networks like Facebook, Twitter, and Google +.

The project team would like to engage community members in an iterative process to assess the acceptability, content and frequency of messages that will most likely spur action to reduce mosquito habitat. The first step in this process is to improve understanding of individual community members in areas with high mosquitos with regard to vector control. If findings suggest that a smartphone-based app may be useful and practicable, the project team at NCEZID/DGQM will continue the development of targeted messages for distribution via the Kidenga platform.

The information collected will be used by the Kidenga team to talk with MHPs to better understand the end-user, the problem, and the appropriate solutions. The team hopes to seek input from MHPs because they provide care to pregnant women and their families and can assist in providing useful information for the educational component of the alerts to be similar to their patient visit interactions. It will also serve as a way to inform the project team on how best MHPs want to receive the educational alerts to better inform and prepare for their patients, with the latest information about mosquito and disease risk. Ultimately, the team aims to develop an innovative, low-resource approach to facilitate improved community engagement in mosquito control. Resulting data will be used for internal decision making regarding CDC's support of the development of the weather-based alerts and to provide suggestions for improving community engagement features of the Kidenga app. The collected information will be used for internal decision-making purposes. The data collection is not designed to obtain generalizable knowledge, but to inform the CDC Kidenga team's efforts among a targeted population.

3. Use of Improved Information Technology and Burden Reduction

The interviews will be conducted in person, on-site or by virtual video conferencing like Skype for Business or Adobe Connect (Att. 1 – Interview guide). Using formative interview protocols allows the interviewer to follow the respondent's lead during in-person conversations. This wouldn't be possible if a list of fixed questions were used. This also is not possible if automated, technological-based collection techniques, such as a web-based survey, are used. On-site, in-person interviews allow interviewers to establish rapport with respondents and produce visual cues for interpreting responses that may require further probing or clarification. However, there are instances where teams can use improved information technology such as Skype or video conferencing for interviews to enhance convenience and provide flexibility in responder's schedule.

4. Efforts to Identify Duplication and Use of Similar Information

This is a unique I-Catalyst project and a new proposed solution. Other than proprietary business databases, there is no existing database that can provide the level of detail about the customer experiences, wants, and needs necessary for NCEZID to understand need and use of community-based surveillance and education platform in the control of vector-borne diseases, specifically for those highly impacted in the gulf coast and border regions.

5. Impact on Small Businesses or Other Small Entities

No small businesses will be involved in this project.

6. Consequences of Collecting the Information Less Frequently

Data is collected once at this stage in the discovery process, respondents will participate in an interview once lasting no more than 30 minutes.

7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5

This request fully complies with the regulation 5 CFR 1320.5. There are no special circumstances.

8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency

Not Applicable

9. Explanation of Any Payment or Gift to Respondents

No payment or gifts will be offered to respondents.

10. Assurance of Confidentiality Provided to Respondents

Activities for this request do not involve the collection of Individually Identifiable Information.

Prior to the semi-structured interview, the interviewer describes the purpose of the project and obtains the respondent's verbal consent. Project teams will use convenience sampling methods to select subjects, in the Brownsville area (parks, supermarkets, community events, clinics and health care services) in San Diego and Arizona, who are readily available and within close proximity.

11. Justification for Sensitive Questions

There are no sensitive data items to be asked of individual respondents. The CDC Human Research Protection Office determined that the information collection does not constitute research involving human subjects and IRB approval is not required.

12. Estimates of Annualized Burden Hours and Costs

The project team will interview 50 respondents for this ICR. The project will interview for an average of 30 minutes and maximum of 1 responses per respondent. Annualized burden will be 25 hours and an estimated annualized burden cost of $ 1,187.75.

Estimated Annualized Burden Hours

Table A: Estimated Annualized Burden Hours

Type of Respondents	Form Name	No. of Respondents	No. of Responses per Respondent	Avg. Burden per Response (in hrs.)	Total Burden (in hrs.)
Maternal Child Health Providers	Interview Guide	50	1	30/60	25
Total					**25**

Table B: Estimated Annualized Burden Costs

Type of Respondents	Form Name	No. of Respondents	No. of Responses per Respondent	Avg. Burden per Response (in hrs.)	Total Burden (in hrs.)	Hourly Wage Rate*	Total Respondent Costs
Maternal Child Health Providers	Interview Guide	50	1	30/60	25	Average 47.51	$1,187.75
							$ 1,187.75

*Average of hourly wage from https://www.bls.gov/oes/current/oes_nat.htm "Health Diagnosing and Treating Practitioners 29-1000" 2016

13. Estimates of Other Total Annual Cost Burden to Respondents or Record Keepers

There are no projected cost burdens for reporting.

14. Annualized Cost to the Government

a. The project cost is associated with the CDC project team members responsible for conducting the interviews. These figures were estimated as the sum of the anticipated direct labor; fringe and burden on direct labor.

Project Staff Oversight	Annual Cost
CDC Cost: Health Scientist (5% of Time)	$5,000.00
CDC Cost: PH Advisor (2% of Time)	$1,420.00
Total	**$6,420.00**

15. Explanation for Program Changes or Adjustments

This information collection request is a new submission.

16. Plans for Tabulation and Publication and Project Time Schedule

The proposed interviews will be conducted within 3-6 months after approval of GenIC. Interim reports will be developed, which will incorporate data collected from these sources in 2017 and 2018.

17. Reason(s) Display of OMB Expiration Date is Inappropriate

The display of the OMB expiration date is not inappropriate.

18. Exceptions to Certification for Paperwork Reduction Act Submissions

There are no exceptions to the certification statement.