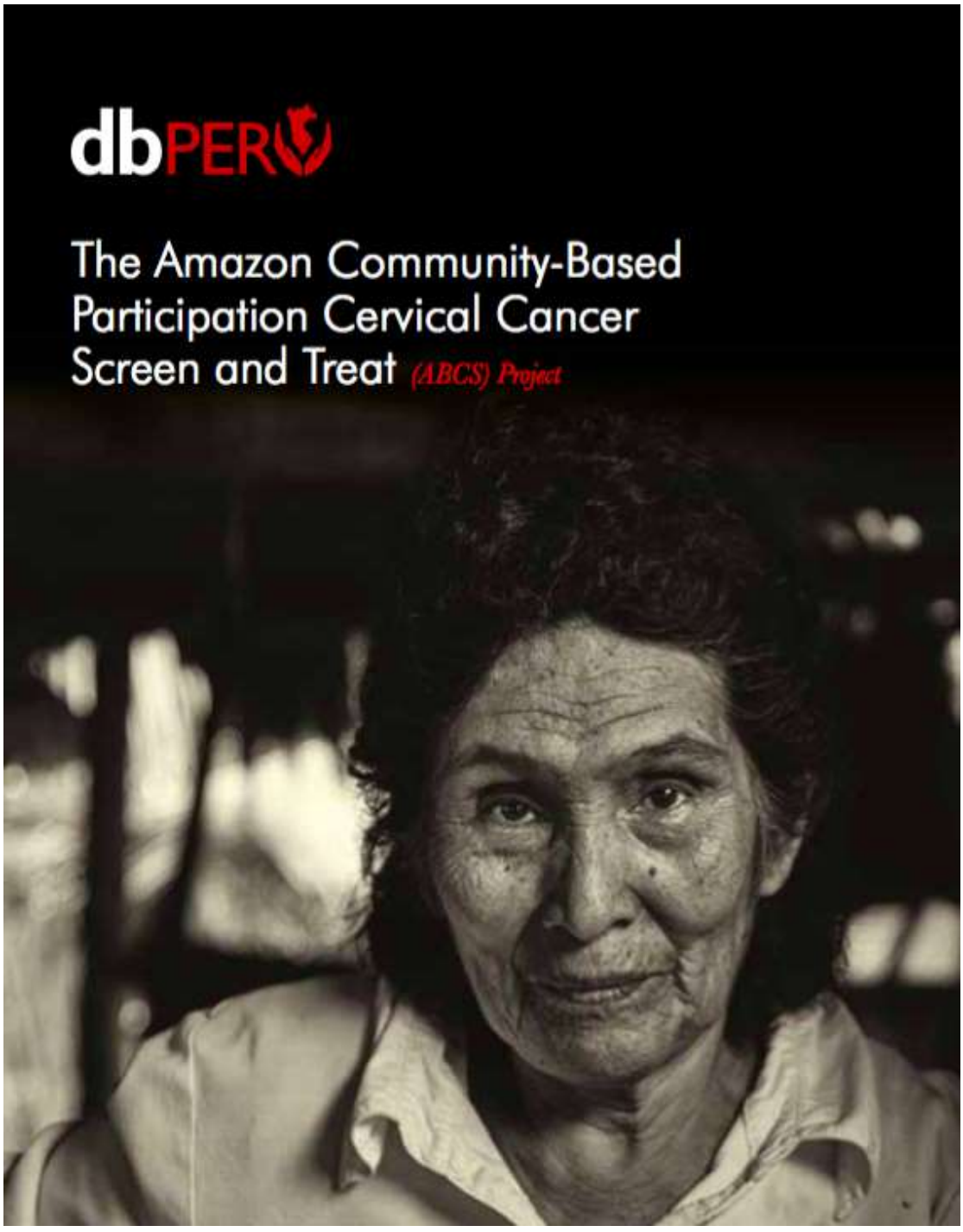
INTERIM PROGRESS REPORT



DINING FOR WOMEN PROGRAM GRANT
OCTOBER 2015 – JUNE 2016

Organization Name	DB Peru
Organization Mailing Address	9737 Old Patina Way, Orlando, Florida 32832, United States
Organization Website Address	New website: dbperu.org
Organization Mission Statement	*Partnering with local communities to provide access to healthcare knowledge and delivery, and improving living conditions for the people of Perú.*

Project Title	**The Amazon Community Based Participation Cervical Cancer Screen-and-Treat "ABCS" Program**
Grant Amount	$49, 162 USD
Purpose of Grant	To provide resources to deliver an innovative cervical cancer screen-and-treat program in the remote, low-resource setting of the Lower Napo River of the Peruvian Amazon jungle, a project that involves data collection, education, investment in the training of local service providers, and clinical cervical cancer screening and treatment.
Project Geographic Location	Lower Napo River, Loreto, Peru

Primary Contact Person		Secondary Contact Person	
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Community members take shelter during a heavy rain shower

Program Recap

DFW Request: *Recap briefly what outcomes the program was designed to achieve*

Introduction

The DB Peru ABCS Project aims to reduce the burden of cervical cancer in the Lower Napo River through community education, vaccination, and collaboration with local health providers.

The project was conceived in 2013 to address the observed high rates of cervical cancer occurring in the region. We were concerned that a combination of lack of education, poverty, and lack of access to medical services was leading to many women never having the opportunity to learn about or prevent this deadly disease. We were also concerned that the existing pap-smear program in the Lower Napo run by DB Peru encountered many shortfalls including inefficiency of specimen processing, time delays delivering results, loss to follow-up, and resource-intensive transport of women to Iquitos.

Cervical cancer has been identified as a major issue affecting communities in this region. Not only have community members themselves identified this problem, but also evidence suggests that it is the leading cause of cancer-related death in women in Peru. (Arbyn, M. et al, 2012) Worldwide, cervical cancer is the third most common female cancer after breast and colorectal cancers, and it is widely recognized that there is an imperative to make new methods of cervical cancer prevention in low resource settings available through organized programs such as the ABCS Project. (Arbyn, M. et al, 2012) In addition, the impact of cervical cancer has "…devastating effects with a very high human, social, and economic cost, affecting women in their prime:"(IARC, 2013) travelling away for treatment and lost days of productivity as a worker or mother mean cervical cancer places a significant burden on everyone. What makes cervical cancer unique is that it is, largely, *avoidable*. (IARC, 2013)

Based on current guidelines in the prevention of cervical cancer, and influenced by a community needs assessment performed in 2013 by DB Peru, we proposed a single visit screen and treat program which incorporates education, human papillomavirus (HPV) DNA testing, visual inspection of the cervix with acetic acid (VIA) as a triage tool, followed by cryotherapy (freezing of the cervical tissue) where necessary, as well as vaccination for eligible girls. With programs like ours, these conditions will improve.

With this project model, we successfully secured a grant from Dining for Women (DFW) that enabled us to complete a Pilot Project in 2015 and extend our work into 2016.

This report explains the background to the ABCS Project, the aims and anticipated outcomes, the original methodology, the Pilot Program implementation and the progression to the current program in 2016. It explores the challenges we faced, how we addressed these challenges, the unanticipated events that occurred during the program so far, and future strategies to improve upon our work.

Program Goals

Based on current guidelines in the prevention of cervical cancer and in light of findings from the community needs assessment, DB Peru proposed a single visit screen and treat program which incorporates education, HPV DNA testing and visual inspection of the cervix with acetic acid (VIA) as a triage tool, followed by cryotherapy where necessary and complimented by HPV vaccination.

The overall goal of the DB Peru ABCS Project is to reduce death and disability from cervical cancer for women in the Lower Napo River community.

Targeted goals of the program are to:

a) **Collaborate with local community** members to design a cervical cancer education and prevention program;
b) Accurately **quantify** the burden of disease of cervical cancer in the region;
c) **Educate** local women regarding the natural history, risk factors, and prevention strategies for cervical cancer;
d) **Design and deliver** a sustainable cervical cancer screen and treat program that is community-led; and
e) **Vaccinate** eligible girls, through working collaboratively with the Peruvian Government, Iquitos Hospital and Mazan Community Health Centre.

A small child waits patiently with his mother during women's health education

Funding Overview

DFW Request: *Has funding changed for this program? For example, have you received unexpected funding from another source?*

Beyond the program itself, we identified through the Pilot Program (detailed below) a funding need to support women who are referred into Iquitos and Lima for treatment following our outreach clinics in the jungle. This was not covered by our original project proposal or grant budget, so we sought funding from the US Embassy, who awarded us a small grant of $2,000 USD to support our needs. Aside from this, DB Peru can confirm that there have been no major changes to sources for the ABCS Program itself. The success of our program has been entirely facilitated by the generous grant from Dining For Women.

Because some of our program delivery has been refined to enable greater collaboration with local and government health services, DB Peru has made significant cost savings in the area of medical equipment and supplies. This has freed some money that was originally attributed to this area. We hope to be able to continue our important work and, with DFW's approval, channel this money into future clinical outreach and provide assistance for women who need referral to Iquitos or Lima.

Access to flooded village often requires the use of a small canoe

Organizational Structure

DFW Requirement: *Is your organization or program situation different than presented in the approved proposal? For example, new executive director, significant program staffing changes or NGO affiliation, loss of large funding, or other significant changes?*

DB Peru has not significantly changed our organizational structure since the approved proposal. We have listed below some key roles, and listed the additional medical staff we have used as consultants since our project began.

Staffing structure with titles for the project

• Volunteer Coordinator and Financial Manager	Diana Bowie, President
• Liaison with government agencies and interpreter	Renzo Pena, Vice-President
• Medical Director and Project Coordinator	Geordan Shannon
• Medical consultants	
Medical oversight and antibiotic use	Katie Sietz
Women's health oversight and planning	Sara Warzecka
Gynaecology consultant, colposcopies	Claire Fotheringham
• Director of Public Health	Amy Powell
• Nursing Director	Claire Murray
• Logistics, guides, local activities	Circo and Pilar Petit
• Volunteers	>40 international volunteers

DB Peru's team of volunteers, October 2015

Challenges

DFW Requirement: *What challenges are you facing as you move forward with this project? How are you approaching these challenges?*

Through an extremely interesting and productive year, DB Peru faced challenges to our program delivery. Some of these meant we adjusted aspects of our program in unexpected ways. Other challenges meant we were forced to think laterally and resulted in us finding creative solutions. In both scenarios, we have found adjustments and solutions that have ultimately enhanced our program and enabled us to provide better quality, more efficient healthcare to the community.

Equipment

One of the most challenging aspects of our program was procuring the appropriate equipment either via donations or at an acceptable low cost. We purchased at a discounted rate a portable colposcopy unit (from Gynocular) and Cryotherapy unit (from MedGyn), as detailed in our budget. We also had a donation of 200 HPV self-collection units from Eve Medical, 1000 Silver Nitrate Sticks from Bray healthcare, 25 beta-HCG pregnancy-testing kits from EKF Diagnostics, surgical equipment from Edinburgh General Hospital, and 600 clinical examination sheets from Ramsay Health Australia.

Our original plan was to provide point-of-care testing for HPV in the community on the day of the clinical program. This would have been facilitated by a new product on the market, available via Qiagen, which would have facilitated testing within the space of 3-4 hours. Although we were originally offered a donation on behalf of Qiagen's international women's health coordinator, when we were put in contact with the South American representative the cost of this unit increased dramatically to over $20,000, with requirements of up to $5,000 annually for consumable parts. This cost in our minds was excessive and not compatible with our project budget. We therefore had to search for alternative solutions. The solutions we identified are detailed in the section below titled 'HPV testing.'

On purchasing the cryotherapy unit, we found one of the challenges was in knowing what type of gas we would be using. The type of gas influenced the parts of the cryotherapy unit we ordered. We decided to ask for fittings consistent with CO2 gas after identifying a provider of CO2 gas locally in Iquitos.

Another unanticipated challenge in our equipment procurement was issues with customs and transport. To avoid lengthy delays that we anticipated via the Peruvian system, we ordered our equipment to be sent to volunteers in the USA or Europe. These volunteers then travelled with the equipment on their person. The equipment needed a letter declaring that these were not for commercial use and we also needed to budget-in payments around customs processing. Furthermore, the cryotherapy gun was confused with an actual gun, and a bit of explanation was needed! Because we got some of the equipment sent to other countries, there was a risk of delay in delivery. The only product that did not reach us in time for our work was that BHCG kits. These have since made their way to Peru and will be used this year.

HPV Testing

As mentioned above, we were unable to deliver Qiagen's point of care HPV testing as originally planned. Therefore, we had to investigate alternative means of HPV testing. The 'Plan B' model of testing would mean that HPV testing would occur simultaneously to our

clinical program rather than prior to our clinical examinations as a triage tool as originally thought. We hoped to provide testing on the day, but instead needed to provide delayed testing where samples would be collected in the jungle, sent to Iquitos or Lima, processed, and the results returned to the community.

We searched for providers who could provide this service for us at a low cost. We identified one laboratory in Lima that processes these tests privately. However, after many days of negotiations and delayed communication, we were offered prices that were once again prohibitively high at $50-$70 per test.

In our search for alternative providers, it emerged that one hospital in the whole of Peru actually performed these tests through the public system using the Seguridad Intergral de Salud (SIS), the national social security healthcare program. This meant that potentially members of our community who had SIS cover could access the HPV tests for free in Lima. This, if successful, would not only save our organisation and donors' money and encourage the public health system to perform such tests, but also open up a completely new pathway of laboratory testing in the healthcare system for other women in Iquitos and Loreto for the very first time. Thus, we identified a cost effective solution that also aligns with one of our organisational objectives: to work in collaboration with Government healthcare systems and transition our program to the public healthcare system within 5 years.

We performed a huge amount of groundwork in order to arrange this. We held multiple meetings with Hospital Dos de Mayo in Lima, including the director, the head of the Laboratory, and laboratory technicians. We also met with the Director of Seguridad Intergral de Salud, the Director of 'Diressa de Salud' (Directorate of Health) in Iquitos, and the Regional Hospital, Loreto. Despite some pushback and bureaucracy, we have secured our first HPV tests from the jungle.

We recently successfully drafted a 'Convenio,' a formal government agreement, which defines our work with the public healthcare system in Loreto and how this HPV testing will progress through the system, which is a huge success. We have gained support from Hospital Dos de Mayo Lima, Hospital Regional Loreto, and the Diressa de Salud Loreto, to name a few key bodies. We also have identified allies in the healthcare system, including working with the director of Women's Health Programs, the coordinator of Cancer Services, the public relations officer of Iquitos Regional Hospital, and local doctors and midwives. These collaborations will be discussed further below.

Peruvian Healthcare System

In order to secure our HPV tests in Lima, we had to navigate the complex Peruvian Healthcare system. We had to forge a pathway for these tests to travel from the river communities to Lima and be processed under the SIS system. Aside from many meetings, copious paperwork, and coordinating with a number of organisations, we also had to navigate the following problems:

1. Holidays and strikes. During key events in our coordination of HPV tests, we were faced with multiple holidays and large strikes. This meant that all services were completely ceased for well over two weeks during the time windows we needed most. The other issue that also concerned us was that many services remained shut-down for up to a month after our clinical program, so that when we referred our patients to Iquitos, they were not seen at all and had to return to their communities without immediate healthcare. We ensured these women returned at a later date to get the care they needed.
2. Politics and power. During our meetings we faced significant resistance from the Head of Diressa, Iquitos. He was unavailable to meet, and avoided our attempts to

communicate. We finally managed to meet with him after many calls and use of our extended network, and he directed us to write a Convenio, or healthcare agreement, which we have now done; this has secured our work with the government healthcare system.

3. Healthcare agreement. The Convenio was drafted with the oversight of the Diressa and we successfully have the agreement formalised. This enables us to process our HPV testing through Iquitos and Lima for those patients who have SIS social security. This is the first time that we are aware of this occurring in the entire region.
4. Difficulties in coordination with a key healthcare outpost Mazan. Last year, given many changes of leadership in Mazan, along with staffing shortages and some resistance from midwives, we were unable to coordinate with Mazan as we had originally planned. We continued to visit and meet with Mazan, but our communication was lost due to staff turnover, as well as lost due to some perceived staff apathy. We overcame this through working with the director of Women's Health Programs, who was able to coordinate the staff and communication in a more effective manner.
5. Coordination of Obstetras (nurse midwives). The final challenge around the healthcare system was to coordinate work with obststeras from Mazan. We had been working with local obstetras for the entire project. However, we could not work with an obstetra for a period of two weeks as planned because of a failure in boat transport on the river. This meant that our work with clinical paperwork processing was delayed and we missed an opportunity to train a junior obstetra in cryotherapy. Because of this mistake, we were able to rectify our communication and planning with Mazan this year and compensate by working with two obstetras in 2016.

Clinical Program

The clinical arm of the ABCS program faced many challenges. Firstly, before the trip Diana our President experienced an acute illness that meant she could not attend the trip. Renzo, the Vice-President, and Geordan, the Medical Director, therefore took on the majority of organization and oversight. Fortunately Diana recovered and was able to communicate with us from Lima throughout.

We were originally planning on working with two gynaecologists from the USA and Lima. This would have facilitated greater clinical oversight and would have provided direct speciality advice around colposcopy and cryotherapy procedures. Because neither gynaecologist was able to attend this trip, we instead had to use local medical expertise plus ensure our work was audited from afar. We have secured a donation of an Australian Gynaecologist's time for review of photographs of all colposcopies. This will provide a valuable opportunity for clinical oversight and auditing of our work.

Post-cryotherapy symptoms and patient feedback

Despite a detailed consent and post-cryotherapy information pack, many women reported they were concerned about the symptoms they experienced afterwards. This consisted of a watery vaginal discharge.

The cryotherapy procedure is regarded as being very safe. Less than 1% of women experience severe or serious complications, such as infection or cervical stenosis. However, a high number of women do experience a profuse watery discharge that is benign. We gave out information to this effect along with some sanitary pads and ibuprofen. We also advised women not to engage in sexual intercourse for at least a month.

This year, following this feedback, we have introduced a more detailed education session prior to the gynaecological examination. We have also used visual aids in our consent process. We encouraged native language speaking obstetras to perform the entire consent, and we provided each woman with a post cryotherapy information pack with ibuprofen and additional sanitary pads.

Patient referral and follow-up

Two advanced cases of pelvic cancer, one woman with early-stage cancer and one more woman with suspected early invasive cancer were referred to Iquitos for review and treatment. This is an exceptionally high rate of cancer in a small population of screened women and has driven us to provide more extensive services, detailed below. However, the referral process had some unanticipated costs and challenges. These included:

1. Costs of patient transport. This included river transport, 'moto' transport and accommodation in Iquitos and/or Lima. We had not originally budgeted this into our initial proposal. However, we now realise that this will be a significant area of our program that will require specific funding.
2. Delay in clinics due to strikes/holidays. As mentioned above, some patients were unable to be seen on arrival to Iquitos, and had to return home. This situation risked patient loss to follow-up. Luckily all of our patients who needed to be seen were able to make appointments eventually.
3. Discrimination and apathy. We observed that many Rivereños were looked down upon within the healthcare system. We saw first hand that challenges of navigating a complex medical system in addition to understanding a complex health problem. On top of this, we observed some patients were told 'you're too old, why bother?' and 'you're not actively bleeding so it is not a priority.' This shows that even within the healthcare system there are attitudinal challenges we will need to address.
4. Long-term care of patients and families sent to Iquitos or Lima. This challenge arose when a woman required an extended hospital admission and treatment for cervical cancer with Radiotherapy in Lima. Her husband attended with her yet struggled to afford costs of living. Aside from providing initial financial support, DB Peru has decided to set clear time guidelines around how long we will support family and encourage those who can to seek temporary employment to support themselves and their family.

Communication and patient follow-up arose as another issue we will need to work further on in the area of patient referrals. We ensured that each patient has some point of contact with DB Peru and a telephone number that we can access her on at a regular basis. We may also consider a hospital liaison officer who can help us understand where the patient is at with their clinical pathway, and to help the patients understand the clinical pathway too. In the Napo River we have created a list of promotors (lay community health workers) and their phone numbers. This will mean we can make contact locally to follow-up our women.

Patient deaths

One woman who we found to have advanced pelvic cancer died in January this year. She was in her late thirties with four children. This has galvanised our efforts to provide better cancer prevention in this region.

Pap Smear Results

As we have experienced in the past, our pap-smear results were delayed. They were successfully processed within a few months of delivery, yet the results were misplaced. We finally found the results had been sent to the health posts. This delay in results meant many women were worried about not receiving their results and they expressed this in their feedback to us earlier this year. We have rectified this through hand-delivering all results and discussing the reasons for delay.

Vaccination

Because we were not able to find donors for our HPV vaccines in 2015, we have not yet delivered on this arm of the project. However, this delay in providing vaccinations has meant another opportunity has arisen for the communities via the public system.

For some time DB Peru has been aware that the government has committed on paper to providing HPV vaccines for all girls between the ages of 9 and 13 nationally. However, we have never witnessed this being delivered in the regions we serve. This year, we were able to liaise with the coordinator of the region who assured us that all girls will be receiving their vaccination in the 'Month of May' campaigns. DB Peru will help with this process in the region we serve. This is another example of how we are striving to work as sustainably as we can with government healthcare services. We will follow this through the year to ensure all girls get their vaccine.

High water levels mean transport is by canoe, even for children

Revision to Original Objectives

DFW Requirement: *Have you revised your original objectives since the project began? If so, why? What are your new objectives?*

The ultimate goal of the ABCS Program is to **reduce cervical cancer morbidity and mortality** in the communities of the Lower Napo River. Our strategy has been to **work with existing government healthcare services** and ultimately to **transition our program into mainstream government services** within five years time. The ABCS program therefore will serve as a **blueprint for broader action** in the region.

Because of the outcome of our Pilot Program in October 2015, we have been able to move this project forward into bi-annual clinical screen-and-treat outreach visits. As detailed above, we identified four women with cervical cancer out of a community of only 129 women screened, equating to a rate of 3.1%. This is 100 times higher than the crude incidence rates of cervical cancer in Peru, reported to be 31.3 per 100,000 women-years. (HPV Information Centre, 2016) Although we drew our data from a small population sample, finding four cases has shocked us into further immediate action and galvanized our efforts to up-scale the current project. Furthermore, seeing a young woman in her mid-thirties die as a result of pelvic cancer has driven us to prevent this from occurring again.

In addition to up-scaling the project, we have used the challenges detailed in the above section (and the strategies we have innovated to overcome these) to refine our objectives. We detail project objectives with associated specific, measurable and time-bound goals below:

1. Community involvement and consultation to help align the program goals with local community members, improve cultural relevance, and increase acceptance of cervical cancer screening:
    a. Hold at least six community consultation meetings annually,
    b. Review community needs assessment from 2013 and plan and execute data collection project in 2015,
    c. Create culturally-specific education material with local expertise and deliver these for the community in June 2015,
    d. For every component of our project, work with local health staff including obstetras (nurse midwives), doctors, parteras (lay midwives) and promotors (lay health workers) wherever possible,
    e. When possible, encourage local staff capacitation and training.

2. Data collection around women's health concerns and cervical cancer risks, to serve as some of the first broadly published data on women's health issues in this region.
    a. DB Peru dataset creation:
        i. Create an excel spread-sheet with baseline community data following data collection by the end of 2015,
        ii. Collect data on the impact of community education using pre- and post-test summaries by the end of 2015,
        iii. Create a clinical dataset for audit and patient follow-up: creation of dataset by September 2016 and ongoing data entry and patient management.
    b. Communication of results
        i. Create annual Board Meeting Report,
        ii. Complete grant Progress Reports July 2016 and February 2017
        iii. Plan and write academic journal articles, by February 2017
            - Baseline women's health data

- Impact of education on screening knowledge and uptake
- Program delivery
- Working with government and health services

3. Implement community education to increase community participation, knowledge, acceptance and uptake of screening:
    a. Create culturally-appropriate education material creation using local expertise by end of 2015,
    b. Implement bi-annual education programs explain cervical cancer screening and prevention from 2015 onwards,
    c. Improve levels of knowledge by 100% and screening-uptake in each community by 80% by October 2016.

4. Establish clinics that perform screening for high-risk HPV, provide clinical examinations including VIA, and treatment *in the community* using cryotherapy for women who screen positive to pre-cancerous cervical changes by October 2015:
    a. Perform Pilot Program in October 2015
    b. Upscale screen-and-treat clinical programs to bi-annual community outreach in 2016
    c. Provide HPV testing to all eligible women with an uptake rate of over 70%
    d. Perform gynaecological examination and VIA for eligible women with an uptake rate of over 70%
    e. Provide cryotherapy for women who test positive for pre-cancerous cervical changes with an uptake rate of 100%
    f. Follow-up positive or high-risk patients with a 100% follow-up rate

5. HPV Vaccination to provide cover to young girls between the ages of 9-13 years who are at risk of contracting hrHPV and reduce the burden of HPV in the future:
    a. Work with local health services to ensure all eligible girls in our target region are vaccinated by the end of 2016,
    b. Source vaccinations from local healthcare services and deliver these to the community if existing government services fail to do so in 2016 and beyond,
    c. Establish clear record-keeping and guidelines around HPV vaccination by the end of 2016.

6. Transition the ABCS project into existing healthcare services by 2020.
    a. Perform annual education and project appraisal with at least 15 *promotors* from the region,
    b. Work with and train one *obstetra* annually in the skills of VIA and cryotherapy,
    c. Submit and have approved a *convenio* by the Diressa de Salud Loreto by May 2016 outlining the collaboration of DB Peru with the government health system,
    d. Identify and work with at least two partners in the public healthcare system annually.

Progress Towards Objectives

DFW Requirement: *What progress have you made toward achieving your objectives? Please address each stated objective.*

SEP

1. Community consultation

Aim: Collaborate with local community members to design a cervical cancer education and prevention program

Objective: Community involvement and consultation to help align the program goals with local community members, improve cultural relevance, and increase acceptance of cervical cancer screening:

a. Hold at least six community consultation meetings annually,
b. Review community needs assessment from 2013 and plan and execute data collection project in 2015,
c. Create culturally-specific education material with local expertise and deliver these for the community in June 2015,
d. For every component of our project, work with local health staff including obstetras, doctors, parteras and promotors wherever possible,
e. When possible, encourage local staff capacitation and training.

The ABCS project was conceived following a community needs assessment in 2013. Hearing the specific women's health needs expressed by interview participants, we were able to shape a project focusing on their priorities. The 2013 needs assessment has served as a framework for all our project planning and implementation. The program design was discussed locally and planned using DB Peru's existing knowledge of the health system.

We have been able to have at least ten community contacts and consultations during our program in 2015 and have held five community consultations and education this year. We built community consultation into all parts of our program, including the data collection, education, and clinical arms. We also held one large group session for education and feedback with community health workers in 2015 and another large session in March 2016. Amongst general medical education, we also delivered specific education around our cervical cancer prevention. We collected feedback and ideas around the program and actively encouraged *promotor* participation.

We created and delivered culturally specific education using local expertise and feedback, as detailed below. We have also worked with 24 promotors, four obstetras, five parteras, two doctors and multiple administrators to deliver our project. As detailed below, we have been able to up-skill two *obstetras* in VIA and cryotherapy.

Community consultation, Acu Cocha, Loreto

Promotor meeting and consultation process, Mazan, Loreto

2. Data collection

Aim: Accurately quantify the burden of disease of cervical cancer in the region

Objective: Data collection around women's health concerns and cervical cancer risks, to serve as some of the first broadly published data on women's health issues in this region.

a. DB Peru dataset creation:
   i. Create an excel spread-sheet with baseline community data following data collection by the end of 2015,
   ii. Collect data on the impact of community education using pre- and post-test summaries by the end of 2015,
   iii. Create a clinical dataset for audit and patient follow-up: creation of dataset by September 2016 and ongoing data entry and patient management.

b. Communication of results
   iv. Create annual Board Meeting Report,
   v. Complete grant Progress Reports July 2016 and February 2017
   vi. Plan and write academic journal articles, by February 2017
      - Baseline women's health data
      - Impact of education on screening knowledge and uptake
      - Program delivery
      - Working with government and health services
      -

In April 2015, a team of ten volunteers completed a comprehensive investigation into the situation of women's health in the communities DB Peru serves. This was designed to collect information in a formal manner around women's health and demographic data, the first survey to do so in this region. Ethics approval for this survey was secured through the Universidad Peruana Cayatano Heredia, Lima.

We collected 119 surveys and visited six communities. The participation rate varied between 55 and 82% of women estimated to be present on the day of the survey. We collected the following numbers of surveys from the following communities:

San Pedro = 29 women,
Mangua = 33 women,
Acu Cocha = 13 women,
Puinahua = 22 women,
San Juan de Floresta = 7 women,
Centro Unido = 15 women

For the majority of women, this was their first experience of ever participating in a 'survey.' This posed challenges where many women had difficulty in articulating their opinion. The team did an excellent job at explaining the survey and providing education to each woman as needed. We also infused health education, opened-up discussion around breast and cervical cancer, performed all interviews in a safe and culturally-appropriate manner, and maintained dialogue and communication with all community members.

DB Peru now has a complete excel dataset of this survey and will use this to further shape our community programs. We collected data on the impact of community education, detailed

below. We have also created a clinical dataset of all patients who have entered our program since 2015.

Results have been communicated in an annual report to the DB Peru Board, a small report on the DB Peru website, social media, and in the current report to DFW. We have structured academic journal articles and will commence writing and publication of these results later this year.

Data collection following education sessions, Mangua

Dr Geordan Shannon administering the DB Peru demographic and health survey with Grielti, the promotora of Centro Unido community

3. Education

Aim: Educate local women regarding the natural history, risk factors, and prevention strategies for cervical cancer;

Objective: Implement community education to increase community participation, knowledge, acceptance and uptake of screening:

a. Create culturally-appropriate education material creation using local expertise by end of 2015,
b. Implement bi-annual education programs explain cervical cancer screening and prevention from 2015 onwards,
c. Improve levels of knowledge by 100% and screening-uptake in each community by 80% by October 2016.

The education package was created to be culturally specific to the river communities. Initially, two local volunteers drafted a page of simple sexual health education that covered anatomy, HPV transmission, and some information around cervical cancer prevention. Following this, we enlisted the help of a Lima-based cartoon artist to draw a comic strip that told a story around two women's experience with screening using river cultural references. We also accessed a Peruvian Government Education 'Rotafolio' that provides information around cervical cancer screening and prevention.

The original delivery of the education package occurred in July 2015, with two Spanish-speaking volunteers and an obstetra. A copy of the comic book was given to each woman, with space for recording future screening and education. Education was delivered by the volunteers and an *obstetra*, who discussed the comic book story interspaced with additional medical input throughout. It seemed that most of the community enjoyed the story and remained interested and engaged.

In summary, we managed to provide a total of 7 sessions over 5 days, reaching around 200 people (although we formally surveyed n=136 participants). We performed a 10 question before and after knowledge and attitude test to explore the impact of the session. The questions were:

BEFORE + AFTER
- Have you heard of cervical cancer?
- Can you explain what it is?
- Do you know the symptoms?
- Can you explain the symptoms?
- Do you know how to prevent it?
- Do you know how to treat it?
- Do you have fear around cervical cancer?

AFTER
- Do you think DB Peru has helped you?
- Have you learnt anything from this session?
- After this session will you return for screening?

The results are presented in the table below. This shows a significant increase from baseline knowledge after the education. There is also a very positive response to the screening and anticipated future participation.

Since then, we have delivered two further education programs in March and May 2016 to five different communities in the lead-up to clinical screen and treat programs in 2016. In

response to community requests, we have also introduced sexual health education and education around HPV transmission and cervical cancer for men.

QUESTIONS	BEFORE (%)	AFTER (%)	IMPROVEMENT (%)
Have you heard about cervical cancer before?	31.5	92.9	**294.9%**
Can you explain what cervical cancer is?	6.7	43.3	**646.2%**
Do you know the symptoms of cervical cancer?	7.5	40.6	**541.3%**
Can you explain what the symptoms of cervical cancer are?	4.7	34.3	**729.8%**
Do you know how to prevent cervical cancer?	7.1	53.4	**752.1%**
Do you know how to treat cervical cancer?	4.7	40.9	**870.2%**
Do you have fear around cervical cancer?	17.3	76	**439.3%**
Do you think that DB Peru has helped you?	-	72.4	
Have you learnt anything from this education session?	-	81.2	
Will you get tested for HPV or participate in future screening because of this education session?	-	71.3	

Women of Puinahua playing an ice-breaker game prior to cervical cancer education

One of our Obstetras explaining how to take a self-sample for HPV testing

Women of Puinahua using the local school for cervical cancer education

4. Clinic Delivery

Aim: Design and deliver a sustainable cervical cancer screen and treat program that is community-led; and

Objective: Establish clinics that perform screening for high-risk HPV, provide clinical examinations including VIA, and treatment *in the community* using cryotherapy for women who screen positive to pre-cancerous cervical changes by October 2015:

a. Perform Pilot Program in October 2015
b. Upscale screen-and-treat clinical programs to bi-annual community outreach in 2016
c. Provide HPV testing to all eligible women with an uptake rate of over 70%
d. Perform gynaecological examination and VIA for eligible women with an uptake rate of over 70%
e. Provide cryotherapy for women who test positive for pre-cancerous cervical changes with an uptake rate of 100%
f. Follow-up positive or high-risk patients with a 100% follow-up rate

During our pilot project in October 2015, we visited 6 villages in this region by boat, saw 129 women, did 72 gynaecological exams (69.2% uptake), performed 69 pap smears (95.8% uptake), performed HPV self-sampling on 66 women (51.2% uptake), and performed cryotherapy on 21 women who had abnormal changes on their cervix (100% uptake). For our clinics, we would set up in the village school where we would transform a large room into separate private clinical areas, using bed sheets. Patients were registered, performed their HPV self-sample after education on how to use the device then underwent a gynaecological exam, visual inspection with ascetic acid (VIA) using colposcopy and treatment if they required it. As part of this team, we also taught women how to do a self-breast exam and we gave out bras too.

The HPV tests were collected and a structured feedback on the HPV testing process was collected. Overall, women's attitudes and opinions around this new test were very positive. The majority of women screened stated that they preferred the HPV test to be performed as a self-test. The uptake of HPV testing was higher than the gynaecological examination because some women did not want an internal exam.

The gynaecology component of our trip involved intensive examinations, and a high rate of positive VIA results. There were a number of women with suspected or actual cancer who we identified. Therefore, we saw an exceptionally high burden of pre-cancerous disease and cancer. Following our program, we found 2 women with advanced pelvic cancer, and made two further referrals for suspected early invasive carcinoma of the cervix. Of the two women with advanced cancer, one women (only 38 years old) unfortunately had a tumour at such an advanced stage it was inoperable. She needed palliative care and we were able to provide a new mattress, analgesics and family support. This sad experience further reaffirmed the importance of our project in preventing such a debilitating disease. One woman was referred via Iquitos to Lima with heavy bleeding from her cervical cancer. Although she has an advanced stage of cancer, she was able to received palliative radiation to improve her symptoms and quality of life. She is living back in her community at present and reports an improvement in her quality of life and symptoms. She may get further brachytherapy in the future in Lima. Another woman was referred with a suspicion of early-stage cervical cancer

to Iquitos. It was reported that she just had an operation for this and that she is now back in her community.

In 2016 we have already delivered another clinical outreach to five new communities; this occurred in May. We delivered education sessions, collected registration data, saw 95 women and performed 64 HPV tests in five new communities. In addition we saw 200 further community members for general medical concerns.

Clinical set up- examination table, supplies for VIA, and cryotherapy equipment – Nursery School room, Acua Cocha.

Our volunteers consenting women prior to HPV testing

5. Vaccination

Aim: Vaccinate eligible girls, through working collaboratively with the Peruvian Government, Iquitos Hospital and Mazan Community Health Centre.

Objective: HPV Vaccination to provide cover to young girls between the ages of 9-13 years who are at risk of contracting hrHPV and reduce the burden of HPV in the future:

a. Work with local health services to ensure all eligible girls in our target region are vaccinated by the end of 2016,
b. Source vaccinations from local healthcare services and deliver these to the community if existing government services fail to do so in 2016 and beyond,
c. Establish clear record-keeping and guidelines around HPV vaccination by the end of 2016.

Because we were not able to find donors for our HPV vaccines in 2015, we have not yet achieved this arm of the project. However, this delay in providing vaccinations has meant another opportunity has arisen for the communities via the public system.

For some time DB Peru has been aware that the government has committed on paper to providing HPV vaccines for all girls between the ages of 9 and 13 nationally. However, we have never witnessed this being delivered in the regions we serve. This year, we were able to liaise with the coordinator of the region who assured us that all girls will be receiving their vaccination in the 'Month of May' campaigns. DB Peru will help with this process in the region we serve. This is another example of how we are striving to work as sustainably as we can with government healthcare services. We will follow this through the year to ensure all girls get their vaccine.

President Diana Bowie taking a child's temperature during our women's health clinics

6. Transition into local healthcare services

Aim: Transition the ABCS project into existing healthcare services by 2020.

Objective: Work collaboratively with government health system to ensure the ABCS program will sustain itself through the local health system:

a. Perform annual education and project appraisal with at least 15 *promotors* from the region,
b. Work with and train one *obstetra* annually in the skills of VIA and cryotherapy,
c. Submit and have approved a *convenio* by the Diressa de Salud Loreto by May 2016 outlining the collaboration of DB Peru with the government health system,
d. Identify and work with at least two partners in the public healthcare system annually.

DB Peru's strategy has been to work with existing government healthcare services and ultimately to transition our program into mainstream government services within five years time. The ABCS program therefore will serve as a blueprint for broader action in the region.

Annual promotor (community health worker) education sessions have been organised since the project inception in 2015. Nineteen promotors were present in our 2015 education and 28 in our 2016 education sessions. In their feedback, promotors expressed a desire to be more active in this project and to take on more education and outreach roles. With this information, DB Peru has facilitated a stronger promotor role: we have up skilled promotors to provide better education and patient management in their communities and will continue to work with them to improve their input and responsibilities.

DB Peru has worked with four *obstetras* (nurse midwives) since our program began. We have provided training to two obstetras in VIA and cryotherapy. We hope to be able to do this annually for at least one if not more junior obstetras. We have been working with the director of women's health services and she has agreed to provide the services of two obstetras annually for our program.

The Convenio was drafted with the oversight of the Diressa and we successfully have the agreement formalised in May 2016. This enables us to process our HPV testing through the Hospital Regional Iquitos and Hospital dos de Mayo Lima for those patients who have SIS social security cards (the majority of our community). This is the first time that we are aware of this occurring in the entire region and paves the way for future opportunities to work collaboratively with the government.

Our work has enabled us to collaborate with numerous leaders, administrators and clinicians in the local system. We have identified a number of strong supporters within the government system. First, we are working with the director of women's health services in Loreto. She used to be a volunteer obstetra with DB Peru many years ago, and so knows the importance of our work and has much trust in us, too. Secondly, we have formed a partnership with the Oncology Unit in Iquitos through mutual work and focus on cervical cancer prevention. Prior to our departure to the Napo River for the clinical arm of our project, Dr Shannon completed a week of up-skilling experience with them, making valuable professional connections between DB Peru and the Hospital Oncology Services. Thirdly, we have the support of the Hospital Regional through our connection with the director of communications and public relations.

Anticipated Difficulties

DFW Requirement: *Do you anticipate any difficulties in completing your project in the timeframe outlined in your proposal?*

1. Transitioning program to government health services

   This is a long-term program objective and will not be completed within the time limits of the Dining for Women Grant window. DB Peru feels strongly about sustainability and efficiency of resource use and we believe that through transitioning our project into the government healthcare service – through strategies such as local staff capacitation – that this innovative method of cervical cancer prevention will be best sustained into the future.

   DB Peru has already taken steps to start training local staff and established a convenio with the Diressa de Salud Loreto. We secured a pathway for HPV testing within the public healthcare system. We also now work with the director of women's health programs in Iquitos. Next year, we plan to hold comprehensive meetings to commence planning a five-year transition, what further resources are needed and how DB Peru can enhance this process.

2. Funding sources and transition to long term funding cover

   DB Peru established a promising program after a successful pilot in October 2015 thanks to the grant from Dining for Women. A challenge we will face by the end of the funding period is to sustain funding and create a model that is cost effective and impactful. DB Peru is working on this challenge now to ensure the most efficient use of our current funding and find funding sources into the future.

3. Patient consent and follow-up

   One of the challenges we faced this last year has been to ensure all women feel comfortable during the gynaecological examination, and, if they have treatment, be prepared to participate in post-clinic follow-up. Following feedback from women in 2015, we have adjusted our project to build in more education, greater visual aids, and a slower, more detailed consent process using Spanish-speaking local staff. We will aim to achieve 100% patient satisfaction and follow-up after each clinical program.

4. Promotor involvement

   DB Peru identified that promotors were not only key community stakeholders in the project but also very keen to extend their current involvement. Because they know the community so well, they are best positioned to provide ongoing and targeted services. It will take continued effort on behalf of DB Peru to reach our target of up-skilling promotors to ensure they can look at taking on a greater ongoing workload.