MASTER OF PUBLIC HEALTH

Johns Hopkins Bloomberg School of Public Health & IIHMR University

PRACTICUM REPORT

By

Nicola M D'Souza

Cohort-3
2015-17

Under the Guidance of

Dr. S D Gupta

Professor

IIHMR University

TO WHOMSOEVER MAY CONCERN

This is to certify that Nicola M. D'Souza, student of Master of Public Health Program offered by Institute of Health Management Research IIHMR University, Jaipur in cooperation with Johns Hopkins Bloomberg School of Public Health, Baltimore has undergone Practicum Training at T.N.Medical College & B.Y.L.Nair Ch. Hospital, Mumbai, on the topic 'Retrospective study of National HIV Early Infant Diagnosis program in Mumbai from November 1st 2016 to March 15th 2017 and; at ARMMAN from December 1st 2016 to March 10th 2017 on the topic 'Understanding mHealth through analysis, communication and community dimensions of practice skills'.

The Candidate has successfully carried out the study designated to her during practicum training and her approach to the study has been sincere, scientific and analytical.

The Practicum Training is in fulfillment of the course requirements.

I wish her success in all her future endeavors.

Sd-
Dr. S D Gupta
Practicum Advisor)

CERTIFICATE BY SCHOLAR

This is to certify that the Practicum Project titled "Utilization of fieldwork to advance knowledge, skills and practice in maternal and child health" submitted by me, *Nicola M. D'Souza* with Enrollment No. IIHMR-U/07/2015-2017/0008 under the supervision of *Dr.SD Gupta* for award of Master of Public Health carried out during the period November 1st *2016 to 15th March* 2017 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Nicola M. D'Souza
MPH Candidate 2015-17

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15.3.2017

To whomsoever it may concern

I am pleased to certify that **Ms. Nicola D'Souza** has completed her internship requirements between TN Medical College & BYL Nair Hospital and Kasturba Hospital from 1st November 2016 to 15th March 2017.

She was diligent in her work and demonstrated analytical skills in the retrospective study that she was involved in. She took a keen interest in understanding the program at a systems level as well as at the community level.

I wish her all success in all her future endeavors.

J S Shastri
15/3/2017.

Dr. J S. Shastri
Professor & Head
Department of Microbiology
Nair Hospital
Incharge, Regional HIV Reference Laboratory
Kasturba Hospital of Infectious Disease
Mumbai, India

ADVANCING REDUCTION IN MORTALITY AND MORBIDITY OF MOTHERS, CHILDREN AND NEONATES

armmar

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Nicola D'Souza student of Master of Public Health Program offered by Institute of Health Management Research; Jaipur in cooperation with Johns Hopkins Bloomberg School of Public Health, Baltimore has undergone Practicum Training at ARMMAN, Mumbai from 02-January-2017 to 10-March-2017. She completed 120 hours of work with the organization.

The Candidate has successfully carried out the study/tasks designated to her during practicum training and her approach to the study has been sincere, scientific and analytical. She focused on gaining Analytical/Assessment skills, communication skills and practice skills from the Community dimension as well. Her contribution was valuable to the program.

The Practicum Training is in fulfillment of the course requirements.

I am certain she will be successful in her future professional goals.

Carlyle Pereira,
Director- Programs,
ARMAAN

ARMMAN MUMBAI

Acknowledgements

Since I chose to do my practicum at two places, I have many individuals to thank. I will begin by thanking Dr. SD Gupta , Professor, IIHMR University who was also my capstone advisor. He encouraged me from the beginning to undertake a practicum project that would be publishable and have a long term impact on my career path. I did just that.

At my first placement, I am extremely appreciative of Dr. Jayanti Shastri (HOD Microbiology, T.N.Medical College & B.Y.L.Nair Ch. Hospital) for creating this study opportunity for me, and to Dr. Sachee Agarwal (Asst. professor Microbiology, T.N.Medical College & B.Y.L.Nair Ch. Hospital) for guiding the retrospective study and process.

At the second placement, ARMMAN, I witnessed another dimension to learning and for that I am grateful for stumbling upon the organization. I am more than indebted to Mr. Carlyle Pereira (Director, ARMMAN) for welcoming me and getting his team to tailor tasks and activities that would align with my practicum and career goals. Every member of the organization went out of their way to help me understand the mission, vison and objectives of the program, even arranging hospital and community visits exclusively for me.

My acknowledgements would certainly not be complete, if I didn't highlight the support, coordination and advice I received from Mr Gowthamghosh B, Senior Research Officer, IIHMR University throughout this practicum and the program.

Last but not least, I feel immensely blessed that I have such a wonderful and encouraging family, and friends that have supported my decisions and helped me in whatever way they could.

Contents

Introduction:

This report is two-fold and describes my placements' at: 1) T.N Medical College & BYL Nair Children's hospital, Mumbai and 2) Advancing Reduction in Mortality and Morbidity of Mothers Children & Neonates (ARMMAN), a non-profit organization in Mumbai working through mHealth initiatives.

In order to gain competencies in community dimensions of practice, communication skills and sharpen analytical/assessment skills I undertook this comprehensive approach. At both placements I was able to enhance these competencies through the retrospective study of Early Infant Diagnosis (EID) data, assessment of a mHealth program, creation of a baseline health communication questionnaire for HIV antenatal women and constructing objectively verifiable indicators for a Logical Frame Analysis (LFA). I also enhanced communication skills and observational skills while sitting in on sessions at the Integrated Counseling and Testing Center (ICTC), the antenatal center, the ART center, visiting and interacting with beneficiaries and stakeholders at public hospitals, in the community and during the focused group discussions.

Placement I: Retrospective study of National HIV Early Infant Diagnosis program in Mumbai from November 1st 2016 to March 15th 2017

The purpose of this placement was to assist in a retrospective analysis of the national HIV Early Infant Diagnosis (EID) program utilizing data from the Kasturba central processing laboratory in Mumbai. In order to evaluate the effectiveness of the existing EID program in the district of Mumbai the quantitative findings obtained through this study is a step in informing the national programmatic ratifications, the revised testing protocols or improving effectiveness of the program. The next phase of National Aids Control Program (NACP-V) is due in 2017 and findings of this study can impact future program planning.

Towards this end, and under the supervision of Dr. J Shastri and Dr. S Agrawal, I was involved in the study of retrospective data and presented results and findings for further analysis. These findings were also presented to Mumbai District Aids Control Society (MDACS) for follow-up and publication at the district level. Further, Dr. Shastri will be presenting this data at the national planning meetings for NACP-V.

Background of the organization:

T.N. Medical College & B.Y.L. Nair Children's Hospital, Mumbai is a public hospital that houses one of the Integrated Counselling and Testing Centers (ICTCs) and Anti-Retroviral Treatment (ART) centers for the National HIV/AIDS program. The microbiology department headed by Dr. Jayanti Shastri manages this ICTC and the laboratory for testing. Dr. Shastri also heads the EID program in Mumbai and oversees the Kasturba PCR laboratory located at Kasturba infectious disease hospital Mumbai. This is the central regionally-identified laboratory, for DNA-PCR testing. Tests for Mumbai, Madhya Pradesh, Gujarat and Goa are processed here.

Background of the National Early Infant Diagnosis program:

In the global response to the HIV epidemic, pediatric HIV care and treatment is a priority and the Early Infant diagnosis (EID) programs is one such effort in that direction. It offers diagnosis of HIV infection from 4-6 weeks of age, facilitating the provision of life-saving care to infected infants and enabling access to HIV prevention information and support for those testing negative. [1]

In India, perinatal transmission accounts for 2.4 percent of the total HIV infection load. [2] National AIDS Control Organization (NACO) began the EID program in April 2010. [(2)] In the early Prevention of Mother to Child Transmission (PMTCT) program in India, exposed children were diagnosed utilizing the rapid tests only at the age of 18 months and so the future ART linkage would depend upon that. Later, when the EID program in India was rolled out in 2010, it introduced a more accurate option, which is the antigen-specific DNA polymerase chain reaction (DNA PCR) test. This detects HIV-1 pro-viral DNA integrated to human genome. This has been implemented across India ever since. [3]

Up until March 2015, NACO's national guidelines under Early Infant Diagnosis of HIV (EID) was to use Dry Blood Spots (DBS) sample as a first test and Whole Blood Spots (WBS) sample as the confirmatory test if the child is found positive from DBS. DBS, at the earliest, is advised at 6 weeks of age *i.e.* for the infants below 6 months of age, while for children above 6 months of age, a combination of rapid test and subsequent DBS is advocated if the former turns

[1] Sutcliffe, C. G., van Dijk, J. H., Hamangaba, F., Mayani, F., & Moss, W. J. (2014). Turnaround time for early infant HIV diagnosis in rural Zambia: a chart review. *PloS one*, *9*(1), e87028.

[2] Supriya, M. P., Rajkunwar, S. P., Nayana, A. I., & Preeti, R. M. (2012). Early Infant Diagnosis (EID) of HIV: an experience at a tertiary care Hospital in India. *World Journal of AIDS*, *2012*.

[3] Joshi, U., Oza, U., Solanki, A., Vyas, S., & Modi, H. (2012). Early infant diagnosis of HIV in India—Early results and sero-positivity determinants. *Open Journal of Preventive Medicine*, *2*(03), 318.

out positive. [4] However as of April 2015, if a child is found positive, a second DBS is done as a confirmatory test (replacing the WBS test).

Study rationale:

As countries work to implement and scale-up EID services, they are faced with multiple challenges such as : identifying and tracking HIV-exposed infants, timely return of Polymerase Chain Reaction (PCR) test results, ensuring early treatment of infected infants, collection and management of EID data, and training and supervision of healthcare workers providing EID services. [5]

In an editorial, J Chandra (Journal of Indian Pediatrics, 2015) mentions that in 2012 among 104 countries reporting on EID, only 35 percent of HIV-exposed infants underwent HIV virological testing within the first two months of life. Among those tested, up to 45 percent were lost to follow-up before the test result.[6] He recommends that focus should be on reducing the turnaround time and retention in care. [7] He further discusses a study conducted in the southern part of India, by Hanna, et al. (2015) that reported on their experience from Southern India. Their analysis of data from 2010- 2012, highlighted huge gaps in diagnosis, confirmation and initiation of ART in HIV-exposed infants in the region. [8] Of those who had a positive result, only 13 percent

[4] Joshi, U., Oza, U., Solanki, A., Vyas, S., & Modi, H. (2012). Early infant diagnosis of HIV in India—Early results and sero-positivity determinants. *Open Journal of Preventive Medicine*, *2*(03), 318.

[5] Sutcliffe, C. G., van Dijk, J. H., Hamangaba, F., Mayani, F., & Moss, W. J. (2014). Turnaround time for early infant HIV diagnosis in rural Zambia: a chart review. *PloS one*, *9*(1), e87028.

[6] Joshi, U., Oza, U., Solanki, A., Vyas, S., & Modi, H. (2012). Early infant diagnosis of HIV in India—Early results and sero-positivity determinants. *Open Journal of Preventive Medicine*, *2*(03), 318.

[7] Joshi, U., Oza, U., Solanki, A., Vyas, S., & Modi, H. (2012). Early infant diagnosis of HIV in India—Early results and sero-positivity determinants. *Open Journal of Preventive Medicine*, *2*(03), 318.

[8] Joshi, U., Oza, U., Solanki, A., Vyas, S., & Modi, H. (2012). Early infant diagnosis of HIV in India—Early results and sero-positivity determinants. *Open Journal of Preventive Medicine*, *2*(03), 318.

were tested within 6 weeks of birth, 29 percent by 4 months, 52 percent by 6 months and 85 percent by 12 months. In 2012, another study was conducted by S Paranjpe et. al (2012) of a tertiary care hospital in Mumbai. One of their objectives was to check the congruence between the first DBS test and the second confirmatory (WBS) test. They reported 100 percent concordance. [9]

In Mumbai, the EID program has been supported by Maharashtra District AIDS Control Society (MDACS). Since its inception and surveillance, laboratory data has been systematically obtained and recorded. The DBS and WBS samples collected from exposed infants are sent to the regionally-identified center-Kasturba Hospital, Mumbai, for DNA-PCR testing.

It has been six years since the launch of the national EID program and also its roll out in Mumbai. The program has never been evaluated. One aspect of evaluating the efficacy and effectiveness of the program called for an assessment/reassessment of the validity and congruency of the earliest diagnosis of exposed children through DBS and WBS in the field and the recent change (in 2015) from WBS to DBS as the second confirmatory test for positives. It also called for analyzing turnaround time and gaps (if any) to scale-up and enhance the quality of the program.

Practicum Objectives:

Objective I:

- To study the national EID program
- To learn the procedure for EID testing at the ICTC
- To understand the surveillance system, the procedure and data management at the central processing laboratory for the EID program in Mumbai.

[9] Supriya, M. P., Rajkunwar, S. P., Nayana, A. I., & Preeti, R. M. (2012). Early Infant Diagnosis (EID) of HIV: an experience at a tertiary care Hospital in India. *World Journal of AIDS, 2012*.

Objective II:

- To review the EID laboratory data for Mumbai at Kasturba PCR laboratory
- To analyze the data in order to assess the effectiveness of the programmatic procedures and protocols and program trends.
- To make recommendations based on findings and observations for quality improvement in a report.

Process:

The proposal for the study was sent in August 2016. Dr. Shastri sought IRB permissions and clearances from BYL Nair hospital, Kasturba hospital and MDACS in September and October of 2016. I then began this internship on 1st November 2016. I was introduced to all the key staff at both hospitals. During the course of the month I shadowed the counsellors at the ICTC, attended pre and post test counseling sessions at the ANC center and visited the ART center. This helped in visualizing the program and understanding processes and flow. While the set-up at BYL Nair hospital may not be representative of all ICTCS in Mumbai, it gives a general perspective of the urban setting. I then spent time at the Kasturba Central processing laboratory reviewing data registers, understanding the MIS system and learning the codes and variables entered in the master sheet. The head technical officer Mr. Rahul Pingle assisted in this activity. Analysis began in the later part of January and February. I presented the findings in March to Dr. Shastri and Dr. Agarwal. On 2-16-2017 we met with the team at Maharashtra District Aids Control Society (MDACS) and presented the results. Dr Shrikala Acharya, additional project director and her team made a few suggestions for further analysis which is now ongoing.

Study procedure:

With the assistance of Dr. Agarwal an excel sheet was prepared with key variables that needed to be captured. It was pilot tested with the first 50 records of year 2010 (the start of the program). The data design plan was re-worked and in December 2016, full-fledged data entry began. However, completion was delayed due to lack of dedicated manpower for data entry and staff turnaround. Further, the carbon copies were not always clear and required to be cross-referenced with the master sheet. This was a tedious and time consuming process that crossed over into January of 2017.

To analyze the early infant testing data a chart review was done. All DBS and WBS specimens collected for the years of 1st April 2010 through 31st March 2016 were abstracted from the laboratory log book containing the Test Report and Test Requisition Forms (TRRF). Data had to be extrapolated from registers that were common for all four states (Mumbai, Goa, Gujarat, and Madhya Pradesh).

Data abstracted included unique identity number, clinic number, date of birth, age at testing, feeding pattern, type of test conducted, date of specimen collection, date of specimen arrival at the laboratory at Kasturba, and date of testing and results. Data was then cleaned and analyzed. The report describes the implementation of EID program with the main focus on the completeness of HIV testing, congruence of DBS and WBS test results, receipt of samples and time taken to test/delivery of test results and feeding practices.

Results:

Since HIV is a highly sensitive subject and, this district level data is confidential and restricted and, is still being analyzed, I have chosen to broadly share only a few general results.

After data entry of two thousand five hundred records was done and cleaned the results were divided thematically into six areas. Tables and figures were presented year-wise as well as concisely- summing up the entire program. A few examples of the six areas are discussed below:

1.1. General profile: A general profile of cases tested (disaggregated by age) was done year wise. This included number of cases tested before and after six months of age and feeding patterns. It also included the numbers of cases that were detected positive and negative.

The table below is a presentation of the total number of cases through the span of the program.

Table 1. Year-wise distribution of the cases at first DBS test/visit

Year	0-6 months		6-18 months		Total	
	Positive Cases	Negative cases	Positive Cases	Negative cases	Positive Cases	Negative cases
2010-2011	42	366	27	37	69	403
2011-2012	35	366	11	14	46	380
2012-2013	43	408	9	7	52	415
2013-2014	38	389	9	7	47	396
2014-2015	23	305	10	21	33	326
2015-2016	4	309	5	15	9	324
Total	185	2143	71	101	256	2244

In six years from 2010 to 2016, two thousand five hundred cases were tested at Kasturba central processing laboratory. The highest number of cases were tested in 2012-2013 (four hundred and fifteen) while the year of 2015-2016 recorded the lowest number (at three hundred and twenty four). In six years two hundred and fifty six cases (10.24%) were found positive at first DBS while two thousand two hundred and forty four were negative.

1.2. Follow-up Visit: As per protocol, if infants test negative at first visit they must return at six months for a follow-up. Below is an illustration of those cases that returned for the second follow-up visit.

Table 2. Year-wise distribution of cases who returned for second DBS visit

Year	Negative cases from first DBS visit	Negative cases who returned for second DBS Visit	Percentage
2010-2011	403	255	63
2011-2012	380	279	73
2012-2013	415	313	75
2013-2014	396	262	66
2014-2015	326	169	52
2015-2016	324	158	48
Total	2244	1436	64

Table 2, describes that on an average 64 percent returned for second follow up visit. Highest follow-up rate was found for year 2012-2013 while, lowest follow up was in the year 2015-2016.

2. Center wise list of positive cases at first DBS: *(In order to maintain anonymity of the centers, this table has not been shared.)*

3. Confirmed positive cases: When a case is detected as positive it is immediately recalled for a confirmatory test. This confirmatory test used to be a WBS which has now been replaced with a confirmatory DBS.

Table 3. Number of Positive DBS confirmed with confirmatory WBS/DBS test

Year	0-6 months			6-18 months		
	Confirmed Positive	Negative	Total	Confirmed Positive	Negative	Total
2010-2011	19 (82.6%)	4 (17.4%)	23	11 (91.7%)	1 (8.3%)	12
2011-2012	22 (95.7%)	1 (4.3%)	23	5 (100%)	-	5
2012-2013	25 (89.3%)	3 (10.7%)	28	4 (44.4%)	-	4
2013-2014	25 (83.3%)	5 (16.6%)	30	5 (100%)	-	5
2014-2015	11 (73.3%)	4 (26.7%)	15	6 (85.7%)	1 (24.3%)	7
2015-2016	1 (50%)	1 (50%)	2	3 (100%)	-	3

Table 3, represents the number of positive DBS that returned for confirmation and were confirmed positive either through WBS or DBS confirmatory testing. It also presents the number of cases that were detected negative (incongruence with first test) at second confirmatory test.

Table 4. Feeding Practices of cases confirmed positive (DBS and WBS positive)

Year	0-6 months				6-18 months			
	BF*	TP**	MF***	Total	BF*	TP**	MF***	Total
2010-2011	4 (21%)	12 (63.2%)	3 (15.8%)	19	1 (9%)	9 (82%)	1 (9%)	11
2011-2012	8 (36%)	12 (54%)	2 (10%)	22	2 (40%)	3 (60%)	-	5
2012-2013	9 (36%)	14 (56%)	2 (8%)	25	1 (25%)	3 (75%)	-	4

2013-2014	10 (40%)	14 (56%)	1 (4%)	25	1 (20%)	4 (80%)	-	5
2014-2015	5 (45.5%)	6 (54.5%)	-	11	1 (16.6%)	4 (66.8%)	1 (16.6%)	5
2015-2016	-	1 (100%)	-	1	-	2 (66.7%)	1 (33.3%	3

*Breast Fed (BF), **Top Fed (TP), ***Mixed Fed (MF).

Table 4, represents the feeding patterns of those confirmed positive. National protocol promotes exclusive breast feeding. However, in all the years in both age groups top feeding supersedes both other types of feeding practices.

5. Time taken between Date of Collection (DOC) at the Center to the Date of Receipt (DOR) at Kasturba Central Laboratory. A graphical representation of center-wise TAT was illustrated.

The minimum TAT for a center during a year was one day while certain centers had TATs of up to 26 days.

6. Time taken from the Date of Receipt (DOR) at Kasturba Central Laboratory until Date of Testing (DOT). Again, a graphical representation of center-wise TAT was illustrated. The minimum TAT at Kasturba lab to test was one day and the maximum was up to 14 days in 2010.

Analysis and discussion:

The intended outcome of an EID program is not only to identify HIV-exposed infants but to improve their quality of life by providing appropriate infant feeding advice, ART/prophylaxis (as needed) and repeat HIV tests during follow-up visits as per WHO and national protocol. A total of 2500 tests were done from April 1st 2010 to March 31st 2016. Over the span of the program except for the first year, over ninety percent of the infants have consistently come in for testing before 6 months of age demonstrating the success of early intervention.

In this study, while the proportion of exposed infants being tested by DBS HIV testing decreased since the program began, the reported coverage of testing at follow-up visits was poor for both those that tested negative as well as those that tested positive. The sample turn-around time decreased at Kasturba laboratory. However, in 2015 as mentioned earlier due to change in testing protocol, unavailability of kits and other logistical issues the TAT was higher. The sample turn-around time showed some disparities between centers (each year differing from the previous). The age at first testing has decreased over the years as well as the infection rate among HIV exposed infants has decreased. This maybe indicative of the scale up and better implementation of the PMTCT programs over the years and its integration into the larger Antenatal care and, provision of more efficacious regimens (multi-dose regiments).

The rate of loss to follow up at all stages of EID services is still high. A substantial number of loss to follow-up (LTFU) was evident at all stages of EID services in the six years of the program.

The results did not show an increase in testing of HIV exposed infants within the six years of the program. Rather it showed a decrease in number tested from the first year. This maybe due to the overall decrease in vertical transmission which again may be the effect of the change in World Health Organization's (option B+) and national protocol that now promotes the 'test and treat' and 'multi-dose regimens' and facilitates an integrated approach of antenatal care with the EID program.

The program's success in Mumbai lies in the fact that the city is well networked and transportation of samples can be undertaken immediately. Currently Mumbai has 29 ICTCs that send their samples to the central processing laboratory at Kasturba hospital.

Laboratory data revealed that the program has tracked two thousand five hundred infants born to seropositive mothers, from 1st April 2010 to 31st March 2016.

As the study is still ongoing, data will be further analyzed statistically for associations and correlation between feeding patterns and test results and congruence of the first test with the confirmatory test. Providing center wise data to MDACs will allow for investigation and individualized improvement protocol at each center.

Challenges to the program:

While the EID program in Mumbai can be considered a success, significant challenges must still be overcome before it can achieve the intended goal of early initiation of lifelong lifesaving antiretroviral therapy for the infected infants and prevention of those not infected antenatal. These challenges relate to long turnaround time, poor retention of infected women and the exposed infants and LTFU of the infants at every stage of EID and in the antiretroviral treatment programs. Identifying reasons behind these challenges and addressing them is vital for the lives of the infants. Over the span of the program high staff turnover at the ICTC centers and at the central processing lab itself, are a major drawback. Further, the technical officer and lab staff revealed periodic stock-outs. The testing kits are not always replenished on time. As mentioned earlier, in 2015 when the switch from WBS to DBS as a confirmatory test occurred the new testing kits were not available for several months. This increases the turnaround time for the results and can impact the Lost-To-Follow-Up (LTFU) rate and early detection. There is also no way for the Central lab to track the infants that were confirmed positive. When investigating LTUF's it must be noted that there is a possibility of wrong categorization of mothers' that have migrated to another state as LTFU's. Currently there is no way to track this.

Based on the results and analysis a few recommendation were made, such as:

1. Aggressive retention strategies for the infected women and infants at the ANC/PNC clinics.

2. Systematic tracking of the LTFU's of both the exposed positive as well as the negative infants and data sharing with MDACS, the central laboratory and the ICTC's.

3. Addressing logistical challenges and avoidance of stock-outs by revisiting the supply chain management strategies.

4. Addressing staff-turn around and replacements with floating staff.

5. Publishing and following Standard Operating Procedures (SOPs) at the central processing laboratory.

Placement II: 'Understanding mHealth through analysis, communication and community dimensions of practice skills'.

The purpose of this placement was to complement the first placement of increasing my knowledge of maternal and child health through another dimension (mHealth) and to enhance competencies in community dimensions of practice skills, communications and analytical/assessment skills. Just as in the first placement, part of the assignment in this placement was specifically related to my areas of specialization and interest i.e. HIV. This organization is young and as they proceed and expand, it is important that process evaluation are carried out and interventions be evidenced based. Towards this end I engaged in program assessment and content analysis, pre-intervention health communication questionnaire design and Log Frame Analysis.

Background of the organization:

Advancing Reduction in Mortality and Morbidity of Mothers Children & Neonates (ARMMAN)[10] is a secular, non-profit organization committed to improving the well-being of pregnant mothers and children in their first five years of life. ARMMAN designs and implements sustainable interventions to reduce maternal, neonatal, and child mortality and morbidity in underprivileged urban and rural communities in India. They work primarily through mHealth based interventions and strategies to improve maternal and child health; partnering with grassroots level organizations (forty-three) as well as public health facilities (seventy-seven). In two years they have registered more than 6.5 lakh pregnant women in Maharashtra (Mumbai, Pune, and Nashik), Delhi and Madhya Pradesh. They also have an active research unit with a great focus on Monitoring and Evaluation activities.

[10] http://www.armman.org/

Background of the mMitra program:

ARMMAN's main project is mMitra (phone friend) a free bi-weekly automated voice call service which sends timed and targeted health care information to pregnant women and mothers of infants according to gestational age. The founder of ARMMAN, Dr. Aparna Hegde (now based in Boston-USA), completed her residency at LTMGH Sion Hospital and initiated the project there. It has now spread all across Mumbai and its suburbs. This program has a multi-pronged approach. It is implemented through a women-to-women strategy, where women from the community (CHWs or Arogya Sakhis) mobilize pregnant women in their community and encourage early registration at an ANC clinic and in the program. mMitra staff are also posted at the various public health facilities and enroll the ANC attendees into the program. Below is a brief overview of the format of the message delivery.

As illustrated, the voice messages are grouped into four timeframes and are available in Hindi or Marathi. Each message has a maximum length of two minutes. The friendly, welcoming voice of the recordings and the positivity in the messages promote healthy behaviors and best pregnancy

practices while avoiding scare tactics. Each call is given three times, after which the woman can give a missed call to the call center if she wishes to listen to a missed message or a repeat.

Practicum Objectives:

Objective I:

- To assess the impact of a perinatal mobile health communication initiative for women in Mumbai through a multi-pronged approach
- To make recommendations for improvement based on findings and observations

Objective II:

- To create a baseline questionnaire for a pre and post intervention of mMitra's health communication messages addressing HIV positive women to Prevent Parent to Child Transmission in Pune, Maharashtra.
- To review and create indicators for LFA for monitoring and evaluation of the HIV positive women in the program for Continuous Quality Improvement (CQI).

Process:

I contacted this organization in December 2016 and visited them several times to determine their goals, current activities and design a plan for myself. I began working with them in January 2017 and ended the internship on 10th March 2017. During my time there, I worked simultaneously on the tasks assigned to me. Activities undertaken are listed below.

Activities undertaken:

1. Indexing: As first step to analyzing effectiveness of the messages being relayed to the program beneficiaries, it was necessary to assess weightage (frequency) and topics covered in the ANC and PNC messages. This also serves as a point of reference for future research activities.

Outcome: An index was developed of the mMitra ANC and PNC messages in Excel (four files in total). The messages were reviewed, categorized and then sorted by the total number of times the

specific message appears in the voice messages. The second file was sorted by the week. This was done in SPSS and exported back to Excel (refer appendix 4).

2. Evaluation of health communication messages: In order to evaluate the efficacy of the mMitra program and improve the quality of the messages relayed, I interacted with internal and external stakeholders. I was involved in conducting Focused Group Discussions (FGDs) with beneficiaries, interviewed Community Health Workers (CHWs), visited and interviewed outreach staff (Arokya Sakhis), interacted with hospital providers, interviewed call center staff and reviewed content of message transcripts.

Outcome: Beneficiaries for both the ANC and PNC program were interviewed at three slums in Mumbai (four FDGs). Their feedback was recorded. Also, feedback was elicited from the other stakeholders mentioned earlier. The latest message transcripts were compared with the earlier ones. After analyzing the transcripts based on frequency of the messages according to the main themes and the importance of each message, the anomalies were categorized into four main areas and recommendations presented to the Baby Center staff (the organization who scripts the content) on 19th January, 2017.

No	Parameters	Suggestions
1	Content (Medical Content) Important points which are missing in the messages	- Increase messaging and details on birth spacing, contraception, family planning methods during pregnancy as well as after delivery. (See appendix 5 for detailed suggestions)
2	Placement (Timing of messages- in which week message should be sent or repeated)	- Increase content later in the messages, given late enrolment. (See appendix 5)
3	Script (Language, Tone, Localisation/relatedness)	Language was localized, tone friendly and understandable. It does not require improvement.

4	Operations (Info related to service) eg- miss call no	- Lack of automatic transfer from ANC to PNC service impedes retention and quick enrolment. - Sharing of phones/Lack of ownership of phones by beneficiaries limits consistent listening to messages.

3. Designing of Base-line questionnaire: As an extension, the mMitra program is in the process of launching a new initiative specifically for HIV ANC and PNC women. They have decided to pilot test this in Pune, another district of Maharashtra. In order to assess knowledge, attitude and practice (KAP) it was necessary to have women who register at the hospital fill out a questionnaire (pre-intervention). This health communication tool would also be utilized post intervention for evaluation and quality improvement purposes.

Outcome: I prepared a few baseline questions that have been incorporated into the general demographic form. It will be translated into Hindi and Marathi for cultural competence. (Refer appendix 6)

4. Creation of LFA indicators: Related to the above mentioned program, I was tasked with reviewing objectively verifiable indicators for the same program and adding on.

Outcome: (refer appendix 7)

Learnings:

I learned that a multi-pronged approach is necessary for a comprehensive evaluation. Involving all stakeholders made the activity valuable and authentic and gave deeper insight into the program.

The LFA activity was a good ‘aid to thinking’. It permitted information to be analyzed and organized in a structured way, so that important questions can be asked, weaknesses identified right at the design stage. This allows decision makers to make informed decisions based on their improved understanding of the project rationale, its intended objectives and the means by which

objectives will be achieved. Arriving at Objectively Verifiable Indicators (OVIs) for the LFA made the program tangible and measurable and puts it into perspective. It also makes it replicable.

Reflections of the practicum experience:

I was successful in aligning my long term career goals, capstone and practicum experience through the activities undertaken. I was able to transition from theory to practice and demonstrate the application of public health concepts and critical thinking relevant to my area of specialization. I was able to synthesize, and apply practical skills and knowledge gained through the courses taken into real world public health work environment. This service-oriented learning also made me realize that the ground realities greatly differ from text book learning. While obtaining permissions, conducting FDG's, community visits and collaborating with public health providers and officials requires thorough planning and patience, it also requires quick decisions making skills, flexibility with time and the ability to generate alternative courses of action when tasks planned do not go as per schedule.

Both placements were different in that one was a public/government entity and the other a non-governmental organization. I am now able to distinguish the role of governmental and non-governmental organizations in the delivery of community health services. Comparing and contrasting both organization's mission, hierarchy and practices, as well as the challenges faced (funding, politics, efficiency, etc.) in achieving desired goals gave me a comprehensive understanding of public health at a population and systems level. Even though both programs have the same goal to positively impact maternal and child mortality and morbidity their methods and organizational culture differs. While the hierarchy in the first placement is horizontal and funding challenges are directly affected by the State and federal budgets, at ARMMAN the structure is more vertical and funding is affected by deliverables and accountability to private donors.

One of my goals for this practicum was to enhance analytical/assessment skills. The retrospective study made me adhere to ethical principles in the collection, maintenance, use and dissemination of data and information. I was able to recognize the integrity and comparability of data and identify gaps in data sources while analyzing quantitative data. Through the review of the master sheet and my own database (with the use of Excel and SPSS) I was also able to utilize information technology to collect, store and retrieve data. Working on the LFA at ARMMAN helped me to identify mechanisms to monitor and evaluate programs for their effectiveness and quality. Recommendations made at both placements allowed me to apply strategies for continuous quality improvement.

At ARMMAN by identifying and interacting various stakeholders, witnessing their collaborative efforts with community partners, maintaining partnerships, and observing the use of group process to advance community involvement gave me a deeper understanding of community dimensions of practice skills.

In my endeavor to hone in on communication skills, the baseline health communication questionnaire was an effort to identify the health literacy of the population being served, while assessing the health communications messages was a means to check appropriateness of linguistic and cultural proficiency. Participating in FGDs, stakeholder meetings was a means to solicit community-based input from individuals and organizations. It also allowed me to apply communication and group dynamic strategies through my interactions with individuals and groups. Overall, this experience served to reinforce my interest in HIV in relation to maternal and child health and continue down this path with additional public health competencies.

Appendix:

1. Attendance certificates

a) Nair attendance & experience letter.pdf

b) ARMAAN\ARMAAN_Attendance.pdf

2. Proposal

EID proposal.docx

3. IRB certificate

a) IRB_Nair.docx

b) IRB-2_Kusturba.pdf

4. Indexes for PNC and ANC messages at ARMMAN

ARMAAN\ANC_horizontal_Final(L).xls

ARMAAN\ANC_Vertical_Final(L).xls

ARMAAN\PNC_Horizontal(L).xls

ARMAAN\PNC_Vertical_Final (L).xls

5. Message anomalies and suggestions

ARMAAN\Presentation of mMitra Messages feedback & recommendations (19-Jan-17) (1).docx

6. Base line questionnaire for HIV antenatal women

ARMAAN\mMitra_HIV project\HIV Forms.pdf

ARMAAN\BASELINE QUESTIONS(mar-1-17).docx

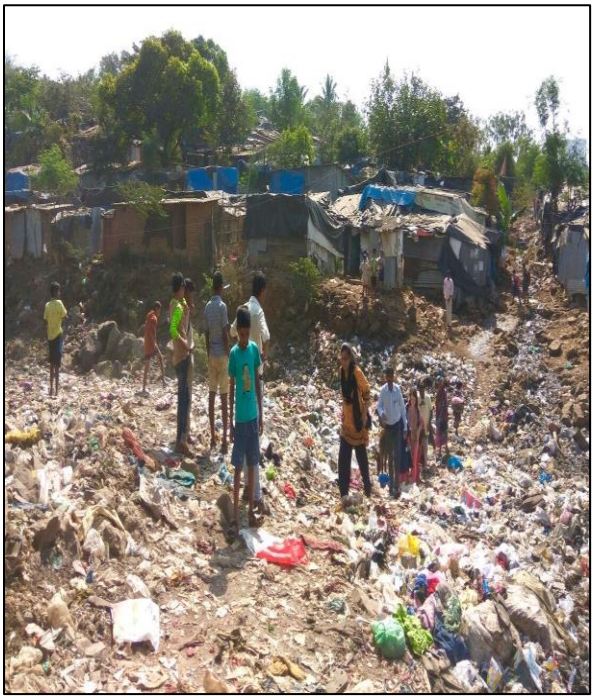
7. LFA

ARMAAN\LFA & Indicators (Mar-1-17).docx

Results dissemination meeting with officials at MDACS on March, 18th 2017.

Enrolment of ANC women at Sion hospital by ARMMAN staff

Field visit to Partner organization at Malad slum for stakeholder meeting and feedback.



Field visit to Kandavili Slum for FGDs with ANC and PNC beneficiaries