

A Feasibility Study of Establishing A Center for Cervical Cancer Screening in Caloocan City Medical Center

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Abstract: *The Big “C”, Cancer, is one of the debilitating, psychologically draining and economically exhausting illness in the world. Once diagnosed with cancer, patients’ options are limited to surgery, chemotherapy, and radiation, which can be expensive treatments. However, some type of cancers, like cervical cancer, can be diagnosed at an early and pre-cancerous stage and can be prevented by screening high-risks patients like cervical cancer. In the advent of Human Papilloma Virus (HPV) vaccine, and with cervical screening using Pap Smear, Visual Inspection with Acetic acid (VIA) and colposcopy, early detection and management in the pre-cancerous stage is well established to save lives of women. Hence, this study is of interest to the author in order to contribute in the reduction of the incidence of cervical cancer in a selected catchment area. This is a feasibility study of establishing a center for cervical cancer screening in Caloocan City Medical Center that will cater to the women of the local community and will serve as referral center of the private doctors, midwives, and the local health centers of the city as well as nearby localities.*

Keywords—medical center, cervical cancer screening

1. INTRODUCTION

Cervical Cancer is a malignant neoplasm that forms in tissues of the cervix (the organ connecting the uterus and vagina) . The most common manifestation of cervical cancer is vaginal bleeding, most oftentimes manifested as post-coital bleeding (vaginal bleeding after sexual intercourse.) However, this is a salient feature that may arise only in the late stage of cancer. About 2/3 of cervical cancer in the Philippines are diagnosed in an advanced stage and the mortality rate is high. The causes of cancer are generally complex, vaguely understood. Approximately 5-10% of all cancers can be traced directly to inherited genetic defects and risk may be increased by use of tobacco, dietary factors, exposure to radiation and pollutants. Most cancers are hard to detect at an early stage and therefore difficult to prevent. But not cervical cancer, 99% of cases of which are found to have a strong association with High-risk human papillomavirus (HPV) types, such as 16 and 18. This finding is well established and is consistently identified in Filipino women with cervical cancer. In the Philippines, significant proportion of cervical cancer patients do not receive prescribed courses of treatment, due to deficiencies in treatment availability, accessibility and affordability contributing to high rate of mortality.

Cervical cancer ranks second among the most common cancers in women in the Philippines and worldwide, with an annual age-standardized rate of 22.5 cases per 100,000 women (UP-DOH Cervical Cancer Screening Study Group). There are about 500,000 reported cases of cervical cancer each year, resulting in 270,000 deaths . About 83% of the cases occur in the developing countries. According to the World Health Organization (WHO), 12 Filipino women die of the disease every day. The Philippine Cancer Organization estimates that 6,000 women are diagnosed with cervical cancer every year

and 4,349 die from the disease. About 5 out of 10 women diagnosed with cervical cancer will die within 5 years.

In Caloocan City, there are two big hospitals, one private-owned, the MCU-FDTMF Hospital and one Local Government Unit hospital, the Caloocan City Medical Center. Records of both hospitals from 2009-2013 showed an average of 9 new diagnosed cases of cervical cancer every year; however, the mortality rate was not recorded because patients are not followed up after they are referred to other institutions with facilities and specialization in gynecologic oncology. Low documented cases for the two hospitals may be due to lack of complete facility, low level of awareness of the disease and its tests, and the high costs of the available procedures.

The success of screening in developed countries is attributed to the wide coverage of the risk population using Pap smear testing. Experiences showed reductions in cervical cancer incidence and prevalence by as much as 90% through well-organized screening programs, detecting and subsequently treating cervical cancer precursors and early lesions (WHO Technical Paper). Studies have shown that early detection and appropriate medical management can lead to a 5-year survival rate among 100% of women detected with precursor or very early stage and 68-90% of women detected with early lesions (Sotto LSJ, 1987; UICC, 1994). Cervical cancer is highly preventable with early screening and vaccination. However due to lack of health facilities, the detection of pre-cancerous stage is difficult. In Caloocan and the nearby cities of Navotas and Malabon there is no center for cervical screening that will cater to the women who needs the service. There is also an acknowledged lack of public knowledge and awareness among the client population and the cost of screening tests becomes a limiting factor for not availing of the service.

This study hopes to establish an organized center for cervical cancer screening program in Caloocan City Medical Center that is accessible to target clients at all levels of the Health Care Delivery System that shall lead to subsequent early diagnosis and medical management of detected cases. The initiative shall ultimately bring about a reduction in cervical cancer incidence and prevalence.

2. LITERATURE REVIEW

The Philippine Department of Health (DOH) has advocated cervical cancer screening, but only less than half (42%) of the 389 Philippine hospitals surveyed offer screening and early detection services for cervical cancer, and only 8% have dedicated screening clinics. , Accredited hospitals in the National Capital Region are Jose Reyes Memorial Medical Center, Dr. Jose Fabella Memorial Hospital, East Avenue Medical Center, Tondo Medical Center, Quirino Memorial Medical Center, Amang Rodriguez Medical Center, Rizal Medical Center, National Children's Hospital, Las Pinas General Hospital, Valenzuela General Hospital, San Lorenzo Ruiz Memorial Hospital, and Jose Rodriguez Memorial Hospital.

In February 2006, the Philippine (DOH) established a Cervical cancer Screening Program to initiate an "organized" nationwide program that includes sustainable capability building, training, educating, and hiring of health workers on proper VIA, Pap smear, cytology, colposcopy, and pathology.

According to Health Secretary Enrique T. Ona, the National Cervical Cancer Prevention and Control Program addresses the cervical cancer issue in the country in three different levels. These are primary prevention, which concerns promotion of healthy lifestyle and avoidance of risky sexual behavior, secondary prevention that consists of immediate screening and diagnosis to early detect women with pre-cancerous lesion and other abnormalities. Lastly, the tertiary prevention addresses concerns on immediate treatment, if possible, to prevent pre-cancerous lesion develop into invasive cancer.

Problem:

1. Cervical cancer is a type of cancer that is linked with HPV and its progression from pre-cancerous stage to invasive stage is preventable and treatable if properly screened and managed, but due to inaccessibility of health services and facilities this has become an urgent health problem.
2. Existing health infrastructure and the services are not enough. Pap smear is the only method for screening and abnormal results are not further evaluated and managed.
3. Lack of facilities and inaccessibility of health services in cervical cancer screening for the women of Caloocan City and nearby localities of Malabon City and Navotas City were identified as the main problems that led to this feasibility study.

there are other programs that have started incorporating entrepreneurship courses such as Business Administration, Engineering, Information Technology, Computer Science, Agribusiness, and Science courses.

3. OBJECTIVES

Main Objective

To do a feasibility study on creating a Colposcopy Unit that will serve as a Center for Cervical Cancer Screening (CCCS) to be established in Caloocan City Medical Center.

Specific Objectives:

- 1.) To identify the stakeholders and their role in the proposed project.
- 2.) To come up with analysis of the market feasibility, technical feasibility, organizational feasibility, financial analysis, environmental impact and the socio-economic impact that will affect the feasibility.
- 3.) To develop operational and implementation plans of the proposed project.

4. METHODOLOGY AND INTERVENTION STRATEGY

Stakeholders Assessment. The stakeholders who need to be involved in the development of a sustainable service provision, during the feasibility study and pre-operational service were analyzed through Key Informant Interview (KII) and survey using prepared questionnaires. Primary research represents the bulk of this research effort, supplemented by extensive secondary research.

The women of the community. A survey was conducted to know the demographic profile of women and extent of their knowledge of cervical cancer screening, activities and services, their interests and constraints in availing the services. The researcher obtained written consent from the respondents. Respondents were properly informed of what the study is all about and how the data will be used. Likewise, confidentiality of information was ensured. Names and identity of the respondents will be known only to the researcher and will not be disclosed publicly. A total of 300 women respondents 20-59 years of age conveniently sampled (using 1st seat as the base and getting respondents from every third woman at the waiting area); 50 private patients from Manila Central University (MCU) Hospital Doctors Offices, 50 patients from the clinical division in the Out Patient Department (OPD), 50 patients from the OPD of Caloocan City Medical Center (CCMC) and 150 women from public places: women boarding the Light Rail Transit (LRT) from Monumento Station, women going out of churches, schools and public markets of Malabon, Caloocan and Navotas.

The Local Government Unit Executive (LGU) Executive, The City Mayor. KII was done with the Caloocan City Mayor Oca Malapitan. His interest in the investment and support on

the expansion of health services of CCMC for women was the main objective of the KII.

The Hospital Medical Director, Dr. Grace Ronan and Hospital Administrator, Dr. Fernando Santos. Key Informant Interview was done with the two key positions of CCMC. Information of their interest and support in the development and expansion of the health services for women in CCMC was the main objective of the KII.

The Active Consultant Staff of The Department of Obstetrics And Gynecology. A survey was conducted to the 13 active consultants of the Department of Obstetrics and Gynecology of Caloocan City Medical Center, to know their willingness to participate in the development and implementation of the project. The risks and benefits of the proposed project will also be assessed if this project will help them in their practice or is it essential or not in the management of their patients.

The Private Obstetrician and Gynecologists Of Caloocan City, Malabon City, And Navotas City. A survey was conducted to the 15 private obstetrician-gynecologists practicing in Caloocan, Malabon, and Navotas, area to know the number of cases that they see and in connection with the need of a referral center for cervical cancer screening in their private practice.

2. The use of secondary research sources includes but not limited to:

- Websites, annual reports and news articles
- Health and scientific journals, gynecology books, clinical practice guidelines and other technical literature
- National government documents and databases
 - o National Statistics Office
 - o The Philippine Health Insurance (Philhealth). For the requirements needed for accreditation of the facility, members' benefits in availing the service and the allotted professional fees and hospital coverage.
 - o The Department of Health. To know the standard requirements on Cervical Screening Services for accreditation and policy-making guidelines.

3. Field Observation: Visits to different hospitals with Colposcopy Unit Section.

5. SCOPE AND LIMITATIONS OF THE STUDY

The is a feasibility study that will determine and analyze different factors and potential performance that will affect the establishment of a colposcopy unit in Caloocan City Medical Center and will serve as the center for cervical cancer screening and pre-invasive treatment and management for the target cities of Caloocan, Malabon and Navotas. Management of invasive lesions of cervical cancer will not be covered by the services of this center. Due to time and financial constraints, the study will be limited to the three target cities

and the establishment of the center. Coverage of other areas for a bigger scope will not be covered in this study.

6. ANALYSIS

Average Income, Expenditure, and Savings and Expenditure pattern of the National Capital Region

According to the definition of NSO, families are grouped into two income strata, the Bottom 30% and Upper 70%. This grouping of families was used as a proxy for those falling below the poverty line. The Bottom 30% refers to the lowest 30 percent of the total families in the per capita income distribution, arranged in descending order. These families are considered the poor families. On the other hand, the Upper 70%, considered as non-poor, refers to the upper 70 percent of the total families in the per capita income distribution. Comparing the two groups, health ranked 6th in the upper 70% and allotted an average of 4% of their expenditure while for the lower 30%, health only ranked 7th and allotted only 1.8% in their expenditure.

Demography of Target Cities

The target cities will become the sources of walk-in and referral patients for the proposed project. They have a high poverty incidence, which affect their pattern of expenditure. The usual allotment of budget expenditure for health for the below 30% of the population is only 1.8% but as the household income becomes better the expenditure pattern also changes and allotting about 4% of their income for health. Navotas has the National Hospitalization Program) that provides medical assistance amounting to Php5,000 as health care subsidy and qualified members automatically become Philhealth cardholders, while in the national government has a program for poor households, the Pantawid Pamilyang Pilipino Program (4 P's), a human development program implemented to provide conditional cash transfer that invests in health and education. Members of 4P's automatically become members of the healthcare insurance of the Philippines, (Philhealth) that can cover their hospital expenses hence, even indigent women can avail of the cervical cancer screening services for free.

Despite high poverty incidence, literacy rate is high in all the three target cities. Compliance with screening guidelines has been shown to be improved by education and physician-initiated reminders.

The residents of the three cities have accessed to health centers in almost all of their respective barangays however, there is no available service for colposcopy and other pre-invasive cervical lesion treatment in the centers. Therefore, establishment of a colposcopy unit in Caloocan City Medical Center is of great value since it will cater to the needs of the poor women of these communities.

Center for Cervical Cancer Screening

It is a Colposcopy Unit that is in the forefront of cervical cancer screening health care service of a hospital. It may be a part of its ambulatory unit directly under the department of

obstetrics and gynecology and will offer a wide array of health services in screening for cervical cancer e.g. colposcopy, cervical biopsy and HPV vaccination, as well as support and educational services. It will cater to the patients that are referrals not only from the General Service of the department of obstetrics and gynecology but also from local health centers and clinics from private midwives and obstetrician and gynecologists from the communities, surrounding localities and all over Metro Manila. Patients seen in this clinic include those with abnormal Pap smears, those with suspicious looking cervixes, as well as those high-risk patients requiring cervical cancer screening.

Demand Analysis

Based on the results of the survey of 300 women from Caloocan, Malabon and Navotas. The respondents are of 20-59 years of age and 82% of them had history of sexual contact. All respondents know Pap smear and in which 82% of them said their health providers have recommended it. The compliance rate is high at 82% that may be attributed to the availability of Pap smear widely in the target areas. Pap smear cost ranges from Php100-1000. Non-compliances were attributed to respondents' lack of time to do the procedure, no budget or fear of the procedure. There is a high incidence of abnormal results of Pap smear, however data on the specific abnormalities are not known. HPV Vaccine is now becoming popular because of the promotion and education of women by their health providers, health promotions in their company of employment, and through media promotions. However, high non-compliance rate was due to the high cost of the vaccines, ranges Php2,000-3,000 per dose for the bivalent (Cervarix) vaccine and Php4,000-5,000 per dose for the quadrivalent (Gardasil). HPV vaccines are to be given for three doses once in a woman's lifetime. Treatments for the abnormal results were medical, colposcopy with or without cervical punch biopsy (CPB) and endocervical curettage (ECC), cryotherapy and LEEP. For medical treatment, health providers gave the respondents medications, some took medications recommended to them by others other than the health provider, and some have self-medicated because of previous experiences. Colposcopy, cryotherapy, HPV testing and LEEP's awareness were all health provider dependent. Non-compliances were due to unavailability of the health service and unaffordability or lack of awareness.

The projected population of the three localities based on their respective annual population growth rate is estimated to increase by 20% by year 2020 with Caloocan City as the most populated city in the NCR, and the growth rate of the population continues to increase with a sex ratio of 99 males per 100 females. The market demand is therefore increasing.

The demand for cervical cancer screening procedures is increasing as the population increases. Pap smear test is the initial screening procedure and with an abnormal Pap smear result entails the performance of further tests and procedures for confirmation of diagnosis (colposcopy with or without

CPB and ECC) and treatment and prevention (cryotherapy and LEEP) of pre-cancerous lesions of the cervix.

National Public Policies and Department of Health Priorities

The Department of Health (DOH) administers a wide variety of public health programs, such as the cancer control program, environmental health, family planning, and malaria control. These services are important for the health and welfare of mothers and children and support efforts to achieve sustainable development.

DOH has advocated cervical cancer screening, but only less than half (42%) of the 389 Philippine hospitals surveyed offer screening and early detection services for cervical cancer, and only 8% have dedicated screening clinics.

Interviews of the DOH accreditation officers revealed that health centers that are accredited for cervical cancer screening do the acetic acid wash procedure. This is Visual Inspection with Acetic Acid (VIA) which involves naked eye inspection of the cervix, using a bright torch light or a halogen focus lamp, one minute after application of 3-5 % dilute acetic acid using a cotton swab or a spray. If there is a positive result (abnormal findings) patients will be referred to hospitals with colposcopy unit.

Role of the Philippine Obstetrical and Gynecological Society and the Philippine Society of Cervical Pathology and Colposcopy

The Philippine Obstetrical and Gynecological Society (POGS) have been very active in the development, dissemination and utilization of the Clinical Practice Guidelines (CPG) in the different aspects of woman's health management, in particular, the Philippine Society of Cervical Pathology and Colposcopy (PSCPC) a recognized affiliate subspecialty society of POGS, the first edition of the PSCPC CPG on Cervical Cancer Screening was released in September 2012. The publication of this CPG is intended to equip the obstetrician-gynecologist with updated knowledge on cervical cancer screening methods and recommendations that is applicable in the local setting, based on most recent validated evidence.

A reference on the management of abnormal VIA and Pap smear results is also provided to serve as a guide to manage patients with pre-invasive and invasive cervical cancer. Some of the recommendations of the CPG:

1. For areas where facilities for conventional cytology are not available, means no available cytoscreeners, cytopathologists, materials, laboratory for processing, the use of visual inspection with acetic acid (VIA) is an acceptable alternative screening method for cervical cancer in asymptomatic women.
2. In a low resource setting, immediate cryotherapy is recommended for eligible patients with VIA positive results.

Trained specialist or subspecialist or health worker should do this.

3. It is recommended that the obstetrician-gynecologist recognizes the need for proper referral to specialists and subspecialists in cases where specific diagnostic and/or therapeutic procedures recommended are deemed necessary.

Threats

The possibility of the establishment of cervical cancer screening center in the nearby cities like Malabon and Navotas is quite vague as of writing because of unavailability of hospital and certified colposcopist in those municipalities. There are Health Centers that are manned by general physicians, nurses and midwives. Although, having a colposcopy unit in a the private clinics of obstetricians and gynecologists is a possible threat for the reduction of patients for referrals, however, there are no certified specialist in colposcopy nor currently in training.

In the Philippines, only 97 of the 389 Philippine hospitals have colposcopy units and concentrated mainly (39) are in the National Capital Region (NCR). In the nearby localities of Malabon and Navotas, there was neither hospital nor primary health care that has colposcopy clinic.

Factors Affecting the Demand (Bargaining Power of Buyers)

Income. Low family income would affect the education of the children, nutrition, susceptibility to illnesses and their budget for seeking health services. Twenty percent of the women surveyed said they have a combined monthly family income of below Php15,000.00 or below Php180,000.00 per year leading to lower health expenditure similar to the national data of the lower 30% of the population.

Education. If the elementary participation, elementary completion and secondary completion rates are low then the quality of human capital is at risk. The level of education would also translate to the level of understanding of the health issue and the acceptance of the corresponding procedures needed.

Prices. The charging fee of the procedure should be competitive but affordable to cater the service patients. Prices should be within and be covered by the Philhealth including hospital fee and professional fee, so that indigent members of Philhealth and those qualified indigent with 4P's (Pantawid Familyang Pilipino Program) and NHP members from Navotas City can still avail the service without pocket cash out of Php1000-5000.

Health Insurance. In March 2009, the Philippine Health Insurance Corporation (Philhealth) introduced additional benefits through the Revised Value Scale (RVS) for 2009 with additional procedures, pursuant to Philhealth Board Resolution No.1207 series of 2009, the ground rules for RVS 2001 shall remain in effect.

HMO – Health Maintenance Organization. Organization that provides or arranges managed care for health insurance, self-funded care benefit plans, individuals, and acts as liaison with health care providers on a pre-paid basis. However, Caloocan City Medical Center is a government hospital not allowing HMOs participation.

Substitute. The use of one-step approach or the “see and treat” model, women are screened and treated during the same visit. However, if there are positive findings, they will need to refer immediately to a center for cervical cancer screening for proper more specialized management. This model will also require a trained medical practitioner.

Factors Affecting the Supply (Bargaining Power of Suppliers)

Local Government Unit. The City Mayor of Caloocan City, Mayor Oscar Malapitan allocated P1.2-billion in the 2014 annual investment on education, healthcare and economic development and infrastructure for the benefit of all residents. He is in support of any health service development and opportunity for the City of Caloocan. The hospital administration of Caloocan City Medical Center is very positive in supporting this project, from the Medical Director, Dr. Grace Ronan, the Hospital Administrator, Dr. Fernando Santos and the Chairman of the Department of Obstetrics and Gynecology, Dr. Grace Tanabe

Doctors. The survey of the consultant staff of the Department of Obstetrics and Gynecology has shown 100 percent support for the establishment of the CCCS. As per survey they are in need of a colposcopist and a center where they can refer patients. The problem that they have without a colposcopy unit is that the nearest colposcopy clinic located in MCU-FDTMF Hospital (located in Caloocan City) is a private hospital that is costly, and service patients cannot afford the services; other government hospitals however, are far from Caloocan, Malabon and Navotas that would result to non-compliance to the procedure requested.

Manpower. The most important manpower identified is the colposcopist, a certified Cervical Pathology and Colposcopy (CPC) obstetrician –gynecologist. The project will also need a midwife who will be the assistant of the colposcopist and will also serve as the secretary of the colposcopy clinic/center. Currently, the Ob-Gyn Out Patient Department (OPD) has one colposcopist and two midwives. The three general gynecologists that man the OPD will be trained to assist the colposcopist and allowed to perform colposcopy and other services of the unit.

Capital And Medical Equipment Supplier. The author as trained in the UP-PGH has the favorable access to equipment that is competitive in price. All government procurements shall undergo the process of public bidding process to ensure transparency and the interest in the maximum amount of competition. The suppliers must handle the maintenance and warranty of all equipment.

Referral System Among Health Care Providers. Survey from obstetrician-gynecologist private clinics of Caloocan, Malabon and Navotas showed 100% support to the need for a colposcopy clinic (center) near to their place of practice that is affordable where they can refer their patients.

Cost And Pricing System and Physician Services. Charges for the services will benchmark according to the charges of other government hospitals as per survey. Charges will also comply with the allowable compensation from the Philhealth in lieu of covering members of the 30% below poverty line population receiving Conditional Cash Transfers both from the national government and other local government projects. The subspecialist obstetrician-gynecologist will be hired by the hospital and will be given corresponding salary. Physician services for service patients will be free and will have a colposcopist professional fee for every private patient referred which will also be comparative to other government hospital charges.

Bargaining Power of Buyers

The most important factor that will affect the demand will be poverty thereby affecting health seeking behavior of patients. However, healthcare industry is relatively unaffected by buyer power in a sense that the industry whether the economy is growing or in crisis, or whether the people are rich or poor because they cannot choose to be healthy, they get sick independent of the economy and whether they are rich or poor. In the Philippines, qualified indigents are now being given Conditional Cash Transfer Program, the Pantawid Pamilyang Pilipino Program (4P's) that makes them automatically members of Philhealth, and thru the health insurance, they can avail the services for free. For Non-members of the Philhealth, low pricing of the procedure will compensate for this issue. Therefore, the bargaining power of buyers is low.

Bargaining Power of Suppliers

The factors affecting the supply are all in support for the establishment of the center for cervical screening. The supplier of the equipment will maintain the equipment for free except for the replacement of new parts. The chemicals needed for the procedure are not expensive and are mostly available. Doctors in and out of the hospital are supporting the project.

Threat of New Entrants

The new entrants in this field can include freestanding facilities in private clinics. Barriers in this are fairly high since cash investment is also high for an individual doctor. At present, there is no trained specialist (colposcopist) in Malabon and Navotas hence, entry of new firms and small facilities is low.

The Threat of Substitute Services

The substitute of VIA for the Colposcopy Unit and as a Center threat is low since the service will always require training for personnel and even with the use of VIA, abnormal results will always require referral to a Center for Cervical

Cancer Screening for proper evaluation with colposcopy. Substitute therefore is not a threat for the project but can be a compliment.

The Threat of HPV Vaccination

The threat of HPV vaccination is that of having a wide coverage and high compliance rate to HPV vaccination would decrease the prevalence of HPV infection and cervical cancer. However, HPV is a group of viruses that includes more than 100 types, and more than 40 types of HPV can be passed through sexual contact. HPV vaccines only cover four types of HPV, Types 6, 11, 16 and 18, therefore it cannot protect against all types that cause cancer. Women may not fully benefit from the vaccine if they got it after they already have an asymptomatic infection. The vaccine will not replace the practice of safe sex, annual Pap smear and other succeeding tests. HPV vaccine is most effective before girls/women first sexual contact because of non-exposure to HPV. For these women, the vaccine can prevent almost 100% by the types of HPV targeted by the vaccine.

Level of Competition in The Market

There is only one existing firm in the three target cities (Caloocan, Malabon and Navotas), located in MCU Hospital, and one government hospital, Jose Reyes Memorial Medical Center that is within the 5km radius. Best quality care will always be the priority of Caloocan City Medical Center but charging less for the services will be the advantage of CCMC. The proximity of CCMC to the target localities is also an opportunity of attracting the market. According to the survey of 300 women, the second most common reason of non-compliance to the procedure is the location of the facility (first is no available facility in the area). With the considerations of the advantages of CCMC, the very minimal power of threats and the projected market is expected to boost in the next coming years, CCMC Colposcopy Unit has very little competitive rivalry in the industry.

Marketing Segmentation and Targeting

Target Group. The target age group of the study is the women ages 20-59 years of age because they are considered to be the most susceptible and have high prevalence of cervical cancer. The targets for all the tests will be those women with history of sexual contact. As per survey, 82% of the women are with history of sexual contact. For HPV vaccination, the target group will be the remaining 18% without history of sexual contact.

Income Strata. According to NSO, the two groups of families based on the income strata, the Bottom 30% and Upper 70% population. The Bottom 30% refers to the lowest 30 percent of the total families in the per capita income distribution that are considered the poor families. On the other hand, the Upper 70%, considered as non-poor, refers to the upper 70 percent of the total families in the per capita income distribution. At start up, this project will focus on targeting the women ages 20-59 years old belonging to the 30% bottom

population with the goal of offering an accessible, low cost, and complete cervical screening facility for the marginalized women. The project targets this segment of the population as low socio-economic status, low-level of education and lack of awareness and inaccessibility to facility are some factors attributing to high risk of having the disease.

Types of Procedure. Market segmentation will also be done according to the services included in the colposcopy unit such as colposcopy with or without cervical punch biopsy, cryotherapy, LEEP and HPV Vaccination.

Marketing Promotion

The service will be promoted in the three localities of Caloocan, Malabon and Navotas. The project will tap the LGUs to communicate with the communities through their primary health centers and lying-in clinics.

Marketing Organization

Tapping the City health office, the Health centers up to the barangay level to gain support to the health project of the hospital. This market organization is the link of the project to the community.

Marketing Budget

The budget for marketing is pegged at three percent allocation from the maximum projected gross revenue at start-up marketing of the project. A relatively big amount for the first one and half years as communication will be heavier in order to cover all health centers of all target localities. For the succeeding years, budget for the run-rate marketing is pegged at one percent of the projected gross revenue for continues information dissemination and education.

Site

The project targets three localities: Caloocan City, Malabon City and Navotas City. The map below shows the three cities are geographically situated near to each other. Caloocan City Medical Center (CCMC) is the only government (LGU) hospital in Caloocan City that also covers Navotas and Malabon.

Funding

The LGU of Caloocan City will be responsible for the funding of the project. The intention of the project is to gain revenues and be sustainable to become a source of profit for the hospital; however initial funding will be needed for the procurement of the machine, instruments and supplies.

Capacity

All cervical screening procedures have been projected to increase as per market trend analysis. The goal of this project is to be able to target the bottom 30% population in the poverty line. Pap smear results should be available when patients are referred to the Colposcopy Unit (CCCS). All positive Pap smears and clinical findings with pre-cancerous and suspicious lesions seen by the general ob-gyn service of CCMC as well

as those referrals coming from outside CCMC will be referred to the CCCS.

Capacity Analysis

The training of the staff to all procedures and operations will occur prior to the full implementation of the project. With the maximum compliance rate the unit will need two colposcopists and two corresponding colposcopes. All gynecologists will be cross-trained in all procedures to ensure proper utilization of all staff, beds and machines and also ensures the transfer of learning and skills to all the staff. They will not only be an assistant to the colposcopists but they will be trained and allowed to perform colposcopy, CPB, ECC and cryotherapy with minimal supervision from the colposcopist; they are likewise responsible in the post operation counseling and reminding patients of their follow-up consultations if needed. Cross training will provide fill in staff to other steps once initial positions of the staff has completed e.g. assisting the doctors for the midwife, performing colposcopy for the general gynecologists. Three beds will be needed: two beds for each colposcopy machine and one bed will be allotted for cryotherapy and LEEP procedures. The colposcopist will handle cryotherapy and LEEP procedures.

Service Delivery Analysis

To maximize patients' access, programs should work on integrated services however, it is important to ensure that it would not result to excessive workload for providers, which can affect the quality of health services. An integrated approach will be beneficial to a new program like this. Vertical program will also be applied.

Technology

Infrastructure. The Colposcopy Unit providing such services should ideally be in the OPD area to prevent unnecessary traffic of patients and their relatives within the ward areas. The unit would be dealing with the diagnosis and therapy of premalignant lesions of the lower genital tract therefore it should be designed like a minor operating theater. The main examining room will require minimum of 19 sq. meters to 25 sq. meters. There should be an attached toilet and washroom for patients, and a separate toilet for the staff, a separate reception area, and a counseling room of about 3.25 sq. The Department of Obstetrics and Gynecology in the OPD has its own 35 sq. meter room, separated from other departments (surgery, ENT, etc.), excluding a wide waiting area of about 70 square meters outside the room. Minor re-designing of the interior will be needed to adhere with the requirements with an estimated cost of Php50,000. Other facilities like the toilet and sink are already available. The OPD room can accommodate three patients at a time that will provide for two colposcopy beds, and one bed for cryotherapy and LEEP. Privacy and confidentiality should be always well-maintained in the examining area.

Organizational Form

The Caloocan City Medical Center as LGU hospital of Caloocan City will be the sole proprietor of the project. The Department of Obstetrics and Gynecology will be the implementing organization. All policies and rules shall be written and documented by the department to be approved by the CCMC Administrators. In and out of finances will be directly under the finance department of the CCMC. The staff will also be under the CCMC. The authority to implement the project will primarily be under the jurisdiction of the LGU of Caloocan City and CCMC.

Organizational Structure

As an LGU hospital, CCMC will be under the LGU of Caloocan City, and the City Mayor is the highest position of the unit. The Caloocan Health Department is an independent division of the LGU and likewise the CCMC. Although independent of each other the programs of both agencies are collaborative and complementary.

The medical director and the hospital administrator are the heads of the executive division of CCMC. The clinical division is per specialty department headed by the chairman of the respective department. The Department of Obstetrics-Gynecology has a chairman, a training officer and the head of the different sections: OPD, Ultrasound, and the proposed Colposcopy Unit.

The Colposcopy Specialist will be the head of the CCMC. She/he will be responsible and accountable for the entire Colposcopy Unit including the staff, equipment, and policies.

Sources of Fund

This project will be solely sourced through the local government fund as a grant.

Environmental Impact Analysis

Health and social care should be delivered in ways that are not only sustainable financially but also sustainable environmentally.¹ The center for cervical cancer screening will not use and occupy new land resources that can damage natural resources of the environment however, environmental impact of this study means minimizing avoidable damage by reducing low-value activities (minimizing travels and unnecessary treatments) and delivering efficient, effective.

Socio-economic Impact Analysis

Preventing cervical cancer will save lives of women, save women and their families from poverty and poverty aggravation due to loss of income and assets due to medical expenses, help children enjoy life with their mother and will help the economy of the community in general.

Operational Plan

The World Health Organization's (WHO) strategic approach to the introduction of contraceptive technologies (Simmons et al.1997) will be used by this study as a framework for operation plan.

Women in the community were surveyed in order to assess their profile, their perspective on the services and to assess their needs as well. On this phase of the project, the operation should give importance in building a strong linkage with the community by engaging the leaders and reach the target population.

The facility site will need to ensure in meeting the requirements for service delivery such as good water supply, electric power, well-maintained functioning equipment, instruments and supplies. The safety of the patients is an utmost consideration.

The flow of services should ensure that staff and the colposcopy unit are available and well prepared in accommodating patients. In this project a combination of vertical and integrated program will be applied. The intention is to allot ten hours per week for the colposcopy unit in the OPD. Ten hours can be divided into two hours per day or two hours for five days in a week. With this schedule, it will not hamper or will have little effect on the operations of the general obstetrics-gynecologic services that operate for eight hours per day. The staff will be focused on the colposcopy unit so excessive workload can be avoided. As the program matures, more members of the care team will undergo training and gain experience. The training of newly graduate obstetricians-gynecologists will be one of the priorities of the project.

The information system should have complete data and information to track patients. (Adapted from CHIP 2004), to help the unit reach its goal of treating 80-100% of women in the bottom 30% of the poverty level in the catchment areas with positive cytology results.

Patients that would have cancer results will need to be referred to hospital with specialization and facility for cervical cancer management, the Jose Reyes Memorial Medical Center (JRMMC). JRMMC is the government, DOH accredited hospital nearest to CCMC. Link with the CCMC and JRMMC would be facilitated by the Department of Obstetrics and Gynecology through the administration of CCMC. Written referral form will conform to the inputs from JRMMC and CCMC staff and with the national health system policies.

Monitoring and Evaluation

The system for monitoring and evaluation must be established prior to the implementation of the program. This may involve capability building of the staff, training, mentoring and re-training of staff and revisiting program goals and indicators, patients survey on the quality of service, recording of turnaround times for laboratory, data collection, etc.

Contingency Plan

The plan includes emergency internal notification process, identification of hazardous materials and wastes, control

procedures during fire/explosion of tanks, earthquakes, flooding, mitigation and preparedness activities.

7. RECOMMENDATION

This study recommends:

1. Feasibility study of Mobile Clinic of Cervical Cancer Screening Program.
2. Study on strengthening national strategies and policy support for cervical cancer prevention.
3. Feasibility and strategic study on National Health Information Systems that can cover the cervical cancer prevention and monitor its progress and impact.

8. REFERENCES

- [1] Campos NG, et al, Health and economic impact of HPV 16/18 vaccination and cervical screening in Eastern Africa. *Int J Cancer*. 2012 Jun 1;130(11):2672-84. doi: 10.1002/ijc.26269. Epub 2011 Aug 24. Available <http://www.ncbi.nlm.nih.gov/pubmed/21717458>. Accessed October 15, 2014.
- [2] Center for Disease Control and Prevention <http://www.cdc.gov/std/hpv/stdfact-hpv.htm>. Accessed September 2, 2014
- [3] Cervical cancer diagnostic tests (Pap smear, colposcopy, and ECC procedures) market: local Industry Analysis. Transparency Market Research p.2
- [4] Cervical Screen Singapore. National Cervical Cnccr Screening Programme. Minimum standards for laboratories providing cytology service. January 2005. http://www.hpb.gov.sg/HOPPortal/content/conn/HOPU_CM/path/Contribution%20Folders/uploadedFiles/HPB_Online/Health_Topics/Health_Screening/Screening_for/Cervical_cancer/MinimumStandards_Laboratories.pdf
- [5] Clinical practice guidelines on cervical cancer screening. Manila. Philippine Society of Cervical Pathology and Colposcopy; 2012
- [6] Clinical practice guidelines on cervical cancer screening. Manila. Philippine Society of Cervical Pathology and Colposcopy; Sept .2012 appendix pp.102-114
- [7] E.Domingo, A. Dy Echo, Epidemiology, prevention and treatment of cervical cancer in the Philippines. *J Gynecol Oncol*. 2009 March; 20(1): 11-16. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2676501/>. Accessed October 10, 2014
- [8] Empowering women against cervical cancer. (The Philippine Star) May 28, 2013
- [9] Department of Health, Republic of the Philippines, Manila: Office of the secretary. Administrative order no.2005-0006. Subject: Establishment of a cervical cancer screening program. Feb.10, 2005
- [10] Department of Health, Republic of the Philippines. Manila: Department of Health, Republic of the Philippines; 2005. Feb 10 [Cited 13 February 2013].
- Administrative order no. 2005-2006. Establishment of a cervical cancer screening program. Available from: <http://www.doh.gov.ph>.
- [11] Goldie SJ, Levin C, Mosqueira-Lovón NR, Ortendahl J, Kim J, O'Shea M, et al. Health and economic impact of human papillomavirus 16 and 18 vaccination of preadolescent girls and cervical cancer screening of adult women in Peru. *Rev Panam Salud Publica*. 2012;32(6):426–34. Also available at <http://chds.hsph.harvard.edu/People/Jane-J.Kim>. Accessed, November 16, 2014.
- [12] Goldie, S.J., Kohli, M., Grima, D. et al. Projected clinical benefits and cost-effectiveness of a human papillomavirus 16/18 vaccine. *J Natl Cancer Inst*. 2004; 96: 604–615
- [13] Hu, D. and Goldie, S.J. The economic burden of noncervical human papillomavirus disease in the United States. *Am J Obstet Gynecol*. 2008; 198: 500.e1–500.e7
- [14] Human Papillomavirus (HPV) Vaccine: What you need to know. Available at <http://www.webmd.com/children/vaccines/hpv-vaccine-what-you-need-know>. Accessed on November 13, 2014.
- [15] Kulasingam, S.L. and Myers, E.R. Potential health and economic impact of adding a human papillomavirus vaccine to screening programs. *JAMA*. 2003; 290: 781–789
- [16] Lerman C, Hanjani P, Caputo C et al: Telephone counselling improves adherence to colposcopy among lower-income minority women. *J Clin Oncol* 10: 330, 1992
- [17] Manila Bulletin. January 13, 2011. <http://www.highbeam.com/doc/1G1-246375072.html>. Accessed October 10, 2014
- [18] National Statistics Office, 2012 Family Income and Expenditure Survey Final Results <http://www.census.gov.ph/sites/default/files/attachments>
- [19] Ngelangel CA, Limson GM et al. The cervical cancer screening health operations research in the Philippines. Delineation of an appropriate and replicable cervical cancer screening program for Filipino women. 2001.
- [20] Sankaranaya, R. Visual inspection methods for cervical cancer prevention-Best practice & Research clinical obstetrics & gynaecology Vol.26. Issue 2, pp. 221-232, April 2012
- [21] Stewart DE, Lickrish GM, Sierra S et al: The effect of educational brochures on knowledge and emotional distress in women with abnormal Papanicolaou smears. *Obstet Gynecol* 81: 280, 1993
- [22] University of the Philippines-Department of Health Cervical Cancer Screening Study Group. Delineation of an appropriate and replicable cervical cancer screening program for Filipino women. Manila: University of the Philippines-Department of Health Cervical Cancer Screening Study Group; 2001.

[23] University of the Philippines-Department of Health
Cervical Cancer Screening Study Group. Delineation of
an appropriate and replicable cervical cancer screening
program for Filipino women. Manila: University of the

Philippines-Department of Health Cervical Cancer
Screening Study Group; 2001.
