Review of Community based cervical cancer screening Model in Kutch District of India

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Type of study

Review	✓
In-depth study	
Proposal/Research Design	

Word count- 9930

DEDICATION

This dissertation is dedicated to all those women in Kutch who are suffering from cervical cancer due lack of knowledge, information and screening facilities.

Source: KMVS, 2008

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ABBREVIATION

ACCP	Alliance for Cervical Cancer Prevention
ANM	Auxiliary Nurse Midwives
ASHAs	Accredited Social Health Activists
BST	Bhojai Sarvoday Trust
CCHBC	Comprehensive Community and Home-based Health Care Model
CHC	Community health centre
CCCS	Community based cervical screening
DALYS	Disability life adjusted years
GIHAC	Global Initiative against HPV and Cervical Cancer Program
HMIS	Health management information system
HPV	Human Papilloma Virus
KMVS	Kutch Mahila Vikas Sangathan
NGO	Non-governmental organization
NHSCP	National Health cervical screening Program
PHC	Primary health centre
SCSP	Scottish Cervical Screening Programme
SWOT	Strength, weakness, opportunities and threat
TBA	Traditional birth attendant
UK	United Kingdom
USA	United States of America
VIA	Visual inspection with acetic acid
VILLI	Visual Inspection with Lugol's Iodine
WHO	World Health organization
YLL	Years of life lost

ABSTRACT

Cervical cancer is a disease burden and is increasing day by day and as such is becoming an alarming issue in developing nations. There is a wide variation seen in the geographical situation as the disease burden is more in the developing countries and has a lowest incidence in developed countries because they have controlled the burden. India has a highest burden of cervical cancer, which amounts to 130,000 new cases every year.

This study is a review of community based cervical screening model in Kutch District of India. Kutch is the second largest district in India with high rates of maternal and infant mortality .The reproductive health among women is increasing due to the absence of health facilities. Additionally, the culture creates barriers for the women to access the services. Thus, community based cervical screening program was developed in collaboration with Kutch Mahila Vikas Sangathan and Bhojai Sarvodaya Trust who are jointly addressing the reproductive health problems in Kutch for the last 20 years.

The aim of this study is to review the community based cervical screening model in Kutch India, in order to find ways to scale up this model in the other parts India.

The main objectives of this study are as follows:

- Analyse background context of the cervical cancer screening programme
- Review of cervical cancer screening programme and analyse the strengths and weaknesses
- Review of literature of community based screening program from other countries.
- Discuss the possible method and ways to scale up
- Recommend methods for best possible strategies

In this dissertation, the Kutch model has been reviewed through available secondary data but due to lack of data availability from the government department in Kutch, I had taken most of the information from the primary data available at KMVS. My experiences with this model have also been taken into consideration along with reports and articles that I researched on. The review of Kutch model was analysed using SWOT analysis (Strength, weakness, opportunities and threat) in order to trace the weakness of the model and the best practices so far.
The four major problems that were identified were as follows:

- difficult to bring all the women in the screening camp,
- getting trained staff,
- follow up strategies to bring women for further treatment and
- Funding and sustainability of the Kutch model.

Each problem was studied by looking into the solutions as well. Additionally, research was also done on how other countries have addressed similar problems with cervical cancer. Finally, based on the best strategies, some recommendations are made in order to improve the community based cervical cancer screening model in Kutch.

The key recommendations are:

- coordinating cervical cancer prevention services with health programs
- identifying and addressing referral system
- ensuring training and allocation of adequate budget and increasing awareness in the community
- If screening can be incorporated into public health facilities and primary health care services then surely the situation might improve. Thereby, reducing the burden of cervical cancer in Kutch and other parts of India.

Key Words: cervical cancer, community based screening, VIA/VILLI, community awareness, follow up treatment.

CHAPTER 1 – INTRODUCTION

1.1 INTRODUCTION TO STUDY

Cervical cancer is the second most common cancer among women worldwide, and in India cervical cancer accounts for about 20 % of all cancer related deaths in women (Agarwal, 2010). This study is a review of Community based cervical screening (CCCS) Model in Kutch District of India. I will look into the model in terms of its strengths and weaknesses and will compare it with other community based models, which have been implemented in India. The Kutch Model might be replicated in any developing country with low resources and will try to describe this through review studies and analysis .The reason why this topic was selected is because I have closely worked with this model and perhaps this review that I will be doing will be helpful for India in adopting the model or integrating this model into theirs for effective community based screening programmes in near future.

This introductory chapter describes the overview of the model background of the study, aim and objective of the study, stakeholder's involvement, and the overall structure of the dissertation.

1.2 OVERVIEW OF THE MODEL

The community based cervical screening program was developed in collaboration with Kutch Mahila Vikas Sangathan (KMVS), a non-governmental organization (NGO) dedicated to women empowerment and Bhojay Sarvodaya Trust(BST) that runs a local hospital in Kutch District in Gujarat- India. The primary objective of this Model was to implement a community level screening program that can be replicated in other rural communities in India. KMVS and BST model focuses on services and education parallel to each other. The detailed Model will be explained in chapter 3.

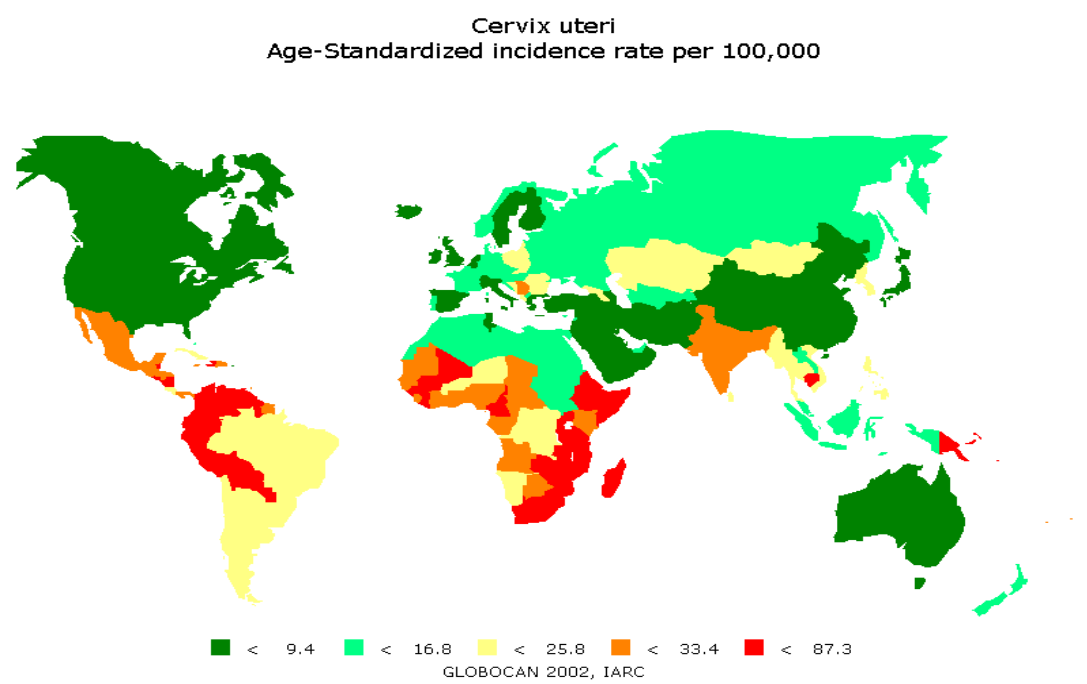
1.3 BACKGROUND OF THE STUDY

Cervical cancer is the cancer in the uterine *cervix*, which is a part of the female reproductive system. Cancer of the cervix is primarily caused by human papillomavirus (HPV) infection (Satija, 2009). Cervical cancer has a high disease burden among women in developing countries in South and Central America, sub-Saharan Africa, and south-east Asia, where it is the second most common cancer among women. Rates are lowest in Western Asia, Northern America and Australia/New Zealand because of wide spread screening (figure1). Cervical cancer still remains the most common cancer in women in Eastern Africa, South-Central Asia and Melanesia. Globally, the mortality incidence ratio is 52%, and cervical cancer is responsible for 275,000 deaths in 2008. 88% of which occur in developing countries like

53,000 in Africa, 31,700 in Latin America and the Caribbean, and 159,800 in Asia (Globocan, 2008).

Figure 1 Epidemiology of cervical cancer in Asia (Globocan,2002)

India has a disproportionately high burden of cervical cancer and its age standardised death rate is 9.5 deaths per 100,000 populations. India



accounts for nearly one third of global cervical cancer deaths (Satija, 2009). More than 130,000 new cases are diagnosed each year in India. In addition, an estimated 74,000 Indian women die annually from the disease. Nationwide, the disease accounts for an estimated 24% of India's cancer cases among women (Bishwas, 2004). Further in urban areas of India, cervical cancer accounts for over40% of cancers, while in rural areas it accounts for 65% of all cancers (Med India, 2012).

Kutch is located in the western part of Gujarat. Situation of cervical cancer is especially abysmal in Kutch because of social taboos in the community that forbids a small family size as well as protected sex. The results of community based screening done by KMVS is shown in Figure 2, which shows that the incidents of cervical cancer in Kutch is increasing on a daily basis. Out of the 2310 women screened, 18% of them of women were diagnosed positive from January to December 2011. Among them 57% of women had to undergone biopsy test and further treatment (KMVS, 2011).

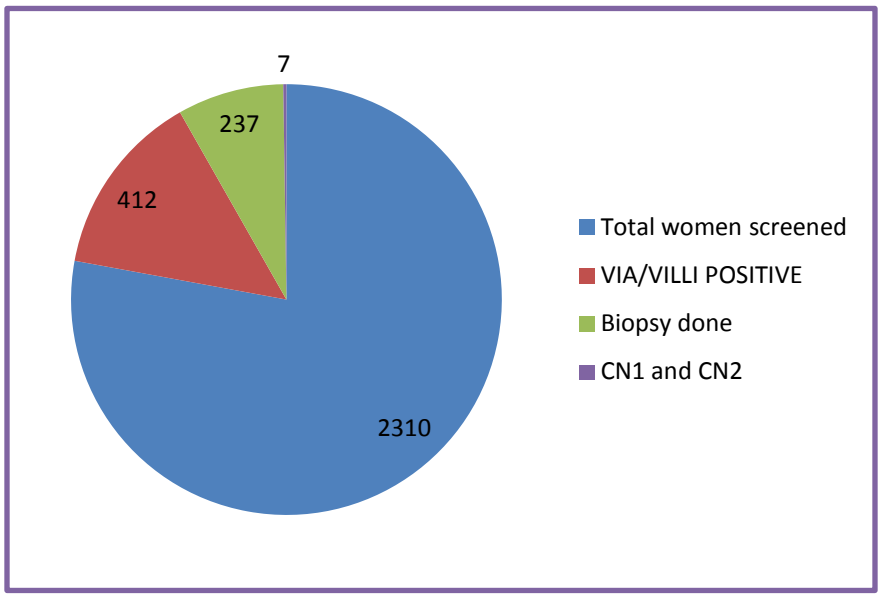


Figure 2 Magnitudes of cervical cancer cases in Kutch

The primary reason for such a high prevalence of cervical cancers in India are lack of knowledge and awareness within the community added with the lack of population and community based cervical cancer screening program (Basu *et al., 2006).* Although India's National Cancer Control Program emphasizes the importance of early detection, the country has no organized screening program, and many Indian women don't have the access to prevention and treatment facilities (Biswas, 2004). These factors put poor and rural women at high risk to cervical cancer. Whereas in the western countries, the cases of cervical cancer have significantly decreased with active awareness, vaccine and pap screenings, which detect the cancer at a very early stage. Despite this there is no intervention in Indian public health to address the issue. India intends to launch demonstration cervical screening programs in few districts of each state under the direct supervision of the government supported cancer centres and the medical schools. However, nothing has been implemented so far (Basu *et al., 2006).* Thus, the civil society organizations have come together to address the issue of cervical cancer.

1.4 JUSTIFICATION OF THE TOPIC

Cervical cancer kills a majority of women each year in the developing world in the most productive years of their life. If a woman were screened for cervical cancer only once in her lifetime, her risk of cancer could be reduced by 25-36% (Cervical cancer action, 2007). Despite this fact there are very few effective screening programs, the review would also highlight the gaps in implementation and will recommend the opportunities to reinforce the model effectively.

Due to the dearth of published documents in this particular issue, which I have experienced while working in this field in India. I am assuming that my dissertation might be able to contribute towards filling in the existing gaps.

Moreover, due to my interest in working on this particular health issue, I was drawn towards doing this research. Additionally, the organization that I am involved with is also looking into improving the existing model; as such this research will be an evaluation of the existing model that might be able to reinforce the model. Another justification that led to this research paper is my course requirement, which requires a dissertation towards the final year.

1.5 AIM

The aim of this study is to review the CCCSModel in Kutch India in order to find ways to scale up or replicate in the other parts India.

1.6 OBJECTIVES

- Analyse background context of the cervical cancer screening programme in Kutch
- Review of cervical cancer screening programme and analyse the strengths and weaknesses, the best practices, methods and good principles of the model.
- Review of literature of community based screening program from other countries.
- Discuss the possible method and ways to scale up.
- Recommend methods for best possible strategies to replicate.

1.7 STAKE HOLDERS

The dissertation will be helpful mainly for the women in Kutch. Additionally, the research findings and recommendations will help the civil society organization to implement the model.

The stakeholders are:

- Directors of KMVS and Bhojai
- Donors
- Policy makers
- Program coordinators and service providers of the Model
- District and state health functionaries

1.8 OUTCOME OF THE STUDY

The outcome of the study will be a set of recommendations that will help to scale up or replicate community based cervical cancer screening model in other parts of India. Finally, the study output will also find the ways to incorporate screening program in Public health system and might motivate the policy makers to re-think on the issue. Additionally, for KMVS might be its strength in policy making experiences after the review.

1.9 STRUCTURE OF THE DISSERTATION

The paper is organised into five chapters.

Chapter one is the introduction section briefed about background information related to the study. The **second chapter** will describe the methodology, conceptual framework. The **third chapter** will deal with situational analysis of cervical cancer and will be a review of Kutch cervical cancer screening Model. The **fourth chapter** will deal mainly with the best possible strategies to solve the problem that now exists with the Kutch cervical screening Model. The **fifth chapter** will be mainly discussion and recommendation.

1.10 SUMMARY

This chapter presented an overview of the cervical cancer, rationale of the study, aims and objectives, outcome of the study and stake holders of the dissertation.

Chapter two will be looking at the methodology, conceptual framework, sources of data and methods to be used.

CHAPTER 2 – METHODOLOGY

2.1 INTRODUCTION

Chapter two will mainly focus on the type of study, conceptual framework, source of data, method of data collection, exclusion and inclusion criteria and limitations of the study.

2.2 TYPE OF THE STUDY

The design of the study mainly focuses on review of community based cervical cancer screening Model in Kutch Gujarat, India and is based primarily on secondary data. The review is based on available literature, reports and my experiences.

2.3 CONCEPTUAL FRAMEWORK

Comprehensive Community and Home-based HealthCare Model (CCHBHC) -- The given framework **(figure 3)** has been adopted from "*Comprehensive Community- and Home-based HealthCare Model of WHO 2004."* This framework is further modified according to the present aims and objectives of the study. CCHBC framework was adopted to address all the aspects that are required to do review of the community based screening Model in Kutch.

2.3.1 Description of the Conceptual Framework

The CCHBHC has been adapted to ensure better accessibility to health and quality community health care (World Health Organization, 2004). The core elements of the model address factors like service providers, empowering individuals, family, and community health care system. The Model concludes with guidelines for implementation, which has been successfully used as implementation strategy for the Kutch Model.

The conceptual framework consists of four main components which are considered as influencing factors for the process of effective community based cervical screening in any developing countries as shown in (figure 3)

- The input provided before initiating the pilot project
- The process followed for achieving community based cervical screening output of the pilot project by doing review of the model
- Monitoring and evaluation of the programme to understand whether the programme is moving in the right direction or not and if the resources are being effectively used
- Furthermore, output/ outcomes as presented in framework to understand if community based screening was able to increase awareness on cervical cancer in the selected villages of Kutch

If these four components work together, thus, in the long run the desired goals of reducing mortality and morbidity of cervical cancer cases will be achieved in Kutch.

Components of conceptual framework of the study

I. **Input** - Following input factors are broadly connected to the design of the programme activities that were planned before starting the project:

- How the project was initiated and set up in the community?
- Partnership and technical guidance required?
- Financial allocation to run the project
- Does the project include trained man-power and information system in place?
- Where the patient will be refereed for treatment if necessary after screening?
- How would the community participate and who will be the major stakeholders of the project? (WHO 2004)

II. **Process -** To implement this model, the existing system has to be reoriented towards the provision of holistic, integrated and continuous process, which has to be extended beyond health care facilities as follows:

- How would different steps of the screening program integrate in a project cycle
- What is the finance mechanism system in the programme
- What kind of training components would be incorporated for the beneficiaries and service providers
- What would be monitoring system for the project What would be the system for regular supply of drugs and equipment's.

III. **Output –** mainly includes whether the process was carried out in the right direction, which touches upon the following:

- What would be the sustainability mechanism for the programme?
- What was the level of participation among the community members and how did they perceive the issue?
- Whether there was an improved monitoring and evaluation system in the Kutch model

- Whether the model was accountable to the people and if there was transparency between the providers and beneficiaries?

IV. **Outcome** – the outcome of the model mainly focuses on the impact of the model, which is described as follows:

- Whether all the women were diagnosed with cervical cancer in the Kutch
- How many women were diagnosed positive?
- What was the follow up rate and procedures for prevention and treatment

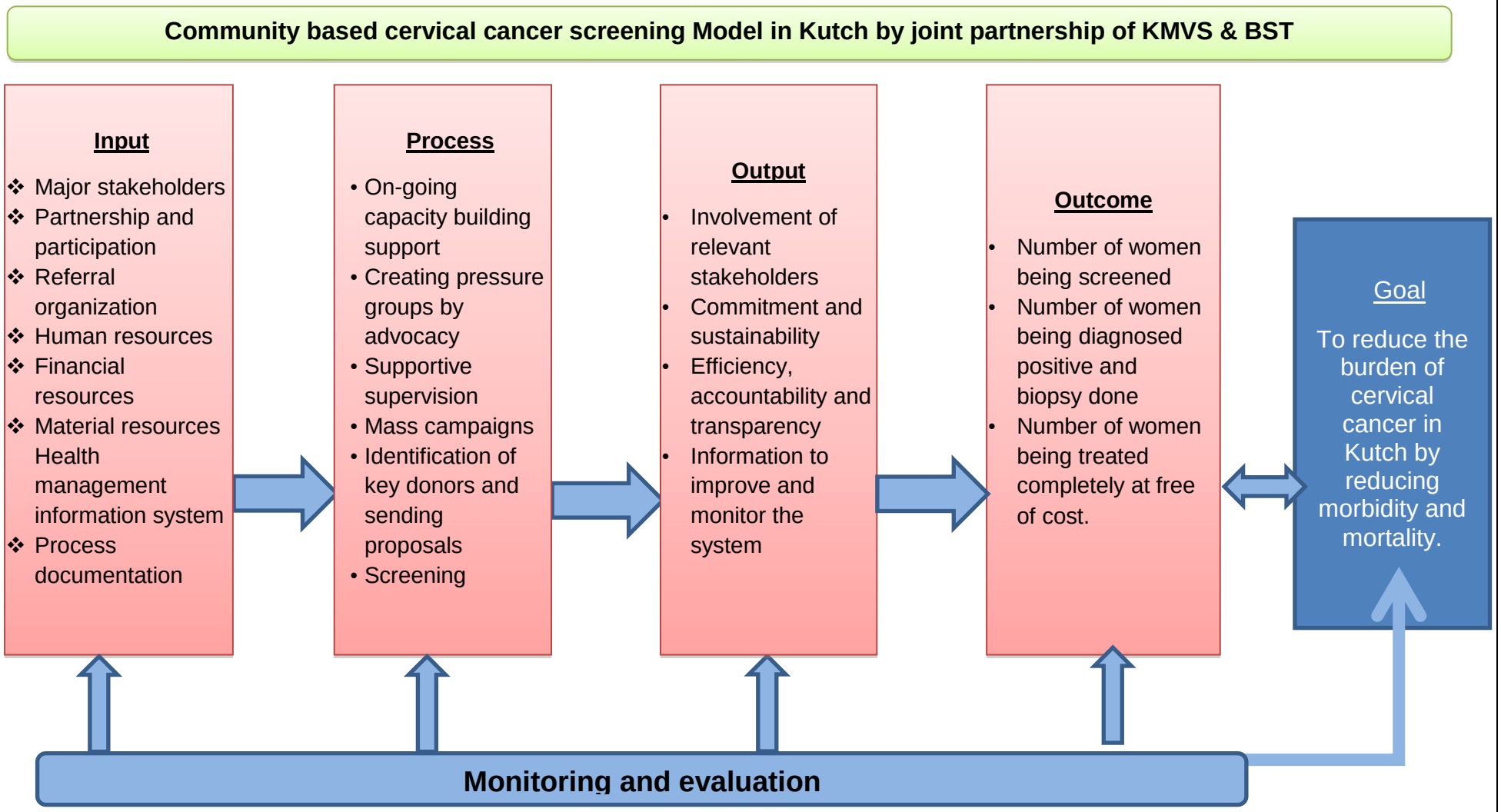


Figure 3 Adapted from Comprehensive Community- and Home-based Health Care Model of WHO 2004 with modification by author.

2.3.2 Criteria for selection of best possible strategies

The second appraisal framework is adapted for best possible strategies for analysis chapter, based on four main criteria (Walley and Wright, 2010) given below

Table 1 Framework for criteria and description

Criteria	Descriptions
Technical feasibility	How well the screening program of other countries controls cervical cancers to minimise mortality and morbidity rates
Organisational feasibility	How to implement screening and treatment interventions based on available expertise, staff and infrastructure capacities available in Kutch
Gender, cultural and political feasibility	How acceptable is the selected screening intervention in the community, and among the community leaders, men, women and the political system in Kutch
Financial feasibility	Cost-effectiveness in terms of money, material and manpower. To find whether the selected strategies are financially feasible, depending upon the available budget

2.3.3 Justification of the chosen conceptual frameworks

The adoption of this conceptual framework for review was adopted from CCHBC model with only slight modification because this framework clearly describes and covers all the aspect of community based screening model. Moreover, this framework is guided by the principles of strengthening community health services to meet the changing health needs (cervical cancer) and to provide a complete and continuous care that is client-centred, with the active involvement of communities (WHO, 2004). The Community based cervical cancer screening model of Kutch also has similar objectives. Moreover, the above model was field tested in many Asian countries (Bhutan, Myanmar, Nepal and Thailand in 2002-2003) and was found to be a useful tool. The goal of CCHBHC is to promote better accessibility to effective health care in community and home-settings to improve health, and contribute to morbidity and mortality reduction. Here in this framework, screening is intended for all people in an identified target population, who do not have symptoms of the disease or the condition they are being screened for. The Kutch model also reflects the same process of screening with final outcome to reduce the mortality and morbidity. Overall the framework is quite capable of integrating all the aspects of good screening program. The

four criteria framework is useful in selecting the best possible strategies. Thus it is good enough to adopt the particular frameworks for the study.

2.4 METHODOLOGY

2.4.1 Sources of data

Data is mainly collected from different journals, articles, books and reports. Added with a study of technical papers and review of models from different countries

- **Database and articles:** PubMed, Lancet, Global Health, Medline, Web of science, and Eldis and Scirus were studied to find country specifically program on cervical cancer. Google and Google Scholar provided number of important resources. Information on statistical data are collected from national and international organisations such as WHO, GIAHC, Foundation for Women's Cancer, Indian cancer society, National cancer registry program

- The Leeds University **library and bulletin and alerts from** Zetoc were also helpful. KMVS program reports, annual reports and data were extensively used for analysis. National and international print and video media was also used

- **Email correspondence-** I have collected data and information from various staff members from my previous organization, KMVS through our correspondence over email. I also requested Dr Shobha Krishnan (GIAHAC-President) for her recent book on cervical cancer and also asked Dr Surbhi Grover (Radiation Oncologist in training) to guide me through with certain questions related to this topic

The study is primarily a review and thus, based on secondary data and information collected through KMVS. My experience in the cervical model in Kutch and literature sources were also analysed and critically compared with other successful model in other developing countries

2.4.2 Process of Data collection

Step 1 - The main research strategy was to find out the articles, which contains words like ‘cervical cancer’ , ‘community based screening Model’ , ‘India’, ‘ developing countries’ and ‘Gujarat’.

Step 2- The research strategy was narrowed down by using AND, and OR in different search engines. The terms like cervical cancer were replaced with

carcinoma, uterine cervix, and female genital. Similarly community based model was looked up as effective screening program, and lastly screening program was replaced with health promotion activities, developing countries replaced by under and poorly developed countries.

Step 3- Major Key words used in search were mainly from different journals and articles, which supported dissertation. The different articles were studied and used at different stages of this study design.

Table 2 Illustration of resource materials

Database	Key words used for search	1st stage selection	Final selection of articles
Pub med	Cervical cancer	4500	12
	India	2401	34
	Gujarat	890	26
	Community based screening	200	4
	effective screening program	186	4
	health promotion activities	356	5
	Developing countries	671	4
Google scholar	Carcinoma	890	9
	India	750	
	Kutch	89	
	Community based screening	29	9
	Low cost screening programme	87	
	Public and private health intervention	56	6
	Screening in low resource settings	45	3
Med line	Cervix cancer	3400	6
	Under developed countries		
	Kutch and cervical cancer	2	2
	Community based screening in India	490	6
	Low cost screening programme	356	
	Community awareness	890	
	Available screening program in developing countries	1090	9

2.5 INCLUSION CRITERIA

- Literature that particularly addressed the issues of prevention of cervical cancer in India and other developing countries were included. However, the articles on developed countries were reviewed to understand the protocol, guidelines and framework they adhered

- For comparing the best Models, articles were ranked as first, second and third.
- Due to the dearth of articles in the local language, I referred to documents published in English
- Country specific case studies and models, policies and review papers were considered
- Only articles and information from 1990 onwards were reviewed

2.5.1 EXCLUSION CRITERIA

- Articles that discussed only about treatment were excluded
- Reports in Hindi or other languages were also excluded

2.5.2 Limitation of the study

- Difficulty in obtaining complete data and information on cervical cancer from Gujarat State.
- The issue is very new in India as such there are very few studies done in this area, especially in Kutch. However, if any research has been carried out in the recent years, it has not been published as yet
- The study was done while the author was away from program and thus to articulate what was needed for dissertation via phone and email was challenging.
- This is primarily based on secondary information.

2.6 SUMMARY

In this chapter author has studied conceptual framework, source of information and method of data collection and limitations. Next chapter will focus on situational analysis in regard to the current situation of cervical cancer in Kutch, India.

CHAPTER 3 – SITUATIONAL ANALYSIS

3.1 INTRODUCTION

This chapter reviews the community based cervical cancer screening model in Kutch. Firstly, it gives a brief demographic background of Kutch along with its health situation and access to health services. It further identifies the situation of cervical cancer globally in India and women in Kutch. This chapter also describes the factors contributing to burden of cervical cancer, preventive-curative methods done by the public and private health sector to prevent it in India. Here, I have tried to understand the problem, factors for success and failure of the Kutch community based cervical cancer screening model, and the activities carried out to address the issue.

3.2 SITUATIONAL ANALYSIS OF KUTCH

3.2.1 Demographic background of Kutch

Kutch is a district in western Gujarat and is the second largest district in India. The area is almost 24% desert and 73% of the total area is wasteland with low levels of productivity. Within the past years, 2 major cyclones (1998 and 1999) and one earthquake (2001) have hit the district (Lecy, 2007). Kutch is predominantly rural as 67% of the population lives in villages and among them 23.3 % of the people in rural areas is poor. The traditional economic base of Kutch households is a varying combination of dry land agriculture and cattle breeding. Rapid industrialization is eradicating the pastoral land, displacing the fishing communities and harming the climate cycle. Kutch has a multi-ethnic and multi-cultural population deeply divided along lines of caste and religion (Ramachndran and Saihjee, 2003).

3.2.2 Description of health system in Kutch

The health care infrastructure in rural India (Kutch) has been developed as a three tier system. The **Sub-Centre** caters 3000 to 5000 population, is the first contact point between the primary health care system and the community. Each Sub-Centre is run by one Auxiliary Nurse Midwife (ANM)and one Male Health Worker and assigned to provide services in relation to maternal and child health, family welfare, nutrition, immunization, diarrheal control and communicable diseases programmes. **Primary Health Centres (PHC)** is the first contact point between village communities that caters a population ranging from 30000 to 20000.The service providers in a PHC includes one Medical Officer supported by 14 paramedical and other supporting staff. It acts as a referral unit for 6 Sub Centres. **Community Health Centres** caters a population of 120000 to 80000 and is required to be manned by four medical specialists supported by 21 paramedical and other staff (Mavalankar *et al* .,2009). Though there is an assigned system to cater a catchment of population but the hospitals are burdened with extra

charges. In Kutch, the nurses have to take the responsibility of more than 1 sub-centre; similarly the doctors have to look after the migrant population people shifted due to job from neighbouring district. As such most of these positions remain vacant as no one is willing to work in the remote areas of Kutch.

Kutch has a poor health infrastructure with lack of services and trained-professional health staff. Another major reason that contributes to this is the lack of willingness of doctors and nurses to work in these remote areas. In the state of Gujarat, obstetrician and gynecologist positions are vacant in 65% of Comprehensive Health Centers and in 30% of District Hospitals (Bhat *et al.*, 2009). There is also a deficiency of medicines and equipment in the health centers, which makes it tremendously challenging to handle the reproductive health problems of the area. Primary healthcare facilities, where preventative healthcare such as cervical screening should be located, are limited and under-resourced. Moreover, due to the unavailability of adequate resources and transportation, people have no other option but to travel for long hours and take the patient to Bhuj, which is about 70 to 125 kilometres from Pachcham, Nakhatrana, Naliya , Mundra and lakhpat Blocks respectively (KMVS,2009).

3.2.3 Present health situation

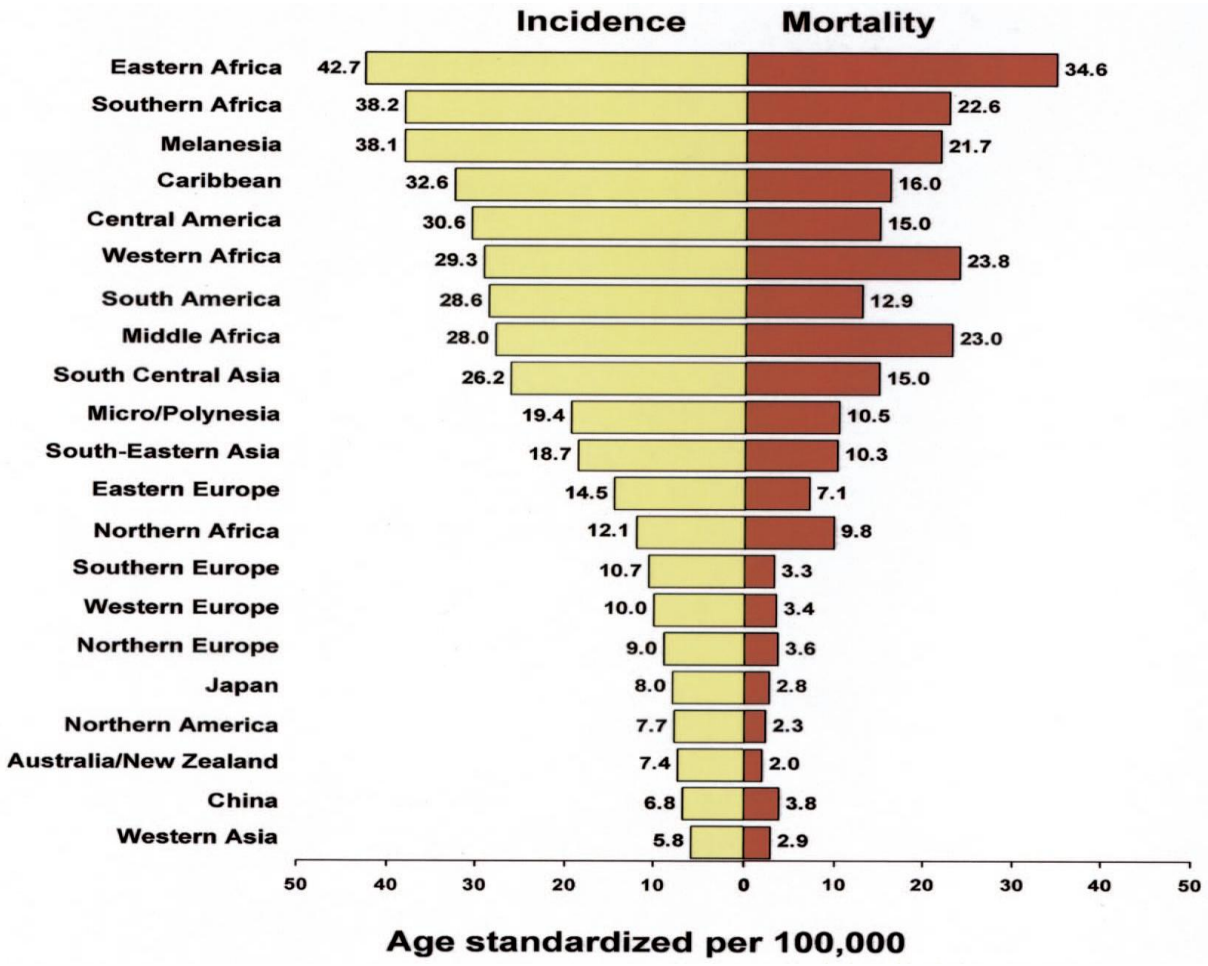
Health situation in Kutch district is far from satisfactory .The rural and remote villages are characterized by high rates of morbidity and mortality (appendix-4) among women and children. Myths and misconceptions regarding pregnancy, post natal care and child care is mainly due to low rate of literacy amongst women (28.6%) resulting in the lack of health education, awareness and decision making power (KMVS,2009).Gujarat has high prevalence of underweight children, 41.1%, and the anaemia among women (15-45 ages) is 55.3 % (Desh Gujarat, 2012). According to annual statistical report on registered birth–death (2002), the infant mortality rate is 7 in Kutch and similarly still birth rate per 1000 live births in Gujarat is around 3.7 to 4.6. Maternal deaths registered during 2002 were 0.97 per 1000 live births. KMVS experienced changes over the years in Kutch region which have further affected women health. People have started migrating from their villages to nearby cities in search of jobs and have started living in urban slums. With this new social structure, it has been observed that men have started to move away from monogamy that has resulted in the sexually transmitted disease (STDs), and HPV infection leading to cervical cancer. So the problems like anaemia / prolapsed uterus has been catered but other sexual diseases increased .The causative factors of these women's health problems are due to lack of availability of trained health staff, antenatal care, lack of institutional delivery, lack of transport facilities and lastly lack of information and knowledge of their health and reproductive rights among women (KMVS , 2008).

3.3 REVIEW OF CERVICAL CANCER SCENARIO, ITS CARE AND PREVENTION

3.3.1 Global Burden of Cervical Cancer

Cervical cancer is the most common cancer among women worldwide, with about 500, 000 new cases and 250, 000 deaths each year (WHO, 2009). Figure 5 shows that in developed countries, cervical cancer accounts for only 3.6% of new cancers, with a cumulative risk (0 to 64) of 0.8%, whereas in developing countries it is (before age 65) 1.5% of cumulative risks(Parkin, 2005*).* Eastern and South Africa, Central and South America, Asia and the Caribbean's report a very high incidence of cervical cancer (Arbyn *et al.*, 2008).

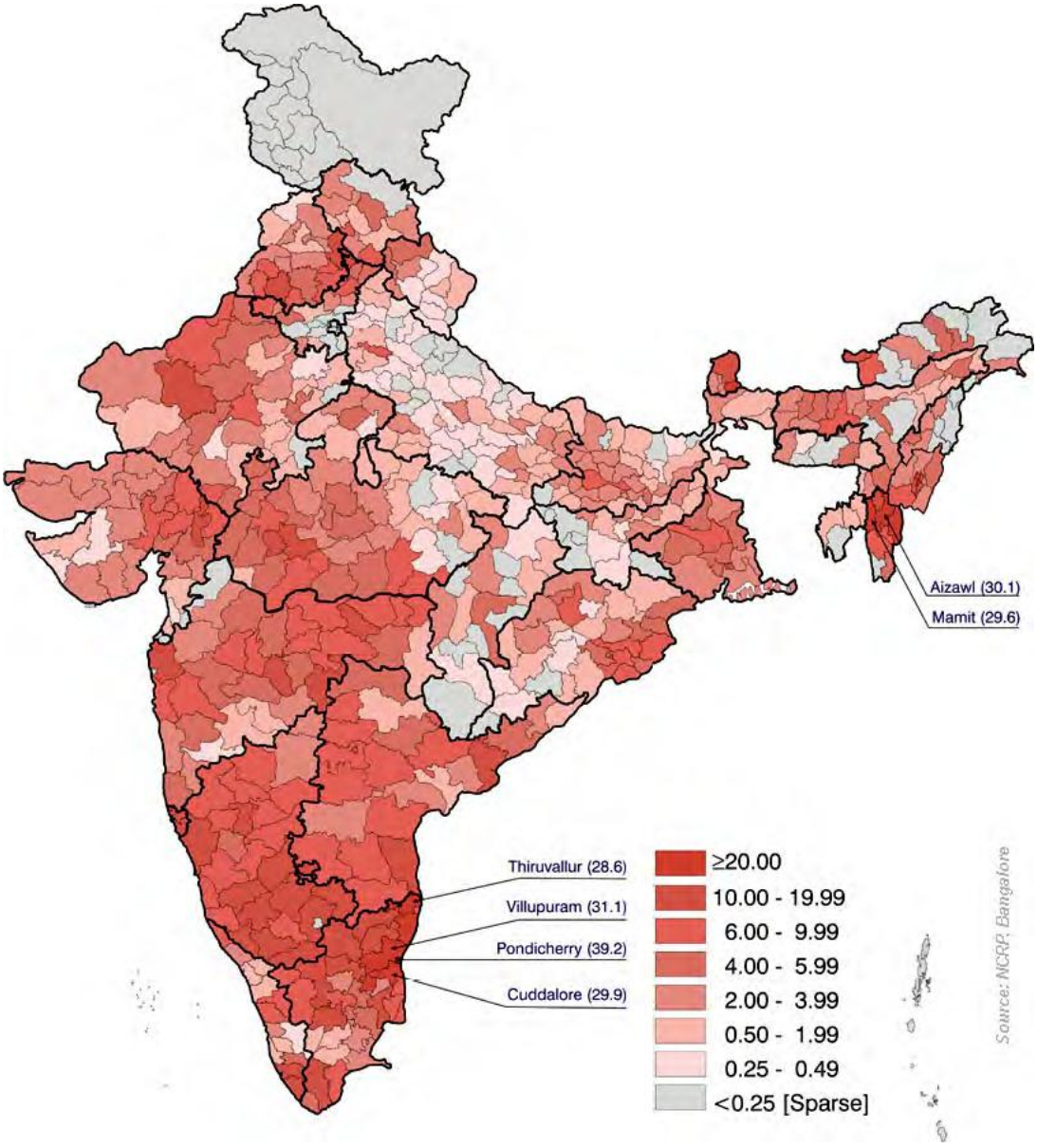
Figure 4 Age-standardized Incidence and Mortality Rates for Cervix Uteri Cancer in 2002.



3.3.2 Cervical Cancer a disease burden in India

India has the highest share of global burden of cervical cancer, accounting for about 24% of all cancer related deaths in women (Basu and Chowdhury, 2009). Cervical cancer mainly affects women in India between the age of 25-64 years, essentially at a point when she is the primary caretaker of the house and in many cases the breadwinner of the family. Her death then proves to be an extra-economic burden for the family and the country (Satija, 2009). The prevalence and burden of cervical cancer is much higher among women of low socio-economic status and among rural women in India (Med India, 2012). At a rate of 113 age-adjusted Disability adjusted life in years (DALYs) per 100,000 populations, cervical cancer accounts for 26.5% of global cervical cancer DALYs, and 11.6% of total cancer DALYs in India. The Years of Life Lost (YLL) due to cervical cancer were 936.3 in 2000, being among the highest in the world, greater than the YYLs caused by any other cancer in India. 80% of the new cervical cancer cases occur in India, which is approximately one fourth of the world's cases of cervical cancer each year (Med India, 2012).

Figure 5 District wise comparison of age-adjusted incidence of cervical cancer (per 10,000 populations)



Source: Cervical cancer in India by Satija A, 2009

The above Figure describes that there is a high incidence belt in the north eastern districts of Tamil Nadu, as well as in two districts in the North-Eastern region of India (Satija, 2009).

3.3.3 Cervical Cancer Burden in Gujarat Kutch

In Kutch cervical cancer is the main cause of cancer-related problem among women of reproductive age, with 18% of women diagnosed with positive cases (KMVS, 2011). There is no general account in the literature of cancer

surveillance in India. There are two cancer registries in Gujarat, one urban and one rural, which cover only the Ahmedabad district. The rural registry shows an age-adjusted incidence rate of 8.5 per 100,000 (2006/2008), and a mortality rate of 1.8 per 100,000 in 2004/ 2005 (Mattheij *et al.*, 2012).

3.4 FACTORS AFFECTING CERVICAL CANCER

There are a number of factors that increase the risk of cervical cancer among women by increasing the risk for HPV infection. These factors can be broadly divided into **socio-economic, contextual and programmatic.**

3.4.1 Socio-economic

Early age of first intercourse, multiple sex partners, unprotected sex and sex with uncircumcised men, have been found to increase the risk of contracting HPV infection, which can cause cervical cancer (Satija, 2009)

Women, who use oral **contraceptive pills** for more than **five years**, have twice the risk of developing cervical cancer than those who do not use. Use of birth control pills weakens the immune system and develops the condition such as HIV/AIDS and cervical cancer in later stages. Similarly condoms when used correctly can lower the HPV infection rate by about 70% (Dabash *et al.*, 2005).

Poor economic condition is also a risk factor. There is evidence to show that cervical cancer is more common among the women from lower economic strata. Poor nutritional status of women in India leads to poor immunity. Further due to poverty many women with low incomes do not have ready access to adequate health care services. Women in rural India are traditionally reluctance to seek medical assistance for gynaecological care, which also staggers the women's vulnerability to HPV infection (Bishwas, 2004).

Women who smoke or chew tobacco are twice more likely to get cervical cancer than non-smokers and this may be due to harmful effects of chemicals found in tobacco on the cells of the cervix (Dabash *et al*., 2005). According to National Family Health Survey, 2005-2006, in Gujarat, 60% males and 8.4% females reported to be tobacco users.

3.4.2 Contextual

Due to the tradition of early marriages prevalent mostly in the rural areas in India, rural women tend to have more children at a young age than most urban women. Though the legal minimum age for marriage is 18 in India, roughly one-half of rural women aged between 45-49 were married before the age of 15 (Biswas, 2004).It has been found that women who have two or more children have twice the risk of getting cervical cancer compared to women who have less than two children. Thus, **early marriages and having**

many pregnancies is also a contributing factor to development of cervical cancer.

3.4.3 Programmatic

There is lack of knowledge and awareness among Indian women regarding prevention of cervical cancer**.** In India, both early detection and screening remains a major area of concern to the health workers (Saha *et al*., 2010).

India accounts for more cancer related deaths in women but unfortunately cervical cancer control is not yet among the top ten National health priorities (Basu and Chowdhury, 2009). India lacks constructive policies and programmes within public and private sector to prevent cervical cancer.

The lack of effective screening treatment is a major reason for the significantly higher cervical cancer rates in India. In the public sector, the facilities for screening tests are mostly limited to the tertiary care enters where the test is usually offered to women with symptoms of reproductive tract infections or advanced cervical cancer. The awareness about cervical cancer and its prevention is extremely poor.

3.5 PREVENTIVE AND CURATIVE METHODS

Cervical cancer can be prevented through screening but public health authorities and health policy-makers are not adequately sensitized about this in India. Cervical Cancer Control Program is not yet implemented in spite of the formulation of national guidelines and availability of fund from the National Cancer Control Programme (Basu and Chowdhury, 2009).

There are no organized screening programs in any region of India even in public health facilities and resource constraint is the major barrier. Conventional cytology is offered to some women in selected urban areas attending regular health services, but routine screening is still not available and thus screening is increasingly used in the private sector. Three main cervical cancer screening procedures commonly adopted in India are Papanicolaou smears (Pap smears), visual inspection with acetic acid (VIA) and HPV testing. Papanicolaou smear test cannot be used as a public health strategy for cervical cancer in India due to the insufficiency to administer as it is expensive too but VIA test can at least reach the target population and is affordable. Although, HPV vaccination is a promising control option but it is not cost effective (Senapathy *et al.*, 2011).

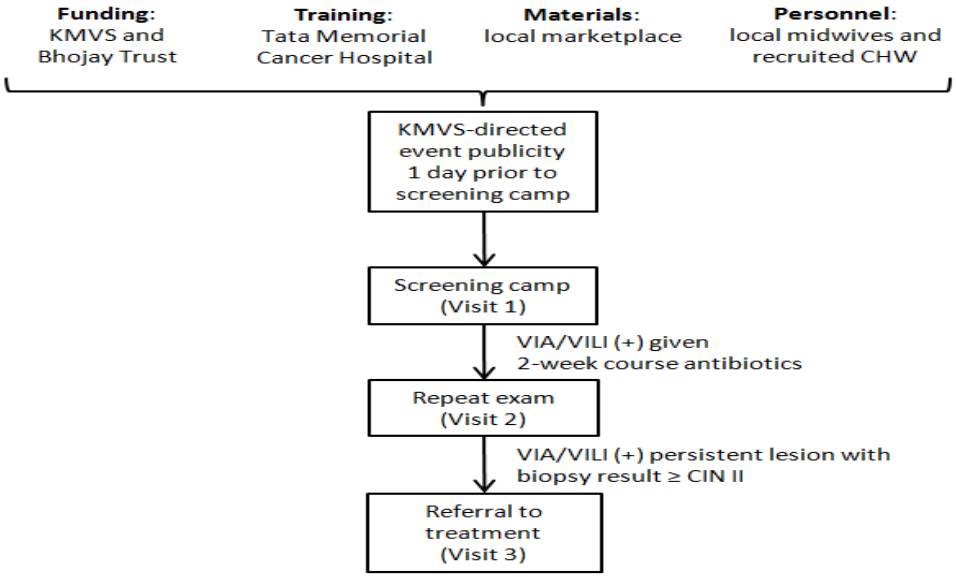
India has a set of **guidelines for implementing a cervical cancer** screening programme (National Cancer Control Programme and WHO-India, 2006) but regarding the clinical management of cervical cancer, there are no working guidelines in India. It has been found that services for treatment in the public sector are fragmented and where it is available, it is not accessible by the poor (Dabash *et al.*, 2005). As India has no cervical cancer screening

program therefore a national program with a realistic approach is essential (Konno *et al*., 2010). In the absence of a state policy on cervical cancer prevention the civil society are coming forward to take the active roles.

3.6 REVIEW OF KUTCH MAHILA VIKAS SANGATHAN AND BHOJAI SARVODAYA TRUST COMMUNITY BASED CERVICAL CANCER SCREENING MODEL

The screening program was developed in collaboration with KMVS and BST. The primary objective of this project was to implement a community level screening program that can be replicated in other rural communities in India. Local community workers with prior healthcare experience were recruited (Refer figure 7) in order to implement the programme. The program was implemented from September 2009 to September 2013.

Figure 6 Capacity building resources and screening protocols for the KMVS CCCS program



Source- Implementation of a CCCS program using VIA/VILI in Kutch District, India (Grover, *et al*, 2012).

The conceptual framework used in chapter 2 is used to present the review and analysis of the study using SWOT.

3.6.1 Inputs of the Model (development and implementation)

Major stake holders- were mainly women between the age of 18 to 60 and women who had hysterectomy were excluded. This project is supported by GIAHC as a part of the Global Initiative against HPV and Cervical Cancer Program (GIAHC), U.S.A. for technical support. The other stake holders were donors, community members, accredited social activist (ASHA) nurses who have a lack of interest in the project**.**

Partnership and participation -The idea of cervical cancer was initiated in Kutch when Dr. Shobha Krishnan, who is a gynaecologist working in Columbia University, visited Kutch during the winter of 2008. She discussed this issue with KMVS, BST and rural women. A cervical screening camp was initiated in 2009 in two villages (Vang and Dador) and 36 women were found to have positive results on screening. These findings inspired KMVS & BST to rethink the issues and to start a community based cervical cancer screening program.

Referral organization- all positive cases are referred to Bhojai and our health worker accompany them in a vehicle. The health workers accompany the women into the Operation Theatres during biopsies so that the rural woman feels more secure and safe. If biopsies were positive for cervical cancer, a third visit for cryotherapy or surgery is arranged at the BST centres outside. In Kutch, KMVS have linkage with Leva Patel hospital and other major hospitals that provide biopsy and surgical operation.

Human, financial and material resources- KMVS appointed one program coordinator, who looks after the entire projects, one trainer, and four separate supporting health staff. Apart from that there are community volunteers, trained mid wives, who have supported the program without being paid. BST appointed doctors for conducting biopsies, but that came with a problem, which was the unavailability of a trained nurse for conducting the camp. The project was financially supported by Sri Tokarshi Lalji Kapadia Public Charitable Trust, Hyderabad. To overcome these funding problem KMVS later developed joint proposal and sent it to many funding agencies but financial support did not come through from those agencies. *As such, funding and sustainability of the project still remains questionable*.

Health management information system (HMIS) - All the basic information of each woman was firstly recorded manually and later they entered into a database in the computer. KMVS trained one individual staff to do data entry and regular monitoring of the data entry (Appendix 3). The basic reasons for doing this were to be able to trace the morbidity and mortality rate at the end of 4 years.

Process documentation-KMVS initiated open discussions among women by making the women listen to stories in Gujrati but this platform did not prove to be very effective as a result, an audio visual video was made in Gujrati, which proved to be effective to quite an extent. Reports, newspaper articles, photographs and video films were made to record the whole project for future use and for attracting other donors.

3.6.2 Process

On-going capacity building support - In July 18th 2009 BST and KMVS sent a team of 10 health workers and midwives to TATA memorial hospital-Department of preventive oncology (Mumbai) for training in VIA/VILI test.

This was a success that has encouraged BST & KMVS to give priority to the program involving early detection and prevention of cancer of cervix and breast. The outcome of the training was that the trainers (only 2) have acquired confidence and commitment through practical training, hand on experience and others can only sensitize families, women and community with knowledge and awareness.

Mass campaigns - On August 6th 2009 health unit of KMVS and BST developed a system for conducting campaigns to prevent cervical cancer**.** The campaign's focus was mainly orienting the community about cervical cancer, initiating screening camps and free treatment at BST. Additionally, the key messages were spread through educational awareness materials, pictorial and audio stories, these proved to be effective.

Trainings for local health workers and trainings for skills upgrading for our experienced dais- It was mutually decided between the two organizations that each organization will depute one staff to learn more on VIA/VILLI because acquiring new trained staff was quite expensive and no professional was willing to work in the remote areas in Kutch. Later two staff was sent to Adyar Cancer Institute, Chennai for 15 days training. Still the problem of *shortage of staff for conducting community based screening exists due to high turnover rates*. After that screening was conducted (January 2009 to march 2011) at all the 20 selected villages. The 2 days intensive training program (appendix2) on cervical and breast cancer included Traditional birth attendants (TBAs) nurses, ASHA worker, and village leaders but these women have shown lack of interest. Then also KMVS have trained most of the village leaders where camp has been done and even pre-and post-trainings were conducted.

Activate pressure groups through local Panchayats (local government)-Motivate Panchayats to be part of screening program and some active women were dedicated and supportive though there was no allocation of funds. Establishing an area-wide network for cervical cancer awareness was planned in order to create an advocacy group at Kutch so that NGOs in the future could act as a catalyst to advocate for incorporation of community screening program in Public health system. This was not successful because both the organizations were in the learning phase. So KMVS decided that at the end of the project both the organization will conduct a state level workshop on the best practises and implication of the model in the low resource settings.

Supportive supervision- Conduct monthly trainings and meetings for a new cadre TBAs for cervical awareness. This was done successfully as these TBAs used to do the awareness program by bringing women from the village in the camp for which they were paid. In the later stage of the program, TBAs were also involved in the monitoring of the program. KMVS and BST

staff meetings are held regularly to discuss prevailing issues and to carry out monitoring of the program at regular intervals.

Screening- A three-visit screening model was used. KMVS and Bhojai used to organize 2 day screening camp in the same block and along with that they are also doing check-up for breast and oral cancer. Though screening camps were *organized in local schools and health centres, all the women did not attend it*. As such KMVS has changed their strategy, by educating informing and all women up to the age of 50 in the community through midwives, home visits and organized community meetings but these was not very successful.

3.6.3 Outcome

Number of women being screened, diagnosed and treated - Between 2009 -2011, 2 community health workers screened 1480 women in 28 different villages. Out of the 1480 women, 277 were VIA/VILI positive at the initial screening and *among them 162 were biopsied (KMVS, 2011). Many of the women have not attended follow up treatment* mainly because they felt that they did not have any physical problem and did not feel the need to go for further treatment. Some of the women faced bleeding after biopsy, which created obstacles. One of KMVS's strategies to overcome these obstacles includes having one to one discussion through audio visual disks to make them understand the importance of follow up treatment. Also, it was set that only doctors from BST would conduct the biopsy. In order to make sure that every woman who tests positive returns to receive the appropriate medical care, KMVS changed their follow up strategy, they started visiting house to house and convincing each woman to attend the next biopsy. However, this strategy did not prove to be very helpful. Lastly 7 serious cases were diagnosed and 3 cases were operated at free. The project now has created attention in the eyes of Public health system, the district health is now paying interest to initiate and support the program.

3.7 SUMMARY

In this chapter by doing this review, four major problems were addressed with the community based cervical cancer screening model in Kutch. Firstly, it was very difficult to bring all the women in the screening camp. Secondly, the lack of getting trained staff to cater the whole population through community based screening. Thirdly, follow up strategies to bring women for further treatment in the BST centre was really difficult. Lastly, funding crisis that makes screening programs sustainable at the community level is required. The next chapter would address the solution of these problems.

CHAPTER 4 – ANALYSIS OF FINDINGS

4.1 INTRODUCTION

In this chapter, four main challenges and problems of community based cervical cancer screening are addressed and the potential solutions of these challenges are discussed. I have reviewed how different countries have adopted effective strategies to deal with similar problems that the Kutch model is encountering based on operational appraisal framework (figure4).

4.2 STRATEGIES TO BRING WOMEN IN THE SCREENING CAMP

Mass campaign- In Columbia, strategies such as special "cytology days" in remote towns and villages are advertised using radio, megaphones, and churches, this encourages women to attend the camps (Sherris *et al.,* 2001).In Siberia three education campaigns have been evaluated in the Mae Sot District and Tak province, which reflect that there is an overall improvement in women's awareness of cervical cancer and screening. Similarly in Ghana, popular television program gave information on cervical cancer and surprisingly hundreds of women gathered at the Ridge Hospital to receive cervical screening (Population reference bureau, 2005). In Mexico, the screening Model started in 1989 with press conferences organized by local project staff, including community leaders, public health officials, media representatives, as target audience in the "kick-off" of each campaign. Simultaneously, three local television stations, including Spanish language station, and five radio stations provide air time for role models spread messages on cervical cancer screening (Suarez *et al*., 1994).The first role model appearing in the media was a 44-year-old Mexican American woman where she narrated her story of an early diagnosis and successful treatment, therefore encouraged other women to get annual examinations. Additionally, the health staffs spread messages in local television, radio news, publicly. This was a successful model and worked best when a variety of health messages were rotated on a quarterly basis.

Home visit- Cervical cancer is the most common female cancer in Serbia. A Mobile Unit Programme was established in 1993 reaching women between 25 and 60 years of age through home visits and maintained by provincial health offices improved the screening rate among women (Matejic , *et al* , 2011).

Community awareness- In Thailand bringing women for screening was problematic but was resolved through raising awareness program introduced mainly by government health workers (Sherris *et al.,* 2001). For example, in the United States, the frequency of cervical cancer mortality rates has fallen by 75 % over last 40 years and in United Kingdom (UK) mortality rates has reduced by 40%. This was possible because majority of women attended

cervical screening program as a results of increased awareness program (Hoque *et al.,* 2008).It has been perceived that if women are exposed to formal and informal health messages on cervical cancer, screening diagnosis and treatment are strongly influenced . All the awareness messages came from three distinct sources- local media, gynaecologists and other women. Finally, the research indicates that women who received information from these sources are more likely to attend the screening, irrespective of the level of education, employment status or ability to evaluate their cervical cancer risk (Matejic *et al.*, 2011).

Repeated screening/ two visits screening- cervical-cancer screening strategies in India, Kenya, Peru, South Africa and Thailand reported that if a woman is screened once in their lifetime, by the age of 35 years, with a one visit or a two-visit screening involving VIA/VILLI , risk of cancer is reduced by approximately 25–36% (Denny *et al.,* 2006).

Client satisfaction-Meeting women's needs with the provision of high-quality services can contribute to an increase in screening coverage. For example, if a woman receives good quality services and is satisfied then obviously she would share her positive experience with other women, family members and friends. In Ghana, for example, 36 % of women attended screening camp when they were referred by another woman who had already been tested whereas 31 % of women referred by family member, friend, or neighbour (Alliance for Cervical Prevention, 2004).

4.3 TRAINED STAFFS FOR CONDUCTING COMMUNITY BASED SCREENING

Training of health staff - A cervical screening program must ensure adequately trained staff, especially when staff turnover is high**.** A continuous training program for health care providers is important for improving service delivery. Training can also help health workers understand the importance of a satisfied client and in future will help to develop goals for improving performance. Training should also include good counselling skills to understand client concerns and rights and communication skills to effectively convey the message to men who could also help encourage women to attend the screening camps (Bingham *et al*., 2003).

Train volunteers – "*YOUR LIFE, YOUR HEALTH"* is a community outreach program introduced among Mexican-American women to increase participation in cervical cancer screening programs. Volunteers from the Mexican community were recruited through strong networks like the Retired Senior Volunteer Program, patients and the local health department. The volunteers were trained in modelling and role playing. They learned how to recommend cervical cancer screening on a quarterly basis. Volunteers distributed newsletters containing calendar for mass media role model appearances and basic information about cancer screening services (Suarez *et al*., 1994). At the end of 18 months, there were 490 volunteers working in

Corpus Christi and 279 in Galveston in Mexico and on an average 1100 new volunteers were recruited in each quarter .The impact of the program was that it increased the cervical screening among Mexican women, which successful led to a decrease in the mortality rate.

4.4 FOLLOW UP STRATEGIES TO BRING WOMEN FOR FURTHER TREATMENT

Client friendly counselling - In Ghana the follow up support took initiative by introducing client friendly educational and counselling messages .Thus their clients and male partners could better understand test results and the differences between cervical cancer and precancerous conditions. Also, strategies to increase the involvement of partners, who often plays a significant impact on women's decisions to seek treatment and follow-up care, were very effective (Population Reference Bureau, 2005). In Kenya, for counsellors used pictorial flip chart and effective counselling methods like individual pre-screening with screening results , group education in the clinic, and pre/post treatment counselling for women detected precancerous were quite effective (Alliance for Cervical Prevention, 2004).

Following Guidelines/standards – In UK the National Health cervical screening Program (NHSCSP) was introduced in 1960s. Quality framework guidelines included all essential constituent of complete screening program and all women in between 20 and 64 years were screened and operated through a three year programme (NHS Cancer Screening Program, 2012).The screening program was designed in such a way that is highly acceptable to all women and to reduce the adverse effects of screening. Simultaneously the guidance for auditing screening history and laboratories were judged following *''Achievable Standard Benchmarks for reporting criteria for Evaluating Cervical Cytopathology NHSCSP 1995".*Thus Cervical cancer incidence was effectively reduced by 20% by the year 2000 (Pritchard,1996).

Call recall system - Scottish Cervical Screening Programme (SCSP) was introduced to allow early diagnosis with various follow up strategies. Screening tests are conducted by 11 laboratories with varying workloads. This involves close working practice with doctors, Clinics and Colposcopy. Normally a woman will be called via the call recall system and managed locally by the national Scottish Cytology Call Recall System. The programme has been successful and there has been a reduction in incidence of cervical cancer by 36% and a decrease in deaths from 1986 to 100 in 2002(Cervical Cytology Review Group, 2007).

Gaining husbands / decision makers support – In Ghana the follow up strategies were strengthened by motivating women to get tested and to gain their husbands' support. Health workers stimulated women to return for an appointment after a year, and a public health nurse visited women at their

homes to remind them for follow-up care (Population Reference Bureau, 2005).

Immediate treatment on the same day- In 2000, Thailand's Ministry of Public Health and other local partners on a project combined VIA/VILLI test followed by immediate cryotherapy treatment on the day of screening. Nurses received training in VIA and cryotherapy as part of village health centre and women were tested and if, diagnosed positive then they were offered cryotherapy and treatment on the same day. More than 13 % of women tested positive, close to 95% of them accepted immediate treatment, and less than 5 % of those treated and returned with a problem. Thus , if follow up procedures are done on the same day then it reduces the usual step of having to wait for a diagnosis and then return for a treatment and also the problem of follow up visit gets reduced (Gaffikin, *et al.,* 2003). In South Africa, health workers faced the challenge of inadequate follow-up of treatment .It was reflected that 60 % to 80 % of South African women who had positive diagnoses never returned for follow up treatment. But in 1990s South African National Cancer Association used a mobile clinic to provide services to a temporary migrant population in Cape Town. Follow up treatment were offered on the spot (Population reference bureau, 2005). When women were referred to a nearby clinic for treatment, the dropout rate was 34%, however when offered on-site, same-visit treatment dropout rate was only 3%.

4.5 FUNDING AND SUSTAINABILITY OF COMMUNITY BASED SCREENING AT THE COMMUNITY LEVEL

Inclusion in public health system- Bangladesh introduced nationwide community based screening program in 2004. The program was incorporated in the Ministry of health and its partners through "National Cancer Control strategy and Plan of Action, 2009-2015" .The plan aimed to provide screening programs, enhanced laboratory capacity and high-quality early treatment at the district level and evidence-based interventions. With these efforts, Bangladeshi government was able to reduce the burden of cervical cancer (Cervical Cancer Action, 201). In 2000, Korea incorporated National Health Insurance Law, which mandated the Pap test as part of a nationwide cancer screening program, which was included in the public health system. This scheme integrated a unique opportunity for an organized cervical cancer screening program. The evaluation study showed a reduction in the risk of cervical cancer when compared with the unscreened women. The results revealed the effectiveness of regular screening as part of the National Cervical Cancer Screening Program in Korea (Konno *et al*., 2010).In many countries screening has been incorporated with existing services like Maternal child health family planning. For example, in Canada the women who used oral contraceptives are targeted for cervical smear, which has been successful and have high coverage (Miller, 1992).

Integrating programs in existing health care services - The best way to deliver cervical cancer screening interventions and reaching large numbers of women in developing countries is integrating such programs in primary health care services, which are more accessible to women. A pilot program done by ACCP (Alliance for Cervical Cancer Prevention) showed how cervical cancer screening treatment when integrated in existing services can reach women who are otherwise not reached (Reeler *et al.,* 2009). The ACCP (ACCP, 2004) model suggests a holistic approach to cervical screening services with nurses and health workers. In the primary settings rather than setting up parallel screening services is better to work with existing health structure. Similarly in Tanzania the education awareness materials by TBAs proved highly effective in bringing pregnant women for testing.

Strengthening Health Care Systems and collaboration- The strengthening of health system including access to appropriate diagnostics, management training of human resources, proper referral and patient education. Apart from that developing countries should bear the cost of HPV vaccines, drugs need to be available at affordable prices and should make use of scarce availed resources. The effectiveness of cervical cancer programs also depend on collaboration between the health system, communities and NGOs. Community engagement and support is needed to help patients overcome fear and make the program sustainable in future. For examples innovative collaboration between health systems and communities. For preventing cervical cancer prevention under the Gardasil Access Program, eight developing countries from Africa, Asia and Latin America applied for donations of Gardasil vaccines in from various sources including Ministry of Health, private - public hospitals and NGos. Experiences and evaluations of this program were quite successful in developing countries (Reeler *et al.,* 2009).

4.6 OPERATIONAL APPRAISAL

The operational appraisal is explained in the Appendix 5.

4.7 SUMMARY

In this chapter by doing this review the feasible strategies were taken into consideration and summarized by appraisal table. The next chapter will provide comprehensive recommendations and reflections based on these strategies.

CHAPTER 5 - RECOMMENDATIONS FOR EFFECTIVE COMMUNITY BASED CERVICAL SCREENING STARTGIES IN LOW RESOURCE SETTINGS WITH REFERENCE TO INDIA

5.1 INTRODUCTION

This dissertation has identified the strategies for effective community based screening in India. On the basis of these strategies developing and developed countries best strategies were analysed in the context of India in order to recommend effective and feasible strategies to initiate a community based cervical screening model. KMVS has started a community based cervical screening Model in Gujarat for the first time, and is one of the major stakeholders that would contribute towards reducing cervical cancer. Also, in the near future KMVS can work together with district health to address the issues in holistic way.

This chapter presents feasible, short, medium and long term recommendations. This chapter also contains a brief plan dissemination, conclusion and reflection of the author.

5.2 STEPWISE RECOMMENDATIONS

On the basis of feasible strategies discussed in the last two chapters, the stepwise recommendations are shown in a table. Each recommendation is explained by duration and the person responsible.

Table 3 Stepwise recommendations with time and responsible persons

Steps	Recommendations	Time	Responsible person
1	Coordinating cervical cancer prevention services with health programs and can reach the older women (30s and 40s).	Long term	program team
2	Identifying and addressing referral system for effective service delivery with follow up treatment before initiating the model.	Medium term	Top level management
3	Ensuring training of service providers at all levels in screening, including counselling skills.	Short term and on-going	Trainers
4	Allocation of adequate budget for Community based screening programme by preparing proposals and sending to concerned funding agencies and donors.	Long term	Coordinators and managers

5	Recruitment and selection of doctors, nurses for conducting screening, cryotherapy and biopsy.	Short term	Human resource team
6	Hand on training on screening, cryotherapy, and biopsy at reputed institutions.	Short term and on-going	Training department
7	Increase awareness among women through mass media and targeting their mother in law's and husbands.	Short term and on-going	Media
8	Screening every three years (respective villages or accessible) and ensure that reliable follow-up and tracking procedures are in place and confirming cryotheraphy at local level.	Medium	Coordinators
9	Integrations with existing health staff like nurses, trained mid wife Accredited Social Health Activists (ASHAs) to mobilize community women for screening.	Medium term	Top level
10	Well established Information Systems which allows screening programs to follow individual women over time, and includes client's screening results, diagnostic referrals, and treatment outcomes.	Long term	Coordinators
11	Integrating with primary health care services helps improve follow-up and further incorporating with existing programs such as Maternal child health etc Renovation of district hospitals to develop screening and follow up using the existing funds.	Long term	Coordinators
12	Develop partners with local NGOs and district health through regular meeting for scaling up.	Long term	Top level
13	Monitoring and evaluation with realistic and measurable indicators to measure screening programme.	Medium and long term	External and internal evaluators

.

5.3 CONCLUSION OF STUDY

This dissertation has discussed for effective strategies for community based screening model which can be replicated in other parts of India. The study is

divided into five chapters and each discusses different aspects guided to feasible recommendations for implementing this model.

Apart from this, the study has shown the current situation of cervical cancer in India in regard to the existing policy, service delivery and community awareness in Kutch. Kutch was selected for the study because for the first time they have started community based screening model when there is no such service available in the public health facilities in Gujarat. The poor scenario regarding screening program can open the eyes of Government to re-think the issue and as discussed in this study to develop an effective feasible strategies to replicate the model. Furthermore, the achievable recommendations have been made for KMVS and BST in order to improve the exiting model, so that in the near future it can be successfully implemented. Screening of woman for cervical cancer is a reproductive right for every women and she has a right to live healthy thus screening must be made available and affordable for all.

5.4 PLANS FOR DISSEMINATION

The main aim of dissemination is to inform KMVS and BST about the findings and recommendations of this study. The dissemination plan would include the following:

- The dissemination of the information or results of this study will be done firstly by organising a district level sensitization workshop so that policy makers and district health can re-think about the issue.
- The main findings of the research will be sent to each of the district officials so that in the future they can support us in the implementation of the program.
- The main findings will redistribute to state health department so that it can be published and can be used further for documentation.
- The study report will be circulated in Bhuj libraries, health institutes, and all the hospitals, funding agencies so that people can have access.
- National level workshop will be done to understand how to implement the community based cervical cancer screening model and encourage it for further replication.

5.5 REFLECTION

My past experiences while working with women's reproductive health issues for the last 8 years in India Before coming to the University of Leeds to pursue master of public health (MPH) (International), I had significant exposure to health related issues especially reproductive health in various states including Gujarat.

I was involved with the implementation of Kutch community based cervical cancer model from the initial stage and to this day I still carry the passion

and desire to explore effective community based cercal cancer model that can be replicated in different parts of India, which would contribute towards reducing the existing mortality and morbidity rates of women through cervical cancer. This dissertation has provided a great opportunity to explore community based cervical cancer screening Model. In the beginning I faced difficulties in shaping the topic and was confused but the timely support from my supervisor helped me in finalising the topic.

The major challenge in writing this review has been retrieving evidence based studies on community based cervical model in India .Although there has been a significant number of published documentation on community based model of other countries but there are few for India . Further there is limited information of the current intervention and services available to address cervical cancer in Gujarat. At times it has been challenging to rely upon statistical information as though some work may be done in Gujarat Kutch but data were not available .Thus has to depend on KMVS data for analysis. I personally feel during the study that the time constraint and word limitation created a barrier to explore community based cervical cancer models.

The journey of the entire dissertation was really fruitful for me and the reflections I got from time to time have helped in increasing my knowledge in the field of research, documentation, planning and organizing, and, monitoring and evaluation. The research also helped me to find useful resources and articles using databases. Though, I worked with the Kutch model on a district level. However, this dissertation helped to broaden up the views and ideas at global level and provided new dimension for replicability in low resource setting. Considering the fact that I was not able to find enough information on this issue due the paucity of published documents, my findings have been limited to few articles. I Overall, the information and skills, which I have acquired from writing this dissertation would be very useful for my commitment to my organization(KMVS), which I will be joining when I return to India and for my professional career as well. I hope with this learning's that I carry, I will be able to compliment the implementation of the model successfully in Gujarat.

CHAPTER 6 – REFERENCES

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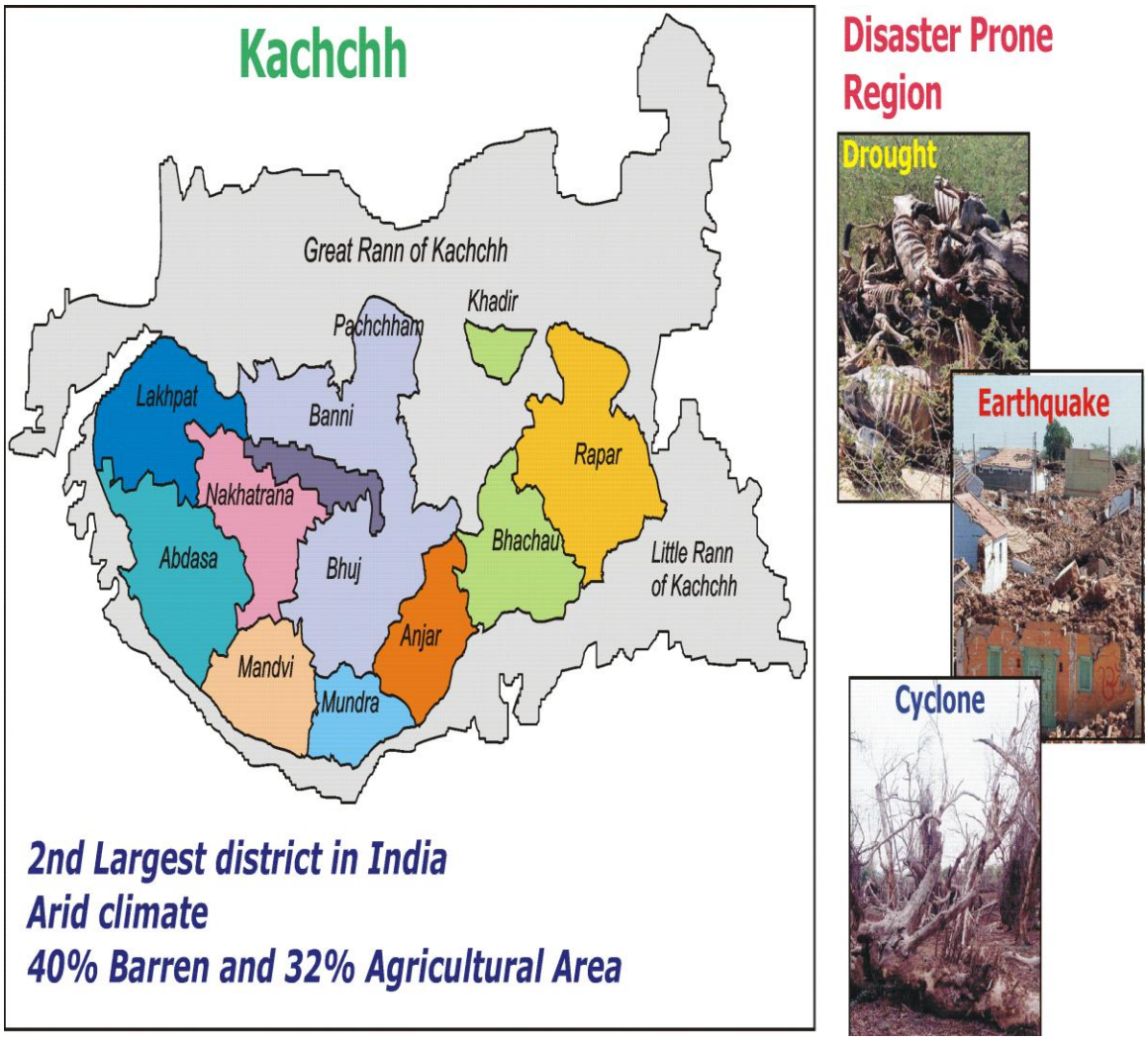
APPENDICES

APPENDIX 1- THE MAP OF KUTCH



Source –Flying with the crane 2003

APPENDIX-2 TRAINING MODULE

2 days cervical Cancer Training Module				
Sr. No	**Subject:**	**Time**	**Methodology**	**Material**
1st day 1	**Well come & Objective of the training program** • Introduction of trainee • Expectations of Training	11 to 11:30 AM	Well come Speech and Training objective explain by Trainer. • Ice breaking game. • Each one participates write or Speak their own expatiation for training.	Chart Paper, White board marker Pen, White Board, Note pad for White papers. Duster
2	**Brief introduction of human body & function of all organs.** • Skin Mussels, Bone, and Digestive system. • Urinary system, Blood Circulation. • Respiratory system, nervous system • Reproductive system	11:30 to 1:00 PM	Lecture and practical exercise Drown Human Body and Fill Place by organs(**By participates**) **<u>Key Question ask by trainers</u>**	Male/Female panels. Human body Facts of the Life Models
*****	**LUNCH**	1:00 2 PM		**********

3	**Definitions.** • What is a cancer • Cause of cancer • Sign and symptom of Cancer. • Treatment of cancer.	3:00 to 4:00 pm	Brain Strom Exercises And Answer write by Trainer. **Key Question ask by trainers**	White board, Chart Papers, marker pen, white paper and pen for Participants. PPT on cancer.
******	**Tea Break**	4 to 4:15 pm		********
4	**Cervical cancer** • What is cervical cancer? • Cause of cervical cancer • Sign & Symptoms of cervical cancer • Treatment of cervical cancer • Prevention of cervical cancer and role of Dai and CBO.	4:15 to 5:15 pm	Participatory Question answer method. White on white board **Key Question ask by trainers**	White Board or chart papers Marker pen, Duster Panel of cervical cancer PPT of cervical cancer
2nd day 5	**Revision of last day.**	11:00 to 1:00 pm	Participatory Question /answer method. White on white board **Key Question ask by** **Trainers**	White Board or chart papers Marker pen, Duster
*****	**LUNCH**	1:00 to 2 PM		*********
6	**Breast cancer**	2:00 to 3: pm	Participatory Question answer	White Board or chart

	• What is Breast cancer? • Cause of Breast cancer • Sign & Symptoms of breast cancer • Treatment of Breast cancer • Prevention of Brest l cancer and role of Dai and CBO.		method. White on white board **Key Question ask by trainers**	papers Marker pen, Duster Panel of cervical cancer PPT of Breast cancer
7	**Throat cancer** • What is Breast cancer? • Cause of Breast cancer • Sign & Symptoms of breast cancer • Treatment of Breast cancer • Prevention of Brest l cancer and role of Dai and CBO.	3: to 5 pm	Participatory Question answer method. White on white board **Key Question ask by trainers**	White Board or chart papers Marker pen, Duster Panel of cervical cancer PPT of Throat cancer

Source –KMVS

APPENDIX 3- MIS (CERVICAL CAMP DETAILS 2011)

Name of the villages	block	Month	block-population	nearest phc/chc	Total patients during camp	via/villi +	biopsy test	suspected cancer	CI 1	CI 2	surgery done	
JAMKUNARIYA	bhuj	from January to august end 2011	2200	17 km	28	3	5	no				
Luni	mudra	from january to august end 2012	4000	4 km	65	10	6	no				
ugedi	1	from january to august end 2013	1500	10	27	7	7	2	1	1		
dhorabar	bhuj	from january to august end 2014	2000	0	57	7	5	no				
Tugga	bhuj	from january to august end 2015	1700	10 km	60	10	3	no				

vayor	abdasa	from january to august end 2016	5000	0	34	4	3	no				
navinal	mudra	from january to august end 2017	2500	1 km	39	11	4	no				
Baroi	mudra	from january to august end 2018	3000	1.5 km	46	10	6	no				
Desaalpar guthli	nakhtrna	from january to august end 2019	2000	0	27	11	4	no				
Muru	nakhtrna	from january to august end 2020	1500	1	55	15	7	no				
Devapar yaksh	nakhtrna	from january to august end 2021	7000	10	94	35	26	4	3	1		1
Devapar yaksh	nakhtrna	from january to august end 2022	0	10	161	0	0	no				
Kotra	nakhtrna	from january to august end	4500	0	58	0	0	no				

		2023										
Kotra	nakhtrna	from january to august end 2024	0		82	22	11	no				
Nana angia	nakhtrna	from january to august end 2025			160	20	16	3		3		
Nagalpar	nakhtrna	from january to august end 2026			116	24	13	1	1			
Moti khakar	mudra	from january to august end 2027			27	6	4	no				
Suhpar	mudra	from january to august end 2028			30	9	5	no				
Siracha	mudra	from january to august end 2029			35	9	5	no				
TUNDA	mudra	from january to august end 2030			23	3	2	no				

Ravapaar	nakhtrna	from january to august end 2031			140	26	22	1				
Kerwand	abdasa	from january to august end 2032			35	12	4					
Kosa	abdasa	from january to august end 2033			31	12	4					
Rampar	abdasa	from january to august end 2034			23	5						
Vadsar	abdasa	from january to august end 2035			15	2						
Mahesh nagar	mudra	from january to august end 2036			15	4						

Source-KMVS Data 2011

APPENDIX-4 DEMOGRAPHIC AND HEALTH INDICATORS OF GUJARAT AND INDIA

Indicator	Gujarat	India
Population (million) (census 2001)	51	1,028
Decadal growth rate (1991-2001)	22.6	21.5
Population density per sq km (2001)	258	324
Birth rate (2006)	23.5	23.5
Death rate (2006)	7.3	7.5
Total fertility rate (2005)	2.9	3.2
Age (years) of effective marriage (2005)	20.3	20.2
Literacy rate: total (2001)	69.9	65.3
Male	80.5	75.3
Female	58.6	54.1
Sex ratio (no. of females per 1,000 males)	920	933
Life expectancy at birth—females (2005)	69.0	66.1
Infant mortality rate (2006)	53	57
Child mortality rate (2005)	16	17.3
Maternal mortality ratio (2003)	172	301

Source of data: India. Ministry of Health and Family Welfare. Family welfare statistics in India–2006:

ANNEXURE 5 OPERATIONAL APPRAISAL

Broader areas	Strategies	Effectiveness	Organisational feasibility	Gender and cultural feasibility	Financial feasibility	Grade
Service delivery	Training of health and non-health staff on VIA/VILLI	The sensitivity of VIA/VILLI ranged from 44% to 78% and the specificity ranged when tested in low resource settings from 91% to 96% (Sankaranarayanan, 2005) +	A wide range of health care providers, including trained medical and nonmedical personnel, can provide VIA/VILLI after a training of roughly 5—10 days +	Will be highly acceptable as most of the trainers will be women and non-health staff would be included -	Reduce treatment cost +	3/4
	Counselling	Providing counselling on cervical cancer in the community and in health services reducing illness and death (WHO, 2006).TBAs , ASHA nurse/midwife is well versed in cervical	NGO's have the role of ensuring more counselling coverage using their existing staff +	TBAs and ASHA nurse/midwife are well accepted by the community -	Counselling will be provided at no cost to the client -	2/4

Broader areas	Strategies	Effectiveness	Organisational feasibility	Gender and cultural feasibility	Financial feasibility	Grade
		cancer to counsel effectively+				
Increase coverage	Mass campaigns	mass media campaign on cervical screening can effectively increase the coverage rate	As more than half of the population people lives in rural areas and the poor literacy rate among women will not create any barrier for the key messages +	Radio and Mobile van is the major means of communication in rural areas and women can easily access them +	The broadcasting cost would be included -	3/4
	Treatment on the same day and locally	single-visit approach is safe, acceptable and feasible +	The same person for screening will do the cryotherapy on the same day -	Feasible as it reaches remote communities, and thereby reduces the burden of repeat visits for women who live far from health	Cost effective as screening and treatment would be done in the same day will further reduced the follow up procedures	3/4

Broader areas	Strategies	Effectiveness	Organisational feasibility	Gender and cultural feasibility	Financial feasibility	Grade
				services+	+	
Funding and sustainability	Strengthening Health Care at public and private health facilities	Mobilizing and accessing political support -	integrating cervical cancer prevention services for eligible women in Reproductive and child health program at primary health care facilities +	international funding agencies support national efforts to achieve population-based coverage on cervical cancer +	challenge of establishing the infrastructure, training and equipment to provide screening services -	2/4
	Inclusion in public health	Today, over forty low-income countries have introduced VIA /VILLI on a national or pilot basis and is successful (Cervical Cancer Action, 2012). +	Existing structure and manpower can be used for services +	whether cervical cancer control is a priority for the planners and decision makers -	local groups , donors , ministry of health team focusing on cancer or a national cancer society +	3/4