**RATIONAL AND STRATEGIES OF “PRECIOUS LIVES FOUNDATION TRUST” TO FIGHT AGAINST BREAST AND CERVICAL CANCER**

**BACKGROUND**

Many people are aware that there are many causes of morbidity and mortality for women in society and that gender is associated with certain diseases that can increase mortality [1] . Cervical and breast cancers are considered to be the leading causes of death among women [2,3]. The high rates of cervical and breast cancers have created a higher cancer burden in women than men and hence these diseases are of major societal and familial consequence [4].

Cancer refers to a class of diseases in which a cell or a group of cells divide and replicate uncontrollably, intrude into adjacent cells and tissues (invasion) and ultimately spread to other parts of the body than the location at which they arose (metastasis)[5]**.** Cancer that forms in tissues of the cervix (the organ connecting the uterus and vagina) is known as cervical cancer [6]. In cervical cancer, (cancer of the uterine cervix), cancer develops in the tissues of the cervix, which is a part of the female reproductive system. The cervix connects the upper body of the uterus to the vagina. The endocervix (the upper part which is close to the uterus) is covered by glandular cells, and the ectocervix (the lower part which is close to the vagina) is covered by squamous cells. The transformation zone refers to the place where these two regions of the cervix meet[7].

There are several types of cervical cancer, classified on the basis of where they develop in the cervix. Cancer that develops in the ectocervix is called squamous cell carcinoma, and around 80-90% of cervical cancer cases (more than 90% in India) are of this type[8]**.** Cancer that develops in the endocervix is called adenocarcinoma. In addition, a small percentage of cervical cancer cases are mixed versions of the above two, and are called adenosquamous carcinomas or mixed carcinomas. There are also some very rare types of cervical cancer, such as small cell carcinoma, neuroendocrine carcinoma etc. [7].

Cervical cancer is usually a slow-growing cancer that may not have symptoms but can be found with regular Pap tests (a procedure in which cells are scraped from the cervix and looked at under a microscope). Cervical cancer is almost always caused by human papillomavirus (HPV) infection [9,10].

**Breast c**ancer forms in tissues of the breast, usually the ducts (tubes that carry milk to the nipple) and lobules (glands that make milk) [11]. Breast cancer can be defined as ‘a growth of malignant cells within the breast tissue’ [12]. “Breast cancer is of two types i.e. lobular and ductal. Lobular cancer starts in many small sacs in the breast that produce milk. Ductal cancer is much more common than the lobular cancer. A lump may appear several years before cancer starts. There is a wide difference in the way a breast cancer behaves. It may remain confined to breast for long time, or in other cases, spread to nearby lymph nodes and organs [13]. No definite causes have been established for the breast cancer although genetic factors, personal history and diet all play an important role. More specifically, breast cancer can occur as a result of cells under the influence of oestrogen multiplying and infringing on other tissue; eventually spreading to other regions of the body [14] .

**CANCER INCIDENCE, PREVELENCE AND MORTALITY AMONGST INDIAN WOMEN:**

India is undergoing a period of dramatic social and economic change.  Cancer is now the second leading cause of death in Indians after cardiovascular disease.  Amongst women cervical cancer is still the most frequently diagnosed cancer but breast cancer is now the most commonly diagnosed cancer in urban Indian women [15].

**Figure: 1 - Cancer mortality in women of all ages in India.**

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Data from population-based registries under National Cancer Registry Programme indicate that the leading sites of cancer are cervix, breast and oral cavity amongst women. Cancers namely those of oral and lungs in males, and cervix and breast in females account for over 50% of all cancer deaths in India [16].

**Cervix Cancer-** Cervical cancer is one of the most common cancers among women worldwide [17]. Its mortality exemplifies health inequity, as its rates are higher in low & middle income countries (LMICs) [8] , and in low socio-economic groups within countries [17]. Around 80% of global cervical cancer cases are in LMICs [18,19]. As a result, death and disability from this cancer are high in LMICs, including India [20,21].

Cervical cancer is the leading cancer among women in terms of incidence rates in 2 out of the 12 Population Based Cancer Registries (PBCRs) in India, and has the second highest incidence rate after breast cancer in the rest of the PBCRs **.** The age-adjusted incidence is highest in Chennai, a metropolitan city in the south, and lowest in Thiruvanathapuram, the capital of Kerela **.** 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 the country[22].Cancer of the cervix accounted for 16 per cent of all cancers in women in the urban registries in 2005. In older population based cancer registries (PBCR) Barshi and Chennai PBCRs have always recorded the highest incidence of cervix cancer. In the hospital based cancer registries (HBCRs), cancer of the cervix is the leading site of cancer in Bangalore and Chennai, the second leading site in Mumbai and Thiruvananthapuram and the third leading site in Dibrugarh. This site of cancer constitutes between 11.4 (Thiruvananthapuram) to 30.7 per cent (Chennai) of all cancers in women in these five HBCRs [23].

India has a population of 366.58 millions women ages 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 134420 women are diagnosed with cervical cancer and 72825 die from the disease. Cervical cancer ranks as the 1st most frequent cancer among women in India, and the 1st most frequent cancer among women between 15 and 44 years of age. About 7.9% of women in the general population are estimated to harbour cervical HPV infection at a given time and 82.5% of invasive cervical cancers are attributed to HPVs 16 or 18 [24].

In India the incident cases of the cervical cancer which was reported in 2004 as 112,609 (26.1%) is projected to increase to 139,862 in 2015 [4].

**Figure: 2- Estimated number of new cases of cervical cancer in India by age group, in 2008 and projected in 2025.**



By 2025, the number of new cervical cancer cases in India is projected to increase to 226,084[8]. **India has a disproportionately high burden of cervical cancer [25]. Cervical cancer is the third largest cause of cancer mortality in India after cancers of the mouth & oropharynx, and oesophagus, accounting for nearly 10% of all cancer related deaths in the country [26].**

**Figure: 3-Annual number of death of cervical cancer by age group in India and Southern Asia.**

**Among women, it is the leading cause of cancer mortality, accounting for 26% of all cancer deaths [20]. According to IARC estimates, mortality from cervical cancer is expected to witness a 79% increase from 74,118 deaths in 2002 to 132,745 deaths by 2025 [26,27].**

**Breast Cancer -** Breast cancer is considered to be one of the most common malignancies, affecting about one woman in nine. It is probably the most feared cancer in women because of its psychological impacts. It effects the perception of sexuality and self image to a degree far greater than any other cancer [28]. Breast cancer is the most common cancer diagnosed in women worldwide with over 1.3 million new cases per year.  It is estimated that by 2030 the global burden of breast cancer will increase to over 2 million new cases per year. There is a wide variation in the geographical burden of the disease with the highest incidences seen in the more developed regions of the world and the lowest incidences observed in the least developed regions.  More recently the incidence of breast cancer has been observed to be increasing in low income countries and data suggests that over the next twenty years the majority of the increase in the worldwide burden of the disease will be due to rising incidences in these countries. Furthermore it is estimated that this increase in cases will be largely due to increasing incidence in developing regions of the world. A dramatic increase is taking place in the incidence of cancer, specifically breast cancer in women. Even in previously low risk countries, developing Asian countries the incidence of breast cancer has increased sharply over the past three decades [29].

Breast cancer is now the second most commonly cancer diagnosed in women after cervical cancer in India. It is very evident from the various statistics, that the incidence of breast cancer is rapidly rising, amounting to a significant percentage of all cancers in women. National Cancer Registry Programme shows that in all urban areas of India breast cancer has now surpassed cervical cancer as the most frequently diagnosed cancer in women. Breast cancer is the commonest cancer in urban areas in India and accounts for about 25% to 33% of all cancers in women. If these percentages are converted into actual numbers, the numbers are very high. Combine this with the fact, that over 50% breast cancer patients in India present in stages 3 and 4, which will definitely, impact the survival [30].

The International Agency for Research on Cancer, an organization established by the World Health Organization estimates that an approximately 80,000 women in India are affected by breast cancer each year, other estimates place the number of cases of breast cancer in India to about 10,00,000 women each year. There will be approximately 2,50,000 new cases of breast cancer in India by 2015. The Indian Council of Medical Research is of the view that breast cancer has overtaken cervical cancer to become the leading cause of cancer-related mortality among women living in Metropolitan cities [31].

Breast cancer has practically replaced cancer of the cervix as the leading site of cancer in all urban registries. According to a study by international agency for research on cancer (IARC) a branch of WHO, there will be approximately 250,000 new cases of breast cancer in India by 2015. In 2008, Dr.Umberto Veronesi, the father of modern breast cancer initiative in Delhi stating that breast cancer will become an epidemic in India in another 10 years. The first priority in the campaign against breast cancer will become an epidemic in India is early detection, which is fundamental. It makes the difference between life and death [32].

In India the incident cases of the breast cancer which was reported in 2004 as 90,723 (21%) is projected to increase to 112,680 in 2015 [4]. As of today, 1 in every 22 women in India in their lifetime is expected to be diagnosed with breast cancer and 1 out of every 2 women diagnosed with breast cancer does not survive the disease; mostly due to late stage diagnosis. More than 92% of breast cancers are diagnosed at stage II or later [32].

**CANCER INCIDENCE, PREVALENCE AND MORTALITY IN THE WOMEN OF PUNJAB**

Panjab government has recently taken an initiation for cancer registry and declared the cancer as notifiable disease in Panjab. Under this the approval for Population Based Cancer Registry (PBCR) has been given by Indian Council of Medical Research (ICMR) to GMC Patiala and PGI, Chandigarh has got sanction for Hospital Based Cancer Registry from ICMR. This project is in initial stage so the exact information about the cancer incidence and mortality in Punjab is not available.

In the house to house survey which was conducted by the Health Department in 2009, the prevalence of cancer in Punjab was noticed as 30.54 per lakh population.

**Table: 1- Cancer prevalence in Panjab**

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| **HOUSE TO HOUSE SURVEY 2009** |
| **S.No** | **District** | **Population** | **No. of cases** | **Prevalance (per lakh population)** |
| 1 | Amritsar | 2348145 | 253 | 10.77 |
| 2 | Barnala | 570244 | 379 | 66.46 |
| 3 | Bathinda | 1255932 | 942 | 75.00 |
| 4 | Faridkot | 549118 | 245 | 44.62 |
| 5 | Fatehgarh Sahib | 533261 | 176 | 33.00 |
| 6 | Ferozpur | 2154017 | 473 | 21.96 |
| 7 | Gurdaspur | 1669336 | 559 | 33.49 |
| 8 | Hoshiarpur | 1024243 | 476 | 46.47 |
| 9 | Jalandhar | 2438054 | 377 | 15.46 |
| 10 | Kapurthla | 891073 | 196 | 22.00 |
| 11 | Ludhiana | 2930443 | 771 | 26.31 |
| 12 | Mukatsar | 889452 | 668 | 75.10 |
| 13 | Moga | 978977 | 319 | 32.59 |
| 14 | Mansa | 686642 | 342 | 49.81 |
| 15 | SBS Nagar | 611378 | 141 | 23.06 |
| 16 | Patiala | 1810046 | 426 | 23.54 |
| 17 | Ropar | 756532 | 200 | 26.44 |
| 18 | SAS Nagar | 919555 | 133 | 14.46 |
| 19 | Sangrur | 1491131 | 383 | 25.69 |
| 20 | Tarn-Taran | 825817 | 279 | 33.78 |
| **Total** | **25333396** | **7738** | **30.54** |

Very few epidemiological studies were conducts in some districts of Punjab. The findings of these studies indicate that the most prevalent type of cancer in the female was breast cancer. Most leading site of cancer in the female of 3 districts Ropar, Bathinda and Patiala of Punjab as per report of NCRP (2002) was breast followed by the Cervix Uteri. An epidemiological study of cancer cases reported from villages of Talwandi Sabo block of district Bathinda of Punjab revealed prevalence of histologically confirmed cancer cases as 125.4 per 1,00,000 population. The study has also shown that there were 51 deaths per lakh population in the study block. The common sites of cancer reported are breast, uterus/cervix, leukemia/lymphoma, esophagus, skin and ovary. The leading causes of cancer deaths are cancers of esophagus, leukemia/lymphoma uterus/cervix, breast and ill defined digestive organs [33].

**CERVICAL AND BREAST CANCER CARE STRATEGIES IN INDIA**

India has a National Cancer Control Programme which was established in 1975–76. This has contributed to the development of Regional Cancer Centres (RCCs), oncology wings in medical colleges and support for purchase of teletherapy machines. The District Cancer Control Programme was initiated but did not result in sustainable and productive activity [4].

The National Cancer Registry Programme (NCRP), established by the Indian Council of Medical Research (ICMR) acts as a surveillance system for cancer in India. Under the NCRP, Population Based Cancer Registries (PBCRs) have been established at 19 locations (Mizoram, Sikkim, Imphal, Kamrupt, Silchar, Dibrugarh, Bangalore, Chennai, Mumbai, Delhi, Bhopal, Ahmedabad, Nagpur, Kolkata, Aurangabad, Pune, Kollam, Thiruvananthapuram and Barshi) and Hospital Based Cancer Registries (HBCRs) have been initiated at Dibrugarh, Chandigarh, Thiruvananthapuram, Bangalore and Mumbai. The HBCRs collect data on cancer patterns, and also gather information on patient care, treatment options, and assist in patient follow up [34].

The registries collect data in an ‘active’ manner, visiting government and private sector hospitals, specialised cancer hospitals, and pathology laboratories to get information on the types and magnitude of cancer cases. Death certificates are verified from the municipal corporation units. Standardised protocols are used for collecting and recording information, and the malignant neoplasms are coded in accordance with the International Classification of Diseases for Oncology (ICD-O). They also have a system of data quality and consistency checks. After analysis, the data is disseminated in the form of periodical reports, which are publicly available[35].

Recently, a National Task Force was constituted for developing a “Strategy for Cancer Control in the 11th five year plan (2007-2011)”, which developed a report in March 2008, summarising the current scenario and developing a comprehensive cancer control strategy for the countryThe recommendations of this task force report for cervical cancer are: Opportunistic screening using sustainable and financially viable means, Capacity building for early detection and diagnosis, Development of infrastructure and human resources for appropriate treatment and regular follow up and Provision of palliative care for advanced stage cancer across the country [36,37].

Figure: 4 – Summary matrix of the strategy envisaged by the NCCP Task Force for the XIth five year plan.



There is no uniform cancer prevention strategy for the entire country. Awareness programmes have been under-taken in a few places, but there is no uniform standardized information, education and communication (IEC) strategy for cancer prevention. There is no education on risk factors, early warning signals and their management. Cancer screening is not practiced in an organized fashion in any part of India. There are sporadic attempts at opportunistic interventions and small-scale research studies for field interventions. Diagnostic infrastructure in the country is limited. There are many districts in the country which do not have a pathologist and pathology/cytology services, which are crucial for diagnosing cancer. Financial and geographic constraints and lack of manpower have contributed to the urban concentration of facilities. An un-estimated number of cancers diagnosed in the population are not treated. Untreated patients are likely to demand more resources from society [4].

Treatment facilities are also mostly limited to urban areas of the country. There are no uniform protocols for management and the availability and affordability of cancer treatment shows wide disparities. The majority of patients with cancer present to a cancer treatment centre in late stages of the disease (80% are advanced) and this adds to the already high morbidity, mortality and expenditure. Treatment results are about 20% less than what is observed for similar conditions in more developed countries, mostly due to late diagnosis and inappropriate treatment. Paediatric cancers are highly curable but this has not been achieved in India due to lack of access to quality care and lack of support systems. Oral morphine is the mainstay for cancer pain relief and is still not widely available in the country. There is a serious limitation of manpower for providing palliative care [4].

India doesn’t have a specific national policy on cervical cancer control and prevention, and the NCCP doesn’t have a specific cervical cancer component within it. There is no national screening programme in place, although national guidelines have been prepared [38].

At present screening for cervical cancer takes place in an opportunistic manner, with cytology based screening facilities being available mainly at the tertiary level, where women are screened only at the most advanced stages of cancer, or if they visit the tertiary hospitals for reproductive tract infections[36].

According to the 2003 WHO World Health Survey, only 2.6% of the Indian female population had ever been screened for cervical cancer in the past three years [8].Additionally, most of the tertiary level facilities do not have the diagnostic and treatment services that can be offered to women post screening, with management essentially consisting of follow up or a hysterectomy[39].

Nevertheless, some progress has been made in the form of pilot projects of early detection and screening programmes (pap smears) for cervical cancer, set up by the WHO in conjunction with District hospitals, government hospitals and medical colleges in Hyderabad, Mizoram, Meghalaya and Tripura, which are now being integrated into the routine services of these hospitals[40].Unfortunately these are not being evaluated [36].

Early detection projects are also being administered by the Government of India through the family welfare programme, as well as through District Cancer Control Programmes, in 29 districts in the country. In addition, several state governments such as Tamil Nadu and Kerela have attempted to establish state wide screening programmes. However most of these have not been successful, as the primary problem has been an inability of the existing health system to deliver the services envisaged under these programmes [37].

In 2009, the Ministry of Health and Family Welfare launched a demonstration project for cervical cancer screening and vaccination in three blocks of the Vadodra district of Gujarat, in association with PATH (Program for Appropriate Technology in Health) and ICMR, one of the aims of which is to assess the feasibility of implementing large scale vaccination programmes in India As part of this demonstration project, girls aged 10-14 years will be vaccinated with the three dose HPV vaccine, and women 30 years and above will be screened for cervical cancer [36,41].

Another ongoing cervical cancer research study in India is a clinical trial, being funded by the IARC, with the aim of assessing whether a two dose HPV vaccine would confer similar protection against the infection relative to a three dose vaccine.The estimated completion date has been given as May 2014 [42].

In 1984, the government of India established the National Cancer Control Programme (NCCP) with the four goals: Primary prevention of tobacco-related cancers; early detection of easily accessible sites; augmentation of treatment facilities and establishment of equitable, pain control and palliative care network throughout the country. Twenty one regional cancer centres were established under this program, which are more treatment-oriented with a focus on improvements in radiation oncology[43]**.** The centres are not oriented towards prevention and early detection and they provide only opportunistic screening[44].

There is no organized, systematic (or government-funded) population-based screening program for breast cancer in India[45,46]**.** There is wide variation in the availability of facilities for breast cancer treatment in India, which ranges from poorly funded, under-resourced and under-staffed government hospitals with no mammography machines, to medical facilities at par with international standards for medical personnel, diagnostic and imaging services and the full array of surgical, radiation and medical treatment options, such as the TATA Memorial Centre, which is a national comprehensive cancer centre [47].

The majority of women in India receive inadequate and inappropriate treatment due to poor infrastructure, limited financial resources and a social stigma surrounding the disease[47,48]. Due to the late stage at presentation, radical mastectomy is the most common procedure used for breast cancer patients in India[49].Breast-conserving surgery and sentinel lymph node biopsy are rare due to poorly equipped centers and the often late stage at diagnosis[47]. For chemotherapy, low-cost options are more often used (eg, cytoxan, methotrexate, and 5-FU (CMF) combination) than regimens which are found to be more effective (eg, anthracycline-based combinations) and radiation is expensive and not widely available[47, 49]**.**

For management of metastatic and triple negative breast cancer, a recent survey of 152 practicing nationwide oncologists revealed preferences for use of platinum agents and the use of oral agents (eg, capecitabine), despite the lack of evidence from large randomized trials that these should be the standard of care in such settings[50]**.** These underlie the importance of implementing standardized, evidence-based guidelines in Indian settings [51]**.**

In India, resources of the health care system vary widely within the country [52]**,** the states and even the cities, and there are no national ICMR guidelines; instead, treatment allocation has to be considered and implemented according to the resources available for a particular patient and in a specific health care setting. In low- and middle-income countries where there is no good health infrastructure for a long-term programme of mammography, the World Health Organization supports early detection through clinical breast exam and patient signs and symptoms [51]**.**

**CERVICAL AND BREAST CANCER CARE STRATEGIES IN PANJAB**

National Program for Cancer, Diabetes, Cardiovascular diseases & Stroke (NPCDCS) is implemented in the Punjab. Under this program district Bathinda, Hoshiarpur & Mansa are identified under Cancer Component. Facility Survey has been done for establishment of Non Communicable Diseases (NCD) Clinics and District NCD cells under the Programme. NCD Clinics will have facilities where Day Care Chemotherapy & Mammography of the patients will be done. NCD Cell will monitor the activities of Cancer component in terms of financial requirements & overall functioning under NPCDCS[33].

Punjab government has recently started the cancer registry in Punjab.Population Based Cancer Registry (PBCR) has been started & is collecting data at Govt. Medical College Patiala. Hospital Based Cancer Registry (HBCR) has been started in PGI, Chandigarh & is collecting data. Brachytherapy Machine for the treatment of cancer patients has been installed at Government Medical College & Hospital, Patiala. Radiotherapy machine & Cobalt Unit has been started at Sri Guru Gobind Singh Medical College Faridkot. Cobalt Source for the treatment of cancer patients has been installed at Sri Guru Ram Das Institute of Medical Sciences & Research Centre Amritsar.Onconet service has been started at Civil Hospital Bathinda. Regional Cancer Centre, PGI is connected to all districts of Punjab via Tele-Medicine facility. State Government has executed an agreement with Max Health Care to set up Super Specialty Hospital for Cancer & Trauma Care in the premises of Civil Hospital SAS Nagar (Mohali) and setting up of Super Specialty Cancer & Cardiac Hospital in the premises of Civil Hospital, Bathinda. These hospitals are fully functional.Tertiary Cancer Centre at GMC Faridkot allotted Rs.4.8 Crore release against total of Rs.6.0 Crore Cancer Hospital in Bhatinda: Being set up with investment of Rs.60 Crore, by BFUHS, Tenders floated for construction[33].

Financial assistance under State illness Fund through Punjab Nirogi Society is provided to cancer patients along with other life threatening diseases belonging to BPL families. Under the scheme Mukh Mantri Punjab Cancer Raahat Kosh Society, 20.00 crores has been made available by Govt. of Punjab, for treatment of all cancer patients except Government employees and those having health insurance cover. An amount of upto 1.50 lakhs is made available for treatment of every cancer patient. Till date a grant of about 20.00 crores has been sanctioned to hospitals for treatment of cancer patients 2634 Patients out of 2820 applicants have been sanctioned about Rs 28.00 Crores. School children suffering from cancer are provided free treatment by Health Departmen. So far, 134 children suffering from cancer were referred to PGI, Chandigarh and 69 Children to Mohan Dai Oswal Cancer Hospital, Ludhiana Rs. 146.07 Lac has already been spent on them. Free travel facility in Punjab Roadways & PRTC Buses is provided for cancer patients for availing treatment[33].

Punjab Government has signed a MoU with NGO Roko Cancer Trust for the year 2010-11 and 2011-12 to spread cancer awareness and conduct camps for screening of women for breast cancer, in Muktsar, Moga, Faridkot, Amritsar, Tarn-Taran, Gurdaspur and Ferozepur districts. The NGO started conducting camps from February, 2010 till date. The suspected cases are referred to Govt. Medical College & Hospitals for further investigation & treatment. 30.00 lakhs in each year has been given to NGO Roko Cancer Trust for this purpose. Mammography units have been established at Civil Hospital Bathinda, Patiala, Jalandhar and Hoshiarpur [33].

 **PRECIOUS LIVES FOUNDATION TRUST**

 **(Fighting Against Breast and Cervical Cancer)**

In Punjab, the cervical and breast cancer are emerged as the most common cancers in the female. Government of Punjab has taken many steps for the care of the cancer patient. Imaging facilities are provided in the Governmental health care facilities for the detection of the cancer. Cancer treatment facilities are also available in the tertiary health care institutes in Panjab.However, what is lacking is the unavailability of the population based data of cervical and breast cancer patient along with the provision for early detection of cancer and specialized cancer health care institutes in the rural areas of Punjab. This is the need of the time that full flexed strategies which include early detection and provision of specialized care of cervical and breast cancer is used in the Punjab with the aim to provide a complete care package to cervix and breast cancer. A rational concept to put science into practice has needed to be formulated to counter this disease. In cancer, even with limited resources, an impact can be achieved if the right priorities and strategies are established and implemented.

On realization about the real situation of the cancer **“PRECIOUS LIVES FOUNDATION TRUST”** is founded with the aim to fight against breast and cervical cancer. The objects for which this trust is founded are:

* To conduct, sponsor and organise lectures, seminars, camps, fairs, exhibition and/or such other programmes and activities for diffusion of knowledge/awareness relating to breast and gynae cancer.
* To carry out screening programmes in the hospitals, medical schools, medical colleges, nursing institutions, dispensaries, maternity homes, and/or such other similar charitable institutions in India for the breast cancer and gynae cancer.
* To introduce state of the art diagnostic and therapeutic facilities to diagnose and treat breast and gynae cancer patients.
* To assist the needy and indigent patients suffering from breast and gynae cancer.
* To ensure follow-up of breast cancer patients after treatment.
* To establish, maintain and support or help hospitals, dispensaries, maternity homes, clinic, nursing homes, medical colleges, research institution and mobile dispensaries in the area of breast and gynae cancer.
* To establish or help in establishing institutions, hospitals, dispensaries etc for the treatment of breast and gynae cancer.
* To carry out all or any of the aforesaid objects without any distinction of colour, caste, community, creed, religion, race etc in any part of India or the world either as principal or through agents or in collaboration with Municipalities, District Boards, Central and State Governments, Religious or charitable or philanthropic trusts, institutions or organisations or otherwise.

**STRATEGIES OF “PRECIOUS LIVES FOUNDATION TRUST” TO FIGHT AGAINST BREAST AND CERVICAL CANCER**

AWARENESS AND EDUCATION ON CERVICAL AND BREAST CANCER ISSUES:

**Background –** If cancer can be detected early, treatment may be curative. One means to that end is educating people regarding early signs of the disease: lumps, sores that do not heal promptly, abnormal bleeding, and persistent indigestion or hoarseness. Medical attention should be sought when these occur. Early diagnosis of cancers that are curable if detected early (cervix, breast, mouth) can be promoted in India using public education and training of primary health care workers.

High incidence, prevalence and mortality associated with cervical and breast cancers in women is become a significant public health concern in today’s society and, as such, is appropriate for screening and other preventative techniques. Awareness and Education of cervical and breast cancer issues are considered to be a large component of the approach to reducing these cancer related deaths.

According to a WHO report on comprehensive cervical cancer control, health education and promotion should be an integral part of any national cervical cancer control programme. It should incorporate an awareness component, informing women and/or their families: that cervical cancer is preventable, about the signs and symptoms of the disease, what they should do if signs and symptoms are present and that regular screening is essential to detect the cancer early and avoid disability and death from the disease [53].

An awareness programme initiated by the National Cancer Registration Programme at Barshi (Maharashtra) a rural area in India, showed marked improvement in the stage at diagnosis of cervical cancer from 1988-89 to 1990-92, with a control site (no awareness programme) showing no such improvement. The methodology consisted of educating the general population about the symptoms of the cancer, and encouraging women who had such symptoms to undergo screening[54].Similar findings were reported by a study in a district in Western India[55].These studies demonstrate the importance of incorporating health education in a national screening programme.

Media and self awareness campaigns have been found to be an effective way of educating and raising public awareness [12]. These campaigns mainly focus on educating the public about risk reduction techniques, risk factors, treatment and the incidence of cervical and breast cancer.

**Strategies to be used -**

1. Awareness on cervical and breast cancer issues would be spread with the help of print, electronic and social media.
2. Cervical and breast cancer related days like pink ribbon day and national breast cancer day would be celebrated.
3. Events such as celebrities programs on cervical and breast cancer awareness would be organized to raise the awareness and to educate the public.

EARLY DETECTION / SCREENING OF CERVICAL AND BREAST CANCER**:**

**Background –** A second approach to early cancer detection is through population screening; namely, the identification of people with asymptomatic disease by applying simple tests. Screening is looking for cancer before a person has any symptoms. This can help find cancer at an early stage. When abnormal tissue or cancer is found early, it may be easier to treat [56].

Screening is the application of a relatively simple and inexpensive test to asymptomatic subjects to classify them as being likely or unlikely to have cancer. Opportunistic screening or case finding can be attempted to increase the awareness and produce the human resources needed for future programmes, which include population-based screening in an organized manner with proper mechanisms for call–recall and quality control. Cancer screening should be applied only when its effectiveness has been demonstrated. Currently, screening can only be advocated for cancers of the cervix and breast [4].

Early Detection / Screening of Cervical Cancer:- Cervical cancer is preventable and curable if detected at an early stage [53]. The 5 year survival rate of cervical cancer when detected at the earliest stage is 92%, and the combined 5 year survival rate for all stages is 71% [7]. Since early detection predicts better prognosis, one of the most effective ways of preventing and controlling cervical cancer is regular screening and early diagnosis. Despite the fact that more than 80% of cervical cancer cases are in developing countries, only 5% of women there have ever been screened for cervical abnormalities [53].

The most effective method of screening employed in the developed world has been cytology based using Pap smears, which has contributed considerably to reducing incidence of, and mortality from, cervical cancer[57].However this method of screening requires excessive resources in terms of laboratories, equipment, trained personnel, and transport of specimens[58].

Lack of adequate financial and human resources in developing country settings has prevented the quick uptake of such cytology based screening programmes at the population level.This has led to a search for alternative screening methods that can be more cost-effective for application in low-resources settings. Visual inspection-based screening tests, such as naked eye visual inspection or ‘downstaging’, visual inspection with 3-5% acetic acid (VIA), VIA with magnification (VIAM), and visual inspection post application of Lugol’s iodine (VILI), are a set of alternative screening mechanisms which have been studied for their effectiveness in LMIC settings, including in India [59].

Downstaging has been shown to have inadequate sensitivity and specificity for detecting cervical lesions[59]. VIA, VIAM, and VILI have been assessed in multiple settings for their effectiveness relative to cytology based screening [60,61,62].Although the sensitivity and specificity of VIA has been found to vary considerably from study to study and country to country **,** the general finding has been that the sensitivity of VIA tends to be similar to that of cytological screening, but its specificity tends to be lower [59].Visual inspection based methods have many advantages: they are less expensive than cytology based screening, easy to administer and train appropriate health care workers, and provide real-time results [36].

India has a set of guidelines for implementing a cervical cancer screening programme[63]**.** This has been developed through consultations with experts from the Regional Cancer Centres, the Federation of Obstetrics and Gynaecologists of India, the Indian Academy of Cytologists, Indian medical colleges such as AIIMS, the WHO and the International Agency for Research in Cancer (IACR). Realising that cytology based screening, being highly resource intensive, cannot be implemented in resource poor areas of India, these guidelines recommend the use of alternative screening strategies, in particular VIA, at the primary health care (PHC) level, followed immediately by a single visit to the District Hospital (DH) for further management. All women, who on the basis of their VIA results are referred to the DH, should be diagnosed using colposcopy and on the basis of that, treatment should be offered to the women during the same visit itself, so as to avoid loss to follow up. Confirmation of diagnosis using pap smears and biopsy should be done subsequently [36]**.**

The guidelines have a strong community sensitization and motivation component, recommending that information, education and communication (IEC) activities be incorporated into the screening programme. In addition the guidelines provide the details of the roles of different healthcare functionaries, training of personnel, preparation and procedures for screening, equipment required at each health care level, protocols for referrals and follow up, and procedures for monitoring and evaluation as well as quality control.The guidelines recommend that the cervical cancer screening programme be initiated as a series of demonstration projects at districts that have the requisite human and financial resources to screen large numbers of women . These should be evaluated, and after making necessary modifications, their scalability to other parts of the country should be looked into [36]**.**

Early Detection / Screening of Breast Cancer:- One of the key issues associated with breast cancer is the importance of early diagnosis. If breast cancer is found early, the outcome is significantly more positive; treatment can be very effective and the possibility of complete recovery is increased. If diagnosed early, approximately 75% of women survive five years after diagnosis, but, for breast cancer that has spread; this survival rate drops significantly to 18% [12]. So one of the major strategies that has been implemented to try and reduce the rates of breast cancer morbidity and mortality is the development of an effective breast cancer detection program. Early detection methods, such as mammography, clinical breast examination and breast self-examination, can play an important role in the reduction of deaths from breast cancer in the absence of primary prevention strategies. Mammography i.e. X-ray of the breast, done at regular intervals, say every 2 years, is popular in the west. However, mammography is expensive, technology driven and requires stringent quality control and extensive experience on the part of technicians and doctors involved. If these are not available, mammography can do more harm than good by falsely diagnosing cancer or missing it when it is actually present. Experts recommend mammography only in women who have a family history of breast cancer or other risk factors. The second method is for a woman to get herself examined clinically be a breast specialist. It appears that if clinical examination is done properly it may be as effective as mammography. The third method is self-examination whereby a woman examines her own breasts once a month after taking lessons from an expert. Many women however do not like doing self-examination often out of fear of finding cancer. Nevertheless evidence suggests that if the examination is done properly and regularly, it may help to detect breast cancer early. Breast cancer is now the most common cancer in most cities in India, and 2nd most common in the rural areas [3]. This representation give us enough indication about the urgent need to spread awareness about breast cancer as well as screening for breast cancer, which will enable us to detect cancers in early stages, and improve the outcomes.

However, there are socio-cultural barriers to cervical and breast cancer screening in India. A pilot project sponsored by the WHO found that educated, working women avoided getting themselves screened for breast and cervical cancer, as they believed that they didn’t need to visit the doctor if they were “healthy” and had no symptoms [64]. These socio-cultural barriers can be dealt with through the incorporation of a health education component in a nation-wide screening programme.

**Strategies to be used for the early detection / screening of cervical and breast cancer: *-***

Visual inspection-based screening tests, such as naked eye visual inspection or ‘downstaging’, visual inspection with 3-5% acetic acid (VIA), VIA with magnification (VIAM), and visual inspection post application of Lugol’s iodine (VILI) will be used for early detection / screening of cervical cancer.

As mammography will be difficult to implement in India for various reasons, so efforts would be made to detect breast cancer at an early stage by educating the population about risk factors and through screening by self-breast examination or by physical examination. Breast cancer awareness would be propagated along with provision for clinical breast examination which would be carried out by general practitioners or trained health workers.

The following steps would be used to diagnose the breast cancer case.

1. Self – breast Examination
2. Breast Examination by Trained Person
3. Breast Examination by Breast Cancer Specialist
4. Mammography

TREATMENTS AND CURES OF CERVICAL AND BREAST CANCER**:**

**Background –** The primary objectives of cancer treatment are cure, prolongation of useful life and improvement in the quality of survival. Mechanisms should be set up to decide on guidelines for integrating treatment resources with early diagnosis and screening programmes, and for providing therapeutic standards for the most important cancers in India. Care for cancer patients typically starts with recognition or suspicion of the disease by the patient and primary health care worker. Specialized services for diagnosis and treatment, and referral, if appropriate, to a centre for cancer treatment comprise the next element of the system. Curative treatment involves surgery, radiation, chemotherapy, hormone therapy or some combination of these modalities. For some kinds of cancer, including those affecting the uterine corpus, testis, melanoma and female breast, state-of-the-art therapy yields a 75% or greater 5-year survival rate [4].

A screening programme will not be successful if an effective treatment and management programme is not established to run alongside it. The management and treatment of cervical cancer entails accurate diagnosis of pre-cancer or cancer cells followed by appropriate treatment and follow up of the patient, and effective rehabilitation and palliative care for advanced cancer patients**.** The World Health Organization has prepared a set of recommendations for the comprehensive control of cervical cancer, in which evidence based practices in cervical cancer management can be found. (http://www.who.int/reproductivehealth/publications/cancers/9241547006/en/index.html) [53].

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 available, mostly inaccessible to the poor (primarily due to financial reasons) [39]. Thus context-specific, national guidelines for the prevention and management of cervical cancer need to be developed.

Typically, breast cancer arises from cells lining the milk ducts and slowly grows into a lump. It is thought that it takes about 10 years for a tumour to become 1 cm in size starting from a single cell. Once breast cancer develops, surgery is the usual treatment. If detected early enough, the breast can be conserved by removal of the lump alone without a mastectomy. In this case, the glands in the armpit are also removed. This treatment is followed by radiotherapy to the breast. Chemotherapy is usually given as an adjunct to surgery to kill any stray cells that might have escaped and lodged elsewhere. Anti-oestrogen drugs are also used very effectively in women whose tumours are responsive to hormones. The latter is determined by a laboratory test called oestrogen receptor test. Sometimes chemotherapy is given first to reduce the size of the tumour so that breast conserving surgery can be performed. Once breast cancer spreads to other organs the disease usually becomes incurable and the treatment is directed at relieving symptoms, if any. Nevertheless, much can be achieved with treatment by anti-hormone medications as well as chemotherapy and radiotherapy [12,28,65].

**Strategies to be used for the treatment and cure of cervical and breast cancer: *-***

A standardized protocol will be used for the treatment and cure of cervical and breast cancer patients.

In addition to all strategies discussed above some research activities related with cervical and breast cancer would be initiated in later stage:-

1. Research on the incidence and prevalence of cervical and breast cancers in Punjab populations.
2. Research into the causes of cervical and breast cancers in Punjab populations.
3. Research into the impact of cervical and breast cancer prevention measures such as low-cost screening programmes and educational programmes.
4. Research into the effectiveness of treatments which will be affordable to the majority of the Indian population, including traditional ayurvedic medicines

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