

**Community Participation in Cancer Screening and Diagnosis Outreach
Activities towards Reconcile Cancer Disparities: “An Asset-Based
Community Development Model” Partnering with Communities in
India**

Dissertation
Submitted to



The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

by

Mayank Chhabra

Under the Supervision and Guidance of

Dr. Pallavi Choudhary Agarwalla

2021

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled Community Participation in Cancer Screening and Diagnosis Outreach Activities towards Reconcile Cancer Disparities: “An Asset-Based Community Development Model” Partnering with Communities in India is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

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CERTIFICATE

This is to certify that dissertation titled Community Participation in Cancer Screening and Diagnosis Outreach Activities towards Reconcile Cancer Disparities: “An Asset-Based Community Development Model” Partnering with Communities in India is a record of the research work undertaken by Mr. Mayank Chhabra in partial fulfillment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

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Internship Completion Certificate

To Whom It May Concern

This is to certify that **Mayank Chhabra**, student of **Indian Institute of Health Management Research (IIHMR)** has worked as 'Buisness Analyst- Intern' with Karkinos Healthcare Private Limited, and has successfully completed the internship under the guidance of Sripriya Rao, Chief Digital Officer- Karkinos.

Internship Duration: 10th -February-2021 till 05th -May-2021.

We wish all the best.

Karkinos Heathcare Pvt. Ltd.



Pooja Sharma
Vice President-HR

Community Participation in Cancer Screening and Diagnosis Outreach Activities towards Reconcile Cancer Disparities: “An Asset-Based Community Development Model” Partnering with Communities in India

ABSTRACT

Background: People group in low-pay nations are portrayed by restricted admittance to disease anticipation and early recognition administrations, in any event, for the commonest sorts of malignant growth. Restricted assets for malignant growth control are one of the supporters of disease wellbeing inconsistencies. The COVID infection 2019 (Coronavirus) pandemic may have influenced disease the executives and local area cooperation. We expected to assess changes in each oncology care pathway fundamental advance, from screening to treatment, during the pandemic and the attainability and advantage of leading efforts in organization with neighborhood networks utilizing the “Asset Based Community Development (ABCD)” model.

Methodology: We broke down the quarterly Indian malignant growth establishment (ICI) people group outreach disease wellbeing training and screening yield detailed optional information without singular identifiers from July 2016 to December 2019 to think about the ICI-medical clinic based and local area outreach malignant growth mindfulness and screening administrations dependent on the ABCD model. Month to month oncological action contrasts somewhere in the range of 2019 and 2020 (screening tests, histopathological analyzes, multidisciplinary tumor board meetings (MTBMs), diagnostic announcement procedures (DAPs), and treatments were determined in two Tata Memorial Hospital areas encountering distinctive pandemic prevalence (Mumbai and Kolkata).

Results: Since July 2016 to December 2019, more than 107 neighborhood accomplices and directed 151 efforts. Of the absolute number of individuals who went to malignant growth wellbeing training meetings, 2,01,568 (77.9%) were reached through outreaches. 92 (95%) malignancy mindfulness televisions and radio syndicated programs directed were supported by neighborhood accomplices. Of the all out individuals screened; 22,795 (63.0%) cervical, 22,014 (64.4%) breast, and 4,904 (38.7%) prostate screening were reached through local area outreach model. The screen-positive rates were higher in clinic based screening with the

exception of Prostate screening; cervical, 8.6%, breast, 8.2%, prostate, 7.3% than in outreaches; cervical, 3.1%, breast, 2.4%, prostate, 8.1%. Of the screened positive patients who were qualified for pre-malignant growth therapy like cryotherapy for therapy of pre-cervical disease sores, thousands-folds financial worth and useful life saved comparative with the market cost of malignancy treatment and endurance rate in India. At the point when the absolute number of individual evaluated for cervical, breast, and prostate disease are exposed to the gradual expense of explicit screening, a more noteworthy segment (97.7%) of the effort cost was retained through local area association. Further Coronavirus has had an emotional effect as far as screening (−66% to −80%), determination (−31%), and careful treatment (−20%). This worldwide reduction in all fundamental oncology care pathway steps stood out from the overall security of chemotherapy (−6%) and radiotherapy use (−12%). Flare-up happened prior and with greater power in Mumbai however had a tantamount effect in the two regions in regards to MTMBs and DAPs.

Conclusions: Exceeding and working as a team with networks as accomplices through resource based local area improvement model are plausible and help in cost-sharing and influence for scant assets to advance essential counteraction and early identification of malignant growth. This could add to crossing over the disease wellbeing inconsistencies in the objective populaces. The current investigation is as yet in progress and with a more extended development to dissect post-lockdown circumstance.

KEYWORDS: Cancer screening, Outreach activities, Health education, Cancer health disparity, Community participation, Mobile cancer clinic, India.

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The satisfaction and euphoria that accompany the successful completion of the project would be incomplete without the mention of the people who made it possible.

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I hope that I can build upon the experience and knowledge that I have gained and make a valuable contribution towards the industry in coming future.

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Abbreviations

ICI	Indian Cancer Institute
MTBMs	Multidisciplinary Tumor Board Meetings
DAPs	Diagnostic Announcement Procedures
FIGO	Federation of Gynecology and Obstetrics
VIA	Visual Inspection with Acetic Acid
CBOs	Community Based Organizations
UCI	Unique Client Identifier

Community Participation in Cancer Screening and Diagnosis Outreach Activities towards Reconcile Cancer Disparities: “An Asset-Based Community Development Model” Partnering with Communities in India

Chapter 1: Introduction

1.1 Cancer health disparities

Malignancy wellbeing divergence, additionally named disease wellbeing imbalances alludes to contrasts in admittance to disease care, including data, early discovery, therapy modalities, and malignancy related results like rate, pervasiveness, mortality, and other antagonistic malignancy related medical issue among explicit gatherings [1]. Restricted assets for malignant growth control are one of the benefactors of disease wellbeing dissimilarity. As people group in big time salary nations experience better admittance to disease anticipation and early recognition administrations, and in certain nations to the degree of over-analysis of particular sorts of malignancy [2]. Networks in low-pay nations are described by restricted admittance to disease counteraction and early recognition administrations, in any event, for the commonest sorts of malignant growth. This could be credited to the generally more significant level of disease related useful wellbeing proficiency, better or efficient malignancy screening program with a genuinely adjusted stock of wellbeing advancements in big league salary nations contrasted with low-pay nations [3-5]. The low-pay nations additionally experience a lacking number of multidisciplinary malignant growth specialists, including clinical & Medical oncologists [6]. The low-pay status of numerous African nations compounds this mind boggling circumstance with possibly one or no far reaching disease focus, astute or wellbeing camp-based screening programs. Provincial and financially hindered populaces experience the most exceedingly terrible challenges in getting to malignant growth counteraction and early location administrations. Conscious endeavors are needed to effort such populaces with moderate disease preventive and early discovery administrations.

1.2 Cancer Early Screening and Diagnosis

Malignancy is an exorbitant gathering of sicknesses with perplexing and shifting screening, symptomatic, and therapy modalities. For instance, the screening, analytic, and therapy modalities and expenses for Cervical, Bosom, and Prostate malignant growths change essentially regardless of whether they were of a similar sickness stage. The normal expense of cervical malignancy screening utilizing Pap smear is 2000 Rs (US \$29) in major league salary nations [7].

1.3 Cancer prevention and Mobile Cancer Detection and Early Screening Center in India

Since 1967, India has one exhaustive malignancy treatment focus, the ICI, situated in the Focal district of India, inside the Capital city, Delhi. Nonetheless, there is an arrangement for the foundation of four territorial malignant growth places in India (Kerala, Manipur, Assam and Maharastra). The incorporation of malignancy data, screening and reference of suspected disease cases in essential medical services offices was started in 2017 through preparing of essential medical services laborers. This is imagined to add to expanding populace malignancy attention to advance counteraction and early discovery. In 2009 the idea of local area disease program came to reality when ICI got a gift of a 35-foot portable mammography unit van from Public and PPP program. The motivation behind this mammography-van that was for local area bosom malignant growth instruction and screening administrations. In 2015, with extra staff, the ICI-People group disease unit, set up day by day malignancy data and early location administrations at ICI and routine local area disease outreaches. In 2018, ICI got another mammography-van gave by the Privileged Diplomat of Uganda in Mumbai, India, Madhusudan Agrawal, the Samta Establishment and Gathering. The People group Program additionally called the Far reaching Local area Disease Program (CCCP) is a local area wellbeing part of the ICI that takes lead in the essential anticipation of malignancy and early recognition. The objective of CCCP is to diminish malignant growth hazard by expanding admittance to and usage of disease anticipation administrations. This is done through broad communications disease mindfulness, effort and emergency clinic put together wellbeing schooling with respect to malignancy hazard factors, avoidance, early identification measures, and evaluating for the main tumors; cervical, bosom, and prostate malignancy. Nonetheless, with deficient program financing, it is probably not going to expand admittance to essential avoidance and early identification of malignancy if the local area assets are not tapped to add on the apportioned Government subsidizing.

1.4 Asset Based Community Development Model (ABCD)

The "needs-based" or issue based way to deal with local area wellbeing advancement is good natured by the focal and nearby governments, nongovernmental association (NGOs), contributors, and different entertainers yet mirrors an uneven lack perspective on the local area profile and offers transient advantages [18]. This causes a circumstance that render the arrangement of local area wellbeing administrations like malignant growth avoidance and early recognition endeavors expensive to carry out and denies admittance to administrations, particularly for the country, difficult to-reach, and difficult to-live populaces. This is on the grounds that each thing is cost to be financed by the legislatures, NGOs, or benefactor organizations with other contending needs. Nonetheless, the ABCD model is a resources based model of local area commitment and advancement including programming of wellbeing administrations that perceive the local area's abilities and assets to use the remotely organized administrations. This could be applied to local area wellbeing administrations, for example, disease control endeavors, specifically malignancy counteraction and early location.

Consequently, in long haul, the execution of this methodology is expected to contribute in decreasing the degree of the future cataclysmic cost on disease case the executives and the avoidable unexpected losses because of late-stage show of malignancy cases. This is a method of pursuing maintainability and local area wellbeing strengthening in an asset restricted setting. We expected to look at the commitment of working with local area associations to expand admittance to malignant growth anticipation and early location administrations more than long term's period. We additionally tried to give understanding into the gathered advantage/money related worth of local area resources and practicality of directing efforts in local area wellbeing focuses, spots of adores, schools, and work environments in organization with nearby networks.

1.5 Impact of COVID pandemic on community participation for Oncology Care Pathways

The coronavirus disease 2019 (COVID-19) pandemic prompted focusing on crisis care committed to contamination the executives. Different conditions, for example, malignant growth care and the executives, may have been influenced during the sterile lockdown [29]. Outcomes of this "interruption impact" are suspected, yet the prompt effect of this pandemic is as yet unclear [30]. The examination assessed changes in oncological consideration pathways

and local area support during the Coronavirus emergency.



Figure 1.1: Key Process of “Assets Based Community Participation or Development (ABCD) model (Foot & Hopkins 2018)

1.6 Company Overview

KARKINOS HEALTHCARE (KH) has been founded by Mr. R Venkataramanan, Advisor to Chairman, Reliance Industries Limited, and former Managing Trustee of the Tata Trusts. The firm is desirous to build an end-to-end technology driven oncology focused managed healthcare platform where almost no person is deprived of care either by lack of access or 4 affordability. The design and delivery will be through bespoke solutions for cancer care, as a one stop shop in experience, addressing core market needs for this specialized health care. It will use technology and AI Based Continuous feedback to improvise care to our own needs, the learning’s of which will be scaled up within India and beyond. Karkinos Healthcare over the next 18 months, will be focused on creating the foundation for the following components – a state of the art technology platform curated for oncology, a knowledge network with medical protocols, surgical skills, digital pathology center, along with fifty Level 4, fifteen Level 3, and one Level 1 Centres.

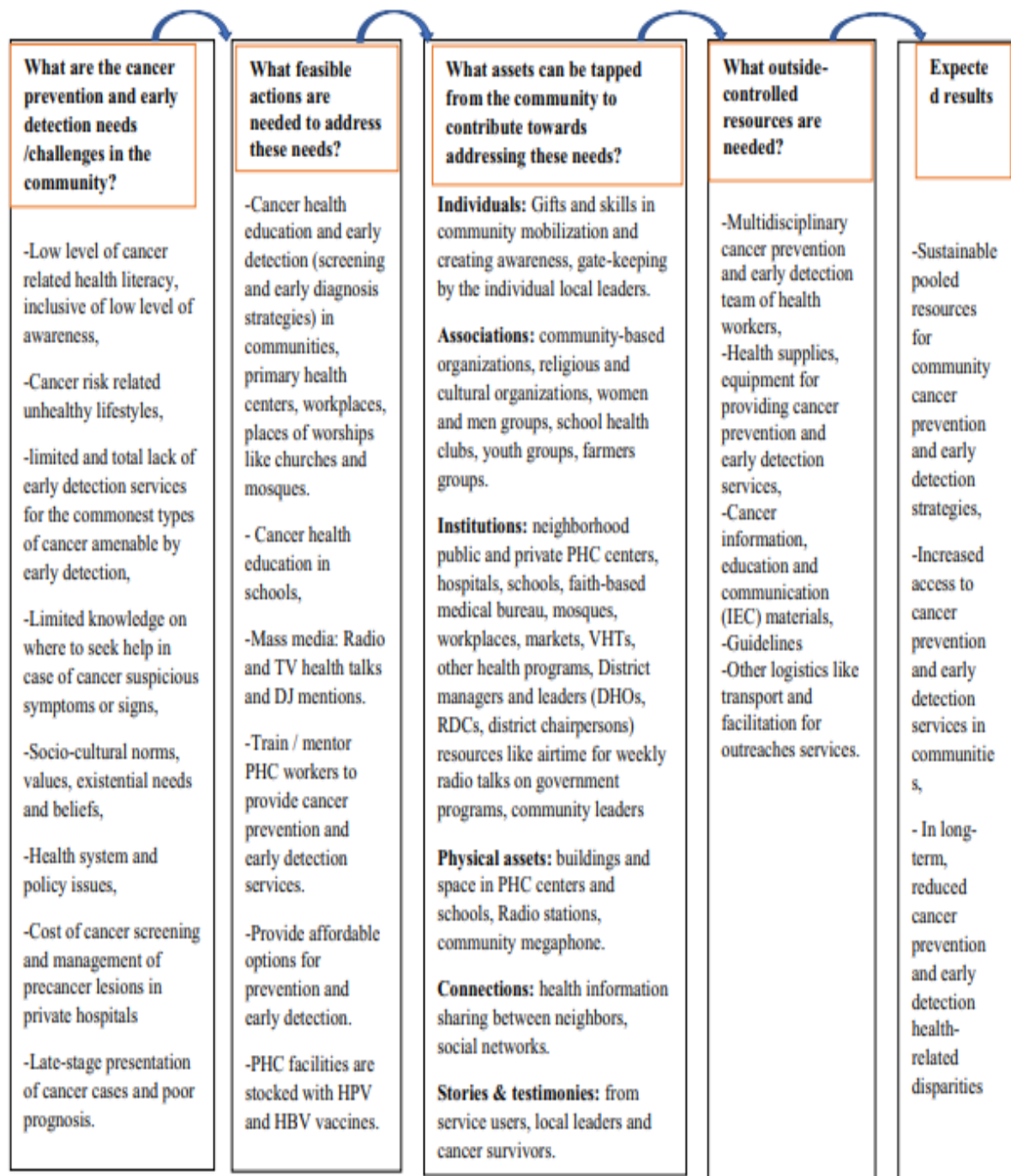


Figure 2: Considerations of ABCD model in Onco community program dependent on present settings in India. Including Rural level Subunits, Community health workers (ASHA, ANM), PHC (primary healthcare center), CHC (community health centers), and DHOs (district health officers).

Chapter 2: Review of Literature

In East Africa, the expense of cervical malignant growth the board in openly subsidized disease emergency clinics additionally change by illness stage, yet much lower than the expense in major league salary nations. For example, barring overhead expense; in Tanzania, the normal medical clinic put together screening cost based with respect to visual review with acidic corrosive (By means of) pre-malignancy injuries per patient though the normal expense of treating a beginning phase [8]. In Ghana [9], the steady financial expenses per customer screened with By means of while the expense of cryotherapy changed though in base-case presumptions displaying, the expenses of Through was discovered and cost of cryotherapy was discovered. In the Federal medical insurance plot in the US, it is accounted for that the age-normalized bosom screening-related expense per lady differed across areas [10]. The normal market cost of early-infection bosom malignant growth medical procedure; lumpectomy or mastectomy in agricultural nations as at 2018 was US\$ 3000. An orderly survey on worldwide therapy expenses of bosom malignancy on FIGO arranging framework [11]. In different examinations, in which intrusive bosom disease was sorted as nearby, provincial, and far off, the normal weighted expenses were \$63,664, \$89,898, and \$168,906. Therapy expenses of territorial and far off bosom disease were discovered to be 41% and 165% higher than restricted bosom malignant growth on normal [11]. In an investigation by Fourcade et al [12], Prostate malignancy treatment cost per patient for restricted sickness barring follow-up and unfriendly occasion cost fluctuates by nations; 5,851 Euro for each tolerant in France, 3,698 Euro for every quiet in Germany, 3,682 Euro for every persistent normal tune [13, 14]. Prostate malignancy a medical procedure on normal expense (Pate et al 2013). The normal market pricing of early-prostate infection medical procedure in non-industrial nations was US \$ 4,286 out of 2018. The normal market pricing of prostate screening filter in agricultural nations as in 2018 was assessed at US\$ 30.

At that point no less than one lab expert and one extra specialist (Clinical official) is added on the rundown. This number is customized dependent on the number, sexual orientation, and age gathering of individuals expected to turn up for the administrations. This adds an extra expense of transport and staff help of about 70US \$200, spread more than 32 screening customers is a normal screening cost. At the point when the costing measures utilized in Tanzania by Nelson et al [8], then the unit cost for cervical screening utilizing

Visual examination with acidic corrosive (Through) as an illustration is US\$ 1.45 in addition to the staff assistance cost. In this report, regardless of restricted financing for essential counteraction and early discovery of malignancy in India, we share how working with nearby networks as accomplices to use assets for expanding admittance to essential anticipation and early identification of disease in India is doable. Local area associations and organizations are vital segments of local area strengthening continuum [15]. The capacity of the local area to activate assets both from its resources (inside) and remotely from past itself is a significant factor in wellbeing advancement endeavors [16]. This is an interpretation of the Resource based local area advancement model (ABCD) created by John McKnight and John Kretzmann [17], used to find a local area's abilities and resources and to prepare those resources for local area wellbeing improvement. This spotlights on the qualities of a particular local area and figuring how to carry those qualities to bear to support the local area.

As per Kretzmann and McKnight "people group are worked from the back to front and not from an external perspective in" [19]. The ABCD model means to distinguish and activate assets in the networks; the neighborhood governments, local area based associations, deliberate affiliations, organizations, and people [20]. Foot and Hopkins [21] illustrated the critical phases of ABCD model as displayed in Figure 1. In any case, safety measure should be taken not to utilize or see the ABCD model as intends to diminish public subsidizing for local area wellbeing administrations nor to legitimize the decreased job of the state and the state related entertainers in giving wellbeing administrations to its populace [22-24]. The degree of disease mindfulness and admittance to early recognition methodologies, for example, malignant growth screening and early conclusion are accounted for to be low in India, particularly in provincial regions [25, 26]. The limit of the essential medical care offices to give malignant growth separating the networks is as yet insufficient. The ICI financing for local area malignant growth program has been low. Up to 2015, the ICI's (the lone exhaustive malignant growth place in India with the command to lead public disease control program) supported yearly government spending roof accommodated just four significant distance (territorial/provincial regions) and eight brief distance malignancy mindfulness and evaluating efforts for the whole country each year and just a week after week (each Friday) screening at the Foundation. During 2016-2019, the yearly financial plan for local area outreach significantly increased to cover 8 significant distance and 24 brief distance local area efforts and every day malignant growth wellbeing schooling, data,

and screening administrations at ICI. From the ICI's yearly work plan from 2016 to 2019, this addresses an annualized normal financial plan of 54,000 USD each year. This sum bars the World improvement bank subsidizing that was focused on for advancement of disease data materials for networks and wellbeing laborers and preparing of region PHC laborers. This financing pattern stays insufficient for local area malignancy counteraction and early recognition benefits broadly. In the present circumstance of restricted financing there is need to work with the networks as accomplices to use assets for expanding admittance to essential counteraction and early recognition of malignancy in India. In the interim, in the ABCD model, resources can be arranged into six classes; singular, affiliation, institutional, physical, association and stories related local area resources [27]. We conceptualized the ABCD model to local area malignant growth program dependent on the current settings in India as outlined in Figure 2. This is on the grounds that the utilization of the ABCD model change by setting, as indicated by Wildman et al "what works here doesn't work there" [28].

Research gaps:

- 1) What are the malignancy avoidance and early discovery needs in the networks? (wellsprings of information: past investigations and studies);
- 2) What achievable activities are expected to address those malignant growth counteraction and early recognition related requirements in the networks? (wellsprings of information: suggestions from past investigations, overviews, information on the wellbeing framework and strategy, proof of works in related settings & proposals from worldwide wellbeing bodies);
- 3) What resources the networks to use disease avoidance and early discovery? (wellsprings of information: past examinations, reviews, information on the wellbeing framework, strategy and sociocultural standards and qualities);
- 4) What outside-controlled assets are expected to give admittance to malignancy avoidance and early location administrations locally? (Wellsprings of information: wellbeing framework, approaches, rules, and suggestions).

Chapter 3: Research Methodology

3.1 Research Design

- **Study Design:** Integrative exploratory cohort model based study (ABCD);
- **Study Type:** Analytical Study (Comparative study)
- **Research Data:** Secondary data research for ICI community participation and HMIS data for oncological activity from THM Mumbai and TMC Kolkata.
- **Research Location/Time:** TMH Mumbai and TMC Kolkata; Data collected from July 2016 to December 2019 and Oncological activity status from Jan 2020 to July 2020.

3.2 Data Collection tool and technique

We investigated the quarterly ICI - CCCP revealed yield information without singular identifiers from July 2016 to December 2019 to look at the ICI - emergency clinic based and exceed malignant growth mindfulness and screening administrations yields as a transient evaluation of the commitment of ABCD model-based effort. In cost correlation, the normal unit cost for malignancy screening depended on monetary assessment of disease care done in different nations, eminently; Cervical screening; Quentin et al [9], Cervical pre-cancer treatment; Quentin et al [9], Breast screening, Gross et al [10]. The normal cost for overseeing beginning phase and late-stage malignant growth the board depended on; Cervical [7] ; Ostensson et al (2015), Breast; Sun et al [11], Prostate cancer; localized, Fourcade et al [12] and regional, De Oliveira et al [13, 14]. The authoritative overheads and acquisition measure related expenses were excluded from these contemplations. Patterns were outwardly looked at utilizing transient bends. The statistical analyses were determined using R (R Development Core Team, version 1.2.5014) and Excel Macros (Microsoft, version 2013).

3.3 The community partnership outreach model (ABCD)

As apprehension in the ABCD model in Figure 2 as a continuous local area program, in outreaches, local area accomplices assembled the local area, masterminded settings and other coordinations including broad communications (televisions and radio) broadcast appointment utilizing their assets. ICI gave coordinations like gear and supplies and multidisciplinary HR to give outreach administrations. Local area wellbeing focuses, religious establishments, local

area based associations (CBOs), people group political pioneers, and working environment directors were the key local area based organizations and designs through which we gave malignancy essential counteraction and early discovery administrations to the networks. We utilized portable mammography van furnished with mammography and specialist/nurture space for clinical bosom test and mammography. We utilized a computerized rectal test and PSA fast tests joined with clinical rules for prostate screening. Other malignant growth dubious introductions and were clinically analyzed and alluded for additional examination at the ICI.

3.3 Oncological community activity indicators during COVID-19

Month to month oncological local area action pointers were separated utilizing electronic records and cross country technique codes Order from January 1, 2019, to May 31, 2020, in a malignancy care Tata memorial hospital, Mumbai (where the incidence of covid-19 were quite high) and Tata medical center, Kolkata (where the incidence of covid-19 were quite low). The day by day number of contaminated and perished in patients with Coronavirus and the month to month number of various strides of oncological consideration pathways and local area interest were gathered (Fig. 5). We determined month to month movement contrasts, zeroing in on the half year Coronavirus pandemic, to distinguish shift and to think about screening, histopathology, DAP and MTBM for the two regions (TMH Mumbai and TMC Kolkata).

Years	No of Community partnership	No of Outreach activity	Community sponsored activities	Govt Sponsored activities	Total Health Educated	Health in	Educated outreach	Health at	Educated ICI
			TV/radio/talk	TV/radio/talk		Male	Female	Male	Female
2018/19	42	61	22	1	143436	30289	87563	5461	20123
2017/18	34	53	44	2	64488	16847	34737	3387	9517
2016/17	31	37	26	2	50838	6846	25286	3106	15600
Total	107	151	92	5	258762	53982	147568	11954	45240

Table 3.1: Community partnership, outreaches activities, and cancer healthcare education activities during 2016-2019 in India

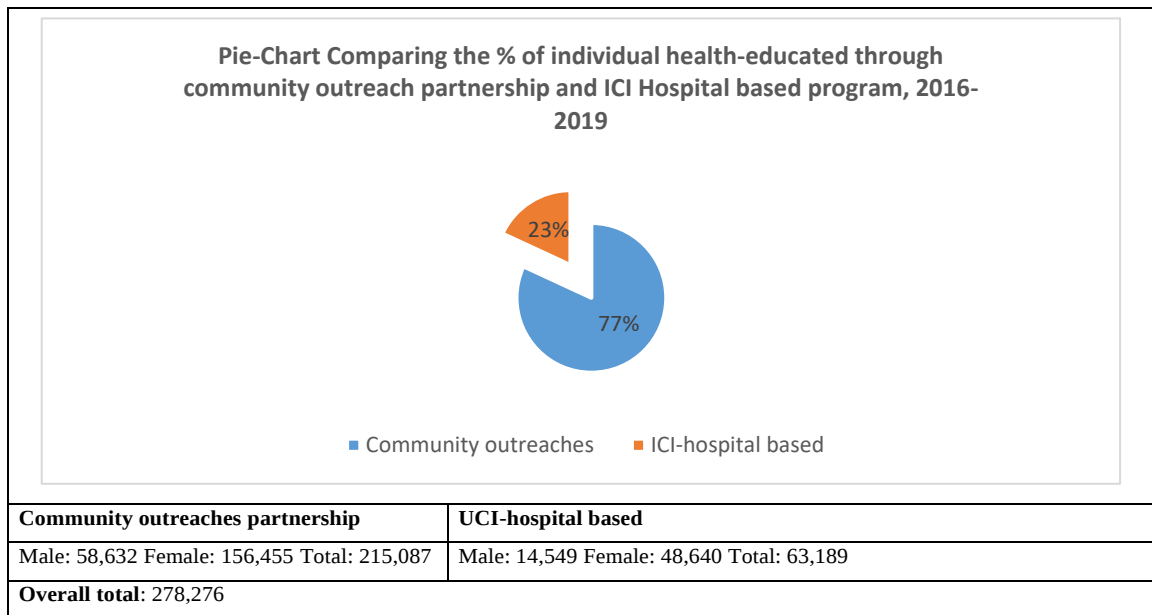


Figure 3.1: Pie-Chart Comparing the % of individual health-educated through community outreach partnership and ICI Hospital based program, 2016-2019

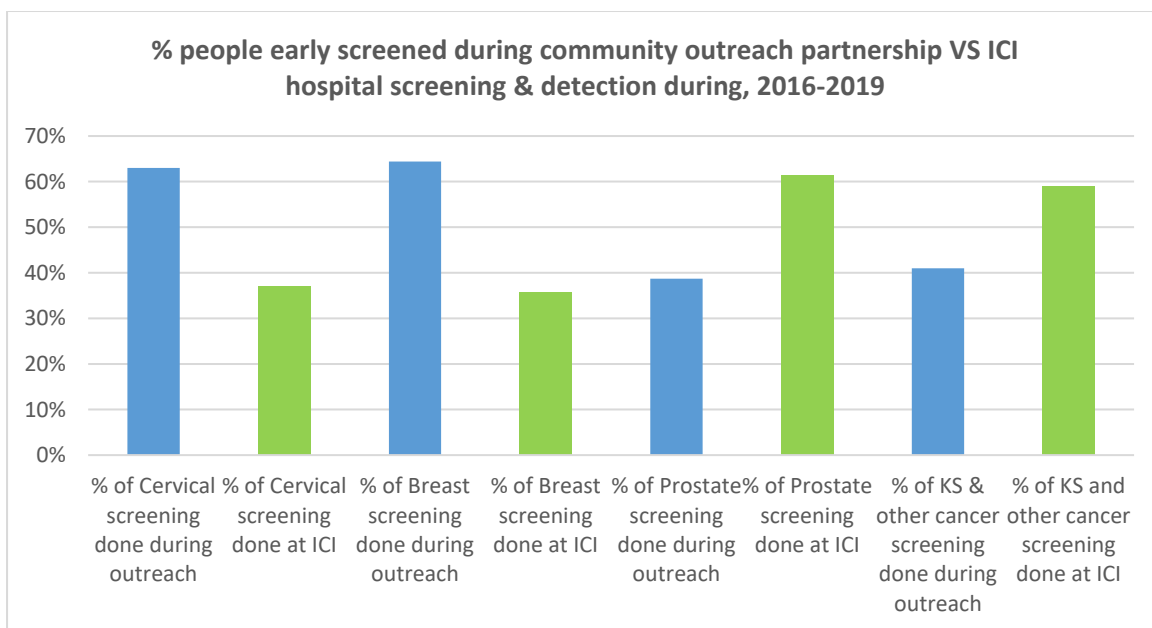


Figure 3.2: % people early screened during community outreach partnership VS ICI hospital screening & detection during, 2016-2019

Chapter 4: Results and Interpretation

4.1 Findings & Interpretation

4.1.1 Community contribution

Since July 2016 to December 2019, the local area outreach participation model worked with more than 107 neighborhood accomplices with more than once to direct 151 efforts in order to expand disease mindfulness and screening & detection administrations in rustic difficult to reach and difficult to live populaces in India (Table 1). The quantity of efforts and local area accomplices worked with shows expanding pattern over the long term. (Table 1). Of the all out number of individuals wellbeing taught in bunch meetings and on essential counteraction of malignant growth, early screening & identification and disease the board, 209,685 (78.9%) were reached through the effort model (Figure 3 and Table 1). Ninety-two (95%) of disease mindfulness radio and television syndicated programs led were supported by nearby accomplices (Table 1). Descriptive of individuals screened and detected for respective cancer type with screened positive rates for both community based as well as ICI hospital based screening centers are shown below (Table 2 and Table 3).

		Outreach with	Community	Support	ICI-Hospital	Based	Screening
Year	Total screened in both outreach & ICI	Screened (% of total screened)	Positive (%)	Suspicious for cancer (%)	Screened (% of total screened)	Positive (%)	Suspicious for cancer (%)
2018/19	16 666	11 432 (67%)	457 (3.9%)	387 (3.4%)	5234 (33%)	271 (5.2%)	988 (18.9%)
2017/18	14 173	9059 (64%)	161 (1.7%)	179 (2.0%)	5114 (36%)	615 (12.0%)	1128 (22.0%)
2016/17	5490	2304 (42%)	115 (4.9%)	188 (8.2%)	3186 (58%)	309 (9.7%)	516 (16.2%)
Total	36 329	22 795 (63%)	733 (3.2%)	754 (3.3%)	13 534 (37%)	1195 (8.8%)	2632 (19.4%)
Breast screening							
Years	No. screened outreach with community participation			ICI hospital-based centers			
2018/19	16 186	11 067 (68.4%)	231 (2.1%)	221 (1.9%)	5119 (31.6%)	418 (8.2%)	317 (6.2%)
2017/18	11 774	8933 (75.9%)	164 (1.8)	216	2841 (24.1%)	313	179 (6.3%)

				(2.4%)		(11.0%)	
2016/17	6233	2014 (32.3%)	91 (4.5%)	134 (6.6%)	4219 (67.7)	296 (7.0%)	194 (4.6%)
Total	34 193	22 014 (64.4%)	486 (2.2%)	571 (2.6%)	12 179 (35.6%)	1027 (8.4%)	690 (5.7%)
Prostate screening & detection							
Years	No screened outreache with community participation			ICI-Hospital based screening centers			
2018-19	8901	3143 (35.7%)	215 (6.85)	97 (3.1%)	5658 (64.3%)	186 (3.3%)	274 (4.8%)
2017-18	1692	856 (50.6%)	107 (12.5%)	95 (11.1)	836 (49.4%)	249 (29.7%)	216 (25.8%)
2016/17	2172	905 (41.6%)	82 (9.1%)	141 (15.5)	1267 (58.4%)	114 (8.9%)	191 (15.1%)
Total	12 665	4904 (38.7%)	404 (8.2%)	333 (6.8%)	7761 (61.3%)	549 (7.1)	681 (8.8%)

Table 2: Outreaches activities and ICI hospital based early screening Comparison based on cancer suspicious lesion and Screened positive during 2016-2019 in India

4.1.2 Screening Pricing and Cancer Management from Pre-cancer or Early Cancer to Locally Advanced Cancer Stage

The pricing caused in Malignant growth screening was thousands creases not exactly the pricing of overseeing in any phase of disease illness (Table 4). These expense of overseeing malignancy increments of the phase of disease movement. Concerning malignant growth; the normal pricing for overseeing limited Cervical disease cases was multiple times (19000/8.14) more than the normal pricing of cervical cancer screening. The normal pricing for overseeing progressed cervical malignancy (Territorial and far off) were multiple times (38,736.07/8.14) more than the normal pricing of screening. The normal pricing for overseeing progressed Cervical malignant growth (Territorial and far off) was multiple times (38,736.07/28.92) more than the normal pricing of pre-disease treatment of Cervical sores utilizing cryotherapy. The normal pricing of overseeing progressed Cervical disease cases was two-folds (38,736.07/19000) more the pricing for overseeing confined Cervical malignant growth cases. In Breast malignancy situation; the normal pricing for overseeing limited Breast disease cases was multiple times (29724/48) more than the normal pricing of screening. The normal pricing for overseeing progressed Breast malignancy (Local or far off) was multiple times (62108/48) more than the normal pricing of bosom screening. The normal pricing for overseeing

progressed Breast disease was multiple times (62108/3000) more than the normal pricing of pre-malignant growth therapy of Breast disease injuries utilizing Lumpectomy. The normal pricing for overseeing progressed Breast malignant growth (Territorial or far off) was multiple times (62108/29724) times more than the normal pricing for overseeing limited cervical disease cases. With regards to prostate malignant growth; the normal pricing for overseeing confined Prostate disease cases was multiple times (7826/30) more than the normal pricing of screening. The normal pricing for overseeing progressed Prostate malignancy (Provincial or far off) is multiple times (19000/30) more than the normal pricing of screening. The normal pricing for overseeing progressed Prostate malignant growth (Local or far off) was 4.2 occasions (18 000/4286) more than the normal pricing of pre-disease treatment of Prostate injuries utilizing careful intercession. The normal pricing for overseeing progressed Prostate malignancy (Local or far off) was 2.8 occasions (18000/7238) more than the normal pricing for overseeing confined cervical disease new cases.

4.2 Trends and comparisons of monthly activity volume during COVID-19

Contrasted and a similar trimester in 2019, oncological action and local area support diminished significantly on every fundamental cancerous consideration pathway ventures amid the Coronavirus pandemic. The patterns & correlations of month to month action volume are portrayed in Table 5. Colorectal, oral and breast disease screening and detection test fell by 60% to 80%, separately. All exercises connected with examining, biomolecular investigations (−63%) and histopathological (−42%), was definitely diminished. An abatement in clinical declaration discussions (−50%) and oncogeriatric assessments (−66%) was additionally noticed; less clinical patient records (−28%; including new cancer patients; −31%) were audited for MTBM. Concerning, fundamental radiotherapy (−12%) and chemotherapy (−6%) encountered a slightly decrease, while cancerous surgeries were vigorously affected (−20%) through a 4-months' time span. All clinical examination preliminaries were halted for a half year. Albeit Coronavirus episode happened before and with greater force in Mumbai, it's anything but a similar effect in the two regions in regards to MTBM and DAP.

Outreach	Partnership	ICI hospital	Based
with	communities	Screening	

Year	No Screened	Medical Examination	Suspicious for prognosis	Medical Examination	Suspicious for prognosis
2018/19	1619	725 (44.8%)	101 (13.9%)	894 (55.2%)	172 (19.2%)
2017/18	1185	523 (44.1%)	66 (59.0%)	662 (55.9%)	136 (20.5%)
2016/17	1269	415 (32.7%)	45 (10.8%)	856 (67.3%)	72 (8.4%)
Total	4073	1663 (41.0%)	212 (12.7%)	2412 (59.0%)	380 (15.8%)

Table 3: Different kind of oncological suspicious lesions dependent over medical examination during 2016-2019 in India

Cancer type screened	No. Screened (a)	Average pricing of screening US\$ (b)	total pricing incurred US\$ (c)	precancers/ screen positives (d)	pricing of treating precancerUS\$ (e)	in treating precancers US\$ (f)	Total price of screening US\$	Suspicious cancer lesions (i)
Cervical	36 329	6.12 ^a	2 223 334	1928	27.96 ^a	53 907	2 277 241	3386
Breast	34 193	42 ^a	1 436 106	1513	3000 ^a	4 539 000	5 975 106	1261
Prostate	12 665	30 ^a	379 950	953	4286	4 084 558	4 464 508	1014
Total	83 187		4 039 390	4394		8 677 465	12 716 855	5661

Table 4: Contrasting the pricing of early screening & detection, pre-malignant growth therapy, and management of locally advanced and progressed disease.

Chapter 5: Discussion

5.1 The contribution of working with communities as partners to leverage health resources

More people were addressed through local area organisations in terms of disease mindfulness efforts through wellness training and the use of broad communication channels on vital anticipation and early recognition of malignancy. For example, 77.9% of people were informed about their health as a result of activities, and 92 (95%) illness awareness television and radio programmes were sponsored by local community partners. This is most likely due to the considerable distance and associated pricing of visiting a tertiary emergency clinic for malignant growth data and screening administrations. Bringing administrations closer to people, particularly those in difficult-to-reach and difficult-to-live-in provinces, is thus an opportunity for local residents. In several countries, it has been demonstrated that an effective effort model can connect the malignancy wellbeing value difference, notably for provincial residents and socio-financially disadvantaged people. South Africa, Nigeria, Canada, and the United States used a variety of disease prevention strategies to increase access to critical countermeasures and early location administrations [31-33]. As a result, the ABCD model may be envisioned for use in each of these health-improvement situations. In the United Kingdom, for example, an assessment of the ABCD model in a school context concluded that it was successful, and that drawing in school networks using the ABCD model was a positive practise [34]. The ABCD model's requirements have also been shown to improve the health of people with chronic diseases through community health nursing interventions [35]. This may be the case because some people may elect to go to the emergency room only when they believe they are in the most danger or are prompted by early warning signs and symptoms. This demonstrates the benefit and practicality of collaborating with networks as close allies, particularly in critical disease prevention and early detection. Places such as local area wellness centres, schools, veneration locations, and working environments are coordinated roadways for association and local area based resources in people groups. Local essential medical care offices, religious institutions, local area based associations (CBOs), people group pioneers, and work environment chiefs are examples of creative local area based organisations and structures that could be used to organise malignancy essential counteraction and early recognition administrations to the networks. Inferring that the most significant portion (85.5%) of the effort pricing was absorbed by local area organisations. This segment of 85.5% was covered by the

money related and non-financial local area resources like game plan of settings, neighborhood local area wellbeing offices, and social preparation among others. The ICI's administration subsidizing was utilized in screening supplies and staff stipends. These delineate the advantage of working as a team with networks as accomplices and exceeding the provincial populace. In particular it is the expense sharing, influence for scant assets and expanded ability to support programs that advance essential counteraction and early discovery of disease. Given how low-pay environments are characterised by a lack of interest in public malignant development control, any commitment of locally accessible local area resources, however small, should not be overlooked.

5.2 Screening Pricing and Cancer Management from Pre-cancer or Early Cancer to Locally Advanced Cancer Stage

5.2.1 A preview into the pricining of malignancy screening and treatment

The two most common pricining methods for medical care administrations are "steady" and "base case" scenarios [36]. Consistent financial expenses contain two major advancements for ease of use: (1) the fixes approach, which is the quantity of assets used, and (2) unit expenses or pricings are allocated to assets burned-through [36, 37]. The "Base-case circumstance," on the other hand, is used. The projected assets used per customer or patient are increased by their evaluated unit pricings in the "Base-case situation," and the influence of elective suspicions for input boundaries is tested through affectability exams [36, 37]. TABLE 3 The "Base-case situation" raises concerns about the pricings of information sources, the number of customers screened and treated by each specialist co-op, the capital and staff working season, the pricings of preparing, the length of screening or patient administration per customer [36, 37].

5.2.2 Screening and treatment pricing

When you consider the pricing of cancer awareness and screening versus the pricing of managing disease (conclusion, planning, therapy, and follow-up), the unit pricing of cancer screening is thousands of times more than the unit pricing of dealing with any phase of malignant growth. The pricing of monitoring malignant development has been demonstrated to increase with the stage of disease progression [7]. The normal unit pricing for managing restricted Cervical disease patients, for example, is multiple times more than the normal unit

pricing for cervical screening in this examination. The normal unit pricing of monitoring an advanced cervical cancer (whether local or distant) is many times more than the average unit pricing of screening. The regular unit pricing of supervising advanced Cervical malignancy (Territorial or distant) is many times more than the normal unit pricing of pre-disease cryotherapy treatment of Cervical sores. The normal unit pricing of overseeing cases with advanced cervical malignancy is two times more than the unit pricing of overseeing instances with restricted cervical illness. Varying types of malignant development have different devastating pricings. The pricing of supervising restricted Breast malignancy cases, for example, is several times more than the pricing of screening. The normal expense of monitoring an advanced breast cancer (whether territorial or distant) is several times that of breast screening. The typical pricing of monitoring advanced Breast cancer is several times more than the typical pricing of pre-disease therapy for Breast cancer injuries using Lumpectomy. The normal pricing of monitoring advanced breast disease (whether territorial or distant) is several times more than the normal pricing of monitoring confined cervical cancer patients. The normal expense of supervising limited Prostate disease instances is numerous times more than the normal pricing of screening in terms of prostate malignant growth. The normal expense of monitoring progressed prostate cancer development (whether local or distant) is multiple times that of screening & detection. The average pricing of managing advanced prostate cancer (whether provincial or distant) is 4.5 times greater than the average pricing of pre-disease therapy of prostate injuries with attentive intervention. The ABCD model interprets the caliber of neighbourhood area individuals, affiliations, and the consistent elements of both public and private organisations in this manner and bring it to light in collaboration with potential neighbourhood health and development mediations [38-40]. As a result, rather than only profiling a community's health requirements, we also need to look at the resources available in the area, activate these resources, and learn how to use these resources for cancer control administrations. This isn't "another" way to approach general wellbeing; nevertheless, it recognises the critical role of networks in general wellbeing practise [41]. In a subjective meta-combination, Rita Agdal et colleagues discovered that ABCD-driven local area wellbeing programmes concentrating on childs and adolescents had the more activity of investment for health advancement intercessions [42]. That reaffirms this preventing malignancy is one of the best use of resources, and that if malignancy persistent in an individual, it have to be diagnosed early such that treatments outcomes & pricings were favourable for both the individual & public authority. As a result, deliberate efforts are essential to provide like networks, particularly provincial, difficult to reach, & difficult to survive populaces, over reasonable or

pricing-share cancer anticipation and dissemination. Administrations in a few low-wage countries In any event, the best option is a completely independent public cancer control programme.

5.3 Dramatic Changes in Community Participation for Cancer Care in COVID-19

Coronavirus significantly affects all parts of the malignant growth care pathway, especially as far as screening, finding, and careful treatment. As far as we could possibly know, this is the main examination evaluating the general administration and local area interest of malignancies from early screening to cancer treatment and patient follow-up. Screening and a decline in number of patients for screening and detection-related examples were seen for numerous different nations. Decrease in malignant growth analyze have been listed in India, Australia, Italy and other European nations, especially for colorectal and oral tumors. Essential consideration was additionally affected, with pressing disease references falling by 40% in England. We encountered the comparable lessening in new cancer related references. In Spain, OPD visits diminished, & far off visits utilizing telephones and web turned into the norm. As in U.S. tertiary consideration malignancy focus (MD Anderson Disease Center), cancer careful considerations were definitely diminished in light of restricted accessibility of wellbeing faculty, calculated assets, and accessible beds. Confronting this asset shortage, a global cooperative gathering prescribed a reasonable and predictable prioritization to expand medical advantages, thinking about the patient, its infection, and its guess. This worldwide reduction in all fundamental local area cooperation and oncology care pathway steps diverges from the overall security of chemotherapy and radiotherapy use. Patients anteriorly determined to have malignancies kept on being dealt with.

Constraints of the current examination remember absence of data for patient qualities and guess. The results of postponement in conclusion and treatment have just been assessed in model-based investigation. Correlative subjective examinations are justified to assess the genuine effect on malignant growth results. The current examination is as yet in pace, & through a more drawn out patient flow HMIS data, we would actually want to investigate post-lockdown volume of cancer movement and effect of potential further Coronavirus plague wave (second and third wave) corresponding to sorts of malignant growth.

TMH

TMC

Oncology Care Pathway	Monthly Activity Indicators (%)	Jan	Feb	Mar	Apr	May	Jun	Jan	Feb	Mar	Apr	May	Jun
Screening	Mammograms	2%	3%	-8%	-58%	-70%	-60%	5%	11%	8%	-14%	-28%	-35%
	Overall FIT Performed	8%	12%	-10%	-30%	-66%	-34%	10%	8%	2%	-8%	-21%	-26%
	Positive FIT	-1%	3%	-5%	-11%	-7%	-9%						
Histopathologic Anaysles	Biopsies	14%	10%	4%	-27%	-32%	-24%	12%	18%	4%	-20%	-26%	-35%
	Surgical specimens	-8%	-	-11%	-35%	-30%	-28%	16%	12%	5%	-22%	-31%	-48%
	Extemporaneous	42%	25%	20%	-23%	-62%	-38%						
	Cytology	-2%	19%	-29%	-70%	-28%	-25%	3%	7%	7%	-5%	-12%	-17%
	Samples (Overall)	0%	6%	-4%	-31%	-46%	-28%	4%	10%	2%	-12%	-21%	-29%
Biomolecular Analyses	Germline Analysis	22%	16%	-20%	10%	-39%	-15%						
	Colorectal Cancer	18%	13%	-12%	-25%	-32%	-17%	20%	8%	5%	-10%	-16%	-21%
	Somatic Analysis	8%	6%	-5%	-20%	-34%	-15%						
	Others							28%	23%	15%	2%	-10%	-18%
	Biomolecular Analysis	28%	-	-18%	-30%	-38%	-19%	15%	13%	8%	3%	-16%	-21%
Assessment and Diagnosis	PET/CT Performed	20%	13%	7%	-5%	-18%	-16%	48%	38%	23%	-2%	-16%	-24%
	Oncogeriatric Evaluation	32%	26%	12%	-3%	-15%	-12%	12%	26%	22%	2%	-12%	-20%
	Medical Diagnosis	28%	21%	6%	-8%	-20%	-21%	21%	18%	13%	3%	-2%	-10%
	Assigned personalized care	16%	17%	8%	-3%	-11%	-23%	34%	27%	12%	0%	-5%	-6%
	Post diagnosis consultation	23%	18%	-3%	-16%	-25%	-28%	18%	14%	20%	-2%	-8%	-14%
Multidisciplinary Tumor Board	First time reviewed patient referred from review center	52%	33%	-1%	-18%	-22%	-16%	20%	12%	15%	1%	-6%	-9%
	First time reviewed patient referred from external center	36%	27%	-2%	-22%	-30%	-26%	15%	11%	18%	-3%	-2%	-4%
	First time reviewed patient	28%	21%	-4%	-10%	-21%	-22%	12%	16%	6%	-4%	-10%	-12%
	Reviewed patient files	33%	27%	-3%	-12%	-24%	-22%	8%	13%	12%	-2%	-3%	-8%
Cytotoxic Chemotherapy	Implanted venous devices	25%	16%	-10%	-18%	-26%	-25%	18%	14%	22%	10%	-22%	-30%
	Occupation rates	18%	10%	-14%	-20%	-27%	-30%						
	Daycare admission for chemo	22%	14%	-10%	-25%	-32%	-26%	54%	32%	28%	-2%	-11%	-24%
	Regular oncology outpatients	16%	5%	-2%	-12%	-20%	-26%	6%	11%	3%	-4%	-9%	-11%
	Prepared Chemotherapy bags	-2%	-7%	-18%	-24%	-30%	-21%	2%	3%	7%	-2%	-8%	-11%
	Hepatic chemoemobilization	-3%	-7%	-18%	-32%	-45%	-33%						
Surgery	Carcinological Surgery	30%	18%	11%	-8%	-10%	-14%	18%	22%	26%	-10%	-18%	-21%
Radiotherapy	CT simulation session	25%	10%	-8%	-20%	-27%	-22%	12%	10%	21%	-6%	-12%	-20%
	Courses of radiotherapy	15%	18%	6%	-7%	-20%	-12%						
	Regular radiotherapy patients	22%	10%	12%	-2%	10%	18%						

Table 5: Month to month oncological movement volume distinction somewhere in the range of 2019 and 2020. Month to month patient flow volume of cancer exercises (%) determined with (present year action – previous year movement)/previous year action and are represented

from shading variety through greenish (rising action) to redish (diminishing action). Hazy situations show inaccessible information for the main investigations of the examination.

Chapter 6: Conclusion

Working in a joint effort with networks and local area based associations through resources based local area improvement participation development model is attainable. That aides for pricinging share, influence in scant assets and it is anything but a natural way to deal with connecting malignant growth wellbeing inconsistencies. In low-and center pay nations with set number of malignant growth clinics and early location places, expanding populace disease attention to advance avoidance and early identification should use from local area based resources through a coordinated effort model as a transitional arrangement. Purposeful endeavors are needed to community outreach networks for less-pay country with advanced malignant growth early recognition, screening and preventive administrations. Nonetheless, impartial & financially savvy complete public malignant growth control program is an essential.

Chapter 7: Recommendation

The study suggests there is a reduction in all Community outreach activities and health education session during covid pandemic which results in decline in number of early screening & detection and other oncological care pathway activities in India and other developing countries, which can eventually results to rise in cancer burden. The cancer burden can foster out of pocket expenditure of individuals if not screened in early stages of cancer. Thus the study gives an idea to policy makers and government authorities to organize such education and outreach activities to reduce the burden and spreading awareness about early screening and detection of cancer. Moreover the high risk or prevalence population should be screened with yearly universal screening program. The lifestyle

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