**Scope of Work**

Mentor-Mentee Program

**Concept Note: Determining the Economic Burden of Diagnostic Delay for Colo-Rectal Cancer Care in India.**

**Background.**

**Disease burden of Cancer**

An epidemiological transition is happening globally and Non -Communicable Diseases are replacing other conditions as the major cause of mortality and morbidity. The situation is no different in India, where NCDs are estimated to account for 61% of all deaths in which cancer is responsible for 9%. (1). Analysis of National Cancer Registry Data reveal that the cancer burden in India is set to increase by 12% by 2025, which will bring the number of cancer cases in India to 15.6 lakhs. (2). Cancer in adolescent and young population is estimated to be 25-30% of all cancers diagnosed and maximum cases are seen between 35-39 age group in both genders.(3)

**Financial burden of Cancer**.

The financial burden caused by cancer is both direct and indirect. The median cost for the treatment of common cancers in India such as breast, lung, cervix, colorectal etc. is Rs. 4-6lakh and could be as high as Rs.20 lakh. (4). Treatment cycles of cancer therapy involve frequent and prolonged hospital stays, resulting in significant wage loss for the patient and bystander. Prolonged hospital stays result in other indirect expenses such as lodging, food, water etc. In addition to this, the negative impact of cancer on the health-related quality of life of the patient often render the patient incapable of working, and the family suffers from a loss of income, particularly in the case of young patients. The annual economic cost of cancer through health care expenditure and productivity cost globally was estimated at US$ 1.16 trillion. (5)

**Impact of Late diagnosis.**

Close to 70% of cancers in India are diagnosed in the late stages owing to several factors that include delay in diagnostic pathway, failure of patient to act timely or poor public awareness for early symptoms.(6,7). This necessitates more intensive management regimens and advanced surgeries that drive up the cost of treatment. Late diagnosis also results in poorer health outcomes and increase in consequent indirect economic burden. Hence, early cancer diagnosis could be cost-saving both from a health system and a societal perspective. Studies in high-income countries have shown that treatment for cancer patients who have been diagnosed early are 2 to 4 times less expensive compared to treating people diagnosed with cancer at more advanced stages.(5).

**Rationale of the study.**

Cancer is one of the leading causes of mortality and morbidity in India and delayed cancer diagnosis result in poorer health outcome and increased financial burden to both the families and society. It’s important to identity the drivers of delayed diagnosis of cancer and quantify the health and financial

impact of delay. This study will focus on Colo-rectal cancer as it is common in India, has early onset and proven screening modalities for early diagnosis are available.

**Objectives.**

1. Assess the increase in financial burden on families and society caused by delay in diagnosis of Colo-rectal cancer in India.

2. Identify the determinants of delay in diagnosis both at patient and health system level. 3. Explore the systemic changes that could improve the timelines of Colo-rectal cancer diagnosis.

**Methodology.**

1. A scoping review will be conducted to identify studies that describe the stages at which major cancers are diagnosed in India, the cost of treatment at different stages, the prognosis and quality of life of each stage and the impact of treatment in the progression of the disease. In addition, primary costing will be done at public and private cancer care institutes to capture the cost at different stages including out of pocket expenditure.

2. A decision tree/Markov model will be constructed to model the cost saved and QALY gained through timely diagnosis of cancer.

3. A literature review and key-informant interviews (K.I.I.s) will be conducted to understand the factors which influence the timeline of cancer diagnosis and the approaches adopted by high income countries to overcome those, in-order to develop a plan of action which has been adapted to the Indian context.

**Outcomes.**

1. An estimation of costs saved and QALYs gained through early diagnosis of cancer. 2. A compendium of the determinants of the delay in cancer diagnosis.

3. A plan of action to improve the time of diagnosis in India.

**Timeline.**

The expected timeline of the study is as follows.

1. September 10th- 23rd: Scoping Review & Markov Modelling

2. September 24th- October 21st: Primary Costing

3. September 10th- October 28th: Literature review

4. October 8th – October 28th: Key Informant Interviews.

5. October 22nd- November 18th: Primary Draft

6. November 21st – 1st December: Draft Revision and finalization.

|  | **Month\_1** | | **Month\_2** | | **Month\_3** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Scoping Review** |  |  |  |  |  |  |
| **Markov Modelling** |  |  |  |  |  |  |
| **Costing** |  |  |  |  |  |  |
| **Literature Review** |  |  |  |  |  |  |
| **K.I.I.** |  |  |  |  |  |  |
| **Primary draft** |  |  |  |  |  |  |
| **Final report** |  |  |  |  |  |  |

**References.**

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2. Report predicts 12% rise in India’s cancer burden. The Hindu [Internet]. 2020 Aug 18 [cited 2021 Aug 26]; Available from: https://www.thehindu.com/sci-tech/health/report-predicts-12-rise-in indias-cancer-burden/article32386880.ece

3. Kalyani R, Das S, Kumar MLH. Pattern of cancer in adolescent and young adults--a ten year study in India. Asian Pac J Cancer Prev. 2010;11(3):655–9.

4. Can you bear the cost of cancer treatment? Find out how to buy the best cover - The Economic Times [Internet]. [cited 2021 Aug 26]. Available from:

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7. Allgar VL, Neal RD. Delays in the diagnosis of six cancers: analysis of data from the National Survey of NHS Patients: Cancer. British Journal of Cancer. 2005 May 31;92(11):1959.

**Submitted by**

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Towards the selection process for “Mentor-Mentee program for young researchers” by IHSC in collaboration with NITI Aayog & Access International.

**Compensation**

The Consultancy fee for this engagement is USD 5,000(Inclusive of all indirect taxes). The payment will be disbursed in three instalments, in the proportions given below and the consultant should provide the invoice against each deliverable.

|  |  |  |  |
| --- | --- | --- | --- |
| **Instalment** | **Percentage** | **Amount (USD)** | **Deliverable/ Milestone** |
| 1 | 25 | 1250 | On Signing Contract |
| 2 | 25 | 1250 | On submission of literature review and methodology (including stakeholders for a qualitative interview and analysis plan) approved by the Mentor, and |
| 3 | 50 | 2500 | On submission of the final deliverable approved and accepted by the Mentor & AHI Team. |

**Term**

This engagement shall commence upon execution of this Agreement. The Agreement shall continue in full force and is effect from **September 15, 2021** to **December 15, 2021** and is extendable based on the review of Consultant’s performance by the Foundation and mutual concurrence on revised terms of engagement.