

CSR Proposal of Social Relevance

1. Title of Project: Point-of-care diagnosis for cervical cancer.

2. Background/Motivation:

India has 21% of the world's cervical cancer population and contributes to 20% of cervical cancer deaths globally. Every one women in two affected with cervical cancer in India dies (Globocan 2020). Rapid screening is the only way cervical cancer can be detected at early stages. But, research studies (*J Canc Educ* (2020). <https://doi.org/10.1007/s13187-020-01712-6>) show that majority of women from rural areas had poor knowledge about cervical cancer and its screening, HPV infection and vaccine compared with urban areas. Currently, there are no national policies for implementing the regular screening of cervical cancer and vaccination is also taken up as a pilot project. The knowledge about symptoms, complications and risk factors is very low in both rural and urban areas. Most of the women are not even aware of the disease itself and suffers silently due the social stigma attached to it. Educated and urban women also do not undergo regular screening, because of the multiple medical appointments and discomfort during the diagnosis procedure. There is a critical and immediate need to create awareness among women about the disease, diagnosis and regular screening.

3. Objectives of the project:

- Screening for cervico-vaginal infections. We will (in collaboration with our clinical partners) collect the samples from women using conventional procedures by setting up medical camps and test them in-situ using the colorimetric technique and process the samples for laboratory analysis for confirmation.
- Enabling self-sampling. After the required ethical and clinical approvals, we plan to collect the samples (in collaboration with our clinical partners) using the fluid retriever that we designed and fabricated. The samples will be analyzed in-situ using the colorimetric technique and processed further for laboratory analysis.

4. Brief Methodology:

Plan of work

Year 1: Awareness camps for educating the women about the symptoms and risks of cervico-vaginal infections. We aim to set up awareness camps in collaboration with our clinical collaborators and educate the rural women about the importance of screening. The design and fabrication of the fluid retrievers will be carried out during this year.

Year 2: Medical camps for the diagnosis of the disease using conventional and colorimetric techniques. In collaboration with the clinical partners, we intend to set up medical camps and test as many women as possible using conventional techniques (Visual inspection with acetic acid/PAP smear) and colorimetric technique. The test results will be well documented and used for future analysis. The necessary approvals for testing the fluid retriever will be applied for.

Year 3: Medical camps for introduction of self-sampling devices (fluid retrievers). After the necessary medical and ethical approvals for the fluid retrieval are obtained, we intend to collect the samples using the fluid retriever and compare the results with conventional sampling procedures. The medical personnel would perform the sample collection and train the women over time.

5. Target population/Beneficiaries:

The target population will be women, both urban and rural. A self-sampling device will be developed which can be used at the comfort and privacy of their homes. The sample can be analyzed immediately or can be transported to laboratories for confirmed diagnosis. The proposed project would allow the women, irrespective of their social and economic backgrounds to undergo cervical screening frequently leading to early diagnosis and increased survival rates. Through this project, we also aim to create awareness about the importance of screening and regular screening for the early detection of cervical cancer.

6. Expected Outcome/Deliverables:

- Awareness among rural women about cervical cancer symptoms, risk factors and importance of screening.
- Screening for cervico-vaginal infections by conventional procedures in collaboration with clinical partners.
- Screening and validation of a self-sampling device in collaboration with clinical partners.
- Organizing periodic workshops and screening camps for the detection of cervical cancer and to support women with information and resources related to screening is our long term goal.

7. Timeline and Budget:

	Year 1	Year 2	Year3
Budget (in Rs lakhs)	8,10,600	8,63,100	8,63,100
Milestones	Awareness camps & fluid retriever fabrication.	Medical camps for screening of cervico-vaginal infections (Conventional).	Medical camps introducing the fluid retriever device for self-sampling.

Proposed expenditure on	Year 1	Year 2	Year 3	Line total
a) Manpower	3,72,000	3,72,000	3,72,000	11,16,000
b) Contingency	2,00,000	2,00,000	2,00,000	6,00,000
c) Travel	1,00,000	1,00,000	1,00,000	3,00,000
d) Workshop/conference (Specific to project)	1,00,000	1,50,000	1,50,000	4,00,000
e) Equipment	0	0	0	0
f) Total	7,72,000	8,22,000	8,22,000	24,16,000
g) Overhead (5%)	38,600	41,100	41,100	1,20,800
Grand Total (f+g)	8,10,600	8,63,100	8,63,100	25,36,800

8. Proposer Name & Designation:

Dr. Aravind Kumar Rengan, Associate Professor, Dept. of Biomedical Engineering, IIT Hyderabad.