

## Breast Cancer Screening in Rural Area in Kannur District, Kerala, India: “The Kannapuram Model”- A Community Participatory Approach

Neethu Ambali Parambil, B Satheesan, D Adarsh, Maya Padmanabhan, Phinse Philip, TV Satheeshbabu  
*Malabar Cancer Center, Thaalassery, Kerala, India*

**Background/Objective:** Globally, breast cancer tops women cancers and accounts for 14% of all cancers in India. It is characterized by late-stage presentations due to fear and lack of awareness resulting in high mortality. Public education about cancer symptoms and importance of early detection can help in improving outcomes. Aims of this study are 1) to understand importance of community participatory approach in success of a screening program and 2) effectiveness of breast exam as screening device for breast cancer.

**Methods:** Continuous community awareness on breast cancer was conducted prior to a screening program in a panchayath in rural Kannur, Kerala, under leadership of local self-government with technical support from a tertiary cancer center. IEC material distribution, health exhibitions and awareness classes, cancer survivors meetings, cancer-protective food festivals, observation of cancer-related days were conducted. After obtaining gatekeeper consent from the panchayath president, single-day registration was done through a community participatory campaign, in which women 30 years and above were given dates for examination in a ten-day continuous camp. After taking consent, trained lady technicians tested each woman with an ibreast exam device, a non-invasive, low-cost strategy for early detection and recorded findings. This is a handheld mobile medical device with piezoelectric sensors that can differentiate varying tissue elasticity. Women were also given pamphlets on breast self-examination methods. Those detected positive were given counseling and referred to the tertiary cancer center for mammogram or ultrasound examination. A patient navigation system under the local self-government lady members helped women reporting at the cancer center in large numbers. Diagnosed cancer patients were treated at the tertiary cancer center. Expenses for investigation and treatment were met by the local self-government.

**Results:** A total of 3247 women above 30 years of age participated in the camp. There were 203 (6.2%) who were found positive on ibreast exam. All were referred to the tertiary cancer center for further evaluation, of which 137 underwent further investigations. There were 109 (79.6%) who had BIRADS 1 or 2. Ten (7.3%) subjects with BIRADS 3 were advised follow-up at 6 months. Out of 15(11%) with BIRADS 4, 14 underwent wire-guided biopsy, of which 2 were detected to have carcinoma, and none had any palpable abnormality on clinical breast examination. One with BIRADS 5 had early-stage carcinoma. A total of 97% of the participants reported the test as acceptable and recommendable to relatives. Awareness levels of the participants were found to be high. There were 67.5% who reported for further evaluation either at the tertiary cancer center or elsewhere as a result of continuous intervention and motivation. There were 28% of positive cases who failed to undergo further investigation in spite of continuous motivation by panchayath members, posing challenges to the successful implementation of the program. All cancer patients (0.092%) were treated at the tertiary cancer center and are in good health now.

**Conclusions:** ibreast exam is a useful preliminary tool for community-based screening, but is not a replacement for established screening modalities. The success of the program in terms of participation and follow-up was the result of community coalition forged prior to the initiation of camp through sensitization programs popularized as “The Kannapuram Model” Acceptable screening methods preceded by continuous community sensitization programs on cancer awareness may alleviate apprehensions and improve participation in early detection programs.