



# Clinical trial to implementation: Cost and effectiveness considerations for scaling up cervical cancer screening in low and middle income countries - **Evidence from India**

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June 10, 2016

# Study Objectives

- 1) Identify which activities and impacts would differ between clinical trial and program implementation;
- 2) Assess how cost estimates from clinical trials could be translated into resources required for program implementation;
- 3) Catalogue metrics required to monitor program operations and effectiveness; and
- 4) Provide process and tools to operationalize program evaluation to create a continuous learning environment.

# Evidence Base for Screening: Clinical Trials in India

International Agency for Research on Cancer



**CFCHC**

Ambilikkai



## **Cervical cancer prevention/screening:**

- Visual inspection and HPV DNA testing shown to be cost-effective based on several screening trials;
- Cost per cancer/pre-cancer detected: \$235-\$314;
- Programmatic:\$4-\$6; Screening delivery:\$8-\$10.

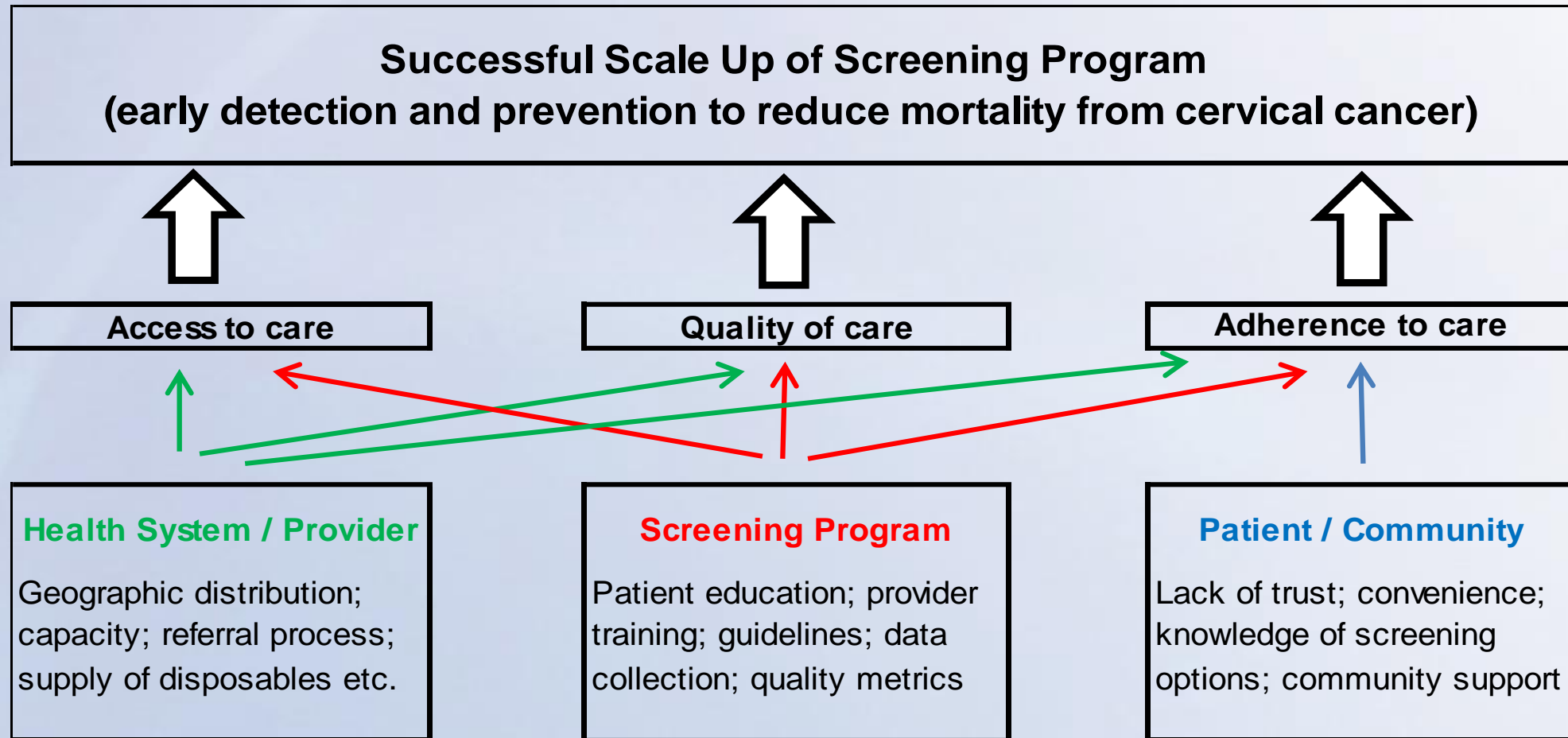
## **Oral Cancer Screening:**

- Visual screening randomized trial;
- Incremental cost per life-year saved of \$156 for the high-risk population of tobacco and/or alcohol users;
- Screening for under \$6 per person.

## **Breast Cancer early detection:**

- Randomized clinical trial of clinical breast exams (CBEs) is ongoing;
- Modeling studies report CBEs to be cost-effective: \$450-\$794 per life year saved.

# Scaling-up Screening: Multi-level Perspective



# Clinical Trial to Implementation: Cervical Cancer Screening Adherence Measures

	Randomized Screening Trials			Pilot Study
	Dindigul	Osmanabad	Mumbai	TNHSP
	VIA	VIA	VIA	VIA/VILI
	49,311	34,074	75 360	660,917
Screening	63.6%	78.5%	71.5%	<b>73.9%</b>
Diagnosis (colposcopy)	98.8%	98.7%	79.4%	<b>56.5%</b>
Treatment	72.0%	85.0%*	85.0%*	<b>13.0%</b>

\* Approximate estimates based on treatment for precancer and cancers

## Cost per Women Screened – Dindigul

	INR	US \$
<b>Programmatic Cost</b>	<b>255.89</b>	<b>4.26</b>
Provider Training	44.62	0.74
Patient Education/Recruitment	7.24	0.12
Research & Data Collection	96.50	1.61
Management	81.52	1.36
Administration	26.01	0.43
<b>Screening Delivery Cost</b>	<b>403.22</b>	<b>10.42</b>
VIA Screening	145.69	2.43
Labor	46.50	0.77
Consumables/Equipment	50.66	0.84
Screening/Outreach Clinics	48.53	0.81
Diagnosis/Treatment	161.73	6.39
Travel	95.80	1.60
<b>Total</b>	<b>659.11</b>	<b>14.68</b>

INR - Indian Rupee Rates

## Complex Interactions between Cost and Effectiveness

Key activities	Cost of scale-up versus clinical trial (cost per screen)*	Effectiveness impact	Potential impact of inadequate resources for activity or component
Provider Training	↓ or =	Quality	↑ Cost (over diagnosis) ↑ Harms (over treatment) ↓ Outcomes (under diagnosis)
Patient education	↓	Adherence	↓ Compliance with screening ↓ Outcomes ↑ Cost (treatment & patient time)
Quality Monitoring & Program Evaluation	↓	Access Quality Adherence	↓ Program Effectiveness ↓ Program Cost-Effectiveness

# Cancer Screening Program Indicators (CSPI)

Categories	Examples
Access to Care	1) Number and distribution of health workers who have training in cervical cancer screening 2) Proportion of women 30-49 receiving cervical cancer screening
Quality of Care	3) Percent of VIA screenings that test positive by age group (10 year increments; 20-29; 30-39 etc.) 4) Time between positive screen and diagnosis
Adherence to Care	5) Proportion of the eligible women who are compliant with screening, diagnosis and treatment recommendations
Outcomes	6) Proportion of precancerous lesions and early stage diagnosis 7) Mortality rate from cervical cancer aged 30-70 years
Cost	8) Cost per screen or cancer diagnosed 9) Cost per Quality Adjusted Life Years (QALYs)



## Cancer Screening Program Indicators (CSPI) - Detail

**Indicator:** VIA screening positivity

**Definition:** Percent of VIA screenings that test positive by age group (10 year increments; 20-29; 30-39;40-49;50-59; 60-69; 70 plus)

**Measurement:** Number of positive VIA screens (age group) / Total number of VIA screens (age group)

**Data Source:** Program monitoring database (based on standard definitions provided for the compilation of the minimum data elements)

**Benchmark/Target:** Based on rates obtained in clinical trials and pilot studies

**Reporting Metrics:** Rates as percentage; variation across sites within the program; trend over time (in years)

# Moving forward with cancer screening programs ....

