



A model of affordable cancer care for low and middle income countries

Affordable Cancer Care: The Indian National Model



Dr. Rajendra A. Badwe
Director
Tata Memorial Centre

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How many are affected? (n / 100,000)

	Incidence	Deaths
• India Rural	: 48	60
Semi-urban	: 65	
Urban	: 100	
• UK	280	116
• US	363	176

Preventable cancers (75%)

Keep the numbers down

- ❖ **40% Cancers are Tobacco related**
- ❖ **15% Cancers are due to Obesity (Breast)**
- ❖ **15% Infections (cervix, stomach, penis)**

Screening

- Only screening common cancers (diseases) that have effective treatment
- Screening increases incidence of cancer so unless there is reduction in mortality no cancer should be screened
- These conditions are satisfied only for cervical (> 30 yrs), oral cancer and breast cancer (>50 yrs)
- More research needed to define sub-populations that may benefit from prostate, lung, colorectal and any other cancer screening.

Effect of VIA Screening by Primary Health Workers: Randomized Controlled Study in Mumbai, India

Surendra S. Shastri, Indraneel Mittra, Gauravi A. Mishra, Subhadra Gupta, Rajesh Dikshit, Shalini Singh, Rajendra A. Badwe

J Natl Cancer Inst

Cervical Cancer Mortality

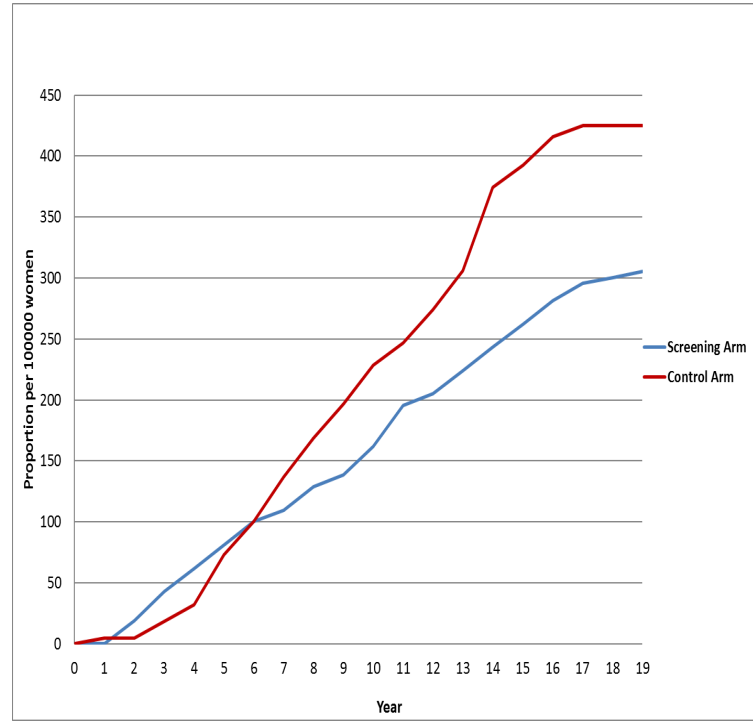
Cervical cancer mortality	Screened Group				Control Group				MRR (95% CI)	p
	N	PYO	Crude Rate (95% CI)	AAR (95% CI)	N	PYO	Crude Rate (95% CI)	AAR (95% CI)		
	67	602696	11.12 (9-14)	14.44 (13-16)	98	604228	16.22 (14-19)	19.83 (18-22)	0.685 (0.535-0.878)	0.003

Crude and Age adjusted rates are per 100,000 women years of observation.
MRR = Mortality rate ratio calculated by 'Poisson regression model' after adjusting for 'cluster design'.

Breast Cancer Mortality (≥ 50 years)

Arm	Cases	Deaths	Person Years	Mortality per 100000
Screening	182	64	259955.2	24.62
Control	223	93	268133.1	34.68

Rate Ratio: 0.71; CI: 0.535 – 0.941; P value: 0.02



Hub

- One hub in every state / every 50 million (52 in 2035) population
- Expected cancer burden per 50 million – 40,000 (55,000 in 2035)
- 350 bedded facility
- Approx Rs 650 cr Capex
- Annual running costs (Opex) – Rs 90 cr
- 50-70% of opex can be generated from paying patients and the rest from govt insurance or grant

Spoke

- One spoke / every 15 million (13 million in 2035) population
- Expected cancer burden per 15 million – 10,000 (15,000 in 2035)
- 150 bedded facility
- Approx Rs 250 cr capex
- Opex – Rs 30 cr
- 50-70% generated from paying patients and the rest from Govt insurance or grant

TMC Model

- Hub & spoke model (Hub for every 4-5 crore population & Spoke for every 1-2 crore) (Punjab, Assam, UP, AP, Maharashtra, Bihar, Odisha)
- TMC model looking after the whole spectrum of society (better understanding of disease & sustainable for service)
- QA/QC of what's being delivered is on a dashboard and Peer reviewed every 5 years

Cost of 6 Months of Treatment

Regimen	USA	Argentina	Egypt	India	Romania	S. Africa
Tamoxifen	678.96	111.24	45.00	8.28	67.32	114.12
Megestrol	763.20	118.08	-	290.88	267.84	-
Anastrozole	2,426.54	1,305.72	519.43	128.45	1,225.39	1,103.99
Goserelin	2,707.14	3,181.62	529.98	962.45	943.02	1,170.00
CMF	2,928.70	664.01	319.72	70.57	711.47	546.03
AC	2,436.58	1,207.68	747.95	196.82	965.82	1,028.16
Capecitabine	22,733.76	7,654.08	3,160.64	2,551.36	3,769.92	5,140.80
Paclitaxel	15,748.12	19,968	8,320	2,690.97	4,548.04	7,543.58
Docetaxel	26,017.74	15,483.80	9,139.77	2,646.17	14,275.95	17,874.41

Health care Delivery

India will have to address its healthcare access challenges if economic growth is to be sustained

Health Care delivery is not a business but it needs to be run like one

This is the only 'business' that strives towards its irrelevance



TMC Hub & Spoke 0.15 M patients
NCG Centres 0.70 M patients
Out of total of 1.15 M patients

Thank You