



A population based multicentric observational study of cervical cancer screening in India

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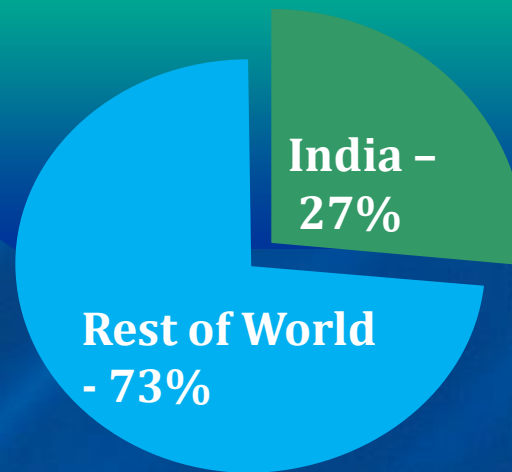
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Why is Cervical Cancer important to us?

India makes up only **16%** of the world's population
But has **27%** of the world's total cervical cancer cases and deaths every year



New cervical cancer cases diagnosed annually

India : 1,32,082

World : 4,93,243

Deaths due to cervical cancer annually

India : 74,118

World : 2,73,505

Cervical Cancer – Disease Burden

Cervical Cancer : India

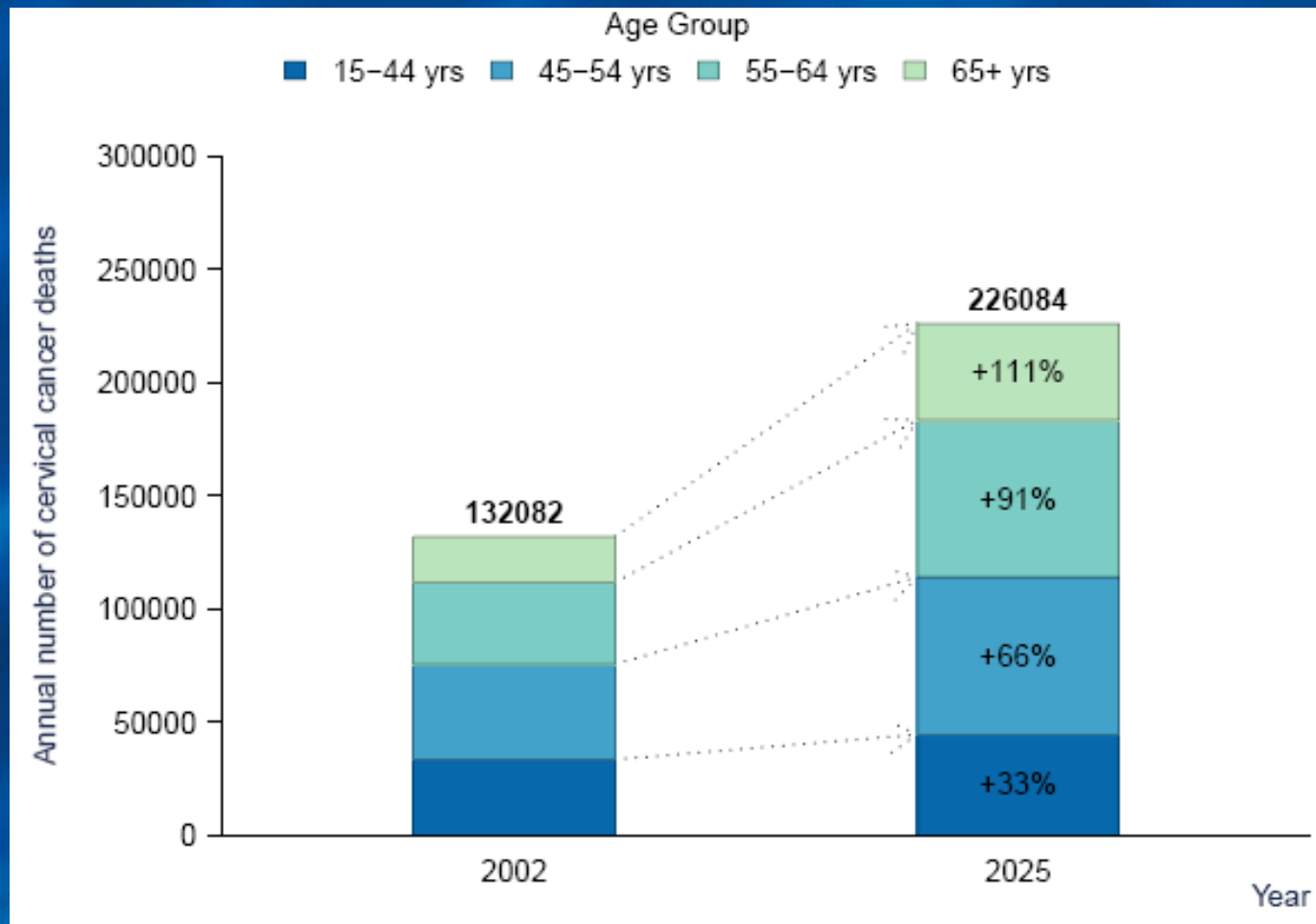
> 200 women die every day

8 women die every hour

Every 7 minutes a women dies

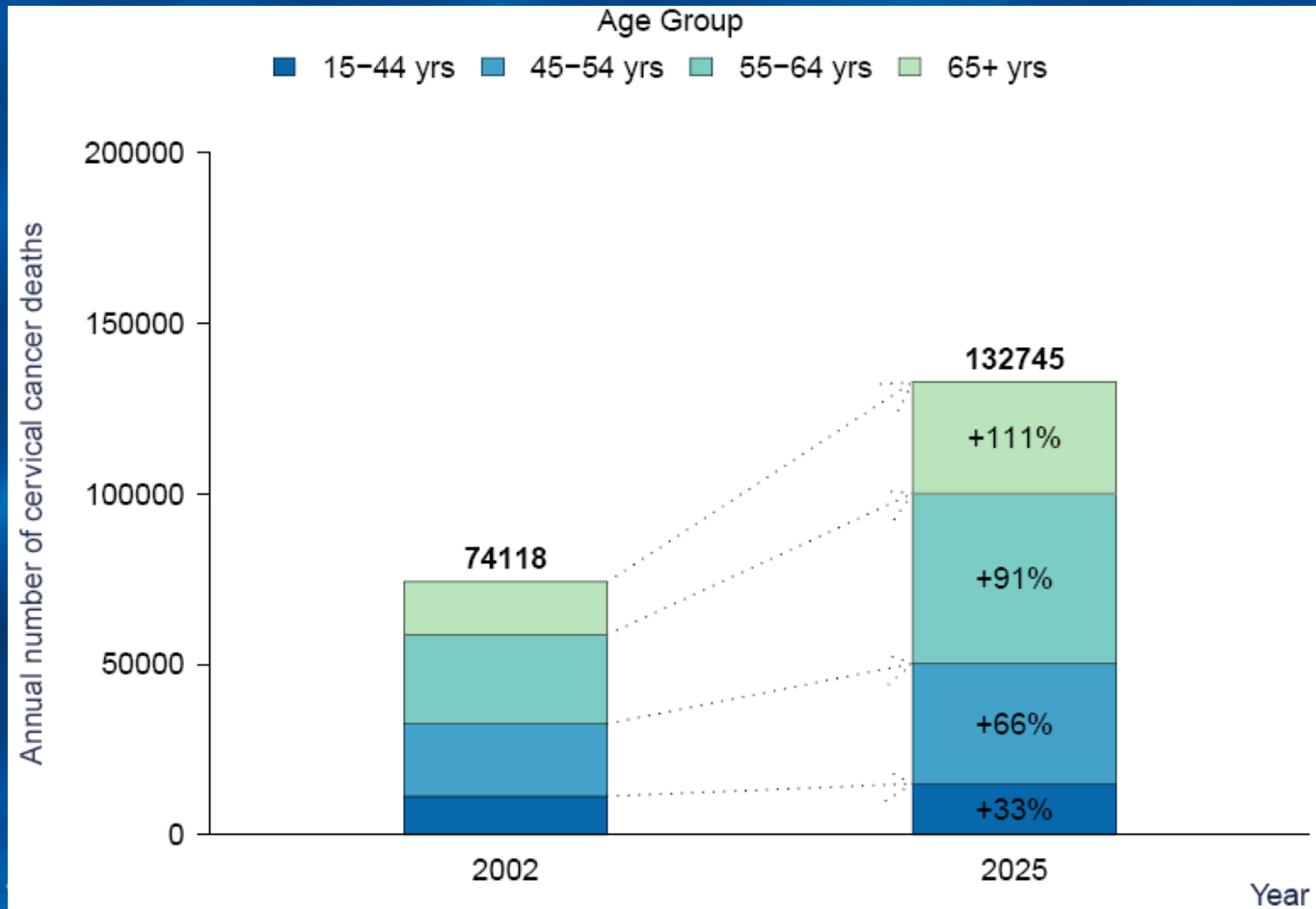
This 'Cause' needs to be taken up by multiple stake holders.

Estimated incidence of cervical cancer in 2002 and projected in 2025



Projected burden in 2025 is estimated by applying current population forecasts for the country and assuming that current incidence rates of cervical cancer are constant over time.

Estimated mortality due to cervical cancer in 2002 and projected in 2025



Estimates suggest more than 365 women will die/ day due to cervical cancer in 2025

Challenges

One of the challenges in India is low rate of Cervical Cancer screening

Recommendations FOR women aged 18-69 yrs screened every 3yrs	Current status
All	2.6%
Urban	4.9%
Rural	2.3%

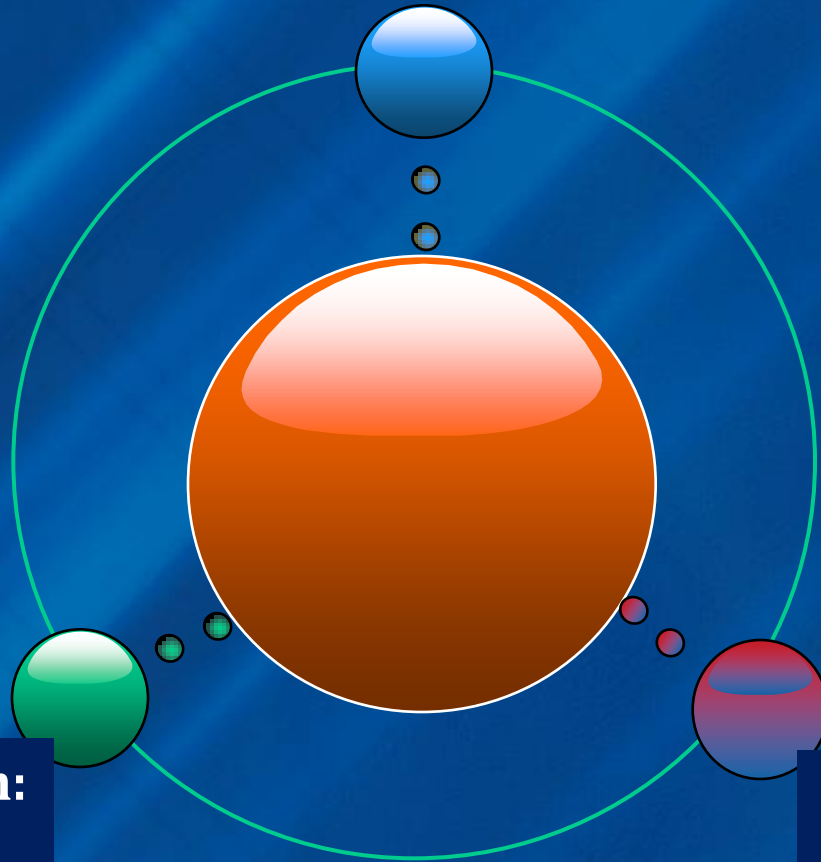
Current screening status in India

- ☑ No organized screening programmes in the country
- ☑ Cytology-based screening programmes with frequently repeated screening rounds are not feasible in India due to:
 - ☑ High costs
 - ☑ Inadequate infrastructure
 - ☑ Inadequate trained human resources
 - ☑ Logistical difficulties



3 pronged approach to saving the lives of women...

Education



**Primary Prevention:
Vaccination**

**Secondary Prevention:
Screening & Treatment**

Advent of vaccines

- **Initiated many queries**



- Do we really need vaccination ?
- is cancer cervix actually a disease only of the poor
- What truly is the prevalence of HPV infection?
- What truly is the type of HPV found ?

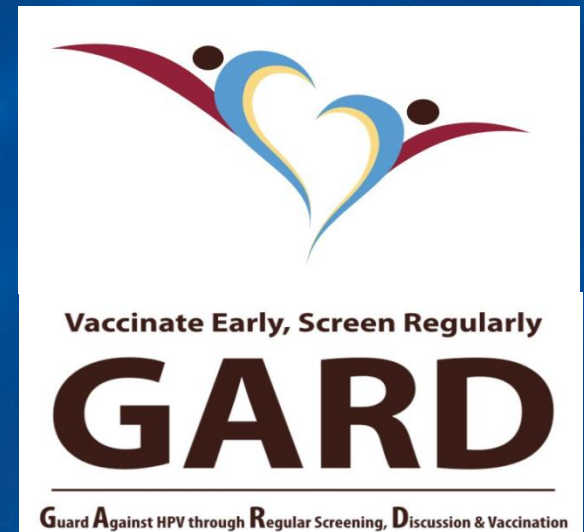


Results of Cross-Sectional Studies

Accuracy Of Screening Tests

Screening Test	Participants (Sites)	Sensitivity % (range)	Specificity % (range)
Cytology	22633(05)	58(29-77)	95(89-99)
HPV	18065(04)	67(46-81)	94(92-95)
VIA	54981(11)	77(58-94)	86(75-94)
VIAM	16900(03)	64(61-71)	87(83-90)
VILI	49080(10)	92(76-97)	85(73-91)
VIA(+) or VILI (+)	49080(10)	94	81
VIA(+) and VILI(+)	49080(10)	79	89

To be able to answer these FOGSI Projects for 2010



Objective

Regular screening of sexually active women who could be at risk for developing HPV related infections.

Appropriate intervention may be initiated at the earliest to prevent Cervical Cancer and other HPV-related cancers and diseases

Study Outline

84 primary
investigators

Training
Screening

700
secondary
investigators

Phase I

- CME conducted for 84 FOGSI members
 - Who served as regional trainers
 - Consent was obtained for participation in the study

Phase II

- Trainers conducted training of 700 doctors (FOGSI members) on the protocol, study modules and obtained consent for study participation

Study Outline

Phase III

**Married
Sexually
active
Urban : Mixed
Socio
economic
strata**

- 700+ doctors started enrolling approximately 10,000 females (married and sexually active), between 18 to 45 years of age, in the study.
- 50% of the enrolled females were from Socio-Economic Class A



Training

- Doctors were trained intensively utilizing training modules
- Training included lectures, discussions and extensive review of photographs of normal and abnormal conditions of cervix
- **Structured course to**
 - **collect cervical cells and prepare a cytology smear and fix them in 70% ether alcohol**
 - **To carry out VIA and interpret the results**
 - **To carry our HPV PCR test for positive pap/VIA**
- 4 training sites were conducting colposcopy training for select interested participants; however, this training was not part of the protocol

**Training
Epidemiology
Screening
methods
Study design**



Inclusion Criteria

- Urban married sexually active females between 18 to 45 years with intact uteri
- Willing to comply with study requirements and follow up as required



Exclusion Criteria

- Individuals concurrently enrolled in clinical studies of investigational agents or studies involving collection of cervical/genital specimens.
- History of known prior vaccination with an HPV vaccine.
- Subjects who had undergone hysterectomy or treatment for cervical cancer in the past.
- Pregnant females
- Active bleeding or infective discharge or urinary tract infection
- Any condition which in the opinion of the investigator might interfere with the evaluation of the study objectives.
- Inability to give consent.



Summary of Study Procedures

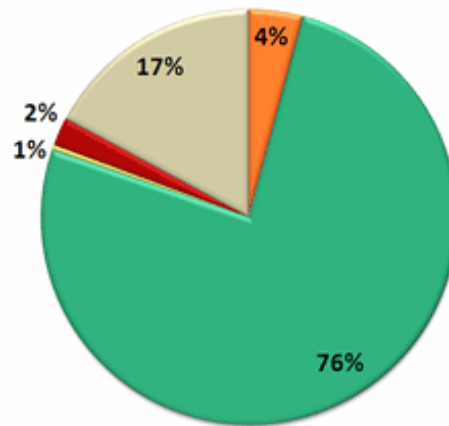
Visit	1	2
Informed Consent	√	
Demographic Data/medical history	√	
Vital Signs and Physical Examination	√	
Inclusion and Exclusion Criteria	√	
Socio-Economic Status	√	
Pap Test	√	
VIA	√	
HPV Testing*	√	√
Study Termination		√



“Reaching the Unreached” Initiative – Interim result- Pap test (In urban population with varied socioeconomic class)

India PAP Test Result

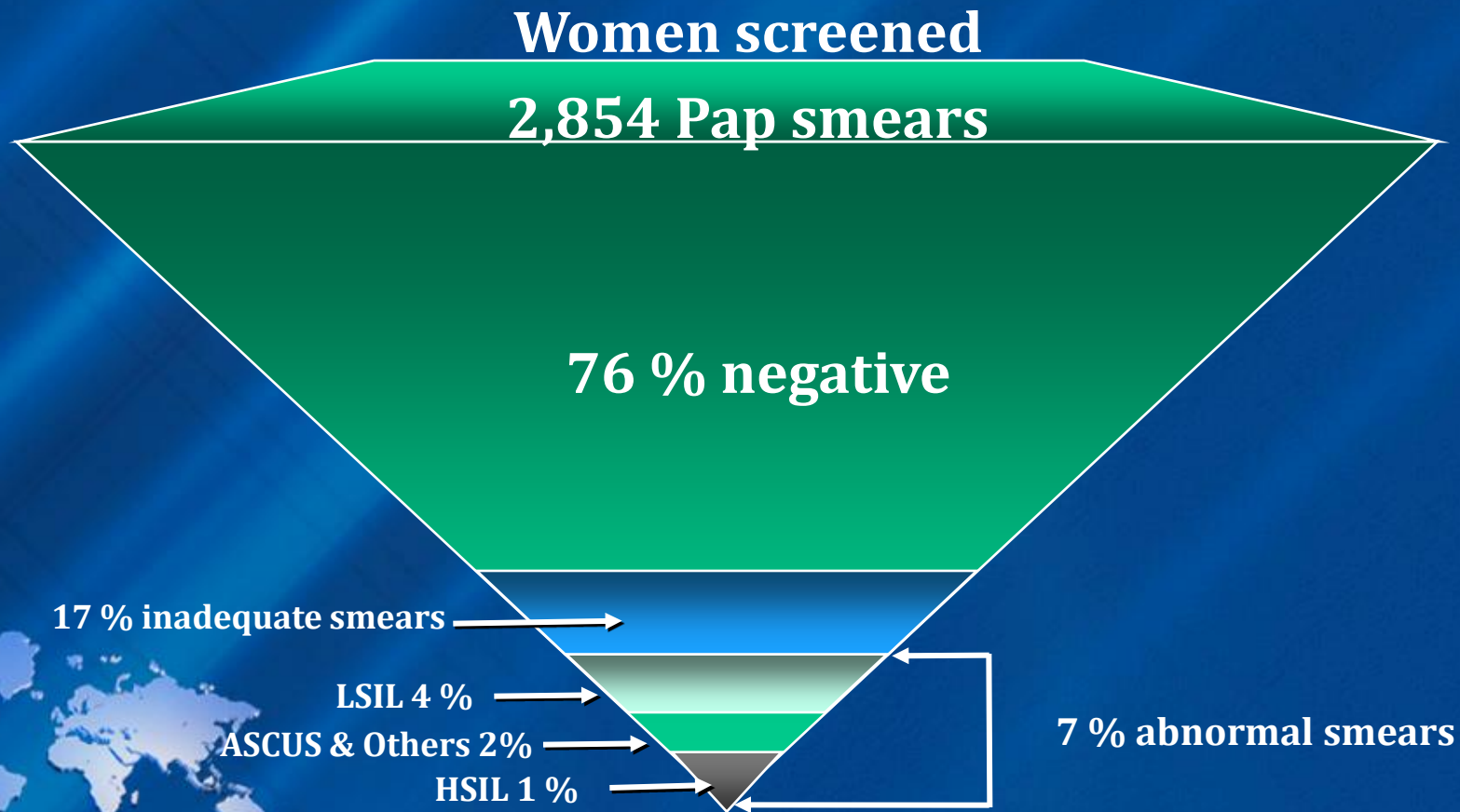
■ LSIL ■ NILM ■ HSIL ■ ASC-H / ASC-US ■ US



- 285 Gynecologists
- 33 cities
- Most of the women from High socioeconomic class

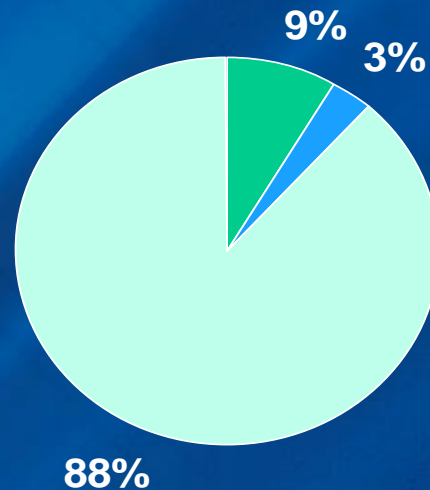
LSIL	Low Grade Squamous Intraepithelial Lesion
NILM	Negative for Intraepithelial Lesion or Malignancy
HSIL	High Grade Squamous Intraepithelial Lesion
ASCUS / ASCH	Atypical Squamous Cells Of Unknown Significance / Atypical Squamous Cells - cannot exclude HSIL
US	Atrophic smear(3) /Atypical endocervical cells(8) /Hemorrhagic and inflammatory smear(28) /unsatisfactory

“Reaching the Unreached” Initiative – Interim result- Pap test (In urban population with varied socioeconomic class)



HPV PCR testing Summary

- Total number of samples studied = 208
- Overall Positivity = 11.5 %
- High risk HPV infections among total +ve samples = 75 %
- Low risk HPV infections among total +ve samples = 25 %



■ High Risk HPV ■ Low Risk HPV ■ Not Detected

GARD project

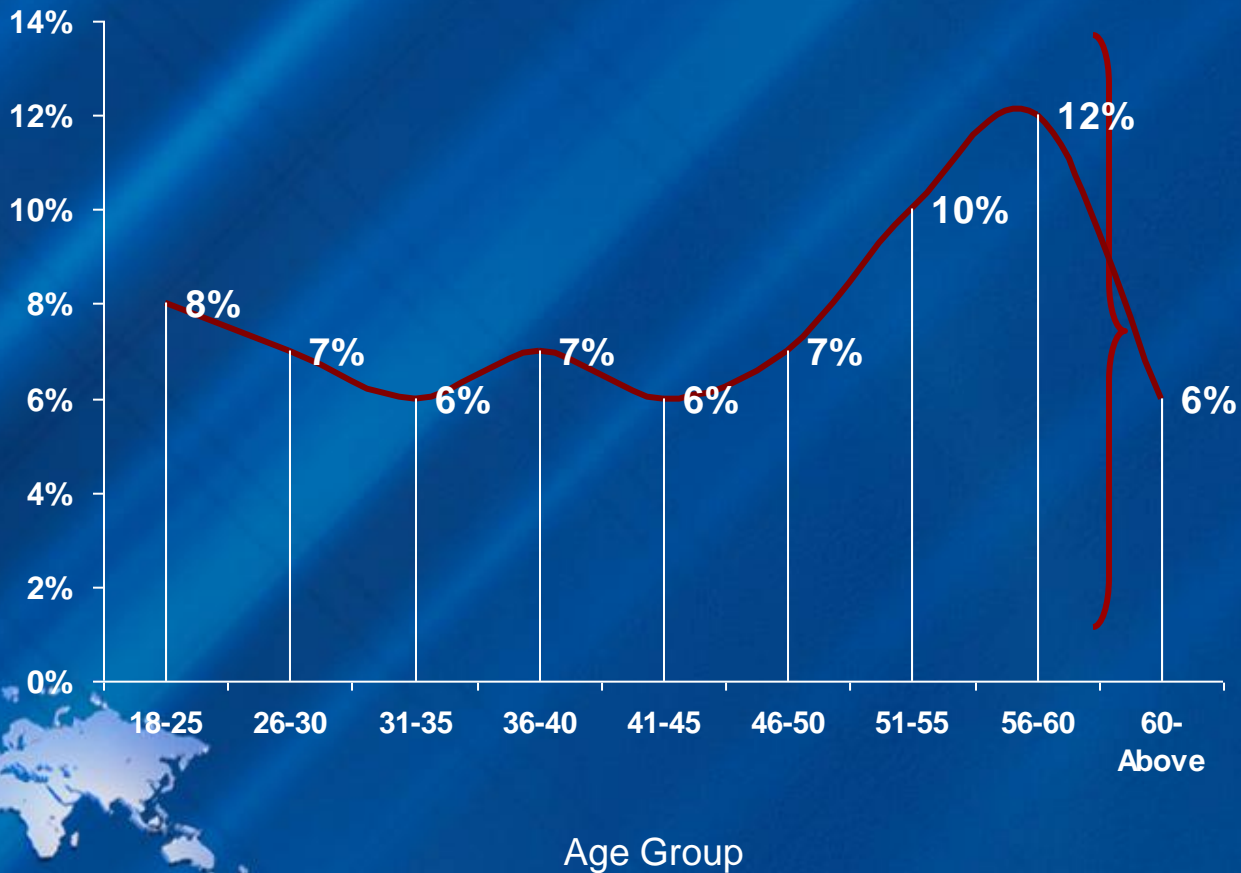
- GARD project kick-started its operations in Dec.'09 continued till date
- The HPV screening was undertaken in GARD study by using DNA PCR to detect HPV infection followed by DNA sequencing to ascertain the specific HPV types
- In last 5 months and 10 days, total no. of samples processed under GARD campaign are = 4034
- Overall positivity has been reported to be around = 6.4%
- Overall risk type positivity was approx. 4.1% for high risk types and 2.3% for low risk types respectively
- **High risk** HPV infections among total +ve samples = 64.06 %



Indian HPV Prevalence Data-Urban

(Pvt. Hospital & Pvt. Nursing Homes)

Total Samples: 4034
National HPV Prevalence Rate ~ 7 %



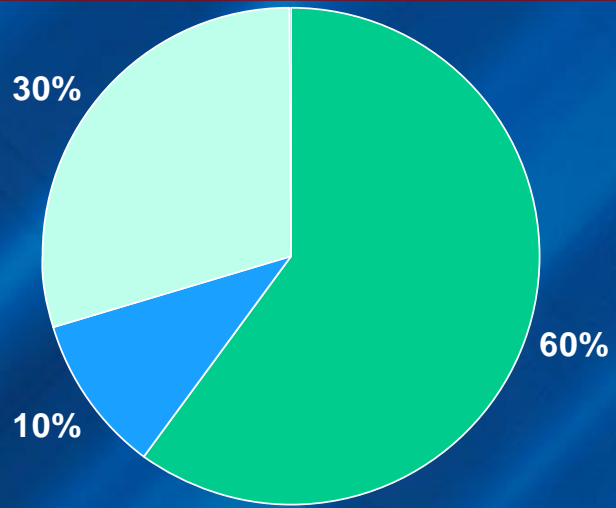
As per WHO data the HPV Prevalence rate in Indian women is 7.9%

In GARD campaign the data represents High and Medium SEC as the samples Collected from general population In Private Hospital & Nursing homes

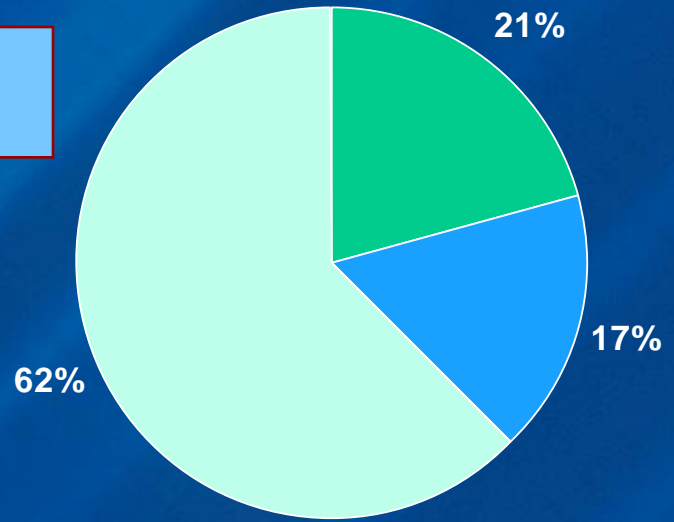
-Even at 18 to 25 the prevalence Rate is 8%

Serotype Prevalence among HPV

High risk Serotype contribute 64 % of all HPV
16 & 18 contributes to 70 % of all High Risk



■ 16 ■ 18 ■ Others



■ 6 ■ 11 ■ Others

Low Risk Serotype contribute 26 % of all HPV
6 & 11 contributes to 28 % of all low risk

Other low risk types are not relevant from clinical stand point



GARD Summary: Pan India

- Overall summary:

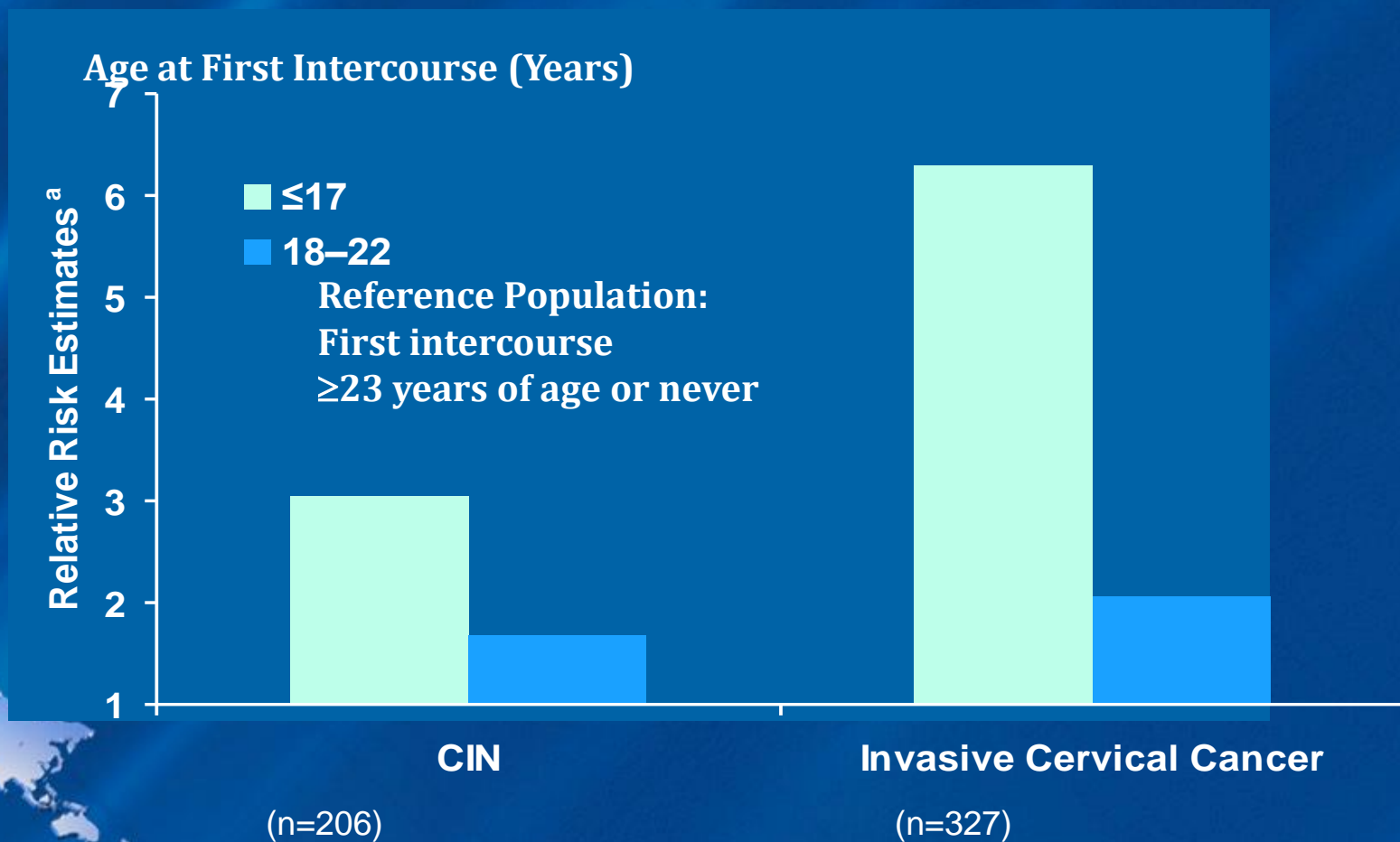
Risk Types	Total	Overall Positivity
High Risk	166	4.1
Low Risk	93	2.3
Not Detected	3775	93.6
Grand Total	4034	100

- Age wise breakup: All India

Age Range	Detected		Not Detected	Grand Total	% Positivity
	High Risk	Low Risk			
Below 20	2	2	22	26	15.4
21-30	35	29	927	991	6.5
31-40	75	28	1577	1680	6.1
41-50	33	18	838	889	5.7
51-60	15	5	185	205	9.8
61-70	2	0	29	31	6.5
Above 70	0	0	7	7	0.0
Not Specified	4	11	190	205	7.3
Grand Total	166	93	3775	4034	6.4

Exposure to HPV at a Young Age Increases the Risk of Cervical Lesions and Cancer in Women¹

Relative risks for CIN and invasive cancer increase with decreasing age of first sexual intercourse.

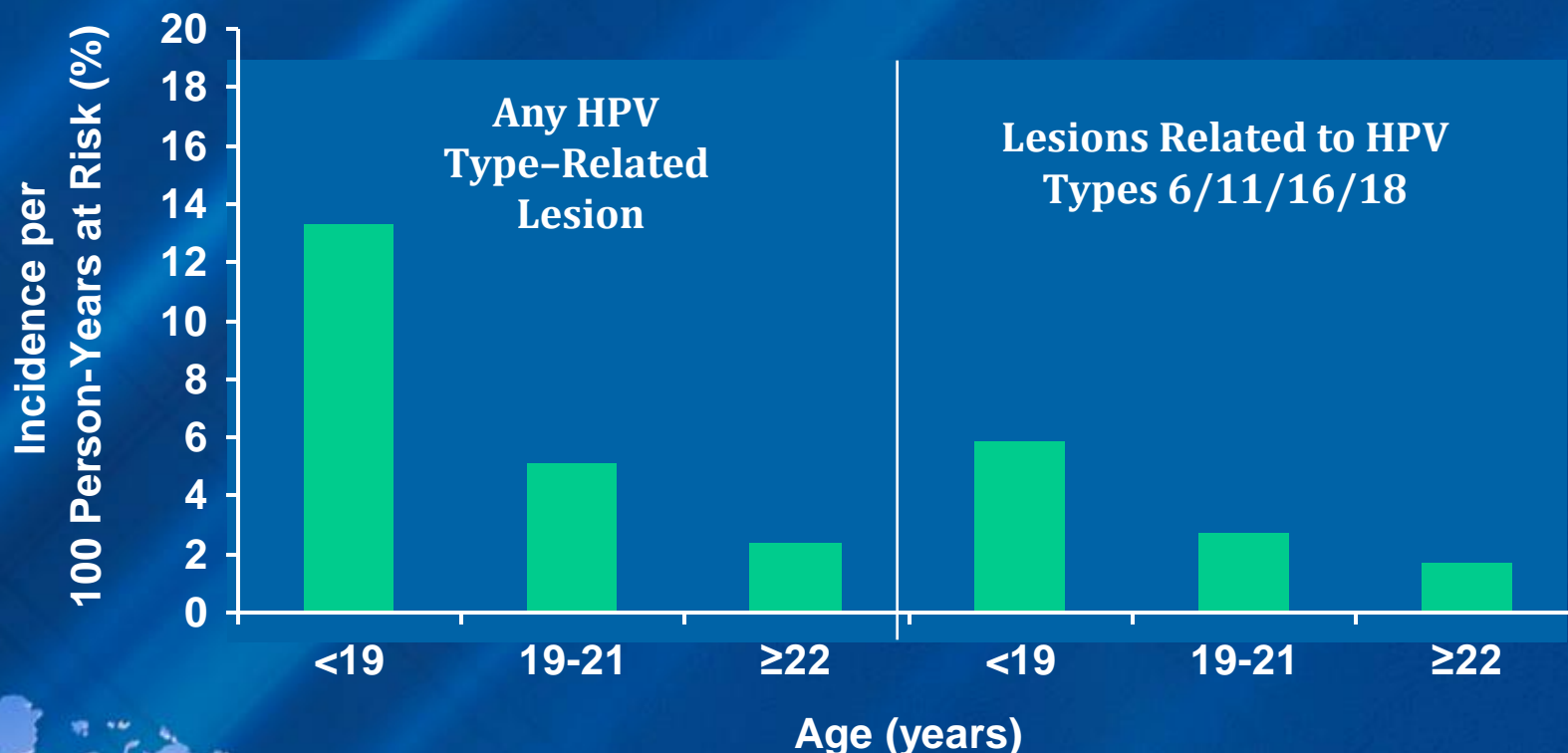


^aMantle-Haenszel estimates adjusted for age only.

1. La Vecchia C et al. *Cancer*. 1986;58:935-941.

HPV-Related Disease in the Asia-Pacific Region^a: Highest Incidence in Younger Women¹

3-year incidence of HPV-related disease in nonvaccinated participants in trials of QHPV vaccine^{® b} (N=346)



^aLittoral East Asia, Southeast Asia, Australia/New Zealand, and Oceania.

^bPhase III protocols 013 and 015.

1. Tay EH et al. *Int J Gynaecol Obstet*. 2008;102:275–283.

India the real picture



India: exposure to risk

- ◎ 30% of India's population (327 million individuals) is in the age group of 10 -2 4 years
(Source: WHO, 2007)
- ◎ Youth are vulnerable to sexually transmitted infections, including HIV and account for 31% of AIDS burden in the country
(Source: NA CO, 2007)
- ◎ Though age at marriage is increasing; data from NFHS-3 (National Family Health Survey 3) shows that 27% young women and 3% young men in the age group of 15-19 year were married at the time of the survey *(2005-06)*



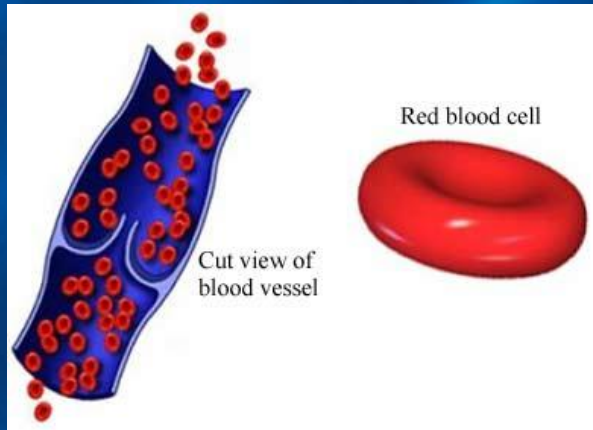
Reproductive demographics



- ◎ 30% women in the age group of 15-19 years have had a live birth by the age of 19 years (Source: NFHS 3)
- ◎ 7% married and 9% **unmarried girls** reported current use of modern contraceptive methods (Source: NFHS 3)



Anemia the universal killer



- 60% girls in the age group 15-19 were found to be anemic (Source: NFHS -3).
- Anemia is a contributing cause of increased age- specific mortality among female adolescents



Summary

- India harbors a majority of cervical cancer cases worldwide.
- HPV infection is seen in young women in early twenties and hence vaccination in adolescents is best policy.
- HPV equally affects upper and lower socioeconomic class.
- Partnership with industry is an important stakeholder in fighting for the cause.



www.reachingtheunreached.in

www.gard.in

The screenshot shows the homepage of the Reaching The Unreached website. The header includes the logo and navigation links like Home and Contact Us. A main banner features a group of diverse women and the text 'Reaching The Unreached FOGSI 2010 INITIATIVE'. Below the banner, there is a section titled 'About Reaching the Unreached' with a paragraph explaining the concept and a 'more' link. To the right, there is a map of India with a 'For more details click here' link. A sidebar on the left contains navigation menus for 'About Us', 'FAQ's', 'Healthcare Professionals', 'News', 'Reports', 'Comments / Feedback', and 'Online Cancer Registry'. There is also a 'Reference Link' section with links to AICOG 2010 and FOGSI, and a 'Login' form with fields for Username and Password.

The screenshot shows the G.A.R.D. (Gardian of the At-Risk) website dashboard. The header features the G.A.R.D. logo and the slogan 'Vaccinate Early, Screen Regularly'. A sidebar on the left contains navigation links: Home, About Us, General FAQ's, Healthcare Professionals, Reports, Contact Us, and Doctor Login. The main content area is titled 'Reports' and contains several data visualizations:

- Age wise Overall Prevalence Pan India:** A line graph showing prevalence percentages across different age groups (15-20, 21-25, 26-30, 31-35, 36-40, 41-45, 46-50, 51-55, 56-60, 61-65, 66-70, 71-75, 76-80, 81-85, 86-90, 91-95, 96-100, 101-105, 106-110, 111-115, 116-120, 121-125, 126-130, 131-135, 136-140, 141-145, 146-150, 151-155, 156-160, 161-165, 166-170, 171-175, 176-180, 181-185, 186-190, 191-195, 196-200, 201-205, 206-210, 211-215, 216-220, 221-225, 226-230, 231-235, 236-240, 241-245, 246-250, 251-255, 256-260, 261-265, 266-270, 271-275, 276-280, 281-285, 286-290, 291-295, 296-300, 301-305, 306-310, 311-315, 316-320, 321-325, 326-330, 331-335, 336-340, 341-345, 346-350, 351-355, 356-360, 361-365, 366-370, 371-375, 376-380, 381-385, 386-390, 391-395, 396-400, 401-405, 406-410, 411-415, 416-420, 421-425, 426-430, 431-435, 436-440, 441-445, 446-450, 451-455, 456-460, 461-465, 466-470, 471-475, 476-480, 481-485, 486-490, 491-495, 496-500, 501-505, 506-510, 511-515, 516-520, 521-525, 526-530, 531-535, 536-540, 541-545, 546-550, 551-555, 556-560, 561-565, 566-570, 571-575, 576-580, 581-585, 586-590, 591-595, 596-600, 601-605, 606-610, 611-615, 616-620, 621-625, 626-630, 631-635, 636-640, 641-645, 646-650, 651-655, 656-660, 661-665, 666-670, 671-675, 676-680, 681-685, 686-690, 691-695, 696-700, 701-705, 706-710, 711-715, 716-720, 721-725, 726-730, 731-735, 736-740, 741-745, 746-750, 751-755, 756-760, 761-765, 766-770, 771-775, 776-780, 781-785, 786-790, 791-795, 796-800, 801-805, 806-810, 811-815, 816-820, 821-825, 826-830, 831-835, 836-840, 841-845, 846-850, 851-855, 856-860, 861-865, 866-870, 871-875, 876-880, 881-885, 886-890, 891-895, 896-900, 901-905, 906-910, 911-915, 916-920, 921-925, 926-930, 931-935, 936-940, 941-945, 946-950, 951-955, 956-960, 961-965, 966-970, 971-975, 976-980, 981-985, 986-990, 991-995, 996-1000).
- Overall HPV Serotype Prevalence : All India:** A pie chart showing the distribution of HPV serotypes into Low Risk (29%), High Risk (21%), and Other (50%).
- HPV Serotype Prevalence : All India:** A bar chart showing the percentage prevalence of various HPV serotypes (Type-16, Type-18, Other High Risk Types, Type-4, Type-11, Other Low Risk Types) categorized into High Risk and Low Risk groups.
- Summary:** A box containing key statistics: Number of HCs initiated HPV Screening : 658, Total Sample size till 25th Feb. 2010 : 2998, and Overall Rate of HPV prevalence : 6.87 %.

Thank you