

# SinDiColpo: AI-enabled cervical cancer screening transforming VIA into objective, scalable screening

## About the Applicant

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- **Location:** Nagpur
- **Type of practice:** Professor and Chief Consultant at Datta Meghe Medical College and Nelson Hospital

## Problem Statement / Digital Challenge What was the key operational or clinical challenge?

- Cervical cancer screening needs to be augmented
- 2% screening by Papsmear in last 5 years
- VIA: subjective interpretation
- Noncompliance and late referrals
- Limited access to confirmatory tests
- Poor documentation
- Delayed diagnosis

## Why was a digital solution required?

- To enable digital VIA at the primary healthcare level alongside point-of-care colposcopy
- standardized imaging, AI-assisted decision support,
- Tele-expert connectivity, and longitudinal digital records
- **Which stakeholder(s) were most affected (e.g., nursing, admin, patients)?**
- Patients and health care providers
- Policy makers

## Digital Tool / Solution Implemented

- SinDiColpo a Smartphone based handheld non-invasive colposcope with portable darkroom concept, software and AI enabled
  - Designed and Patented by Gynecologist
  - A point of care solution to augment cervical cancer screening aligning the 2030 WHO target
- Collaborations:** DMIHER, Nelson Hospital, ICMR, Carenx, Global digital Health Africa

## Key features:

- Ease of ergonomics
- high sensitivity(100%) specificity(84.6%),
- Average screening time is cut short to 6.4 minutes thus ideal for community-based screening
- Overall, 4.9 points on a 5-point Likert scale in usability study

## Digital Implementation Highlight

- Project started in 2018, patented in 2022, Phase wise clinical trials and studies, ICMR trials
- Training: Residents & staff at medical colleges and ANMs at PHCs
- Clinical & Research team led by me, technical team led by me and Carenx founders Dr. Aditya and Avinash

## Digital Impact

- Ease of use, simple user interface, reduced procedure time, improved patient satisfaction
- Naked eye VIA Vs Digital VIA: reduced interobserver variability
- More than 10,000 women screened across India
- ICMR supported trials ongoing
- Pilot ongoing: Mobile cancer vans
- Digital VIA by frontline workers
- FOGSI best paper awards twice: usability study, clinical validation study, Wonder AMOGSIAN award 2022
- CDSCO Manufacturing license: audit completed

## Key Enablers

- Ergonomically easy
- High diagnostic performance
- Ease of use and a simple user interface
- AI-assisted decision support reducing subjectivity
- Image standardisation
- Task-shifting to ANMs/nurses
- Tele-colposcopy connectivity
- Cost-effective and scalable Integration with public health initiatives

## Challenges:

- Adoption resistance
- Acquisition
- Infrastructure gaps
- Data integration & privacy concerns
- Policy and procurement barriers

## Lessons Learned / Replicability

- Training, handholding, and workflow integration
- Hub-and-spoke care model
- Invest in structured training and certification of frontline workers,
- Integrate with existing public health programs,
- Establish real-time data systems to track screening, referral, and follow-up for a closed-loop continuum of care.

Any **relevant links + documents** to the details of the solution / write-up

<https://www.obstetricsandgynaecologyforum.com/index.php/ogf/article/view/576>