Background

- Oral cancer accounts for 30% of all cancers in India, with an estimated 70,000 new cases and 48,000 oral cancer–related deaths annually.
- Five-year mean survival rate for oral cancer patients in India is estimated to be 5%-10% lower than the world mean—late presentation being a common cause for this observation.
- People living with HIV/AIDS (PLWHA) have a 2–6 times higher risk for oropharyngeal cancers than the general population.
- HIV-induced immunosuppression, higher prevalences of smoking, tobacco and alcohol use, oral HPV among PLWHA—are factors driving higher risk estimates.
- India has the third highest number of PLWHA globally and tobacco use is estimated to be prevalent in 35% of the population.
- Screening for oral cancer in Indian PLWHA is sparse and the current healthcare system congested and overburdened.
- Accordingly, we evaluated a m-Health oral cancer screening pilot driven by non-medical healthcare workers.

Setting and study population

- Setting: ART center of BJ Government Medical College & Sassoon General Hospitals Pune, India: a large, publicly funded hospital in western India.
- Study Population: Adult (≥21 years) PLWHA, with no prior history of oral cancer who provided informed consent were enrolled between June 2017 and November 2017.

Description and Lessons Learned

- Employing a validated oral cancer screening mobile application, two trained non-medical healthcare workers approached and enrolled participants attending the ART center for care.
- A minimum of 8 photographs of different parts of the oral cavity, socio-demographic, risk factor including sexual and HIV histories were obtained and captured on electronic hand held devices.
- Images were synced on to a cloud-based server, from where they were reviewed by at least 2 clinicians.
- The study process flow has been summarized in Figure 1.

Figure 1

![Image](https://via.placeholder.com/150)

Table 1: Characteristics of the study population

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number enrolled (N)</td>
<td>331</td>
</tr>
<tr>
<td>Median age (IQR)</td>
<td>40 (35–45)</td>
</tr>
<tr>
<td>Males</td>
<td>168 (50)</td>
</tr>
<tr>
<td>Median recent CD4 (IQR) (cells/mm³)</td>
<td>529 (366–727)</td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
</tr>
<tr>
<td>Ever smoked</td>
<td>51 (15)</td>
</tr>
<tr>
<td>Currently smoke</td>
<td>7 (2)</td>
</tr>
<tr>
<td>Chewing tobacco</td>
<td></td>
</tr>
<tr>
<td>Ever chewed</td>
<td>128 (39)</td>
</tr>
<tr>
<td>Currently chew</td>
<td>86 (26)</td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
</tr>
<tr>
<td>Ever used</td>
<td>115 (35)</td>
</tr>
<tr>
<td>Currently use</td>
<td>7 (2)</td>
</tr>
<tr>
<td>Practice oral sex</td>
<td>50 (15)</td>
</tr>
<tr>
<td>Multiple sexual partners</td>
<td>96 (29)</td>
</tr>
</tbody>
</table>

A total of 2648 images were reviewed, with 99% of the images deemed adequate for a clinical diagnosis.

- 42 participants were deemed to have OPMD on image review—who were more likely to be older (p=0.01) and male (p=0.05).

Figure 2

![Image](https://via.placeholder.com/150)

Conclusion

- In a young HIV-positive cohort with high CD4 count the prevalence of oral cancer risk factors was high.
- While OPMD were overdiagnosed on image review, m-Health provided an effective and rapid method of oral cancer screening, without congesting ART centers and overburdening healthcare providers, through selective in-person follow-up.
- Thirty-six percent of those diagnosed to have OPMD on image review did not return for follow-up—most commonly cited reason was that they were asymptomatic.
- Although we describe a feasible method for oral cancer screening in India in PLWHA, scaling it up will require better risk communication to improve participant follow-up.

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- Contact: ivanmarb@gmail.com

References