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# **IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH**



**HUMANITARIAN PROJECT SUPPORTED BY SGGG  
WITH CHF 12'000**

**DR. MED. SINA KERN-BAUMANN**

**NO CONFLICT OF INTEREST**

# IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



## United Republic of Tanzania

- East African sub-Saharan country
- Population (1,2)
  - Largest population in East Africa with 69.4 million inhabitants
    - thereof 18.1 million young females  $\geq 15$  years
  - Equivalent to 0.84% of total world population
  - Population growth rate 2.75%
  - Distribution: 37.4% urban, 62.6% rural
- Disproportionate burden of cervical cancer (2)

*Burden of cervical cancer (2)*

	Incidence	Mortality
Annual number of new cases/deaths	10241	6525
Crude rate	34.3	21.8
Age-standardized rate	62.5	42.7
Cumulative risk 0-74 years (%)	7.43	5.36
Ranking of cervical cancer (all years)	1st	1st
Ranking of cervical cancer (15-44 years)	1st	1st



(1) <https://www.unfpa.org/data/world-population/TZ>

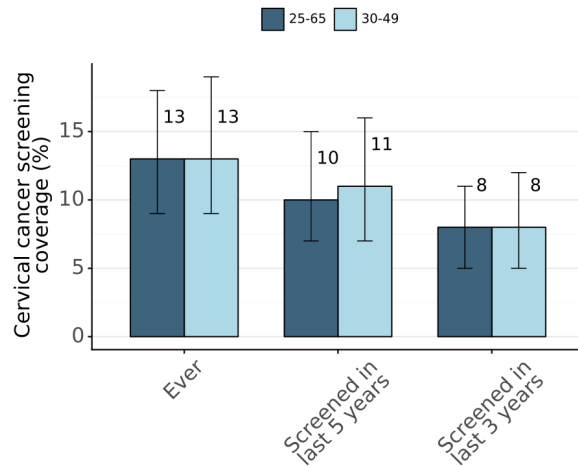
(2) Brunni L, Albergo G, Serrano B, Mena M, Collado JJ, Gómez D, Muñoz J, Bosch FX, de Sanjose S. ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Human Papillomavirus and Related Diseases in United Republic of Tanzania. Summary Report 10 March 2023. [June 22, 2024]

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- Primary prevention measures (2):
  - HPV information and vaccination campaign since 2018
    - Estimated coverage of 57% for final vaccination
  - Screening recommendations, but no organised screening programs:
    - Visual inspection with acetic acid (VIA)
    - No reliable statistics
      - estimated low in urban areas and even lower in rural areas

Estimated coverage and 95% confidence interval of cervical cancer screening in Tanzania in 2019; (2)



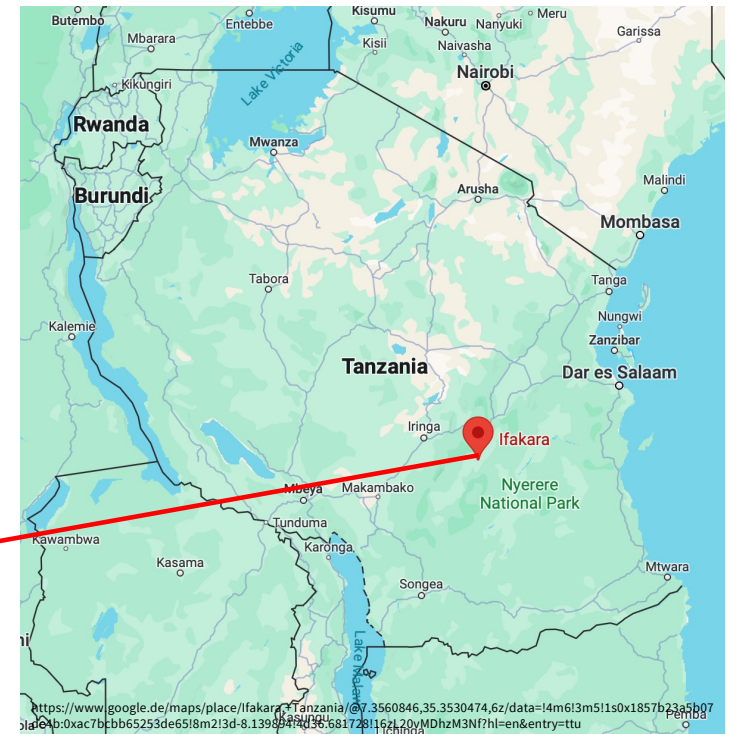
(2) Brunil L, Albergo G, Serrano B, Mena M, Collado JJ, Gómez D, Muñoz J, Bosch FX, de Sanjose S. ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Human Papillomavirus and Related Diseases in United Republic of Tanzania. Summary Report 10 March 2023. [June 22, 2024]

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Collaboration of University Hospital Basel with St. Francis Referral Hospital, International Health Institute Ifakara and Charité Berlin

- St. Francis Referral hospital (SFRH)
  - Collaboration for service delivery and research in cervical cancer prevention and treatment since 2018
  - 371 beds
  - Serves population of Kilombero valley in Morogoro Region and beyond, approximately 800'000 inhabitants (3)



(2) Swiss Agency for Development and Cooperation SDC, Fact Sheet: Saint Francis Referral Hospital – Ifakara; available at: [https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.eda.admin.ch/content/dam/countries/countries-content/tanzania/en/601\\_Factsheet\\_SDC\\_SFRH\\_EN.pdf&ved=2ahUKEwiUvMLM0e-GAxUZgf0HHTO0CrSQFnoECA4QAQ&usq=AOvWaw25jX7Itlq84mnpZQ9NH4xM](https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.eda.admin.ch/content/dam/countries/countries-content/tanzania/en/601_Factsheet_SDC_SFRH_EN.pdf&ved=2ahUKEwiUvMLM0e-GAxUZgf0HHTO0CrSQFnoECA4QAQ&usq=AOvWaw25jX7Itlq84mnpZQ9NH4xM)

## IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



Aim: Scaling up supra-regional cervical cancer prevention by providing training on diagnosis and treatment in a novel screen-and-treat approach in several rural locations

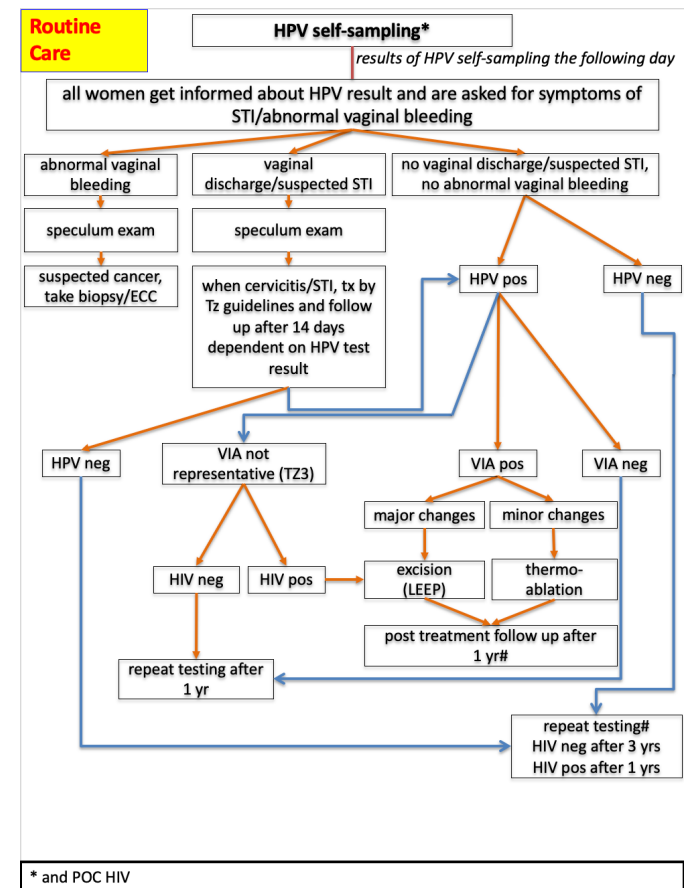
Simultaneous screen-and-treat approach:

- HPV self-sampling and PITCH HIV testing
- PCR analysis for HPV and sexually transmitted diseases (STI)
- Examination by VIA and control sampling
- Treatment by prescription, Thermoablation or LEEP if necessary

Protocol: Conducting a 7-day training for medical staff

- May 18th – 25th 2023
- Participants: 23
- Theoretical training at St. Francis Hospital
- Clinical training in two rural locations
- Ethics approvals: IHI-IRB (IHI/IRB/No: 43-2020), NIMR (NIMR/HQ/R.8a/Vol.IX/3611), TMDA (TRC-WEB0021/CTR/0004), EKNZ (AO\_2021\_00006)

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> <li>• Female</li> <li>• ≥ 30 years of age</li> <li>• HIV positive &gt;21 years</li> <li>• No known ongoing pregnancy</li> <li>• Informed consent given</li> </ul>	<ul style="list-style-type: none"> <li>• Pregnancy</li> <li>• Virgo</li> <li>• Total hysterectomy</li> <li>• Refusal of informed consent</li> <li>• Known invasive cervical cancer</li> </ul>

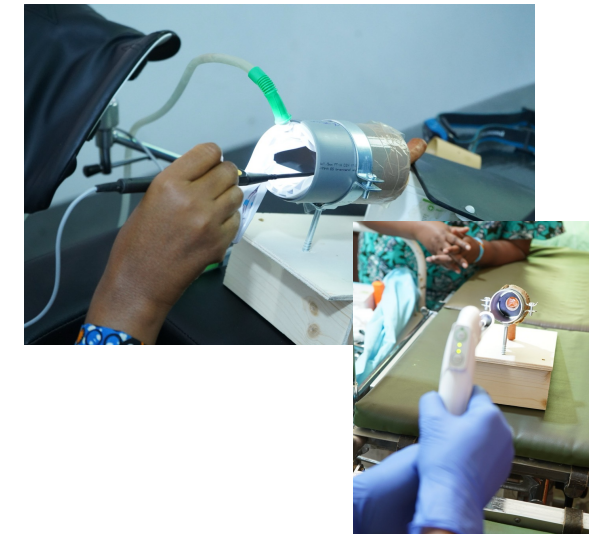


# IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



## Theoretical and practical training

Day	Morning	Afternoon
Day 1 May 18 <sup>th</sup> 2023	<b>Cervical Cancer – basics</b> <ul style="list-style-type: none"> <li>- Human Papilloma Virus</li> <li>- HPV and HIV</li> <li>- Prevention of HPV by vaccination</li> </ul> <b>Screening Strategies</b> <ul style="list-style-type: none"> <li>- VIA</li> <li>- Cytology</li> <li>- HPV</li> </ul>	<b>Colposcopy part 1 / VIA</b> <ul style="list-style-type: none"> <li>- Basics</li> <li>- Documentation</li> <li>- Minor/major changes and classification</li> </ul>
Day 2 May 19 <sup>th</sup> 2023	<b>Colposcopy part 2 / VIA</b> <ul style="list-style-type: none"> <li>- Colposcopy: what to see</li> <li>- Glandular lesions</li> <li>- Taking biopsies and results</li> </ul> <b>Management of abnormal colposcopy</b> <ul style="list-style-type: none"> <li>- Cryotherapy</li> <li>- Thermal ablation</li> <li>- Excisional treatment by LEEP</li> <li>- Check after Treatment</li> </ul>	<b>Hands-on training in groups</b> <ul style="list-style-type: none"> <li>- Pat. screening and treatment</li> <li>- Thermoablation training on simulation models</li> <li>- LEEP training on simulation models</li> </ul>
Day 3 May 20 <sup>th</sup> 2023	<b>Colposcopy part 3 / VIA</b> <ul style="list-style-type: none"> <li>- Colposcopy of the Vulva and Vulva Cancer</li> <li>- Colposcopy of the Vagina and Vaginal Cancer</li> <li>- Cervical Cancer</li> <li>- Colposcopy of infection</li> <li>- Colposcopy of Schistosomiasis</li> </ul>	<b>Hands on training in groups</b> <ul style="list-style-type: none"> <li>- Pat. screening and treatment</li> <li>- Thermoablation training on simulation models</li> <li>- LEEP training on simulation models</li> </ul>
Day 4 May 21 <sup>st</sup> 2023	<b>Colposcopy part 4 / VIA</b> <ul style="list-style-type: none"> <li>- Anal intraepithelial dysplasia</li> <li>- SOPs and quality control</li> <li>- How do I talk to women when the result is not good?</li> </ul> Examination and course evaluation	<b>Hands on training in groups</b> <ul style="list-style-type: none"> <li>- Pat. screening and treatment</li> <li>- Thermoablation training on simulation models</li> <li>- LEEP training on simulation models</li> </ul>
Day 5 - 7 May 22 <sup>nd</sup> – 25 <sup>th</sup> 2023	<b>Outreach to villages</b> Pat. screening and treatment	



# IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



## Eligibility & Self-Sampling



<https://www.roversmedicaldevices.com/wp-content/uploads/2016/07/COM-ROVERS176083142279-web.jpg>

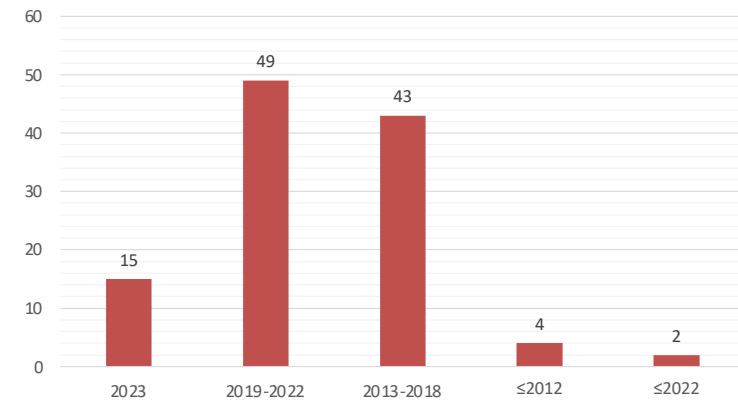
## IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



Study population: 384 patients

- Eligible: 366 patients
  - Age distribution: 22 – 60 years (Mean 41, Median 40)
  - 93 menopausal patients
  - 31 HIV positive patients
    - Thereof 4 new diagnoses
  - Parity: 0 - 11 (Mean 3.56, Median 3)
- Prior participation in cervical cancer prevention (n=366)
  - Never before: 68,6%
  - Once: 24%
  - Twice: 4,9%
  - Screens regularly: 2,5%

Date of last screening (n=113)





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### Sample preparation of 366 samples

- with buffer and lysis
- Only 1 sample inadequate
- PCR analysis by Seegene Allplex™ HPV28 detection and Seegene Allplex™ Essential Array



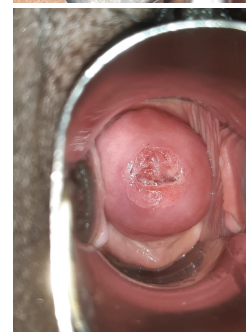
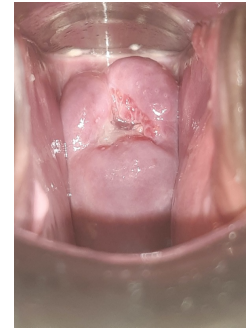
# IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



## Examination and „bed-side“ teaching



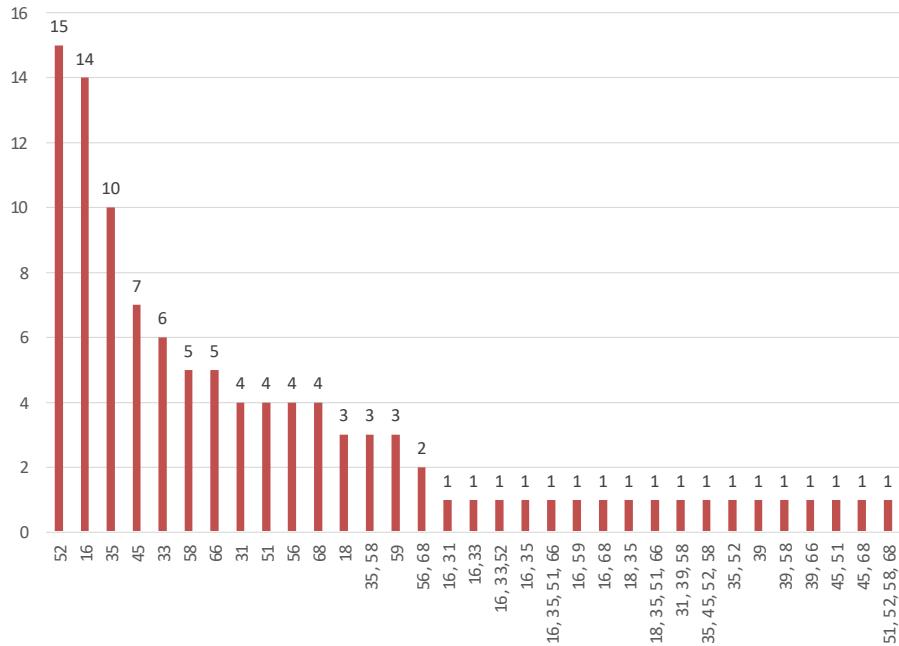
## Intervention



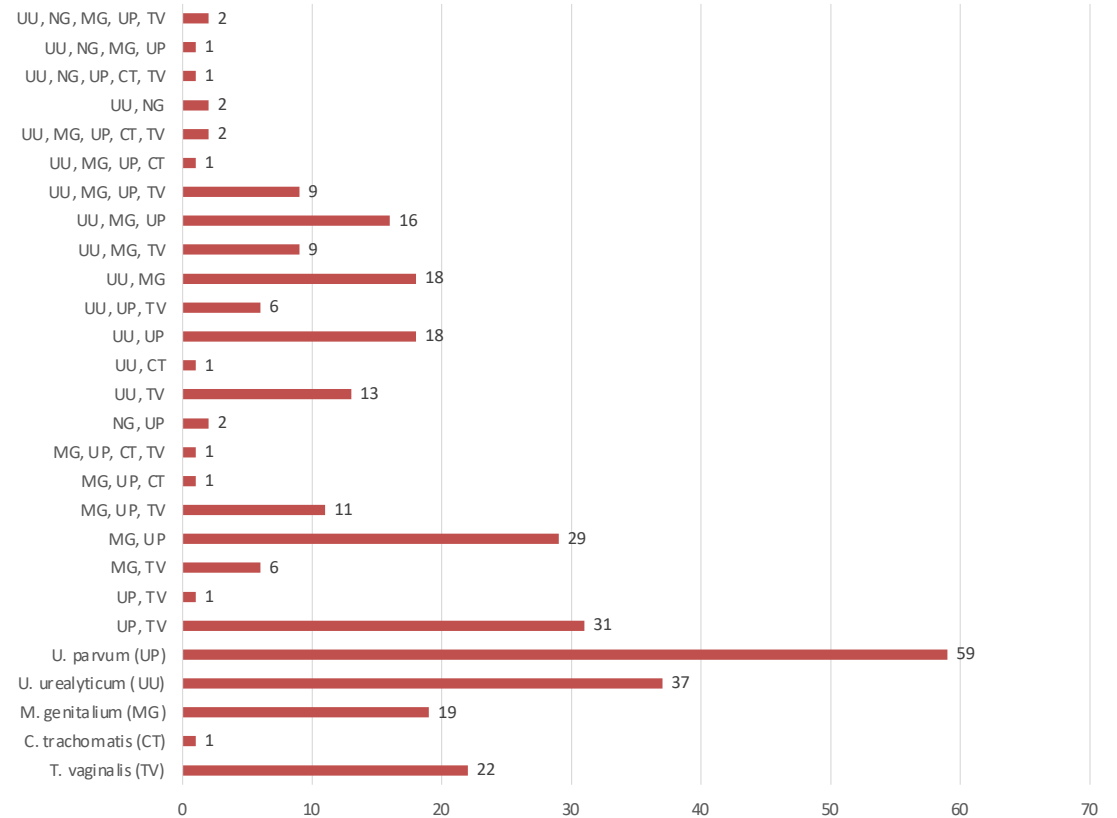
# IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



Incidence of HPV High-Risk types: 28,3% (n= 107)  
 HPV 16/18: n = 26  $\cong$  24,3%



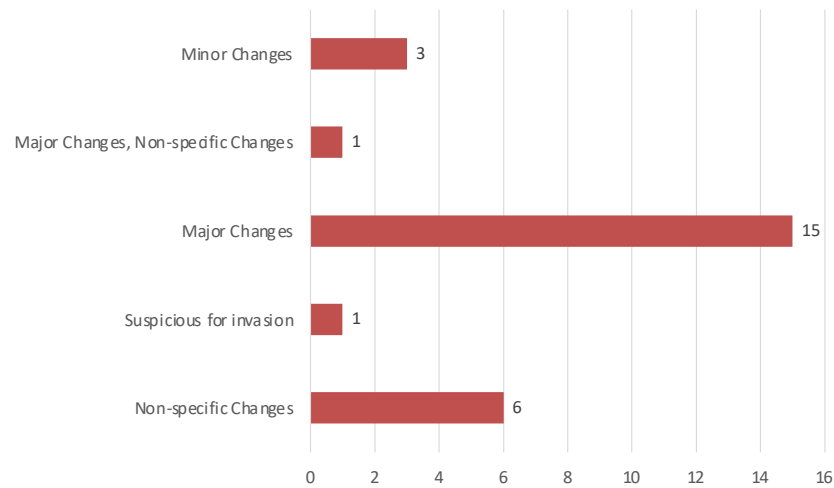
Incidence of STI: 87%  
 STI: n=319



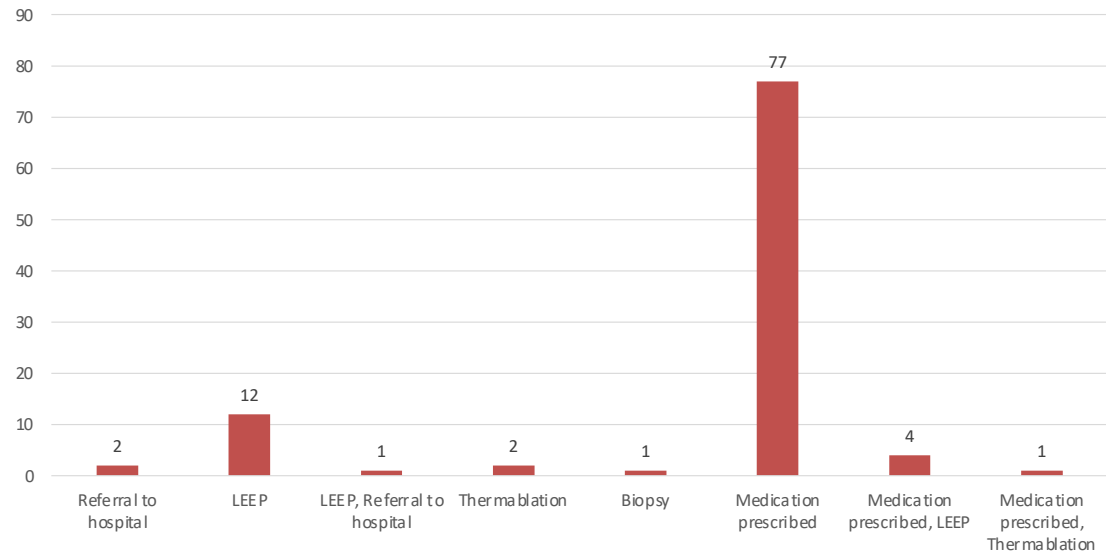
## IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



### Abnormal colposcopic findings n=26 (total 172)



### Therapeutic interventions among patients with VIA n=99 (of total 172)



## IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH

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### Lessons learned

- Knowledge transfer to different levels of education and for different settings
- Valuable networking locally
- Technological issues to be improved in future:
  - STI testing
  - Documentation by REDCap Offline App

### Perspective

- Persistent diagnostic support and opportunity for practical training at SFRH for participants
- Patients with infections were offered
  - Antibiotic therapy (Metronidazole)
  - Check-up at St. Francis Referral Hospital
- Repetition of Workshop in February 2024
- Continued analysis of provider-taken samples and tissue samples

# IMPROVING CERVICAL CANCER PREVENTION IN RURAL TANZANIA BY TRAINING, SERVICE-DELIVERY AND RESEARCH



## Budgeting:

Item	persons	Factor (days)	price/person/day	cost	in Tsh	in CHF
<b>Local Personnel Ifakara (support team)</b>						
CECAP team (Mama Kasiga)	1	7	150'000	1'050'000	1'050'000	
CECAP team (Mama Hwaya, Dolores)	2	7	130'000	1'820'000	1'820'000	
CECAP team (Jaqueline)	1	7	80'000	1'050'000	1'050'000	
<b>Tanzanian Facilitators (local trainers)</b>						
Flora Lyimo	1	7	150'000	1'050'000.00	1'050'000.00	
Dr. Sr. Nathalia	1	7	170'000	1'190'000.00	1'190'000.00	
<b>Laboratory (local team)</b>						
Technician (Winnie)	1	7	130'000	910'000	910'000	
Technician (Dorcas)	1	7	150'000	1'050'000	1'050'000	
Ifakara TC DRCHCO 1	1	2		65'000	240'000	
Ulanga DRChco1	1	1		130'000	130'000	
Mlimba district DRChco 1	1	1		130'000	260'000	
<b>PERSONELL</b>				<b>8'120'000.00</b>	<b>8'750'000.00</b>	<b>3340</b>
<b>Transportation and Accomodation</b>						
Car Ifakara – Mang'ula				250'000	250'000	
Min bus Go and flow				1'500'000	1'500'000	
CECAP - Mang'ula to Kiberege				60'000	60'000	
Flight Sina Kern				3'000'000	0	1187
Visum Sina Kern				500'000	0	260
Accomodation Sina Kern				500'000	350'000	
<b>Transportation and Accomodation</b>				<b>5'810'000</b>	<b>2'160'000</b>	<b>2217</b>
<b>Food for local staff</b>						
Breakfast	15	7	4'000	420'000	420'000	
Lunch	15	7	9'000	945'000	945'000	
<b>Food for local staff</b>				<b>1'365'000</b>	<b>1'365'000</b>	<b>521</b>
<b>Materials and consumables</b>						
Announcement (radio) Matangazo				340'000	340'000	
Generator rental (power back-up)				50'000	50'000	
LEEP-machine				5'400'000		667
Material for LEEP Simulation Model				1'200'000	104'000	
Consumables				7'000'000	14'364'764	
<b>Materials and consumables</b>				<b>13'990'000</b>	<b>14'858'764</b>	<b>5671</b>
<b>Total costs for SGGG proposal in TzS</b>				<b>29'285'000</b>		
<b>Total costs for SGGG proposal in CHF</b>				<b>11'615</b>		<b>11'749</b>

Umrechnungskurs 15.5.2023: 1 CHF=2620 Tsh

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Thank you for your attention

