



# Vaccine Research and Development in Kenya: Current and Future Perspectives

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## Presentation outline

- Vaccine research capacity in Kenya
- Current efforts to manufacture vaccines in Kenya
- Strategic of approach of human vaccine production in Kenya
- The potential impact of the local human vaccine production initiatives and expected effect on Vaccine research capacity in Kenya

## Vaccine research capacity in Kenya

- KEMRI has developed a national platform for clinical trials research , including vaccines trials in 4 key sites.( Nairobi, Kisumu, Thika, Kilifi)
- Kenya has a huge pool of scientists with substantial expertise in vaccine research and development (KEMRI, University of Nairobi, Institute of Primate Research, ILRI).
- The country has established key equipment and infrastructure to support vaccine research and development (Fermenters, DNA synthesizers, Oligo sequencers, cell culture facilities, animal houses etc.
- Kenya already produces animal vaccines through Kenya Veterinary Vaccine Production Institute (KEVEVAPI)

## Some recent and on-going human vaccine clinical trials in Kenya

Types of the vaccine	Study description	Partners
CRC HIV trials for RV460	Adjuvant study for a DNA/ Protein Prime/Boost HIV Vaccine using gp145	CRC/KEMRI
HIV/AIDS Vaccine Trial ,HIVconsVX	A chimeric vaccine that can target a wide range of HIV mutants	KAVI/Oxford University
ChAdOx1 nCoV-19 vaccine (AstraZeneca Vaccine)	Evaluation of toxicity & efficacy of ChAdOx1 nCoV-19 vaccine	Welcome trust/ KEMRI /Oxford University
Malaria RTS,S/AS01 vaccine	Phase 3 Evaluation of toxicity & efficacy RTS,S/AS01 vaccine	KEMRI/GSK/PATH
Phase III R21/Matrix-M Malaria Vaccine Trial	Assessment of the malaria vaccine's, efficacy, its safety, and tolerability among infants and young children.	KEMRI/University of Oxford/ Serum Institute
Single dose HPV Vaccine	Evaluation of efficacy of single dose Gardasil HPV vaccine as compared to current 2 or 3 doses	KEMRI/University of Washington/ Merck

# Current efforts to manufacture human vaccines in Kenya

Kenya has currently four efforts to manufacture human vaccines;

	<b>Human Vaccine Initiative in Kenya</b>	<b>Current status</b>
1.	Fully -Government owned, Kenya Biovax Institute Ltd.	Turnkey procurement and equipment installation process on-going
2.	Smart Vaccine Facility Project (SVFP) at Konza city (Kenya/South Korea)	Discussions with Korean Exim Bank on-going.
3.	Moderna /Kenya initiative	Negotiations on-going.
4.	Dawa (K) Limited initiative	Feasibility study on-going

# Strategic approach to human vaccine production in Kenya

The human vaccine production in Kenya will follow 3 phases in sequential order as shown below:

<b>Phase 1</b>	<b>Phase 2</b>	<b>Phase 3</b>
'Fill-and-finish' facility	Fully-fledged sterile manufacturing, including formulation & development	Incorporate research & development elements

# Priority vaccines

- Selection basis: value, demand, budget allocation, ease of production.
- Start with :
  - COVID-19
  - DTP
- Followed by:
  - DTP-HepB-Hib
  - Pneumococcal conjugate
  - Diphtheria-Tetanus
  - Rotavirus
  - Polio
  - Meningococcal

# Potential impact of local human vaccine production

- Promotion of Vaccine research capacity in Kenya [as a result of increased knowledge on vaccine development, availability of channels to exploit research outputs]
- capacity to deal with future pandemics / epidemics [lessons learnt from COVID-19]
- Ensure continuity of vaccine supply post-GAVI support - availability, access, affordability
- Create regional bio-tech hub / technology transfer
- Job creation.



# Current Human Vaccine R & D activities in KEMRI

- Establishment of mRNA Technology Platform
- Development of novel vaccine adjuvants
- Development of new biomarkers of various vaccines
- Pilot production of snake antivenoms

Thank you