Cost-Effectiveness of Different Risk-Group Targeting Across 3 Types of PrEP in Zimbabwe

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BACKGROUND

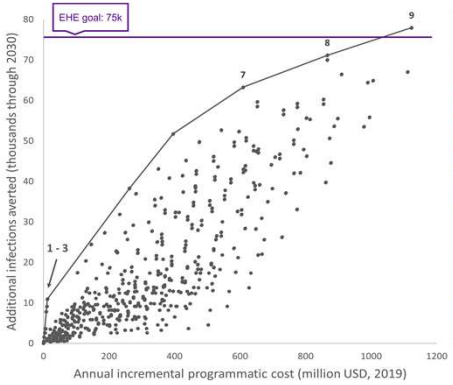
- Oral pre-exposure prophylaxis (oral PrEP) is standard in Zimbabwe HIV prevention.
- Long-acting, injectable PrEP (LA PrEP) and dapivirine vaginal ring (ring PrEP) recently introduced.
- However, it is unclear if ring PrEP and LA PrEP deliver greater benefit for the money than oral PrEP.
- **Aim:** Identify the most cost-effective implementation strategy across the three types of PrEP in Zimbabwe.

METHODS

- Validated HIV compartmental transmission model comparing 3,000+ permutations of PrEP implementation.
- Effectiveness, retention, coverage and cost inputs based on literature review, program data and expert opinion.
- Considered 3 types of PrEP
  - *LA PrEP:* 95% effectiveness with complete retention + 70% long-term retention → 67% real-world effectiveness; 0% current coverage; $144/person/year
  - *Oral PrEP:* 86% effectiveness with complete retention + 30% long-term retention → 26% real-world effectiveness; 10% current coverage; $96/person/year
  - *Ring PrEP:* 54% effectiveness with complete retention + 70% long-term retention → 38% real-world effectiveness; 0% current coverage; $143/person/year
- Considered 3 different coverage levels
  - 10%, 50%, 70%
- Considered 2 different choice structures
  - *Choice preferred:* ¾ to LA PrEP, with ¼ to oral PrEP for males, or evenly to oral and ring PrEP for females
  - *Fixed:* Only one type of PrEP available
- Considered 7 target risk groups
  - *AGYW:* Adolescent girls and young women
  - *ABYM:* Adolescent boys and young men
  - *25-34M:* Males between the ages of 25 and 34
  - *35-64M:* Males between the ages of 35 and 64
  - *FSW:* Female sex workers
  - *MSM:* Men who have sex with men
  - *CASM:* Conditions of Alcohol, Substance, or Mood
    - Binge drinking / Alcohol use disorder
    - Major depressive disorder

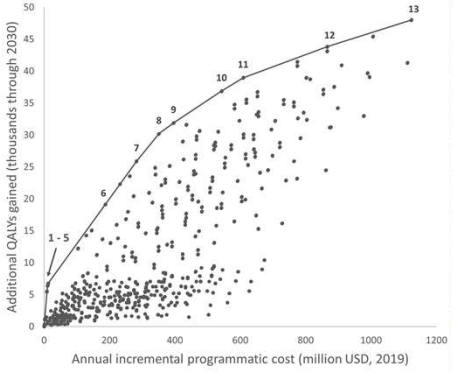
Long-acting injectable PrEP is the highest value HIV chemoprophylaxis to scale-up in Zimbabwe, with gains as high as ~$1,000/infection averted or ~$1,500/QALY added

RESULTS – Efficient Frontier for Infections Averted



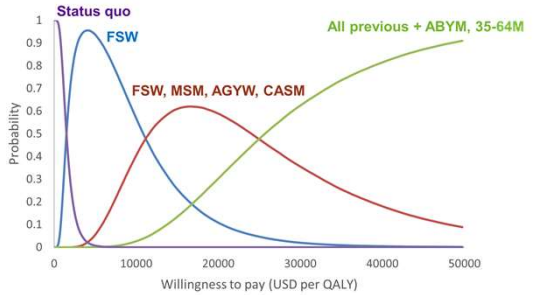
	PrEP (Coverage)	Risk Groups	ICER
1	LA (10%)	FSW	$1,081
2	LA (50%)	FSW	$1,081
3	LA (70%)	FSW	$1,081
4	LA (70%)	FSW, MSM	$6,234
5	LA (70%)	FSW, MSM, AGYW	$9,157
6	LA (70%)	FSW, MSM, AGYW, CASM	$9,893
7	LA (70%)	FSW, MSM, AGYW, CASM, 25-34M	$18,571
8	LA (70%)	FSW, MSM, AGYW, CASM, 25-34M, ABYM	$32,558
9	LA (70%)	FSW, MSM, AGYW, CASM, 25-34M, ABYM, 35-64M	$37,858

RESULTS – Efficient Frontier for QALYs Gained

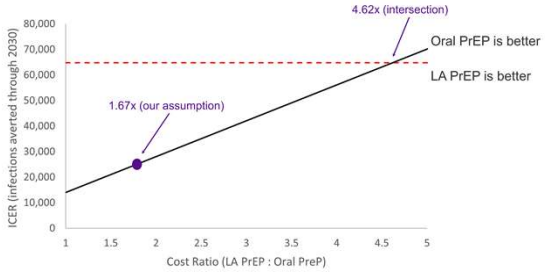


	PrEP (Coverage)	Risk Groups	ICER
1	LA (10%)	FSW	$1,544
2	LA (50%)	FSW	$1,545
3	Choice (70%)	FSW	$2,246
4	LA (70%)	FSW	$3,722
5	LA (70%)	FSW, MSM	$11,235
6	LA (50%)	FSW, MSM, AGYW	$14,133
7	Choice (70%)	FSW, AGYW	$14,141
8	Choice (70%)	FSW, MSM, AGYW, CASM	$15,881
9	LA (70%)	FSW, MSM, AGYW, CASM	$26,320
10	Choice (70%)	FSW, MSM, AGYW, CASM, 25-34M	$29,499
11	LA (70%)	FSW, MSM, AGYW, CASM, 25-34M	$31,708
12	LA (70%)	FSW, MSM, AGYW, CASM, 25-34M, ABYM	$52,852
13	LA (70%)	FSW, MSM, AGYW, CASM, 25-34M, ABYM, 35-64M	$61,455

RESULTS – Probabilistic Sensitivity Analysis



RESULTS – Cost Analysis for LA vs Oral PrEP



CONCLUSION

- Targeting high-risk populations with LA PrEP is the most cost-effective PrEP implementation strategy towards Zimbabwe's Ending the HIV Epidemic 2030 goal.

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