February 2017

Oral PrEP Introduction Zimbabwe Rollout Analysis

Pangaea Global in partnership with FSG

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OPTIONS
OPTIMIZING PREVENTION TECHNOLOGY INTRODUCTION ON SCHEDULE

Executive Summary

GOAL

Inform planning for the introduction oral PrEP in Zimbabwe by defining several scenarios that differ by target districts or target population groups that highlight considerations and trade-offs for decision-making

FINDINGS

- **Scenarios differ by potential impact and cost** – in general, there is a tradeoff between impact and cost
- While the HIV epidemic is spread across the country, there are concentrations of higher incidence districts in **Matabeleland South, Matabeleland North, Manicaland, Midlands, Mashonaland East, and Mashonaland Central** that would benefit most from PrEP access. The 26 districts in these provinces account for 57% of annual new HIV infections in Zimbabwe.
- Initial analysis suggests that rollout of PrEP to districts with the **highest incidence and new HIV infections** would be most cost-effective
- Rolling out PrEP to **AGYW and key populations (i.e., FSW, MSM, truck drivers)** in districts with ongoing demonstration projects (e.g., DREAMS, SAPPH-ire) and key population services (e.g., CeSSHAR and GALZ) can leverage important learning and existing assets
- Rolling out PrEP to high risk livelihood sectors like **commercial farming and mining** could potentially unlock private sector funding for PrEP delivery and have a significant impact on HIV incidence

NEXT STEPS

Further analysis planned for 2017 will improve understanding of effective delivery approaches and develop refined cost and cost-effectiveness/impact estimates for these scenarios

Further detail on these findings is included in the following slides

Please see the full rollout analysis for additional information

Rollout Analysis: Methodology

METHOLOGY

- The analysis included herein **does not model the impact and/or cost effectiveness of providing PrEP** to districts, populations and/or delivery channels
- Rather, it uses **existing public district-level data** (e.g., 2015 modelled incidence estimates, 2015 ZNASP strategy) on HIV incidence, population demographics, locations of PrEP demo projects (e.g., DREAMS and SAPPH-ire) and HIV prevention services (e.g., CeSSHAR) to **develop multi-district scenarios for PrEP rollout** and **provide high-level assessments of potential impact and cost for each scenario**
- Scenarios are developed by **grouping districts** with similar incidence rates, absolute new infections, potential target population concentrations (e.g., farmers and miners) or presence of demo project/HIV service delivery channels (e.g., CeSSHAR, DREAMS)
- **Potential impact and cost hypotheses** are directional and only based on absolute number of new infections, number of districts, presence of demo projects and the number of districts in each scenario
- These hypotheses will **need to be refined and validated** with planned modelling studies and learning on risk assessment from demo projects

SOURCES

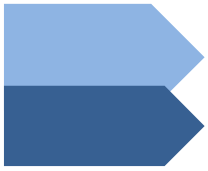
- 2015 **district-level HIV incidence and new infections data** (e.g., Zimbabwe spectrum file, Avenir Health)
- 2015 **risk factors data** (e.g., USAID 2015 demographic and health survey)
- Other **publicly available reports** (e.g., 2015-2018 ZNASP and UNAIDS hotspot mapping)

The following slide provides additional detail on data sources for the analysis

Sources: FSG analysis

Rollout Analysis: Additional detail on included data

(Please see appendix for full data tables)

	What data is included?	What data is not included?
Incidence 	✓ High, medium, low incidence groups developed with similar bands as Kenya (e.g., high = > national average) ✓ District-level 15+ incidence and new HIV infections *(*Avenir/Spectrum, 2015. *Can be updated with ZIMPHIA, DHS)* ✓ List of MOHCC/NAC and PEPFAR priority districts	× Modelled impact and/or cost-effectiveness of PrEP within a specific district/province
Populations 	✓ Population contributions to HIV infections (UNAIDS, 2011), HIV prevalence for livelihoods populations (UNAIDS, 2014) ✓ **Appendix:** District level PLHIV estimates (Avenir/Spectrum, 2015) as proxy for sero-discordant couples ✓ **Appendix:** Province level AGYW data including HIV infections (UNAIDS, 2015), HIV prevalence (ANC, 2012; DHS, 2015) and median age of sexual debut, teenage pregnancy (DHS, 2015) ✓ **Appendix:** Province level data on factors associated with HIV risk including multiple sexual partners, payment for sex, high-risk sex, and self-reported STIs and STI symptoms (DHS, 2015) ✓ **Appendix:** HIV prevention service organizations by district	× Size estimates of FSW, MSM, sero-discordant couples, PWID, other key populations (e.g., truck drivers, commercial farmworkers, and miners) × Prevalence and/or incidence of FSW, MSM, sero-discordant couples, PWID, other key populations (e.g., truck drivers, commercial farmworkers, and miners) × District level data on factors associated with greater HIV risk × District level AGYW new infections or ANC prevalence
Demo Projects 	✓ Information on PrEP demonstration projects including goal, target populations, and target districts ✓ **Appendix:** Additional information on research objectives, strengths, challenges and project status	× Prevalence and/or incidence of key populations reached by each demonstration project × Current and/or planned demonstration project implementation science research insights
Scenarios 	✓ Summary description, target districts, # of districts, total 15+ population, coverage of new HIV infections, potential delivery channels and high-level delivery approach (e.g., general or tailored) ✓ High level assessment of potential impact and cost	× Detailed assessment of rollout scale × Modelled impact and/or cost-effectiveness of PrEP delivery for each scenario × Guidance on specific delivery channels or delivery approach

Sources: FSG analysis

This analysis includes data on three key factors for PrEP rollout to define eight potential scenarios for PrEP scale-up

Which districts in Zimbabwe would benefit most from access to PrEP?

Which populations would benefit most from access to PrEP?

In which districts and for which populations is PrEP delivery already occurring through demonstration or pilot projects?

Further detail on these three areas is included in the following slides

Planned research and analysis will strengthen this analysis in 2017

Zimbabwe's HIV epidemic is dispersed with a concentration of high incidence districts in Matabeleland and Manicaland

Districts by HIV Incidence Category, 2015

Note: *It will be important to validate category thresholds with stakeholders*

Incidence Categories	
1	High Incidence (> national average 0.78)
2	Medium Incidence (0.5-0.78)
3	Low Incidence (<0.5)

MASHONALAND WEST

Makonde
Zvimba
Chegutu
Hurungwe
Kadoma
Kariba

MASHONALAND CENTRAL

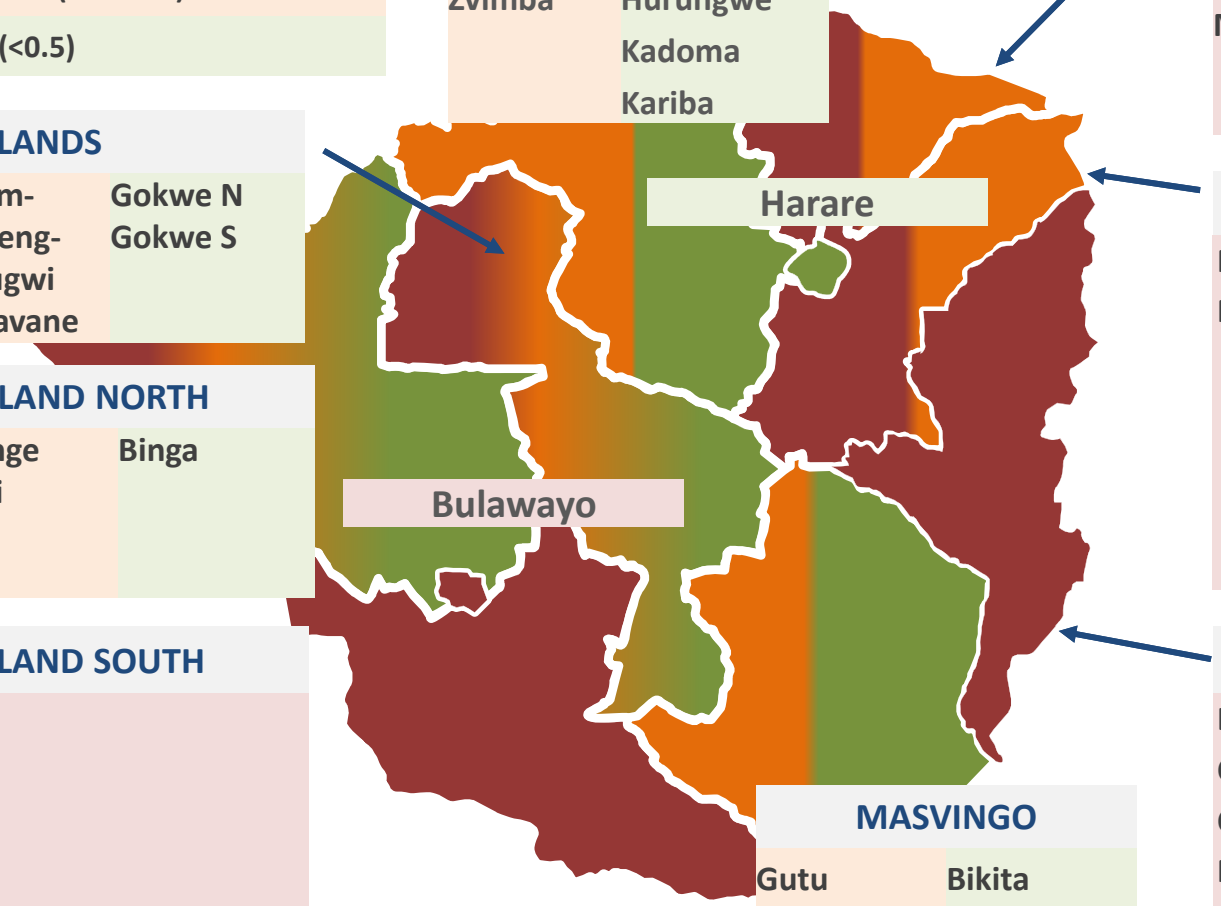
Guruve
Mazowe
Mbire
Bindura
Centenary
Mount Darwin
Rushinga
Shamva

MIDLANDS

Gweru
Kwekwe
Chirum-Mbereng-Shurugwi
Zvishavane
Gokwe N
Gokwe S

MASHONALAND EAST

Marondera
Murehwa
Chikomba
Goromonzi
Mudzi
Mutoko
Seke
UMP
Wedza



MATABELELAND NORTH

Bubi
Lupane
Tsholotsho
Umguza
Hwange
Nkayi
Binga

MATABELELAND SOUTH

Beitbridge
Bulilima (North)
Gwanda
Insiza
Mangwe (South)
Matobo
Umzingwane

MASVINGO

Gutu
Masvingo
Zaka
Bikita
Chiredzi
Chivi
Mwenezi

MANICALAND

Buhera
Chimanimani
Chipinge
Makoni
Mutare
Mutasa
Nyanga

Sources: Zimbabwe 2015 Estimates

Districts classified as both hotspots and PEPFAR priorities could be an important factor for identifying PrEP targets

Districts Prioritized by MOHCC/NAC and PEPFAR, 2015

Note: *It will be important to test whether MOHCC views these priorities as useful for PrEP implementation planning*

	MOHCC/NAC Hotspot and PEPFAR Target		Only MOHCC/ NAC Hotspot	Only PEPFAR Target		Not prioritized in either plan	
High	Insiza	Mutasa	Bubi	Gweru*		Chimanimani	
	Matobo	Buhera	Mangwe (South)	Murehwa		Umguza	
	Gwanda	Chipinge*	Umzingwane	Guruve		Mbire	
	Bulawayo*	Mutare*	Nyanga	Lupane			
	Bulilima (North)	Marondera		Kwekwe			
	Makoni*	Mazowe*		Tsholotsho			
	Beitbridge						
Medium	Nkayi		Bindura	Shurugwi	Masvingo*	Chirumhanzu	UMP
	Mount Darwin		Centenary	Goromonzi	Zvimba	Chikomba	Mutoko
	Makonde		Shamva	Gutu	Zaka	Wedza	Hwange
				Mberengwa		Mudzi	Seke
						Zvishavane	Rushinga
Low	Chegutu		Kadoma	Harare	Gokwe South	Bikita	Kariba
	Hurungwe			Chiredzi	Mwenezi	Binga	Gokwe North
				Chivi			

Key Conclusions

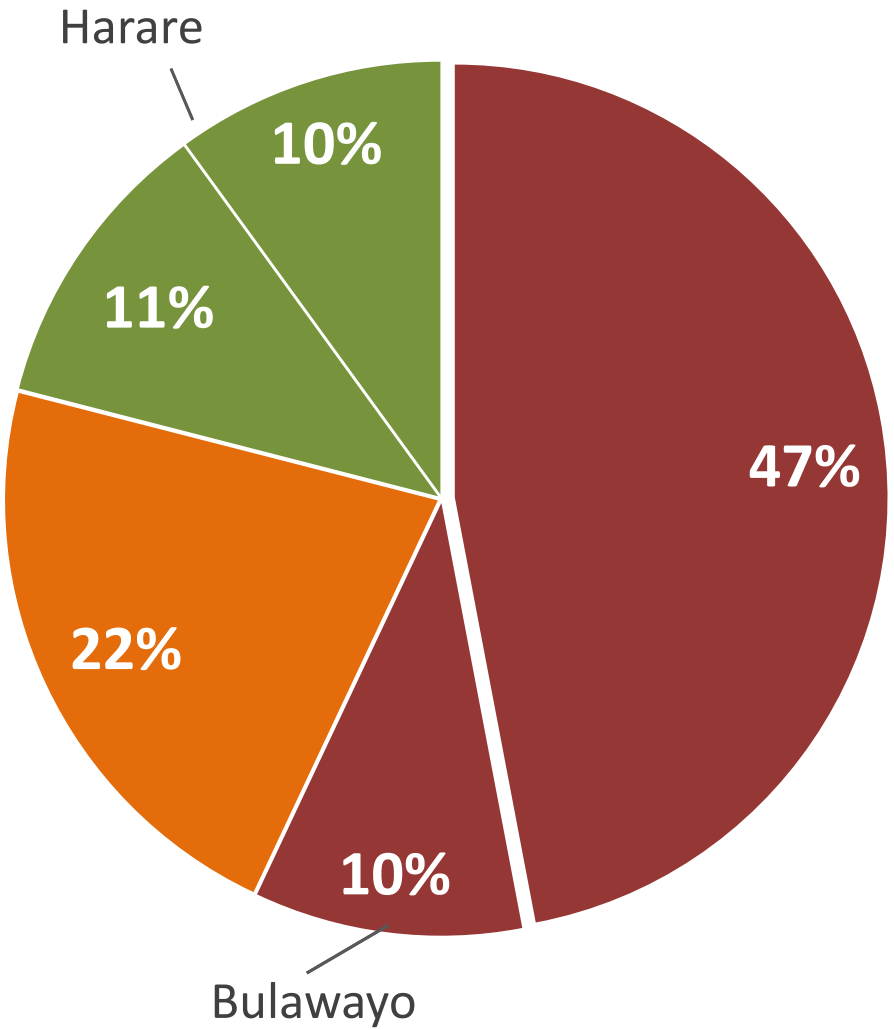
- Understanding **MOHCC/NAC hotspot and PEPFAR priorities** may be one way of identifying districts that could leverage resources and commitments from MOHCC and PEPFAR for PrEP delivery
- A **significant number of medium incidence districts are not currently targeted by either PEPFAR or MOHCC/NAC**; some (e.g., Chikomba, Mudzi, Zvishavane, Mutoko, Hwange, and Rushinga) may warrant additional attention due to current CeSSHAR targeting and/or high concentration of mining
- Most of the high incidence districts prioritized by both MOHCC and PEPFAR are in **Matabeleland South and Manicaland provinces**

* DREAMS districts

Sources: "Smart Investment to End HIV/AIDS in Zimbabwe based on Hotspot Analysis," NAC, MOHCC, WFP, UNAIDS, PEPFAR, 2015; ZNASP, 2015; PEPFAR, 2016.

The high and medium incidence districts comprise ~80% of all new HIV infections in Zimbabwe

Proportion of National Adult 15+ New HIV Infections by Incidence Category, 2015



Incidence Category		# of Districts	Total Population (15+ HIV Neg)	# of New Infections (15+)
1	High Incidence	26	2.7M	33K
2	Medium Incidence	23	2.1M	13K
3	Low Incidence	12	2.7M	12K

PrEP delivery should be prioritized in the high and medium incidence districts with additional focus on Harare due to high new HIV infections

Sources: Zimbabwe 2015 Estimates

High risk general population groups comprise a large proportion of total HIV infections

Populations	Contribution to Total HIV Infections		
High risk general population groups	Stable Unions / Discordant Couples	Casual Heterosexual Sex / Partners	Adolescent Girls and Young Women
	54.8%	29.0%	~25%
Key populations	FSW & Clients	MSM & Partners	PWID & Partners
	11.7%	6.7%	1.5%
Livelihoods sector populations	Commercial Farmworkers	Miners	Truck Drivers
	Unknown	Unknown	Unknown
	27% HIV Prevalence	*24% HIV Prevalence*	*Unknown HIV prevalence*

To reduce HIV infections, PrEP should be made available to high-risk general population groups and proactively targeted to other populations

Sources: HIV Modes of Transmission Study, 2011; National ANC Clinics Survey, MOHCC, 2013; MOHCC, UNAIDS, Hotspot Report, 2015

Demonstration projects are already delivering PrEP to some of these population groups and delivery channels

High risk general population groups

Adolescent Girls and Young Women

DREAMS

Goal: Reduce HIV infections among AGYW and address poverty, gender inequality, sexual violence, and lack of education

Population: Adolescent girls and young women 15-24 years old

Districts: Outreach to 7 districts, including Masvingo, Bulawayo, Mutare, Makoni, Chipinge, Gweru, and Mazowe

Channels: New start PSI, clinics and rural health centers, SHAZ project locations

Key populations

Female Sex Workers

SAPPH-Ire (CeSSHAR)

Goal: Enhance HIV treatment and prevention by increasing uptake and adherence to PrEP and promote timely initiation of ART for those eligible

Population: Female sex workers

Districts: Outreach to 14 districts, including, Chipinge, Harare, Goromonzi, Marondera, Hurungwe, Gutu,Bindura, Chikomba, Kadoma, Kariba, Masvingo, Gwanda, Makonde, and Zvishvane *(districts selected based on sister FSW program duration, population size, and community type)*

Channels: Mobile Centers (clinic based, located along major transport routes)

Sources: Pangaea Global Health; AVAC PrEPWatch website; MCowan and Mtetwa, CeSSHAR, 2015; Dreams 2 page summary description, 2015; Organization Websites, 2016.

Looking across these factors, we can define eight scenarios for the scale-up of PrEP for different sets of districts in the coming years

PrEP Rollout Scenarios

Note: *Delivery approach, potential cost and impact are directional and will need to be refined with additional research, analysis and impact/cost-effectiveness modelling*

District Rollouts

1. Highest incidence districts
2. ZNASP hotspot districts
3. Districts with >1,000 annual new HIV infections
4. Districts with >500 annual new HIV infections

Population Rollouts

5. Sero-discordant couples
6. Adolescent girls and young women
7. Miners and commercial farmworkers
8. FSW, MSM and truck drivers

Sources: FSG analysis

District Rollout Scenarios

1 Highest Incidence Districts

Incidence: 1.2% - 1.9%

Annual new infections: ~40% adult new infections

Districts and Population: 13 districts, 1.6M 15+ population

Opportunity: Provides significant impact with less expansive and expensive rollout in circumstances with limited resources; all districts are ZNASP hotspots

Delivery Approach

- Comprehensive rollout to all districts of Matabeleland South, Manicaland and Bulawayo

Comprehensive generalized rollouts to all high-risk populations via public health facilities, rural health centers, family planning and SRH clinics

More limited tailored rollouts based on localized drivers of HIV in each district

2 ZNASP Hotspot Districts

Incidence: 0.4% - 1.9%

Annual new infections: ~55% adult new infections

Districts and Population: 26 districts, 3.0M 15+ population

Opportunity: Captures over 50% of new infections, but likely requires ~2x resources than Scenario #1; all districts are ZNASP hotspots

Delivery Approach

- Comprehensive rollout to all districts of Matabeleland S., Manicaland, Bulawayo, as well as Mazowe (Mash C.), Marondera (Mash E), and Bubi (Mat N.)
- More limited rollout to Mat. North and Mashonaland districts, including medium incidence Nkayi, Centenary, Bindura, Shamva, Mount Darwin and Makonde; low incidence Chegutu, Hurungwe and Kadoma

3 Districts with >1,000 Annual New Infections

Incidence: 0.5% - 1.7%

Annual new infections: ~55% adult new infections

Districts and Population: 15 districts, 3.6M 15+ population

Opportunity: Captures same number of new infections as Scenario #2 but less resource intensive given rollout to fewer districts; over 50% of districts are ZNASP hotspots

Delivery Approach

- Comprehensive rollout to Manicaland and urban centers in Mashonaland, Midlands, and Mat. S. districts of Kwekwe, Gweru, Mutare, Marondera, Mazowe, Murehwa, Gwanda and Bulawayo
- More limited rollout in Masvingo and Mashonaland East districts, including medium incidence Masvingo and Goromonzi; low incidence Harare

4 Districts with >500 Annual New Infections

Incidence: 0.4% - 1.9%

Annual new infections: ~85% adult new infections

Districts and Population: 38 districts, 6.0M 15+ population

Opportunity: Covers districts with majority of new HIV infections but requires the greatest resource allocation of any scenario; over 50% of districts are ZNASP hotspots

Delivery Approach

- Comprehensive rollout to all high incidence districts with greater than 500 HIV infections (covers broad range of provinces)
- More limited rollout to all medium and low incidence districts with greater than 500 HIV infections (covers broad range of provinces)

Sources: FSG analysis

Population Rollout Scenarios

Population Rollouts

5 Sero-Discordant Couples

Targeting: Districts with high PLHIV and high ART coverage

Annual new infections: ~20% adult new infections (based on discordant couples reached)

Districts and Population: 13 districts, ~580K PLHIV 15+;

Opportunity: Population accounts for 55% of new HIV infections; PrEP can be offered to discordant partners of PLHIV; in-line with ZNASP

Delivery Approach

- Rollout to reach discordant couples through public health clinics/rural health centers with ART delivery capabilities and significant current coverage
- Target districts: Bulawayo, Gweru, Buhera, Gwanda, Masvingo, Zvimba, Makonde, Gutu, Harare, Hurungwe, Chiredzi, Gokwe South and Chegutu

6 Adolescent Girls and Young Women

Targeting: DREAMS districts

Annual new infections: At least 5% adult new infections (based on AGYW reached)

Districts and Population: 7 districts, ~250K AGYW population

Opportunity: Leverage learning from the DREAMS project on best practices to deliver PrEP to AGYW; in-line with ZNASP

Delivery Approach

- Broader rollout in DREAMS districts to reach additional AGYW in New Start PSI clinics; youth friendly public health clinics / rural health centers; SHAZ clinic
- Target districts: Bulawayo, Makoni, Chipinge, Mutare, Mazowe, Gweru, and Masvingo

7 Miners and Commercial Farmworkers

Targeting: Workplaces and informal mines in high/ medium incidence districts

Annual new infections: At least 5% adult new infections (based on workers reached)

Districts and Population: 36 districts, ~260K workers

Opportunity: Engage private sector (large firms and informal) to provide PrEP at little cost to gov't/donors; in-line with ZNASP

Delivery Approach

- Rollout to farm clinics, mine clinics, and public clinics / rural health centers in districts with high density of commercial farms/mines; informal mining
- Majority of commercial farms in Mashonaland and Manicaland
- Major mining districts include Bindura, Hwange, Kwekwe, and Zvishvane

8 FSW, MSM and Truck Drivers

Targeting: Districts with SAPPH-ire sites; PEPFAR key pop and CeSSHAR services

Annual new infections: At least 10% adult new infections

Districts and Population: 32 districts, ~115 key populations

Opportunity: Leverage learning from SAPPH-ire; CeSSHAR; as well as PEPFAR funding dedicated to FSW and MSM; in-line with ZNASP

Delivery Approach

- Rollout to New Start PSI clinics; CeSSHAR/GALZ sites and network; public health clinics / rural health centers
- CeSSHAR sites reach high-risk truck drivers and are located across the country along transport routes
- See appendix for districts with SAPPH-ire sites and CeSSHAR services as well as PEPFAR key pop. targets

Sources: FSG analysis

Scenarios differ by potential impact and cost

(scenarios ordered by potential impact)

Note: *Potential cost represents relative rollout scale given # of districts, total # of individuals and presence of demo projects for each scenario;*

	Scenario		Potential Impact	Potential Cost
District Rollout	4	Districts with >500 Annual New Infections	HIGHER IMPACT ~85% adult new infections	HIGHER TOTAL COST 38 districts (6.0M 15+ population) | some demo project coverage
	3	Districts with >1,000 Annual New Infections	HIGHER IMPACT ~55% adult new infections	LOWER TOTAL COST 15 districts (3.6M 15+ population) | some demo project coverage
	2	ZNASP Hotspot Districts	HIGHER IMPACT ~55% adult new infections	MODERATE TOTAL COST 26 districts (3.0M 15+ population) | some demo project coverage
	1	Highest Incidence Districts	MODERATE IMPACT ~40% adult new infections	LOWER TOTAL COST 13 districts (1.6M 15+ population) | some demo project coverage
Population Rollout	6	Sero-discordant couples	LOWER IMPACT ~20% adult new infections	LOWER TOTAL COST 12 districts | 580K PLHIV (15+) | limited demo project coverage
	9	FSW, MSM and Truck Drivers	LOWER IMPACT At least ~10% adult new infections	LOWER TOTAL COST 32 districts | ~115K key populations| some demo project coverage
	7	Adolescent Girls and Young Women	LOWER IMPACT At least ~5% adult new infections	LOWER TOTAL COST 7 districts|250K AGYW | some demo project coverage
	8	Miners and Commercial Farmworkers	LOWER IMPACT At least ~5% adult new infections	LOWER TOTAL COST Farming= 26 districts |~190K farmers| no demo project coverage Mining= 16 districts | ~70K miners| no demo project coverage

Sources: Zimbabwe 2015 Estimates; PEPFAR, 2016; ZIMSTAT, 2016; CeSSHAR, 2013.

Four next steps will help inform decision-making

This analysis relied primarily on available secondary research, existing data sources, and preliminary modeling analysis results. Further analysis in 2017 will refine these recommendations and implications for Zimbabwe's PrEP implementation plan.

Demonstration projects will generate **learning, tools and resources** on best practices for effectively rolling out PrEP to different populations and delivery channels

Impact modelling will enable **cost-effectiveness comparisons** across the rollout scenarios

Costing studies will provide an **understanding of resource needs** for delivering PrEP to different populations and channels

District-level assessments could help **clarify readiness for PrEP delivery and inform district planning** *(Please see readiness assessment slides for additional information)*

Rollout Analysis: Questions for Input

1. What are the **most important factors** (e.g., HIV incidence, presence of demonstration projects, MOHCC and PEPFAR prioritization) that might drive decision-making and planning for PrEP delivery?
2. Does MOHCC anticipate **rolling out PrEP to groups of districts in a phased approach** like the rollout scenarios included in this analysis?
3. What **questions** do you have related to the analysis? What is **unclear**?
4. With the understanding that impact, cost-effectiveness modeling and costing studies will not be available in the near-term, is **looking at these scenarios with directional assessments of potential impact and cost based on the size of rollout helpful?**
5. What **additional organizations and/or individuals** would you recommend engaging to strengthen the analysis in advance of sharing with the TWG?

Appendix

Appendix: Table of Contents

Which districts in Zimbabwe would benefit most from access to PrEP?

Which populations would benefit most from access to PrEP?

In which districts and for which populations is PrEP delivery already occurring through demonstration or pilot projects?

Explanation of high, medium, low categorization thresholds included in the following data slides

Indicator	High	Medium	Low
Incidence Rate (15+)	> national average of .78	0.5 - national average of .78	< 0.5
New Infections (15+)	>1,000 total per district or ~2% of national total	500-1,000 total per district or ~1-2% of national total	<500 total per district or <1% of national total

High incidence districts account for 57% of HIV infections

1 High incidence districts HIV data (ranked by incidence; 1 of 2)

Province	District	Incidence (%, 15+)	New Infections (#, 15+)
Matabeleland South	Insiza	1.86%	960
Matabeleland South	Umzingwane	1.72%	568
Matabeleland South	Matobo	1.70%	880
Matabeleland South	Gwanda	1.65%	1,200
Matabeleland South	Mangwe (South)	1.57%	544
Bulawayo	Bulawayo	1.54%	6,075
Matabeleland South	Bulilima (North)	1.53%	880
Manicaland	Makoni	1.53%	2,430
Matabeleland South	Beitbridge	1.48%	960
Manicaland	Mutasa	1.43%	1,264
Manicaland	Buhera	1.26%	1,750
Manicaland	Chipinge	1.25%	2,236
Manicaland	Mutare	1.18%	2,916

Key Conclusions

- While the **districts of Matabeleland South** have high incidence rates, they have smaller absolute numbers of new HIV infections
- **Bulawayo** has a very high incidence rate and high number of new HIV infections- the province makes up nearly 10% of national new HIV infections
- The **districts of Manicaland** have high incidence rates and new HIV infections – areas along the border region and transport hubs could be good areas to target for PrEP delivery

Sources: Zimbabwe 2015 Estimates

High incidence districts account for 57% of HIV infections

1 High incidence districts HIV data (ranked by incidence; 2 of 2)

Province	District	Incidence (%, 15+)	New Infections (#, 15+)
Mashonaland East	Marondera	1.11%	1,050
Matabeleland North	Bubi	1.07%	329
Mashonaland Central	Mazowe	1.04%	1,344
Manicaland	Nyanga	1.04%	739
Manicaland	Chimanimani	1.02%	778
Midlands	Gweru	0.99%	1,322
Mashonaland East	Murehwa	0.96%	1,050
Matabeleland North	Umguza	0.93%	411
Mashonaland Central	Guruve	0.93%	584
Mashonaland Central	Mbire	0.90%	397
Matabeleland North	Lupane	0.89%	448
Midlands	Kwekwe	0.85%	1,454
Matabeleland North	Tsholotsho	0.80%	485

Key Conclusions

- Districts near to the Harare metropolitan area like **Marondera, Mazowe, and Murehwa** exhibit high incidence rates and new HIV infections
- Districts that comprise large towns and lie along the Harare Bulawayo highway like **Gweru and Kwekwe** also exhibit high incidence and new HIV infections
- Similar to Matabeleland South, the districts of **Matabeleland North (Bubi, Umguza, Lupane, and Tsholotsho)** primarily exhibit high incidence rates but low numbers of new HIV infections due to their small populations

Sources: Zimbabwe 2015 Estimates

Medium incidence districts account for 22% of HIV infections

2 Medium incidence districts HIV data (ranked by incidence; 1 of 2)

Province	District	Incidence (%, 15+)	New Infections (#, 15+)
Midlands	Chirumhanzu	0.78%	352
Mashonaland East	Chikomba	0.78%	552
Mashonaland East	Wedza	0.76%	309
Midlands	Shurugwi	0.76%	441
Mashonaland East	Goromonzi	0.74%	1,215
Mashonaland Central	Centenary	0.73%	491
Mashonaland East	Mudzi	0.70%	541
Matabeleland North	Nkayi	0.70%	411
Midlands	Zvishavane	0.69%	441
Mashonaland East	Seke	0.68%	403
Mashonaland Central	Rushinga	0.66%	263
Mashonaland Central	Bindura	0.65%	643

Key Conclusions

- **Centenary, Nkayi and Bindura** are classified as hotspots or potential hotspots by MOHCC/NAC
- **Goromonzi** is near the Harare Metropolitan area, lies on a key transport route, and exhibits high new HIV infections
- **Mudzi and Chikomba** also lie along key transport routes and exhibit a medium number of new HIV infections
- **Other districts** exhibit relatively high incidence rates of greater than 0.6%

Sources: Zimbabwe 2015 Estimates

Medium incidence districts account for 22% of HIV infections

2 Medium incidence districts HIV data (ranked by incidence; 2 of 2)

Province	District	Incidence (%, 15+)	New Infections (#, 15+)
Mashonaland East	UMP	0.63%	420
Mashonaland Central	Shamva	0.62%	421
Midlands	Mberengwa	0.62%	661
Mashonaland East	Mutoko	0.62%	552
Masvingo	Gutu	0.61%	716
Mashonaland West	Zvimba	0.58%	863
Masvingo	Masvingo	0.51%	1,003
Mashonaland Central	Mount Darwin	0.57%	701
Matabeleland North	Hwange	0.56%	411
Mashonaland West	Makonde	0.55%	751
Masvingo	Zaka	0.51%	537
Mashonaland East	UMP	0.63%	420

Key Conclusions

- **Makonde and Shamva** are both classified as potential hot spots by MOHCC/NAC
- **Makonde and Zvimba** are both along the Harare-Lusaka truck route and exhibit high numbers of new HIV infections
- **Masvingo** is a large urban center and exhibits high new HIV infections
- **Mberengwa, Hwangwe, Mutoko, Gutu, Mount Darwin and Zaka** also exhibit relatively high rates of new HIV infections

Sources: Zimbabwe 2015 Estimates

Low incidence districts account for 21% of HIV infections

3 Low incidence districts HIV data (ranked by incidence)

Province	District	Incidence (%, 15+)	New Infections (#, 15+)
Harare	Harare	0.49%	6,482
Masvingo	Chiredzi	0.48%	860
Masvingo	Chivi	0.47%	466
Masvingo	Mwenezi	0.46%	466
Mashonaland West	Chegutu	0.46%	751
Midlands	Gokwe South	0.46%	925
Mashonaland West	Hurungwe	0.43%	938
Mashonaland West	Kadoma	0.42%	826
Masvingo	Bikita	0.37%	355
Matabeleland North	Binga	0.33%	273
Mashonaland West	Kariba	0.25%	113
Midlands	Gokwe North	0.23%	348

Key Conclusions

- **Harare** has a very high number of new infections . Even with its relatively low incidence rates, given the continued migration to Harare and the intense economic activity in the city and the metropolitan area, Harare will be an important location to prioritize PrEP delivery.
- **Kadoma, Hurungwe, Chegutu Urban and Epworth** (a sub-district near Harare not incorporated here) were also highlighted as potential hotspots by MOHCC/NAC

Sources: Zimbabwe 2015 Estimates

Appendix: Table of Contents

Which districts in Zimbabwe would benefit most from access to PrEP?

Which populations would benefit most from access to PrEP?

In which districts and for which populations is PrEP delivery already occurring through demonstration or pilot projects?

Summary: Which populations would benefit most from access to PrEP?

CONTENTS

The subsequent slides provide **provincial level publicly available data on:**

- PLHIV (proxy for sero-discordant couples)
- Prevalence/incidence among AGYW (proxy for high-risk AGYW)
- Indicators of high-risk sexual behavior (proxy for high-risk casual heterosexual sex)
- Locations of current key population services (proxy for key populations like FSW and MSM)

FINDINGS: GENERAL POPULATION

- **PrEP delivery to sero-discordant couples** should be prioritized in districts with high numbers of PLHIV
- **PrEP delivery to AGYW** should be prioritized in provinces that exhibit the highest risk AGYW (based on high prevalence and incidence) like Manicaland, Mashonaland East, Matabeleland South and Bulawayo
- **PrEP delivery to individuals reporting high risk sexual behaviors or casual heterosexual sex** (multiple sexual partners, payment for sex, STIs, etc.) should be prioritized in provinces that report these risk factors and also report high HIV prevalence/incidence like Bulawayo, Matabeleland South and Matabeleland North

FINDINGS: KEY POPULATIONS

- Until size estimates become available in late 2017, **MOHCC could focus initially on delivering PrEP to SAPPH-ire / PEPFAR key population targeted districts** and over time to a broader range of CeSSHAR and GALZ sites to reach key populations with PrEP

FINDINGS:LIVELIHOOD SECTOR POPULATIONS

- PrEP delivery to **commercial farmworkers and miners** could focus on partnering with major mining and commercial farming companies in order to unlock private sector funding for PrEP delivery; there is also an opportunity to direct PrEP to informal mining communities where high HIV incidence has been reported
- PrEP delivery to **truck drivers** could leverage existing CeSSHAR sites that that work with FSW and their clients

Sources: FSG analysis

General Population: PLHIV and sero-discordant couples

1 High incidence districts

District	Province	PLHIV
Bulawayo	Bulawayo	84,011
Mutare	Manicaland	41,589
Makoni	Manicaland	34,658
Kwekwe	Midlands	32,215
Chipinge	Manicaland	31,885
Gweru	Midlands	29,286
Mazowe	Mashonaland Central	25,511
Buhera	Manicaland	24,954
Marondera	Mashonaland East	21,361
Murehwa	Mashonaland East	21,361
Mutasa	Manicaland	18,022
Gwanda	Matabeleland South	17,949
Insiza	Matabeleland South	14,039
Beitbridge	Matabeleland South	14,039
Matobo	Matabeleland South	12,869
Bulilima N	Matabeleland South	12,869
Tsholotsho	Matabeleland North	12,698
Lupane	Matabeleland North	11,721
Guruve	Mashonaland Central	11,092
Chiman..	Manicaland	10,744
Umguza	Matabeleland North	10,536
Bubi	Matabeleland North	8,595
Umzing.	Matabeleland South	8,306
Mangwe S	Matabeleland South	7,955
Mbire	Mashonaland Central	7,543

2 Medium incidence districts

District	Province	PLHIV
Masvingo	Masvingo	28,756
Goromonzi	Mashonaland East	24,734
Zvimba	Mashonaland West	22,859
Makonde	Mashonaland West	19,877
Gutu	Masvingo	17,596
Mbereng.	Midlands	14,643
M. Darwin	Mashonaland Central	13,310
Zaka	Masvingo	13,197
Bindura	Mashonaland Central	12,201
Chikomba	Mashonaland East	11,243
Mutoko	Mashonaland East	11,243
Mudzi	Mashonaland East	11,018
Nkayi	Matabeleland North	10,744
Hwange	Matabeleland North	10,744
Shurugwi	Midlands	9,762
Zvishavane	Midlands	9,762
Centenary	Mashonaland Central	9,317
UMP	Mashonaland East	8,544
Seke	Mashonaland East	8,207
Shamva	Mashonaland Central	7,986
Chirumhanzu		7,810
Wedza		6,296
Rushinga		4,991

3 Low incidence districts

District	Province	PLHIV
Harare	Harare	153,955
Hurungwe	Mashonaland West	24,846
Chiredzi	Masvingo	21,115
Gokwe South	Midlands	20,500
Chegutu	Mashonaland West	19,877
Chivi	Masvingo	11,437
Mwenezi	Masvingo	11,437
Kadoma	Mashonaland West	10,932
Bikita	Masvingo	8,710
Gokwe North	Midlands	7,712
Binga	Matabeleland North	7,130
Kariba	Mashonaland West	2,982

Key

- >20,000 total PLHIV 15+ per district
- 10,000-20,000 total PLHIV 15+ per district
- <10,000 total PLHIV 15+ per district

Key Conclusions

- Stable unions and sero-discordant couples **contribute ~55% of all new HIV infections**
- **Delivering PrEP to ART sites in districts with high PLHIV** could reach HIV negative partners in sero-discordant relationships and **reduce new infections**
- **PLHIV are concentrated in urban centers** like Harare, Bulawayo, Masvingo, Gweru, Kadoma, Kwekwe, Marondera, Mutare and growth points in Manicaland as well as Murehwa, Hurungwe, Mazowe, Goromonzi and Zvimba

Sources: HIV Modes of Transmission Study, 2011; Zimbabwe Estimates, 2015.

General Population: Adolescent girls and young women

Key: Above/better than national average | Below/worse than national average

Province	ANC 15-24 Female Prevalence	DHS 15-24 Female Prevalence	UNAIDS 15-24 Female New Infections	DHS Median age of sexual debut	DHS Teenage pregnancy
Bulawayo	11.3%	9.5%	1,300	19.9	12.2%
Harare	5.8%	4.6%	1,200	20.0	9.9%
Manicaland	9.3%	8.0%	2,900	18.5	27.7%
Mashonaland Central	7.7%	5.3%	1,200	17.9	30.9%
Mashonaland East	10.2%	6.0%	1,500	18.6	25.3%
Mashonaland West	9.6%	4.4%	<1,000	18.1	20.4%
Masvingo	9.9%	4.4%	<1,000	18.9	17.6%
Matabeleland North	8.1%	5.9%	<1,000	17.7	26.1%
Matabeleland South	18.2%	10.0%	1,600	18.2	30.3%
Midlands	9.6%	4.8%	1,400	18.7	23.9%
National Average	9.9%	5.9%	n/a	18.7	21.6%

Key Conclusions

- Provinces exhibiting high prevalence and new infections as well as early sexual debut and teenage pregnancy (i.e., **Manicaland, Mash East and Mat South)** may signal early sex as a driver of HIV
- Provinces exhibiting high prevalence and new infections but later sexual debut and lower teenage pregnancy like **Bulawayo** may have epidemics driven more by other factors, such as the presence of PLHIV
- **Harare, Mash C. and Midlands** should be monitored given the relatively high infections
- **Mash West, Masvingo, and Matabeleland North.** seem to have epidemics more concentrated among other populations

Data Definitions

DHS teenage pregnancy: Percentage of women age 15-19 who have begun childbearing

Median age of sexual debut: Median age of first sexual intercourse (women aged 25-49)

Sources: National Survey of HIV and Syphilis among women attending antenatal clinics in Zimbabwe, Aids & TB Programme, 2013; 2015 Zimbabwe Demographic Health Survey, USAID;, 2010; 2015

General Population: High risk sexual behaviors (1 of 2)

Key: Above national average | Below national average

Province	Multiple sexual partners (women)	Multiple sexual partners (Men)	Payment for sex (Men)	Self-reported STI / symptoms (Women)
Bulawayo	2.7%	13.7%	4.3%	9.1%
Harare	1.5%	17.1%	4.1%	7.1%
Manicaland	0.3%	11.0%	4.3%	7.1%
Mashonaland Central	0.6%	13.3%	2.9%	10.0%
Mashonaland East	0.6%	13.3%	3.1%	9.4%
Mashonaland West	1.4%	15.0%	3.6%	11.2%
Masvingo	0.6%	11.9%	3.2%	6.2%
Matabeleland North	0.9%	15.4%	2.3%	9.8%
Matabeleland South	2.0%	17.0%	3.4%	6.5%
Midlands	1.4%	0.0%	3.2%	7.1%
National Average	1.1%	14.2%	3.5%	9.0%

Key Conclusions

- **There is no clear relationship between incidence and high risk sexual behavior**
- For example, **Harare and Mashonaland West** exhibit low incidence rates but high levels of risky sexual behavior – potentially indicating strong HIV prevention penetration
- At the same time, **Bulawayo and Matabeleland South** exhibit high levels of risky sexual behaviors and high incidence rates
- Additionally, **Manicaland** exhibits high incidence but lower risk sexual behaviors
- **Other provinces**, exhibit generally lower risk factors but differ widely in terms of their incidence levels

Data Definitions

Multiple sexual partners: Percentage of men/women 15-49 reporting multiple (2+) sexual partners in the last 12 months

Payment for sex: Percentage of men age 15-49 reporting payment for sexual intercourse in the past 12 month

STI: Percentage of women age 15-49reporting STI and STI symptoms in the past 12 months

Sources: 2015 Zimbabwe Demographic Health Survey, USAID, 2015

General Population: High risk sexual behaviors (2 of 2)

Key: Worse than national average | Better than national average

Province	High risk sex (Women)	High risk sex and used condom (Women)	High risk sex (Men)	High risk sex and used condom (Men)
Bulawayo	34.1%	65.1%	49.5%	84.7%
Harare	18.3%	71.2%	42.5%	89.6%
Manicaland	7.4%	63.3%	33.2%	86.4%
Mashonaland Central	7.1%	60.7%	33.4%	89.0%
Mashonaland East	10.3%	73.3%	25.9%	87.1%
Mashonaland West	10.7%	69.9%	33.1%	85.8%
Masvingo	9.0%	69.4%	33.5%	79.7%
Matabeleland North	20.6%	54.4%	47.1%	78.2%
Matabeleland South	33.9%	63.1%	57.5%	76.8%
Midlands	13.6%	67.2%	35.3%	86.0%
National Average	14.1%	66.7%	36.1%	85.3%

Key Conclusions

- **Bulawayo, Matabeleland South and Matabeleland North all exhibit high HIV incidence, high-risk sexual behaviors and low condom use**– indicating high-risk sex and the lack of condom use as a potential driver of the epidemic
- **Harare** exhibits high risk sex and high condom use- indicating the strength of HIV prevention in the province
- **Manicaland and Mash Central** both have high incidence and low risk sexual behavior but lower than average condom use – indicating importance of monitoring

Data Definitions

High risk sex: Percentage of women/men age 15-49who had intercourse in the past 12 months with a non-marital, non co-habitating partner

High risk and used condom: Percentage of women/men who had intercourse in the past 12 months with a non-marital, non-co-habitating partner and reported using a condom during last sex

Sources: HIV Modes of Transmission Study, 2011; PEPFAR, 2016.

Key Populations: FSW, MSM and Truck Drivers

	Province	District	SAPPH-ire Sites (FSW)	CeSSHAR Sites (FSW+ Truck Drivers)	PEPFAR Key Pop (FSM, MSM)	GALZ Network (FSW, MSM)
High	Mat. South	Gwanda	✓	✓		*To be completed*
	Bulawayo	Bulawayo		✓	✓	
	Mat. South	Bulilima N		✓		
	Manicaland	Makoni		✓		
	Mat. South	Beitbridge		✓		
	Manicaland	Chipinge	✓	✓	✓	
	Manicaland	Mutare		✓	✓	
	Mashonaland E.	Marondera	✓	✓		
	Manicaland	Chimi.		✓		
	Mashonaland C.	Mazowe	✓	✓		
	Midlands	Gweru	✓	✓	✓	
	Mat. North	Lupane		✓		
Medium	Mashonaland E.	Chikomba	✓	✓		
	Mashonaland E.	Goromonzi	✓	✓		
	Mashonaland East	Mudzi		✓		
	Mashonaland C.	Bindura	✓	✓		
	Mashonaland East	Mutoko		✓		
	Midlands	Zvishavane	✓	✓		
	Masvingo	Gutu	✓	✓		
	Matabeleland North	Hwange	✓	✓		
	Mashonaland West	Makonde	✓	✓		
	Masvingo	Masvingo	✓	✓	✓	
Low	Harare	Harare		✓	✓	
	Mashonaland W.	Hurungwe	✓	✓		
	Mashonaland W.	Kadoma	✓	✓		
	Mashonaland W	Kariba	✓	✓		
	Masvingo	Bikita		✓		
	Masvingo	Chiredzi		✓		
	Masvingo	Chivi		✓		
	Masvingo	Mwenezi		✓		
	Mashonaland West	Chegutu		✓		

Key Conclusions

- Key populations are targeted by SAPPH-ire demonstration projects, CeSSHAR FSW services and PEPFAR key population services **in a wide range of districts across the country**
- There is significant key population service emphasis in **Manicaland, Bulawayo, Masvingo, Mashonaland East, Mashonaland West and the Midlands**
- **Chipinge, Gweru, and Masvingo** are each targeted by SAPPH-ire, CeSSHAR and PEPFAR

Sources: HIV Modes of Transmission Study, 2011; National ANC Clinics Survey, MOHCC, 2013; MOHCC, UNAIDS, Hotspot Report, 2015.

Livelihoods Sector Populations: Farmers and Miners

Commercial Farmworker Populations

Opportunity

- Partnering with commercial farm companies could **unlock new financial resources for PrEP** delivery and provide healthcare entry points for highly mobile populations that might otherwise not have access to such facilities
- Important to incorporate **seasonality of farming** into rollout

Background

- The agriculture sector provides employment and income for **60-70% of the population; commercial farming makes up ~10% all farming in Zimbabwe**
- Commercial farm exports are mainly comprised of **tobacco cotton lint, raw sugar, tea and coffee, and flowers**
- The majority of commercial farms are located in the higher rainfall provinces of **Mashonaland West, Mashonaland Central, Mashonaland East, and Manicaland**
- **ZNASP prioritized commercial farmworkers** as a high-risk population group
- A 2005 study found that migrant farmers exhibited HIV **prevalence rates of 39% for women and 26% for men**, compared with 30% and 21% for the general population

Potential Private Sector Partners

- Innscor (Cotton); Triangle Estate (sugar cane), Forester Estates (tobacco), Mazowe Estates (citrus), and Ariston (tea)

Miner Populations

Opportunity

- Partnering with major mining companies can **unlock new financial resources for PrEP delivery**
- **Mining companies suffer economic losses** when their employees contract HIV
- Providing PrEP to miners can **avert HIV infections** and **improve the profitability** of the mining operations
- Important to incorporate **seasonality of mining operations** and **highly mobile nature** of the population into the rollout

Background

- **+800 mines** across the country
- 80% of exports are **gold, platinum and diamonds**
- Mining accounts for **approximately 4.5% of national employment or ~70k people**
- While mining is spread throughout the country, major mining districts include **Bindura, Hwange, Kwekwe, and Zvishvane**
- **ZNASP prioritized miners** as a high-risk population
- 2012 ANC study showed **HIV positivity rates among minders of 24%**, up from 14% in 2009

Potential Private Sector Partners

- Anglo American, Rio Tinto, Impala, Metallon, and Mimosa

Sources: Zimbabwe Investment Authority Mining Overview, 2016; Zimbabwe Chamber of Mines Mining Overview, 2013. Reuters, 2007; Matangi, 2006.

Appendix: Table of Contents

Which districts in Zimbabwe would benefit most from access to PrEP?

Which populations would benefit most from access to PrEP?

In which districts and for which populations is PrEP delivery already occurring through demonstration or pilot projects?

Additional detail on demonstration projects

	SAPPH-ire (CeSSHAR)	DREAMS
Background	• The SAPPH-Ire Demonstration Project in Zimbabwe has been implemented at 14 outreach sites that offer HIV services to female sex workers . The study began in July 2014 with enrollment of 2,800 women.	• The DREAMS initiative (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women) has begun providing PrEP to young women (18-24) in three (Chipinge, Mutare, and Bulawayo) of the six DREAMS districts (Bulawayo, Gweru, Mazowe, Makoni, Mutare, Chipinge) beginning in 2016. PrEP is being rolled out using the PSI New Start Centres • PrEP in the form of Truvada is donated by Gilead for use by DREAMS
Key Strengths	• Demo project reaching target populations at high risk of HIV transmission • Existing access to PrEP and associated testing, monitoring, and counselling services • Experienced staff highly knowledgeable about PrEP • A PrEP demo project/research task force will be convened to share valuable insights from recruitment and retention efforts thus far, including demand creation and messaging, and models of service delivery • Low levels of stigma among staff working with PrEP users	• Targeted program reaching high-risk (as identified by community-led criteria) adolescent girls • District level microplanning and hot spot analysis is underway to effectively target program activities • Zimbabwe is benefiting from supplementary Test & Start and VMMC funding to rapidly expand access of male sexual partners of AGYW to high impact HIV services in the DREAMS districts • PrEP delivery coupled with HTC, behavior change activities, extensive counseling, community mobilization, and initiatives to strengthen families • Potential to expand PrEP district-wide given other investments to make PrEP available to DREAMS participants, including logistics, procurement, demand generation, and community buy-in efforts
Key Challenges	• Perception of PrEP as part of an “experiment” deters potential users fearing poor safety and efficacy of drug • Higher costs of delivery in demonstration project context	• DREAMS PrEP to reach adolescent girls only in communities where many other populations could benefit from PrEP • Reach limited to 1,451 young women in DREAMS districts (53,654 young women will be targeted with HTC)

Sources: Pangaea Global Health

Demonstration project locations by district

	Province	District	SAPPH-ire	DREAMS
High	Matabeleland South	Gwanda	✓	
High	Bulawayo	Bulawayo		✓
High	Manicaland	Makoni		✓
High	Manicaland	Chipinge	✓	✓
High	Manicaland	Mutare		✓
High	Mashonaland E.	Marondera	✓	
High	Mashonaland C.	Mazowe		✓
High	Midlands	Gweru		✓
Medium	Mashonaland E.	Chikomba	✓	
Medium	Mashonaland E.	Goromonzi	✓	
Medium	Mashonaland C.	Bindura	✓	
Medium	Midlands	Zvishavane	✓	
Medium	Masvingo	Gutu	✓	
Medium	Matabeleland North	Hwange	✓	
Medium	Mashonaland West	Makonde	✓	
Medium	Masvingo	Masvingo	✓	✓
Low	Harare	Harare		
Low	Mashonaland W.	Hurungwe	✓	
Low	Mashonaland W.	Kadoma	✓	
Low	Mashonaland W	Kariba	✓	

Key Conclusions

- **Masvingo and Chipinge** could provide opportunities to integrate learning between SAPPH-ire and DREAMS
- As there is only overlap between the major demonstration projects in these two districts, **a broad range of districts across the country will have experience with delivering PrEP**
- Demonstration projects cover a **wide range of different incidence levels** and types of communities (e.g., rural, urban)

Sources: PEPFAR COP, 2016