Barriers and facilitators to the introduction of doxycycline post-exposure prophylaxis into Kenyan HIV PrEP Programs for the prevention of bacterial sexually transmitted infections

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Abstract

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Introduction:

Doxycycline post exposure prophylaxis (dPEP) is a novel STI prevention strategy that can reduce the high prevalence of curable STIs among PrEP users. dPEP is efficacious among men who have sex with men and transgender women, but not cisgender women. Before potential introduction to HIV PrEP programs, and to bridge the know-do gap, an evaluation of the potential barriers and facilitators to successful implementation is key in order to develop appropriate evidence-informed implementation strategies to achieve the desired impact.

Methods:

This qualitative study explored the potential barriers and facilitators to integrating a biomedical STI prevention innovation into Kenyan HIV PrEP programs. A total of 40 interviews were conducted with Kenyan HIV/STI policymakers, healthcare providers and HIV PrEP users. The consolidated Framework for Implementation Research (CFIR) framework was utilized to evaluate the determinants of acceptability, feasibility and sustainability of integrating dPEP into Kenyan HIV PrEP programs.

Results:

All groups of participants expressed concern about the high burden of STIs among PrEP users. The study participants found doxycycline post-exposure prophylaxis to be an acceptable strategy and appreciated its potential use among PrEP users. The key CFIR determinants associated with acceptability were Innovation Characteristics (Relative Advantage, Evidence Strength and Quality), Inner Setting (Tension for Change), Outer Setting (Needs and Resources of Recipients), and Individual Characteristics (Knowledge and Beliefs). Integrating dPEP into PrEP programs was deemed feasible, but there are concerns over long-term sustainability of services and availability of resources for surveillance of prevalence and incidence of STIs and antimicrobial resistance patterns. Other concerns were pill burden and high workload for PrEP providers. The key CFIR determinants associated with feasibility were Innovation Characteristics (Cost) and Inner Setting (Compatibility) while those associated with sustainability were Innovation Characteristics (Innovation Source, Cost) and Outer setting (External Policy & Incentives) and Process (Engaging).

Conclusion:

Kenyan HIV/STI policymakers, healthcare providers, and HIV PrEP users are concerned about the high burden of STIs and perceive doxycycline post-exposure prophylaxis for STI prevention to be acceptable, feasible and sustainable. Pill burden, high workload and antibiotic resistance are concerns. Successful implementation is contingent on intentional navigation of the innovation through the stages of research, policy advocacy and implementation; generating diverse evidence that includes local, national, and international stakeholders along the cascade; and demand creation that is coupled with consistent commodity supplies.

Key words: Prevention; Sexually transmitted infections (STIs); doxycycline; post-exposure prophylaxis (PEP); Consolidated Framework for Implementation Research (CFIR)

INTRODUCTION:

Despite the availability of effective treatment, sexually transmitted infections (STI) incidence rates are on the rise worldwide even in settings where routine STI testing is available.[1–3] This increase has also been noted among HIV Pre-Exposure Prophylaxis (PrEP) users.[4–8] When bacterial STIs are not diagnosed and treated early, infection is associated with increased risk of HIV acquisition and secondary infertility, and among cisgender women pelvic inflammatory disease, ectopic pregnancies, abortions, premature labor, and low birth weight.[1,9]

Current public health strategies for the control of STIs rely on prevention of STIs among the un-infected coupled with diagnosis and treatment among those infected to prevent complications and stop further transmission.[1,10] Primary STI prevention methods include abstinence and consistent correct condom (both male and female) use, but these have proven to be ineffective, stigmatizing, and for vulnerable populations, non-negotiable.[11,12] Syndromic management due to limited or lack of access to STI testing, results in missed diagnoses among the majority of asymptomatic cases and simultaneously results in overuse of unnecessary antibiotics[13–16] . When available, molecular screening for STIs is recommended every 3-6 months for all people who use HIV PrEP.[5,17] Testing is however, not enough to reduce the rates of STIs because of the limitation of re-infections in the period between tests and by virtue of it being a reactive rather than preventive option.[7]

The use of doxycycline as post- exposure prophylaxis (dPEP), an innovative biomedical STI prevention strategy, is effective in preventing STIs among men who have sex with men (MSM) and transgender women[18–20] but not among cisgender women[21]. dPEP has the potential to reduce primary infections and re-infections if delivered widely to cover priority populations, and would put the power of prevention in the hands of the user.[22]

However, trial results alone are insufficient for effective interventions to be included in normative guidelines and clinical practice, and often may not have expected impact due to factors such as lack of ownership, complexity of integrating the intervention, and difficulties in demand creation.[23] Policy makers, healthcare providers, and clients also need to feel comfortable with both the logistics of integrating a new primary prevention medication into clinical care as well as the intervention itself.[24] For example, the roll-out of HIV PrEP into clinical practice was delayed in some regions and therefore, weakened the initial impact on reducing incident HIV cases because of multiple barriers not evaluated in effectiveness trials, such as lack of access to antiretrovirals,[25,26] delayed approval of PrEP by regulatory bodies,[27] low awareness of PrEP among populations who would benefit the most,[25] and unaddressed provider concerns about drug resistance.[28,29,30]

To reduce delays in dPEP scale up (in the setting of anticipated challenges to integrating new interventions into clinical practice), we conducted a study to evaluate the potential barriers and facilitators to integrating dPEP into HIV PrEP programs by conducting in-depth interviews with Kenyan HIV/STI policymakers, PrEP providers, and PrEP users. Understanding the acceptability, feasibility and sustainability of introducing dPEP into Kenyan HIV programs in Kenya is an important next step in improving the sexual and reproductive health of HIV PrEP users.

METHODS:

Study Design:

This was a qualitative study conducted between August 2022 and April 2023 in Kisumu, Kenya.

Study Participants:

The sampling frame for in-depth interview participants included HIV and STI policy-makers from the National level and the Kisumu County level; healthcare workers involved in direct HIV PrEP provision in public health facilities, private facilities, retail pharmacies and NGO-led drop-in centres in Kisumu County; and HIV PrEP users accessing HIV PrEP services within Kisumu County. We included PrEP

providers and PrEP users as they are the intended providers and users of dPEP. Participants at least 18 years old, capable of and willing to provide informed consent.

Recruitment and enrollment:

We used stratified sampling to purposefully recruit interview participants. The study team identified a prospective list of potential policymaker interviewees in consultation with Kisumu County and Kenya National STI Aids Control Program staff. Half of policymakers were recruited from the County level while the other half were recruited from the national level. A list of facilities that deliver HIV PrEP in Kisumu County was also developed and included public facilities, private facilities, retail pharmacies and NGO-led drop-in centres. In collaboration with HIV prevention departmental heads, a list of healthcare providers for potential interviewing was compiled and included all cadres delivering HIV PrEP. PrEP users were recruited with the help of healthcare providers from who identified clients who had been on PrEP for more than one month and were willing to participate in an interview. Those who were interested in participating gave consent to have their contact details shared with the research team. Selected individuals were emailed or called by the study team, the study purpose described to them, and invited for the interview on a voluntary basis at a time, medium (online or physical) and location of their convenience.

Data Collection:

We conducted seven (7) in-depth interviews with HIV/STI policymakers, seventeen (17) interviews HIV PrEP providers, and sixteen (16) interviews HIV PrEP clients in English (policymakers and healthcare providers) and in English, Kiswahili or Dholuo (for PrEP users).

A socio-demographic survey was administered at the beginning of the interview after informed consent had been obtained. Semi- structured interview guides used the Consolidated Framework for Implementation Research Framework (CFIR) to develop open-ended questions to capture relevant components of implementing new a biomedical innovation. Each IDI guide was pilot tested for clarity and updated.

Among other themes, the interviews explored participants' views on the effectiveness of current STI prevention strategies, integrating STI prevention options into HIV prevention programs, use and acceptability of biomedical interventions such as dPEP for prevention of bacterial STIs, and key considerations when thinking about introducing a new biomedical innovation into normative guidelines and clinical practice.

All interviews were conducted by trained qualitative interviewers with extensive experience doing qualitative research in Kisumu County with this population and lasted about 60 minutes each. The interviews were audio recorded with participants' consent and transcribed verbatim. Interviews done in Dholuo and Kiswahili were simultaneously translated to English. The author checked the quality of each research assistant's first three transcripts and performed random spot-checks on the remaining transcripts.

Data preparation and analysis

Interview transcripts were uploaded into Dedoose version 8.0.35 (SocioCultural Research Consultants, LLC, Los Angeles, USA) and analysed through directed content analysis techniques. Coding was done to identify emerging themes using a structured codebook developed deductively from the CFIR constructs. Transcripts were coded by the author and 1 qualitative researcher (BK). Three transcripts were coded independently by the two coders and reviewed for consistency in code application. Differences in code application were resolved through discussion and consensus. Each data source was reviewed by the other member of the coding team to make sure there was consistency in the assignment of codes. Regular meetings were held between the author and the coding team during this process.

The CFIR framework was used to systematically identify the key determinants of acceptability feasibility and sustainability of integrating dPEP into Kenyan HIV PrEP programs.

Ethics consideration

The study was reviewed and approved by the Kenya Medical Research Institute's Scientific Ethics and Review Committee (Study number 4538) and the University of Washington's institution review board

(STUDY 00016097). Written or verbal consent was obtained from all study participants prior to participation.

RESULTS:

Forty (40) interviews were completed with seven policymakers, 17 healthcare providers and 16 PrEP users. Of the seven policymakers, three were from the County Government level while four were from the national government level, with a median age of 44 (IQR 41,49); five had a clinical background, one had a research background, and one had an advocacy background. Healthcare providers, of various health profession cadres, and PrEP users were recruited from public clinics, private clinics, and NGO-led drop-in centres. (Table 1)

Table 1: Demographic characteristics: PrEP users and PrEP providers

Characteristic	PrEP Users (N=16)	Healthcare Providers (N=17)
	n(%)	n(%)
Age (Median, IQR)	26 (23, 27)	30 (29,36)
Female	12(75%)	7(41%)
Highest level of education completed:		
• Secondary	6(38%)	
• Tertiary	5(31%)	17(100%)
Cadre		
• Nurse		4(24%)
• Clinician (Clinical Officer/Doctor)		8 (47%)
• Pharmaceutical technician/ Pharmacist		2(12%)
• Other		3(18)%
PrEP Delivery/access point		
• Public clinics	8 (50%)	10 (58.89%)
• Private clinics /retail pharmacies	2(12.5%)	3 (17.65%)
• NGO-led drop-in centres	6 (37.5%)	4 (23.53)

Implementation Outcome 1: Acceptability

The CFIR constructs associated with acceptability included Relative Advantage and Evidence Strength Quality (Innovation Characteristics); Tension for Change (Inner Setting); Needs and Resources of Recipients (Outer Setting), and Knowledge and Beliefs (Individual Characteristics).

Policymakers, healthcare providers and PrEP users were all concerned about the high burden of STIs among PrEP users and expressed desire for additional STI prevention choices. Most acknowledged that there are existing STI prevention options that can be effective, such as condoms and behavioral changes, but pointed out that these were not always used as intended, hence need for more choices.

> *"So, I know PrEP works. I know condoms work. I know health education works… And now we need to improve the choices… And if we can even throw in Doxy PEP that could be very good because what happens is that we need to give our people choices. And choices actually work… you see PrEP prevents you from getting HIV but we didn't have anything to cover for STIs and this may actually bring in something to actually cover the STIs"(Policymaker_006)*

However, there were concerns about pill burden, antibiotic misuse and antimicrobial resistance arising from the idea of using an antibiotic intermittently for prevention.

> *"I think it's a good idea but of course I do have my concerns about if that happens do we have a case whereby we are worried about mutation or new types of like a new type of gonorrhea like the 'super gonorrhea' they are talking about. That would be my worry. That it would be misused or abused and if someone had the infection they would not be confident enough to tell you about it and hence you are giving less treatment for something that is more serious, so that's my only concern about it. I think it's a great idea but if I can be assured that is not going to happen, I mean, off course there is nothing that is 100% but that is my worry" (Healthcare provider_002)*

Perception of the quality and source of evidence supporting new innovations is key when considering adopting dPEP.

For all groups, evidence was a key factor is considering adoption of dPEP or another biomedical STI prevention innovation. Policymakers sought diverse evidence from both local and international sources but considered evidence from multilateral international bodies, such as the WHO, as most influential. Healthcare providers look upon the national policymaking bodies to synthesize evidence and provide clinical guidelines, while majority of the PrEP users depend on the recommendation from trusted healthcare providers.

> *"This information once the study is completed it is important to make sure it is at the global space first before you implement it in Kenya, it is not a must really, but it is important to publish within you know, that space. It is important to present it in conferences so that it is discussed widely, that helps with the adaptation, because when donors like the Global Fund, PEPFAR see something like this and they like it and they buy into it, they will equally push it to Kenya" (Policymaker_004)*

However, while international recognition of an innovation is a key step in considering its adoption by national policymaking bodies and subsequent cascading into clinical guidelines and use, all groups of participants point out that it is important to involve the intended recipients of the innovation and the community in generating evidence.

> *"…we cannot push things down people's throats. These are individuals who want to know. They talk about 'Nothing for us without us'. We need to tell them exactly what we are doing. And the whole issue of ensuring that the community is informed. Remember behaviour change is a process. We need to work with individuals at the centre. You cannot as a researcher decide on what we need to do. We need to make sure that the individuals are at the centre. We convince them and then we can now apply the intervention. We need the data." (Policymaker_006)*

Implementation Outcome 2: Feasibility

The key CFIR determinants associated with feasibility included Cost (Innovation Characteristics) and compatibility (Inner Setting).

Integrating an STI innovation like dPEP into a pre-existing PrEP is perceived as a compatible low-cost strategy. Policymakers and healthcare providers point out that STI screening, treatment and prevention services are already a key component of PrEP delivery and STI treatment services are also an important entry point for PrEP users.

> *"I am not seeing any area of conflict, but I am seeing area of support because if you look at PrEP, as we provide PrEP services, we also screen these clients for STI. So, already that tells you that STI is integrated into PrEP. As we manage STIs, we also do a risk assessment and (if) we find that the client is eligible for PrEP, then we actually link this client for PrEP. So, at the end of the day, these are integrated. So, I am not seeing any point of conflict; not any that is visible for me at the moment, but I am seeing areas of support because there is a lot of integration within this particular program. You cannot manage STI without thinking about PrEP, and you cannot provide PrEP without thinking of STI. So, they are already integrated. (Policymaker_ 005)"*

There is however, concern about additional workload from adding an extra service, long waiting times, and the logistics of delivering doxycycline within PrEP programs such as restriction on which healthcare cadres can prescribe an antibiotic.

> *Definitely it is going to increase the workload because now despite… you see now I am worried about one register for PrEP which is time consuming in its own self adding to the doxycycline and also the whole reporting, you know the reporting now you will be reporting on more components, on more indicators, so that will really it will definitely… it might not be a lot of time really, it might be manageable time but still you have to consider the facilities that have a huge workload and have many clients.*
>
> *(HCP_002)*

<u>Implementation Outcome 3: Sustainability</u>

The key CFIR determinants associated with sustainability were Innovation source and Cost (Innovation Characteristics), external policy and incentives (Outer setting) and Engaging (Process.)

Ownership and buy-in by key policymaking / implementing bodies is an important determinant of successful implementation.

Cultivating support and buy-in from key bodies involved in policymaking and implementation was highlighted as an essential part when thinking about successful implementation of an innovation. Policymakers cautioned that while evidence may be gathered from non-governmental organizations, dissemination and push for implementation should not be seen as only coming from the non-governmental bodies.

> *".. you need (Ministry of Health) support, because sometimes when something comes and it's just Washington (non-governmental organization) disseminating only, even buying it becomes difficult…you can write a policy and people don't like it based on whether they were not involved in it"(Policymaker_004)*

Awareness and demand creation is crucial for new innovations but must be coupled with consistent commodity supplies.

Drawing on lessons from PrEP implementation, many participants observed that it is essential to invest in awareness and demand creation. However, they point out that this should be accompanied by an investment in commodity supplies to meet the demand created.

> *"Well what we have learnt overtime about demand creation, it is a very important strategy , and it can be so expensive that you are unable to do it over time , like for example when we started PrEP, we did a lot of media engagements, and a lot of Radio, TV and all that, and its very expensive, so you are not able to sustain this kind of approach , so it is easier to use what exist and is cheap within the communities like community health workers and stuff, the easiest thing is to ensure this information is with everyone like it is put in the guideline, that is one , it is put in the training curriculum that exist, it is put also in the curriculum for community health workers , so that at the community level that's information that is there for the common person to access , and then you can have media engagements and stuff but you need a strategy that is sustainable going forward , learning from what we have done with HIV, I don't think it is impossible to do, you can do a demand creation that is sustainable." (Policymaker_006)*

Community involvement is key to successful implementation.

Centering the community was acknowledged by all the 3 groups of participants as an important component of sustainably implementing new innovations. This included engaging peer educators with knowledge about the community and advocacy groups representing the intended recipients of the innovation.

> *"I think for me is involving the communities is first. Ensuring that communities are the centre of conversation. Ensuring that there is that will actually take part in the conversation and of course getting to know or link yourself with organizations that actually work with the community directly. For me that is key." (Policymaker_007)*

DISCUSSION:

In this qualitative study among Kenyan HIV&STI policymakers, HIV PrEP providers, and HIV PrEP users, we evaluated the key determinants of implementation of a potential biomedical STI prevention innovation (dPEP) into HIV PrEP delivery programs in Kenya. The implementation outcomes assessed were acceptability, feasibility, and sustainability.

Doxycycline post-exposure prophylaxis was perceived to be acceptable. This is likely because there is an acknowledged need for new STI prevention strategies due to the high burden of STIs among

PrEP users and because of familiarity with doxycycline as it is an already registered medication that is widely available. This is consistent with surveys on doxycycline acceptability among MSM in the US and Australia.[31,32] However, pill burden was a common concern among HIV PrEP users who emphasized that dPEP would further add to their existing load of taking HIV PrEP pills daily.

A recurring concern among the study participants was the risk of development of antimicrobial resistance to doxycycline. Antimicrobial resistance is an acknowledged public health concern,[33] especially in studies on dPEP efficacy.[34] In curative services, the idea of using an antibiotic intermittently has been associated with treatment failure from development of antimicrobial resistance or tolerance.[35] This fact may be an important moderator of the acceptability of dPEP. Tracking of antimicrobial resistance patterns in pathogenic and non-pathogenic bacteria is currently ongoing in doxycycline PEP studies.[36] Investing in STI testing prior to initiation of dPEP could also address concerns about antimicrobial resistance especially from under-treatment in people who have pre-existing bacterial STIs but show no STI symptoms.

Evidence from sources considered credible by participants was an important consideration when thinking about the acceptability of dPEP. Normative guidance from international bodies, such as the WHO, was considered most important by policymakers when considering the acceptability of innovations, plausibly because these are deemed more credible. It is therefore crucial to consider the origin of evidence and normative guidance and the entities endorsing healthcare innovations when advocating for policy change. However, such considerations unintentionally prioritize top-down approaches and may overlook local solutions.[37] Health-care providers, as implementers, are not typically involved in evaluating research for policy change, and therefore look upon their national policymaking organs to consider evidence and give them evidence-based recommendations. PrEP users generally trust their healthcare providers to recommend to them what is best for them. Studies of acceptability of treatment and prevention innovations have also found the acceptability of innovations to be dependent on the perceived efficacy of the innovation, with higher efficacy associated with increase in acceptability.[38] Such evidence should, however, include diverse

populations such as key populations, who emphasized that there should be no interventions for them without their involvement.

Feasibility considerations can impede the successful implementation of acceptable innovations when other relevant factors come into play.[39] Integrating dPEP into PrEP programs was perceived to be feasible primarily because STI treatment is a pre-existing component of PrEP delivery and is therefore not a radical change requiring high training costs. However, PrEP programs in LMICs already face challenges such as high workloads for healthcare providers[40] and long wait times for clients, and adding doxycycline may not have intended impact if these in-efficiencies are not addressed. Anti-retroviral and PrEP programs have faced similar challenges and addressed them through differentiated service delivery models, task shifting, and re-organization of clinic flows.[41,42]

While dPEP was perceived to be acceptable and feasible, it may not have population impact if implementation cannot be sustained. Sustainability, the extent to which an innovation is maintained within a delivery point's constant operations, is an important consideration for successful implementation of an innovation.[39] One way to do this is to ensure buy-in by key stakeholders, including policy-making bodies, implementers, users and the community at large. Study participants advised that this involvement start from the beginning of efficacy trials and be maintained to the level of implementation. Community involvement promotes sustained use of innovations by fostering ownership, tailoring solutions to meet community needs and building trust. An important avenue for participation identified by policymakers was the relevant technical working groups of national policymaking bodies which bring together various stakeholders. Creating awareness and generating demand is crucial to continued use of an innovation, but this must be coupled with consistent supplies to avoid services disruptions.

The study had some limitations. First, we did not capture the gender or sexual orientation of the study participants, which may be an important consideration since dPEP efficacy has been demonstrated among MSM and TGW but not cisgender women. However, we did recruit both male and female participants from HIV PrEP delivery points attending to clients from both the general

population and key populations. Second, efficacy data from the only doxycycline PEP study among women became available in the course of this study- showing that doxycycline PEP did not reduce STIs incidence in this population. We had anticipated this scenario by recruiting a broad population of PrEP users, healthcare providers delivering PrEP to the general population and key populations, and representatives of key populations among the policymakers. The findings of this study are therefore applicable to all groups of HIV PrEP users in Kenya.

CONCLUSION:

Doxycycline PEP for prevention of bacterial STIs has potential to improve the sexual health of some HIV PrEP users in Kenya. Successfully integrating dPEP into HIV PrEP programs in Kenya and similar settings will require addressing concerns of policymakers, healthcare providers, and PrEP users through broad involvement of community, national, and international stakeholders and investing in etiologic testing and antimicrobial resistance surveillance infrastructure. However, since available evidence demonstrates that dPEP had no efficacy among cis-gender women in Kenya, a population that bears a disproportionate burden of STIs, it is important to evaluate the cost-effectiveness of implementing dPEP for MSM and TGW in Kenyan HIV PrEP programs. Lastly, as we usher in an era of novel long-acting PrEP agents and differentiated service delivery models[43] for PrEP delivery, there is opportunity to integrate STI prevention strategies such as doxycycline PEP through implementation strategies that leverage the identified opportunities and address stakeholders' concerns, for more streamlined implementation.

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Appendices:

Figure 1: Relationship between CFIR determinants and implementation outcomes:

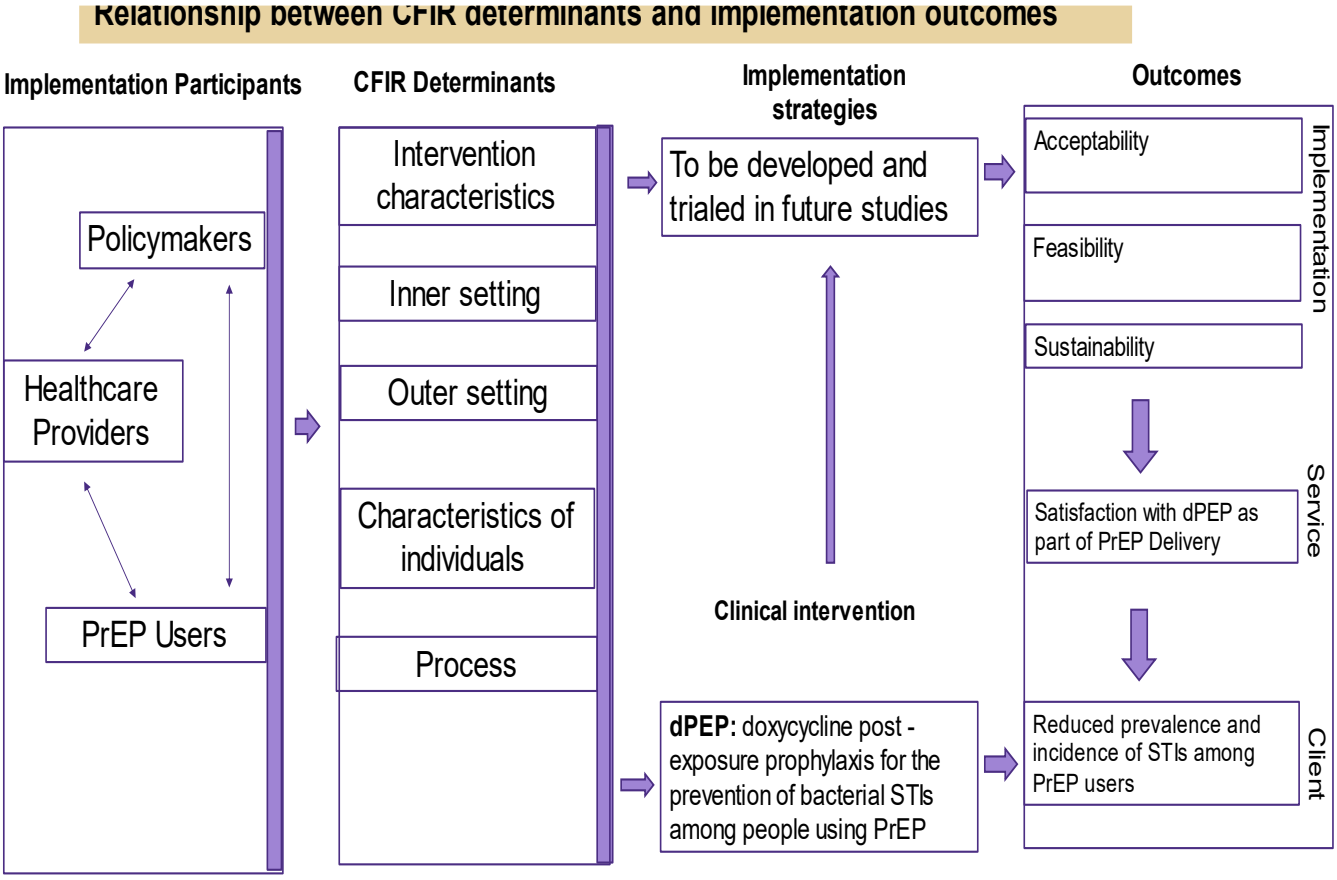

Table 2: Illustrative Quotes Related to Implementation Outcomes.

CFIR Domain	CFRI Construct	Policymakers (Key decision makers)	Healthcare Providers (Innovation Delivers)	PrEP Users (Innovation Recipients)
Implementation Outcome: Acceptability				
Innovation Characteristics	Relative Advantage	The Syndromic management is easy but it has its own challenges. One, it doesn't cover individuals that are asymptomatic and that is my main problem.	I think it is a very good idea because we will be minimizing on the number of STI that we will be getting from the clinic, it's a very good thought … they will get dual protection from HIV and STI as well because it's been neglected.	It saves me all the hustle of you know, preventive measures against stigma, going out there to look for what you know, I might not get, trying to treat what I would have prevented… so I think if there would be a way it would be better.
Inner Setting	Tension for change	So, I know PrEP works. I know condoms work. I know health education works… And now we need to improve the choices. And if we can even throw in Doxy PEP that could be very good because what happens is that we need to give our people choices… you see PrEP prevents you from getting HIV but we didn't have anything to cover for STIs and this may actually bring in	I think it could be a really good strategy because most of the time, there is a lot of stigma that is associated with STI treatment as a whole…so if we are able to offer the prophylaxis so that they don't progress to where they are presenting with symptoms, then I think it could be a really good strategy to reducing the incidence of STIs	I have heard of scenarios where someone goes to a facility with an STI, he has gone for treatment. Now this person is told being told that; "We cannot treat you before you bring your partner" …What if maybe you don't want to expose your partner?

		something to actually cover the STIs	within our community.	
Outer Setting	Needs and resources of recipients	For the young women, right now we are looking on the issues of differentiated service delivery..we are looking at …various social media nowadays that we can be able to ride on…maybe there are others who prefer TikTok, there are others who prefer Facebook, there are others who prefer Instagram…that's how we can be able to come up with targeted messages to be able to increase the awareness, even a pop-up when someone opens TikTok or Facebook, there is always that pop-up message that comes about 'doxycycline in PrEP'.	I can talk of pill burden being that at least they will be taking at least 2 pills. Some might find it difficult, and the adherence might be poor.	
Innovation Characteristics	Evidence strength/quality	I wouldn't be influenced without the data. So it would be good to actually have studies about Doxycycline and resistance. Good data ..and based on the studies, there is the evidence. (If) evidence (is) actually supportive of us changing while adopting the strategy, then I would be very, very supportive.	most of the things I know and have seen work, I have learnt from authority and I am sure authority has learnt from research, if research tells me that this is actually working for my patients I really would love to put them on the dPEP because this way will be preventing dire consequences	Once research has been done and it is out there, then I feel nobody can influence my decision, because even when PrEP was coming on board, we had issues, people asking questions, people were talking about adverse effects, people were

				talking about side effects, people were talking about many things, but once it has been approved, my decision cannot be influenced.
Individual Characteristics	Knowledge and beliefs	It can work I think, we are giving PrEP also and its a daily pill…it will work, the fact that PrEP is being taken it shows that it will work , what I like is , you remember we had some patients on PrEP who were getting STI, so this is double protection, I think this will be a boost for the PrEP program	The idea of reducing the STIs in the community. That is enough motivation…because I've been lucky as a healthcare provider to be able to encounter clients who are coming with STIs. And it's not a very nice experience for them	It saves me all the hustle of you know, preventive measures against stigma, going out there to look for what you know, I might not get, trying to treat what I would have prevented.
Process	Engaging	In Kenya I think you need to convince the stakeholders' forum, that is, the other researchers. We now as researchers now start talking with policy makers together... Then we can convince them. And as I said the best forum was the technical working group… that is the way to do it.		
Implementation Outcome: Feasibility				
Innovation Characteritics	Costs	I am imagining the scenario whereby I think it was introduced into MCH ,there might be minimum financial requirements, adding Doxycycline , but of		

		course now apart from the procurement of the Doxycycline itself , in areas where by its like PrEP is implemented or it's like a stand-alone area, then it equally means that this is additional work to that health worker… in terms of financial implications, I don't think it has serious financial implications.		
Inner Setting	Compatibility	I am not seeing any area of conflict, but I am seeing area of support because if you look at PrEP, as we provide PrEP services, we also screen these clients for STI. So, already that tells you that STI is integrated into PrEP. As we manage STI. We also do a risk assessment and (if) we find that the client is eligible for PrEP, then we actually link this client for PrEP.	Okay it will be provided, yes. But now the numbers will not be maybe high because you'll find that some clients will be provided but others will go without being provided with PrEP. Like let's say you'll find a staff busy maybe doing a family planning method for a client and the waiting time the clients are many, so when a client comes for PrEP then the time takes longer. You'll find this client going back home without being given this service maybe the PrEP medication or even the dPEP now.	
Inner Setting	Available Resources	Unfortunately, as we speak now, this government of ours has decided not even to provide condoms. We don't have	Definitely it is going to increase the workload … you see now I am worried about one register for PrEP	

		condoms. We don't have lubricants. And all over sudden we have started seeing a surge in STIs…We have more sero-convertors now. And they are joking…I don't know what advised then about not supporting condoms. And women would not buy the condoms because they would not subsidize, they have been used to the system ..So, we have challenges on the ground.	which is time consuming in its own self adding to the doxycycline and also the whole reporting, you know the reporting now you will be reporting on more components, on more indicators…it might not be a lot of time really, it might be manageable time but still you have to consider the facilities that have a huge workload and have many clients.	
Innovation Characteristics	Evidence Strength & Quality	I think one of the things that need to go out is that one, you assess the target age group and what will be their most preferences and also try and find out from them what is the available STI prevention modes that are in place and then two, try and find out what is hindering them from using what is available and then after that, just find out or pilot what is available or the new prevention strategy to try and see if the target group can accept the new intervention and if not, what are their preferences or recommendations that can be involved in the new intervention technology; it need to		

		be acceptable within the target age group.		
Implementation Outcome: Sustainability				
Innovation Characteristics	Innovation Source	Once the study is completed it is important to make sure it's at the global space first before you implement it in Kenya, it is important to present it in conferences so that it is discussed widely , that helps with the adoptation, because when donors like the GF, PEPFAR see something like this and they like it and they buy into it, they will equally push it to Kenya…and making sure that your stakeholders are the ones running the show , don't run it like it's an implementing partner running it, like Washington, let the ministry of health buy into it.. when something comes and it's just (foreign institution) disseminating only, even buy-in becomes difficult.		
Innovation Characteristics	Cost	There is also the issue of commodity availability because as you know, the commodity will eventually attract a cost and probably as we start to implement,	when it comes to doxycycline you will need clinicians, so for you to be able to make sure that these clients are getting you will need enough	

		because we want to promote this new innovation…we might see how we can be able to get the commodity and then work with the ministry to see how we can be able to have security of PrEP commodities.	manpower…documentation will also be included in that, because (of) monitoring and evaluation, so we will also need commodities like I had said more commodities.	
Process	Engaging	We need the Community bayonet support…I think the mistakes that we make these days is assuming people do not read and people do not want…we cannot push things down people's throats. These are individuals who want to know. They talk about "Nothing for us without us". We need to make sure that the individuals are at the centre.		People need to be sensitized enough to understand how the drug works. I think when that is done, even with the dPEP I really believe people will embrace it. So people only need to have that information. That dPEP is really effective it really works.
Outer Setting	External Policy and Incentives	…the RH policy that was done last year, based on how it was impacting on PrEP, I think it will impact the same on Doxycycline. The political space also, you remember during (name)'s presidency, he said he doesn't want to see here any child under 18 getting family planning, so isn't this of course going to impact on your Doxycycline and we have seen most of the studies, the new STIs	I think it needs to first be accepted by the national guidelines. And then at the facility, like I said we need to see it as part of the guideliness that we have. And then also there will be changes on the clinical encounter (form) just to add a few columns.	

		are very rampant among this very young girls		