TB and HIV Management in High Prevalence Settings: From Coordination to Integration
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TONY HARRIES: Alright. Ladies and gentleman, welcome to this session on TB/HIV management in high HIV prevalent settings from coordination to integrations. You have two chairs for this session, myself, I'm Tony Harries. I work currently for the International Union Against Tuberculosis and Lung Disease and before that spent many years working in Africa, largely Malawi. And Eric Goemaere who's with me who is Medical Coordinator for Médecins Sans Frontières in South Africa who also has a long experience of working in Africa. Dr. Jeremiah Chakaya, I'm afraid couldn't be here to attend this meeting.

Before we start with the presentations, I would like to try and briefly set the scene. TB/HIV as someone once said and from the point of view of us humans was a marriage made in hell about 30 years ago. If we look at the most recent status for this marriage, data for 2008, of the 9.4 million people who were infected in that year and developed the disease tuberculosis, 1.4 million were co-infected with HIV. Eighty percent of those people, adults and children, live in Sub-Saharan Africa and 50-percent of those people, adults and children, in fact, live in just nine countries in Southern Africa. Of these 1.4 million co-infected patients, 520,000 lost their lives during anti-tuberculosis treatment, giving a

case fatality of about 40-pecent. Far too many deaths for a disease tuberculosis that should be curable.

Our response during the first 25 years of this TB/HIV epidemic was slow, it was timid, and it was uncoordinated. There are various reasons for this, but the chief reason, which was some years back, which was so eloquently articulated by Kevin De Cock, was really the different philosophy of the two programs. HIV/AIDS programs focusing on human rights, focusing on HIV prevention and on HIV testing. TB programs being public health based and focused on finding the cases and treating them.

From 2004, three events came to try and bring these two programs together. Firstly, there was a WHO policy document outlining the collaborative activities needed to reduce the joint burden of TB and HIV, a 15-page document that has to be commended for its clarity and for its direction. Secondly, the advent of antiretroviral treatment of crucial importance to the two programs and especially now if we look at antiretroviral treatment for preventing HIV transmission and for preventing HIV-associated tuberculosis. Thirdly, the spread of two deadly forms of tuberculosis, multi drug resistant tuberculosis and extensively drug resistant tuberculosis, both of which are facilitated by HIV.

However, despite the need to collaborate and the strategies in place, we really do not do this well enough,

especially from the HIV side. We don't think tuberculosis and we don't act on tuberculosis. So this session is going to discuss these issues. We're going to focus largely on the problem in Sub-Saharan Africa. I think we're very lucky, very privileged to have four highly-experienced and excellent speakers who know this field very well and they will look at the TB/HIV issue from the point of view of the community-patient perspective, the operations perspective, the scientific perspective, and finally the policy perspective.

The way we're going to run this session is that speakers will speak one after the other for about 12 to 15 minutes, and that then leaves us 30 minutes for discussion. It's a big room, but I ask you please don't be shy. Come and ask your questions and come and challenge us, basically to ask us, prod us to how we're going to do better.

The title of this symposium is provocative from coordination from integration. We don't coordinate well enough can we really think of integration. So with that in mind, I'd like to introduce our first speaker who is Lucy Chesire who's a nutritionist by profession and a leading international advocate who has played a crucial role in spurring awareness worldwide of the dangers of TB/HIV co-infection. She's a member of many international advisory groups on TB/HIV and for her work in TB/HIV last year was awarded the prestigious Kochon prize from the Stop TB partnership.

Lucy, we welcome you. [Applause]

LUCY CHESIRE: Thank you very much, Chair, for giving me this opportunity and I just want to assure you that I think TB, I dream TB, and I always talk about TB/HIV all the time. I'm here today and apologies just in case you're not able to hear me. I'm having a bad flu. I just came in about four days ago and having an AC in the room really has messed up my immune system, so apologies for those who won't be able to hear me.

I'm happy to share the community perspective of coordination to integration, more so having experienced the challenges of having gone through TB/HIV co-infection, but always looking at it as an opportunity that basically provided me the opportunity to be able to start antiretroviral therapy. The outline of my presentation is going to look at what's the background like, what are the benefits of TB/HIV integration, what are some of the challenges and consequences, what is needed and maybe just give one or two examples of some current TB/HIV strategies that have been undertaken by communities.

When we look back, we actually realize that despite 30 years of TB/HIV marriage, efforts to tackle the TB/HIV have been largely separate for years. Despite having evidence of the overlapping epidemiology, we've basically also seen that the HIV and AIDS epidemic has undermined the progress in TB control and we can also say the same for TB. But what strikes me most is the lack of the integration that basically provides

an opportunity to be able to not scale-up at the right pace that we basically think of talking about.

I'm more than happy to share two quotes. One by the Minister of Health South Africa who said that "the dual epidemic of TB/HIV is the most single important public health challenge of our time," and more so also looking at what Francis Apina, one of the TB/HIV advocates from Kenya says which is, "If we actually treated TB in people living with HIV and AIDS, at the end of the day we'll be able to save over 5,000 lives on a day-to-day basis."

From my own country, Kenya, where I come from, there are two things that we have seen drive the TB epidemic, one is poverty and the other is HIV and AIDS. But more so, when we look back and take stock, it's good that we have some of the policies that have been clearly spelled out and I just want to draw your attention the policy that talks about community involvement in the management of HIV infected TB patients. How can communities better get engaged in terms of accelerating efforts so that we are better placed to be able to address the TB/HIV epidemic? And also the aspect of how do we scale-up people living with HIV and AIDS support groups so that they can get engaged in TB activities, so that at the end of the day it's all partners who are basically on the table realizing that we have a common problem, two diseases in one patient and how

are we working towards ensuring that we have universal access for TB/HIV co-infected patients.

Now, what are some of the benefits of basically having an opportunity to be able to integrate services? I want to say this from a patient's perspective, is it basically, provides access to a continuum of prevention, care, treatment, services. Identifying TB early among people living with HIV and AIDS, we know very well and statistics show us it's going to help reduce mobility and also mortality at the same time.

What about sustaining life because we know at the end of the day we've seen the tragedy whereby somebody is in a share to antiretroviral therapy. You fail to screen them for TB. Within a short span of time, you basically have lost them. You can imagine the amount of money that has been spent trying to sustain that person on antiretroviral therapy and yet here we are committing a suicide of not providing the opportunity for screening TB, and this would make a huge difference in terms of guaranteeing the continuity of that person's life. Thirdly, also, the ability to be able to provide an opportunity for patients who are basically smear negative. What is the added advantage of actually being able to initiate them on IPT, so that at the end of the day you're able to prevent them from developing tuberculosis.

From the community perspective, we have indentified challenges of TB/HIV integration, and one thing that strikes me

most when I got out there to the community is that basically lack of information. People are not aware that once you go to the healthcare facility, then you need to be screened for TB as a person living with HIV. What about the double stigma that exists? Many times when I attend the support groups, there have been treatment literacy programs that have been initiated for people living with HIV and AIDS, but when you look at treatment literacy programs for TB/HIV co-infected patients or even per se TB patients, it's basically missing.

Also, the other issue is the minimal engagement of peer initiated works in advocacy for better new tools. We know the reality on the ground that we need new drugs, new diagnostics, and most importantly a TB vaccine, but how are we engaging networks of people living with HIV and AIDS around the world to be able to bring up some of the challenges that are on the ground and using that basically as an opportunity be able to scale-up TB/HIV services.

What about programmatic responses? Many times HIV and AIDS programs have moved pretty fast. You find that once you walk into an HIV program, they identify if there are challenges in relation to socioeconomic status. Then there are income-generating activities that have been initiated. Have we done that for TB and HIV? I don't think so. Have we done that for TB patients? I don't think so too.

From the community perspective, the other thing is many times in most countries, except maybe one or two countries like South Africa, Kenya, Rwanda, you'd look at two programs being headed by different people, so you have an issue you on TB/HIV. You want to go and see the AIDS program manager. He refers you to the TB program manager. But at the end of the day, things are even worse and when you realize these two programs are basically being funded by different people and many times even that funding does not consider what community groups can actually do to be able to address the dual epidemic.

Then, of course, the other challenge is the aspect whereby there's the lacking quality data in relation to what communities have basically done when it comes to scaling up TB/HIV. Now, some of the consequences that I just want to highlight, the lack of comprehensive care for TB/HIV patients. Separate clinics have a huge impact on patients who are attending two different dates and the time wasted in relation to coming to one clinic on Monday, being able to coming to another clinic on Thursday, so at the end of the day having a one-stop shop would go a long way in ensuring that patients are able to go about their day-to-day activities and be able to continue their productivity and be able to provide for their families.

Lack of coordination also results in straining healthcare facilities because at the end of the day you find

healthcare workers who are pretty overwhelmed, and yet that's a missed opportunity for sure. The lost opportunity also for intensified case finding for TB among people living with HIV is another consequence and then, of course, lastly, where healthcare workers are pretty overwhelmed.

I just want to pause here and ask about four questions. What can we do to increase availability of TB/HIV integrated services in the countries that we work in? What can we do to reduce the stigma that is basically associated with TB/HIV? What are some of the barriers and what can we do to address them? How can we increase demand for TB/HIV services? And most importantly, how do we increase the profile and event funding for TB/HIV services?

At this point, I just want to share some of the successful strategies that have been used by some community patient groups like the Treatment Action Group that has done a lot of workin Africa in collaboration with TB/HIV patients in terms of research advocacy and looking at what are some of the R&D needs and how is that being used as an opportunity to be able to profile TB internationally and also advocate for more resources.

I want to talk about an assessment that was done by the National Empowerment Network of People Living with HIV and AIDS in Kenya and they basically tried to look at what's going on in relation to implementation of TB/HIV services in Kenya and what

are some of the findings that can actually be used to be able to influence policy, advocacy and even in-country action. Documentation of best practice on TB/HIV by organizations like Targets TB that work in India. They work in Swaziland, and just putting that human face and saying this is what TB/HIV patients are actually doing at country level.

Engaging champions in TB/HIV at all levels and making sure that patients are represented when we are looking at the community, coordinating bodies for TB/HIV from the national level all the way to the district level as agents of change, as watchdogs, as champions that can be able to influence policy and can be able to actually look at what national policies exist and be able to track TB/HIV collaborative activities.

In ending, I just want to share about three pictures. One is this is a TB patient that was being counseled in Nairobi in one of the healthcare facilities while accessing initiating antiretroviral therapy. Then, of course, the big question we really need to ask from here is what do we need to do better so that at the end of the day we have more and more community action and I just want to propose a few ideas. One is, how do we scale up treatment literacy programs that are basically going to promote adherence and community information on TB. How can we accelerate advocacy by networks of people living with HIV in all countries where we know TB/HIV is a huge problem? How do we roll out good practice in terms of TB/HIV

advocacy and program when documentation exists, but are we really using that at country level to be able to scale up initiative?

It's important to think about building the capacity of people living with HIV and AIDS so that they are better well placed to advocate mainstream TB/HIV services into their activities. And then funding opportunities for community groups. Many times it's forgotten and how do we think about using IT to be able to promote access to TB/HIV information and adherence. Mobile clinics for TB/HIV so that if we have 1,000 TB sites that are offering TB diagnosis and treatment, how do we mainstream HIV into those programs and ensure that other patient in wherever community that you are, you're able to access TB/HIV services that you don't have to be referred from one clinic to the other. Then, of course, joint monitoring processes that need to be established and defaults a prevention programs so that at the end of the day we are all working towards prevention of multi drug resistant TB which pretty scares me because in the country that I come from we are having now a co-infection rates of MDR and HIV exchange 2-percent, which is not a small number.

In ending, that's a picture that was taken by stakeholders in Kenya that brought together community groups, the HIV program and the TB program, to design a strategy for

the country so that we can be able to all work together to ensure that TB/HIV is well taken care of.

So let me leave that to you. The biggest thing is let's basically work together to eliminate the 21st Century of TB/HIV genocide. Thank you. [Applause]

TONY HARRIES: Thank you very much, Lucy. So we'll move on to our next speaker who is Gilles Van Cutsem, Gilles is a medical doctor, epidemiologist and activist working with Médecins Sans Frontières for 12 years. He's been with the Khayelitsha Project in Cape Town, South Africa for seven years, was coordinator of our project for the last three years, and is head of MSF operations in South Africa. He's basically involved with piloting new models of care for HIV/TB and drug resistant TB.

Gilles, most welcome.

GILLES VAN CUTSEM: Thank you. So Lucy has very well outlined why we need TB/HIV integration, also the fact that even though there is a lot of talk about TB/HIV integration, in reality there is very little TB/HIV integration in the field. If you are sitting here, it's probably because you know TB and HIV together is double trouble.

In HIV positive patients, the risk of TB is up to 26 times higher. HIV patients die from TB. TB is the first cause of mortality. TB deteriorates more rapidly in HIV positive

patients and it is more difficult to diagnose in HIV positive patients with more smear negative, more extra pulmonary TB.

TB also makes HIV evolve more rapidly towards AIDS, and there are many challenges in treating co-infected patients. The pill burden is higher. Those interactions between antiretroviral drugs and TB drugs, mainly Rifampicin, there is joint toxicity. There is the immune reconstitution syndrome. You often have deterioration of TB after initiation of ARVs leading to a very difficult differential diagnostic, and then we still don't know exactly when to start ART in patients with TB. Most important, we have much less time in HIV positive patients to diagnose TB and to start treatment of TB. We have to be much faster because TB deteriorates much quicker in HIV positive patients and goes quicker towards hospitalization and death.

What do we aim for by integrating TB and HIV services? Well, first of all, to decrease mortality and morbidity, and secondly to improve efficiency of services. At the moment in many, many clinics you are duplicating efforts. You have on one side a TB clinic on another side an HIV clinic, and patients are waiting one day in your TB clinic, the other day they're waiting in your HIV clinic. You're not only wasting your patient's time, you're also wasting very scarce human resources by duplicating many tasks done by healthcare workers. In addition, by integrating TB and HIV services, you also

improve clinical skills in TB staff in terms of diagnosing and treating HIV-related conditions and in people who are used to deal only with HIV into managing TB better.

More specifically, what are the objectives of TB and HIV integration? One, to increase testing amongst TB clients so that they can access antiretroviral therapy. Two, to diagnose TB disease earlier in HIV-infected people. Three, to reduce delay to antiretroviral therapy for co-infected patients and so to decrease mortality linked to the delay in starting comprehensive care for co-infected patients. It's one patient with two diseases, so we have to manage them in one program by creating a one-stop service.

Then also to improve TB outcomes for co-infected patients by using the tools for adherence support that have shown to work so well with antiretroviral therapy. They can be used to improve outcomes and specifically adherence in TB treatment as well. Lastly, we aim at using the public health experience of the TB programs into standardizing the approach and the monitoring of ARV patients.

This is a picture of — it's a before/after picture. This is the TB clinic, and there was a wall there and then you had the HIV clinic in Khayelitsha in 2003, and patients were going the first day to the —and you must know in Khayelitsha 70-percent of patients with TB are co-infected with HIV and up to 50-percent of patients starting ARVs have TB, so they are

the same patients. We broke the wall between the two clinics and started to integrate and this is what you have now. It's called the Ubuntu Clinic. It is one clinic where TB and HIV are treated together.

TB/HIV integration is not TB/HIV collaboration. One of the biggest barriers, I think, in the previous years is that WHO was talking about collaboration between TB and HIV services. Collaborating means still having one TB clinic and one HIV clinic with separate folders containing separate clinical information leading to often lack of information on TB when you are in the HIV clinic, lack of information of HIV when you are in the other clinic, still duplication of staff and still these two different programs that are imposing different cultures.

What we talk about when we talk about TB/HIV integration is complete integration, One clinic with your same patients seen one or the same nurse for TB and HIV, the same clerk for TB and HIV, the same doctor for TB and HIV, one folder, one register, one administrative system and hopefully one day one national TB/HIV program, and maybe one WHO TB/HIV program.

What's the impact of TB and HIV integration that we have seen not just in Khayelitsha but also in rural areas in Lisutu, in South Africa. Well, first of all, there's an improvement of TB/HIV indicators. More TB patients are getting

tested for HIV. More HIV positive patients with TB are getting co-trimoxazole. More HIV positive patients do have a CD4 count taken, and more HIV positive patients are started on ART.

In addition, the proportion of smear negative TB increases and if you — this is data from Lisutu, the MSF program in Lisutu where the proportion of smear negative TB increased from 5-percent in 2006 to 41-percent in 2009 after TB/HIV integration and that is a sign that the nurses that were initially mostly diagnosing smear positive TB, because TB programs — because the indicators they use are still very much geared towards smear positive TB. With TB/HIV integration, they acquired the clinical skills to diagnose smear negative and extra pulmonary TB better and this resulted into this shift in proportions of smear negative versus smear positive TB.

We also found in Lisutu that patients on ART had much better TB outcomes, probably because the adherence support structures available for ART did improve TB outcomes. You see that in red you have patients not on ART, in green patients on ART and success rates in patients on the ART were above 80-percent while there were a mere 50-percent on patients not on the ART. In Khayelitsha, we looked at the time from initiation of TB treatment to the time of initiation of ART and found that in the same clinic after integration we reduced this time from 42 days to 26 days, and hopefully we can reduce it even more.

Of course the first question from any skeptic is yes, but what about Nosocomial transmission, aren't you putting HIV positive, TB negative patients together with highly infectious TB patients and the first response to that is that this happens regardless of TB/HIV integration. The most infectious patients are undiagnosed patients and they're sitting together with your HIV patients already in none integrated service. The lesson from that is that we need — and because Nosocomial transmission is of serious concern in integrated and in non-integrated clinics, and we need to implement intensive infection control procedures in all clinic areas regardless of integration. In high TB prevalent settings, there is also a lot of transmission of TB in the community. This like before we implemented enhanced infection control comparing TB incidence rates in an integrated versus non-integrated clinic where we didn't find different rates of TB in both clinics.

Infection control, well first of all what we did in Kalecha was to put in infection control policy to have aggressive education of patients via pamphlets, but also in the clinics, and to introduce personal controls via surgical masks for patients and respirators for staff.

But the most important intervention is to increase the ventilation in the waiting rooms. Most clinics, or many clinics are built with one central waiting room, and around them you have consultation rooms, and that waiting room has no

windows, or very little windows. What we did, and this is in rural Isutu [misspelled?] is just changing the type of waiting rooms with a lot of ventilation and with windows that you cannot close, hereby maximizing ventilation in waiting rooms. I think that is probably one of the most efficient interventions to reduce nosocomial transmission at primary care. We do, as Tony said earlier, we are dealing also with the emergence of drug resistant TB. Does drug-resistant TB change the fact that we need to integrate TB and HIV? I don't think so. I think the same principles that I described earlier apply for drug-resistant TB and I won't go into detail in this today because I'm presenting tomorrow in Session Room 6 on a decentralized model of treatment of drug-resistant TB in Kalecha as well. The most difficult part to integrate, even in Kalecha, has been the monitoring. And why so? Because even though we manage to integrate TB and HIV clinics at primary care, we have to serve two very difficult masters, the National TB program on one side, who wants monitoring to be reported in one way, and then the HIV program on another side who wants ARVs and HIV outcomes to be reported in a different way.

So we did manage to build an integrated database and produce outcomes in one form format for TB and another format for HIV. It still results in very big folders with TB stationery and HIV stationery, and I think one of the biggest barriers, and Lucy said it as well, to TB/HIV integration is

the fact that we are still dealing at the international level WHO HIV/AIDS Department on one side, Stop TB Department on another side. They say that integration is what we need, but are they integrated? At the national level, we have a national HIV program and national TB program, and at primary care, how can we integrate with such difficult masters?

In conclusion, TB/HIV integration, and not just collaboration, that's what we need. It has a positive impact on HIV and TB indicators, improves clinical capacity in TB care and public health approach in HIV care, and shortens the time to ART which saves lives. Infection control is crucial regardless of integration, and the lack of integration of administrative stretches is a barrier to integration at the clinical level.

I want to thank all patients and staff in Kalecha, in Misutu [misspelled?], and in other programs as well as Eric Goemaere who helped me in putting together this presentation.

ANTHONY HARRIES: Thank you very much indeed for a very instructive talk. We move on to the next talk. I'd like to introduce Professor Gavin Churchyard who is the CEO of the Aurum Institute for Health Research for focuses on TB and HIV. He's also the chair of the WHO TDR reference group for TB, Leprosy, and Varicella. Gavin's principle research interests are in preventing tuberculosis in people living with HIV.

Gavin's going to talk about the scientific perspective.

Galvin?

GAVIN CHURCHYARD: Thank you, Tony. First I'd like to thank the organizers for inviting me to give this presentation. I will focus on scientific advances of importance to decreasing the burden of TB in people living with HIV and decreasing the burden of HIV in TB patients. Specifically, I will talk about intensified case finding, isoniazid preventive therapy, and infection control branded by the World Health Organization as the Three I Strategy. I will also emphasize integration of activities at primary health clinics. I will also focus on integrated HIV and TB treatment. The number of people living with HIV screened for TB increased substantially between 2003 and 2008, although globally, the number of people screened was only 4-percent. In Africa, this number was higher at 20 percent which is still woefully inadequate. The number of people living with HIV started on IPT is very low. Globally, only 0.2-percent of Eligible individuals were started on IPT.

Moving onto intensified case finding, it is important to exclude active TB after starting IPT. A meta-analysis of studies done in Africa, Asia, and the Americas showed a range of TB prevalence of undiagnosed active TB from 0.7-percent in community-based TB program surveys to 2.3-percent in primary health care clinics and PMTC clinics, 8.5-percent in VCT

settings, and up to 25-percent after starting ART in African, medical, and ART clinics.

The prevalence of undiagnosed active TB dropped substantially once people enter HIV care, and are started on IPT or ART with a prevalence of about 2-percent. As prevalence is the key determinant of transmission, screening, diagnosis and treatment is essential to infection control. These results highlight the high burden of undiagnosed TB among people attending health clinic facilities and provides justification for screening all individuals obtaining health care in facilities rather than just known HIV-infected individuals.

Gilles has just shared with us the experience of providing a one-stop shop for integrated HIV and TB treatment, and how community health workers providing intensified case finding increased the yield of tuberculosis cases, particularly on smear negative TB.

In 2007, the World Health Organization released guidelines to improve the diagnosis and treatment of smear-negative TB. A study presented at the recent South African TB conference showed that use of the WHO guidelines in hospitalized, smear-negative TB suspects increase survival at 8 weeks post-admission from 68-percent prior to implementation of the algorithm to 84-percent after implementation of the algorithm.

The DetecTB study is a cluster randomized study of two periodic intensified case finding strategies conducted in Harari using Bolshevoy [misspelled?] inquiry for chronic cough compared to community mobilization and a mobile van for sputum collection. The results of this study showed that six monthly rounds of intensified case finding reduced the prevalence of undiagnosed active TB over a period of three years by 59-percent in HIV-uninfected individuals, and 22-percent in HIV-infected individuals. Although the burden of disease is borne by HIV-infected individuals, these results show the importance of HIV-uninfected individuals in transmitting TB and provide further justification for screening all individuals presenting to health care facilities for TB to prevent transmission to health care workers and people living with HIV.

We have just heard that early diagnosis and treatment of TB saves lives, and new point of care diagnosis, the Keflex Genexpert is now available in the field. The preliminary results from the FINE [misspelled?] demonstration projects has shown excellent sensitivity in smear-positive and smear-negative TB with a sensitivity of 99.5 and 90.2-percent respectively, and a 97.5-percent sensitivity for the diagnosis of rifampicin resistant TB.

The pilot studies are underway of the Keflex Genexpert system in primary health clinics. However, the cost of the system is prohibitively expensive, and if we wish to derive

maximum benefit from this technology, we need to radically drive down the cost so that we can spell it out as a point-of-care test in primary health clinics and save lives.

Moving on to isoniazid preventive therapy, before starting ITP, it is important to exclude active TB. The World Health Organization and CDC conducted a meta-analysis of primary data from 12 studies to standardized screening for TB in people living with HIV. The analysis showed that the base rule was one of four of current cough that is greater than 24 hours, fever, night sweats and weight loss. The screening algorithm performed well in clinical settings with a sensitivity of 81-percent in the negative predictive value of 97.4. The negative predictive value is important as it determines the number of TB cases that could be missed with the screening algorithm for any given sensitivity and TB prevalence. The higher the negative predictive value, the fewer the number of TB cases that will be missed. The screening algorithm also worked well in individuals with advanced immune suppression with a sensitivity of 88-percent and a negative predictive value of 97.7. These results should give us confidence in excluding TB prior to starting IPT. Two retrospective studies have recently been presented showing the effects of IPT and ART on TB incidence and mortality. In the South African study, giving IPT prior to ART reduced the incidence of TB by 90-percent compared to those that did not

receive IPT or ART and resulted in a greater reduction in TB compared to those that got ART alone.

In another retrospective study in a workplace program, again in South Africa, starting IPT with antiretroviral therapy reduced mortality within the first year after starting ART by 53-percent. The results of randomized control trials are awaited, but these results support combined use of IPT and ART. The new WHO guidelines for IPT recommend IPT for all HIV-infected individuals regardless of whether they are on ART or not.

The results of two studies comparing 6 and 36 months of IPT have also been increasingly presented. The study from south Africa did not show a significantly greater reduction in TB incidents with 36 months of IPT in intention to treat analysis, but did show a 69-percent reduction in TB incidents in the per-protocol analysis. This apparent noneffect is due to poorer adherence and retention in the 36-month IPT arm. In the Botswana trial in the intention-to-treat analysis there was a 54-percent, and in the per-protocol analysis, 65-percent reduction in TB incidents with 36 months IPT compared to 6 months with the greatest effects being observed in TST-positive individuals with TB incidents being reduced by 93-percent. The new WHO IPT guidelines make a conditional recommendation for providing at least 36 months of IPT.

I will now discuss some aspects of infection control. Rod Escombe showed the using a CO2 diffusion model, that increasing natural ventilation by opening doors and windows increased the number of air changes per hour by more than two fold compared to mechanical ventilation. In Vienna, as Gilles has just shown us, we need to where feasible and high-TB present setting, use outdoor waiting areas and open doors and windows.

In studies of guinea pigs exposed to air from HIV-infected patients in Peru show the potential benefits of ultraviolet light. The TB infection in guinea pigs was reduced by 70-percent by ultraviolet lights. TB infection in guinea pigs was also associated with inadequately-treated MDR TB patients. These results are consistent with studies done in the late 1950s in guinea pigs showing that transmission of drug susceptible TB can be rapidly and dramatically reduced with effective treatment. These studies suggest the in addition to administrative controls and improving natural ventilation, we must rapidly diagnose TB cases and start them on treatment.

Moving onto integrated TB and HIV treatment, the SAPIT trial evaluated integrated HIV and TB treatment in people living with HIV and a CD4 count less than 500. The sequential arm was compared to the combined early and late integrated arm. The integrated arm was associated with a 56-percent reduction in mortality. The results of the early and late integration

arms is still awaited. Despite the controversy around this trial, results certainly highlight the importance of integrated TB and HIV treatment, which for the most part, is still not happening in most of South Saharan Africa.

The CAMELIA trial which is comparing study-integrated oral therapy at two or eight weeks after initiating TB treatment in severely immunosuppressed HIV-infected [inaudible] adults will presented on Thursday at this conference and provides further evidence for early integrated treatment.

In conclusion, integrated TB and HIV activities still remain fully implemented but is improving. We must go to intensified case finding, isoniazid preventive therapy, and infection control. All individuals presenting to health services should be screened for TB, and if found to have TB, started on treatment rapidly. The integration of ART with IPT and TB treatment also needs to be scaled up. Thank you.

ANTHONY HARRIES: Gavin, thank you very much indeed and I'd like to introduce our last speaker Kevin De Cock who is director of the Center for Global Health, Centers for Disease Control Atlanta, a post I think he took up in May this year. Prior to that he was director of CDC in Kenya, and prior to that director of the HIV Department in WHO. Kevin has a vast experience of TB/HIV issues at both policy and also field level, and he's going to talk to us about the policy perspective. Kevin?

KEVIN M. DE COCK: Thank you very much, Tony. Colleagues, friends good morning, and thank you to the organizers for inviting me. Bill Fahey a former director of the Centers for Disease Control said that one of the functions of public health is to define the unacceptable, and I think that the HIV/TB situation is unacceptable. Obviously, a lot of issues have already been covered, and some of my comments I either would modify slightly or are going to be a bit repetitious, but nonetheless, I think many, many important points have been made.

If you accept that epidemiology is a science of comparison a science of skepticism, and you know, skepticism is the chastity of the intellect and should not be surrendered lightly, then we have a duty to question to probe. This discussion on policy should start with the basic question, why integrate? Forgive the misquote from the great and greatly irreverent social critic, Tom Lehrer. How many remember Vatican Rag? I think we've had many good reasons to integrate. The most important are to achieve better health outcomes, greater client convenience and cost savings. These are not necessarily guaranteed and they do need to be supported by data. Policymakers need to be prepared for unintended consequences and actually take responsibility for them, measure them, and take corrective action. These could include erosion of technical quality such as loss of tuberculosis expertise or

loss of accountability. If everybody does everything then nobody's responsible for anything, and sometimes even reduced pride in specialization as well as further spread of tuberculosis amongst the most vulnerable. So the reason to quote Tom Lehrer, actually, is to emphasize my first point that we need sound policy in global health, but not dogma, and we must maintain a constant questioning attitude.

Now some definitions, policy is the elaboration of a course of action by authorities with regard to a particular set of issues. So faced with an escalating burden of tuberculosis, policy is about defining the what and why in a response. It leads to tools for implementation such as regulations, rules, guidelines, protocols which represent the how, the where and the when of the response.

We physicians and health care workers must recognize that health impact is actually greatest from non-clinical factors many of them dependent on sound policy at the base of this pyramid, you have social determinants such as housing, employment, alleviation of poverty, and then structural interventions, universal access policies for example, seat bell laws. Once-only public health intervention such as vaccination for male circumcision, clinical interventions such as taking tuberculosis therapy on a daily basis, and then at the top behavioral change, but all of them require sound policy.

Few would probably disagree that science should drive public health policy, but all probably recognize that values and opinions influence decisions. Even evidence from studies may not be complete and is vulnerable to bias-confounding and chance. Interpretation is still required, and we can never escape the need for judgment.

Human rights are interesting because actually human rights, fundamentally, are a legal concept and have to be enshrined in policy, but some broad interpretations are really about values such as the quest for social justice.

These affect policy, but their interpretation is diverse, and opinions, politics, and even religion in some settings play their part. But I do want to stress the importance of evidenced. Decision makers have the right to their own opinions, but not to their own data. The photo actually illustrates an interesting challenge to policy, an example of this. It's a of a guard outside a hospital in South Africa where patients with MDR and extensively drug-resistant tuberculosis were isolated on a largely involuntary basis. It highlights a particular policy question, the role of isolation for control of extensively drug-resistant tuberculosis. The subject on which we have a paucity of data, but an abundance of opinion.

Nonetheless, sound policy in health, based on the best available data should be seen as an individual human right and

a societal right. If we think of integration between HIV and TB services, we've heard a lot about this. We can envision several levels of integration. This slide was kindly given to me some years ago by Jerry [misspelled?] Friedland, who has contributed so much. Traditionally, we've seen two programs with very different philosophies and working styles which when they realized that they could not ignore each other, initially rather inefficiently referred patients between each other. Some took the bold step of partial integration, and we've heard the truly innovate work from Kalecha by MSF and colleagues, and I do want to salute that work for which I have high respect.

This is at the clinic level, but allusion has also been made at integration at the higher levels of the health sector or even at the global levels. I think we face a conundrum, and I appreciated the comments Gilles made. We face a conundrum because the majority of tuberculosis in the world, of course, is not associated with HIV, and the situation faced particularly by Southern Africa which has the highest HIV and the highest TB rates in the world, independently even before the AIDS epidemic, the highest TB rates. That situation is very, very unique.

What we could do better than we're doing, but on the right of this slide, you see a situation that maintains specialist expertise for both diseases, but integrates that expertise when and where it is necessary. I think a useful

topic for discussion would be to elaborate on what that actually means. Now how this is done at country level varies tremendously by the individual context, and I think it would be dangerous to assume that there is a one-size-fits-all solution.

What we can't allow to happen is erosion of technical expertise, including, for the basics of tuberculosis, control. The Stop TB strategy which I strongly support that was launched in 2006 by WHO and the Stop TB Program. This placed an emphasis beyond DOTS to include partnerships and system strengthening. And the TB community as a whole has increasingly adopted the advocacy, and the rights-based approach is traditionally associated with the AIDS movement.

At the same time, there may be a shifting of attention, and I think we have seen this in some countries in Africa. A shifting of attention away from the basics of TB control that I just illustrated in one regard by the very specific recording and reporting requirements for individual TB patients but do commit the program to each and every patient.

Paradoxically, in some settings, as TB programs become more human, and I use that term advisedly, in their concerns, there may also be a risk at the same time of loosing quality for individual care. That overall sentiment is captured in a paper actually written 18 years ago or so by the current CDC Director, Tom Freiden, entitled the slippery slope to sloppy DOTS.

The point I'm trying to make is that policy cannot be viewed in isolation from implementation, but that policymakers have a duty to review and evaluate the impact of those policies and their application in the real world to assure maintenance of standards, and avoid secondary unintended consequences. Policymakers also have an obligation to stay abreast of changing science, and drive science to provide answers to the right questions, in other words, policy should be informed by evidence, but it also needs to stimulate the search for evidence.

We've heard about the three Is prioritized by WHO in response to HIV-associated TB, and I won't say more about that. Now perhaps no single event better demonstrated the danger of the uncontrolled section of HIV/AID, poor TB program performance and absent infection control, and the lethal outbreak of extensively drug-resistant tuberculosis among HIV-infected person in Tugela Ferry in South Africa. This experience showed that XDR TB has the ability to turn HIV/AIDS into something for the last 29 years we've been saying it is not, a potentially fatal condition that can be casually transmitted.

So addressing infection control for tuberculosis is critically important, and it starts with policy defining the what in relation to a new problem. Now despite great progress toward the process indicators outlined under DOTS and the Stop

TB strategy , TB control is not occurring at the rate hoped for or predicted including in countries with low HIV prevalence.

This paper, which I urge you to read, published in *Science* just recently by Chris Dye and Brian Williams explores some of the potential reasons. Ideally, we should be looking for game changers. A game changer is one of those fundamental radical innovations that completely change the way that something is done, thought about, or made, a cell phone would be an example, the internet, antiretrovirals themselves. For HIV associated TB it may be that antiretroviral therapy fits that bill, perhaps in combination with isoniazid preventive therapy. This conference has reviewed the prevention benefits of ART. I'll skip over that, and this slide just refers to the mathematical model that WHO published in this regard.

A separate but allied question is when to start antiretroviral therapy for individual health, and I think that is so important to this TB discussion. Practice in the north based on observational data rather than on randomized trials is leaving the WHO recommendation of starting at 350 cells per cubic millimeter behind. Starting ART immediately upon diagnosis and diagnosing HIV as early as possible for the individual could maximally benefit individual health, reduce HIV transmission, virtually eliminate mother-to-child transmission of HIV and control HIV-associated tuberculosis through direct restoration of immune function and indirectly

through the prevention of HIV spread. Gavin has already shown the results of the continuous versus six months INH preventive therapy study in Botswana by Samandari and colleagues, 93-percent reduction in TB incidence in tuberculin skin test positive persons.

How to best use ART, and isoniazid preventive therapy together or alone for TB control is surely the most important question in this field, and we should not squander the opportunity for identifying and embracing what is potentially a game changer.

I have some final comments before closing on the great responsibilities faced by policymakers and the need to hold them accountable. They say that if you kill one person, you go to prison. If you kill 30, you may go to a psychiatric asylum. If you kill thousands, you go into political exile. If you kill patients as a clinician, you can lose your medical license, and yet the impact of bad health policies are rarely quantified. In this regard getting it right for tuberculosis is particularly important in light of its unforgiving natural history. Poor policies and poor programs for malaria lead to a rapid rebound of disease. That is readily apparent, and may have severe consequences such as drug resistance. But in general it is relatively rapidly susceptible to intervention with TB because of the persistent and latent infection, poor policies or program performance over even a few months can

result in consequences such as persistent high incidence of disease and drug resistance, including multi-drug and extensively drug resistance many years later and set us back potentially for decades.

In closing, what will it take? As always, it starts with evidence and data, good science applied to the right questions, clarity of thought, good judgment, balancing risk with what is reckless caution.

Do no harm is something I certainly believe in, but do no harm is not an excuse for doing nothing. Policy sounds dry, but it's the basis for action. It cannot be disassociated from leadership, advocacy, and perhaps above all, vision. I think that with idealism that's tempered by evidence that with pragmatism that is principled with cautious optimism and vision than in the words of Martin Luther King that our people will get there. Thank you.

ANTHONY HARRIES: Thank you very much, Gavin, for this fantastic presentation and summarize very well the balance that all of us are facing there. Thanks to all the presenters to sticking to their time. It leaves us about 25 minutes for a debate. We'll stick to the three Is for the debates. We'll take a question one by one. The three Is are introduce yourself, be incisive and short, and indicate to whom you address the question. We'll take them one by one. The first question is number nine.

TOM BICTROW: Thank you for the interesting presentation. My name is Tom Bictrow, [misspelled?] and I work in Mozambique. My question is to Gilles. If we now integrate HIV and TB in one room, one nurse, what do we do with the policy of integration HIV in primary health care? Thank you.

GILLES VAN CUTSEM: Tom, can you clarify that question a little bit?

TOM BICTROW: Now in Mozambique, we do HIV service where we have TB. Are you going to integrate HIV in the primary health care? Does this mean that the nurse doing triage will also do HIV care and that the TB nurse will treat all co-infected patients for HIV and TB. But you don't have a vertical service for HIV and TB only.

GILLES VAN CUTSEM: You're pushing it further from TB/HIV integration to integration of TB an HIV services in general primary health care. I think that really depends on the prevalence. I think in very high HIV/TB prevalence settings, you probably have such a high burden of disease that it is better to integrate TB and HIV. So TB and ARV services in low prevalence settings, I don't see why you couldn't pilot a model of integration of TB and HIV services in primary health care. I don't know if some of the other people in the panel have something to add on that.

ANTHONY HARRIES: Now we'll take another question, number six.

MARY ITSUWA: Thank you for the presentation my name is Mary Itsuwa [misspelled?] from the University of Bergen in Norway. My question is crosscutting to all the presenters. I would like to know how can we disentangle the misunderstanding that once a person is diagnosed with TB, they are automatically HIV positive. These are some of the perceptions the community has. How do we communicate to the community that it is possible to suffer from TB and also be HIV negative?

The other part of the question relates to integration. The community has a different understanding in terms of the two diseases. TB, as a disease, is not stigmatized while HIV is stigmatized deeply for that case. When we are talking about the concepts of collaboration and integration, have we tried to find out which one the community prefers, whether TB and HIV should be integrated or they should remain apart as collaborators. These issue relate to access and utilization or acceptability of the services, thank you.

ANTHONY HARRIES: Thank you for your question. I will allocate it to Lucy because it's mostly under a community perspective.

LUCY CHESIRE: Thank you very much for those two interesting questions. I think the first thing that we need to do even at the community level is actually break that myth whereby people always have that perception that if somebody has TB, they automatically have HIV. Data exists; in a country

like Kenya, we have seen your co-infection rates of 44-percent overtly TB patients being HIV positive. It leaves with you with the other bit of about 60-percent, so it doesn't necessarily mean that if you have TB then you automatically have HIV. I guess I just want to pose back the question to you, what would you do to be able to dispel that misinformation or the myth that exists in the communities. For me, the easiest thing is what can we do more to be able to encourage people to go for blood tests so that at the end of the day you're ruling out HIV even in a scenario whereby the prevalence could be pretty low. Then of course, in relation to the concept of collaboration, many a times when you talk to the patient community groups, they would definitely prefer services being integrated together because at the end of the day, it is added value minimizing the time that is lost through patients having to go to different clinics. That would apply in high TB/HIV settings, and not necessarily all around areas or other countries. But at the end of the day I think the importance of actually having integrated services has much more benefits than actually being able to have separate clinics.

ANTHONY HARRIES: Thank you. Number five?

SAEED AHMED: Hello I'm Saeed Ahmed [misspelled?]. I work for BPI in Malawi, and two quick questions, one for Gil. Do you thing it's as practical to have complete integration in settings where the incidence of TB is not as high as what you

see in Kalecha [misspelled?] and other areas of South Africa. And the second is if the panel could elaborate more on the practical aspects of integrating. At our Peace Clinic, for a long time we've been frustrated with the ability of the TB program to treat kids, and so we lobby to provide TB treatment at our clinic. Everyone was in agreement, but it was the practicality, getting the TB drugs, filling out the TB registers, and it took us three years to do that. And even now, we can only initiate. They still have to go to the TB clinic for a continuation phase. I wonder if you'd comment a little bit on how practical this will be if we all agree that this is a good idea.

GILLES VAN CUTSEM: You're asking whether it's a good idea to integrate TB and HIV fully in lower prevalence settings. Malawi is still actually a very high prevalence setting compared to other settings I think in areas where TB/HIV co-infection is high, and Malawi is one of those settings. It makes perfect sense to fully integrate TB and HIV services even in areas where it's a little bit lower than Kalecha which is an extreme example. In very low HIV prevalence settings, I think it's a different question.

As far as your first question about children, that would be an example of a local policy question that could just be changed very rapidly so that children can access

tuberculosis therapy where they get their HIV care in an integrated fashion. That's a local issue.

There are some general issues which I think are truly difficult, and I'm not sure we've got the answers. I'm thinking of, and you my reference to it Gilles, that issue of recording ad reporting. You know, the tuberculosis system, the traditional TB system has a very simple, very, very effective reporting system that does assure accountability to each and every patient when it works. And it's kind of written in stone and it's out there and it's universal. In HIV, I think our monitoring of therapy and recording and reporting of outcome is actually very poor. We've got many different systems, and it's kind of chaotic, and the data are not that great. Yet, we have a problem, as has been pointed out, having these two different reporting systems. Now, how to move forward on that. On the one hand, should we have one universal system for reporting and recording for HIV? I'd be interested to see what our chairman thinks. He's written a lot about this, and how to then marry the two systems together, or indeed, in something that now is well-established, long established as TB reporting. If it was better to change it in some settings because of HIV, how would we do that an who decides? I think there're many, many uncertainties there. I'd be interested to hear other people's opinion.

ANTHONY HARRIES: Next question is number three.

ANNE GOLDFELD: Anne Goldfeld, Harvard Medical School and Cambodian Health Committee, one brief comment, and then a question for Dr. De Cock. The comment is that the SAPIT study addressed whether sequential treatment of TB and AIDS, what the impact of that was. Whereas the results that will be presented tomorrow in the late breaker address the question of two weeks versus eight weeks initiation HAART in immunosuppressed TB patients with AIDS, and that's a very different question. So that's addressing the question of within the first two months when mortality is the highest, do you have an impact of going in with early heart.

My question is, we've been discussing integration of HIV and TB therapy and care, and one major issue is, of course, MDR and XDR TBS has been mentioned by several of the panel members. In a global situation where access to MDR TB is not accessible, I just bring to light one example from Ethiopia which is just one in many examples, where a country which has an estimated, by WHO standards, of 6,000 new MDR case a year. It was approved in, I believe, an approach of to do no harm for 45 courses of MDR treatment, and even those 45 courses, the procurement and access to those courses was delayed for over a year.

In this situation with burgeoning MDR and XDR TB and the tremendous impact in problems that it creates for TB/HIV

management, what is your suggestion to get us out of this global catastrophe?

KEVIN M. DE COCK: Thank you for the question, and there are, related to HIV but dissociated from HIV also, there are analogous problems. You could ask exactly the same question about what about the treatment of hepatitis B and hepatitis C and injecting drug users in Eastern Europe for example or elsewhere. We don't have the right answers, and I think HIV has offered us by its focus on universal access to therapy other doors could be open that we need to push on, that it will take time.

As far as XDR and MDR are concerned, I think it's very important to keep coming back to this. But two comments, firstly, MDR and XDR are humanly created by poorly functioning programs, an poor accountably to individual patients. We have to go full circle and strengthen our basic tuberculosis programs. Secondly, I do worry about blind treatment for drug-resistant tuberculosis. This is a common question, it's not a statement of fact. But are we doing the right thing in treating people without access to laboratory data for that particular condition. I think that's a question that's amenable to research, and it's an urgent question.

ANNE GOLDFELD: My question is in situations where there has been documented cases of MDR, and again, I can take Ethiopia as an example, there were over 200 documented

backlogged cases waiting for therapy. Drugs were not in the county for a full year after their approval by the green light committee. So my question, it may be that there's no answer to it, but I just want to raise the point that we as a community need to be really addressing the question of how to access therapy when in fact there has been good lab diagnostics, and there are programs in place or can be brought to bear to distribute those drugs in a responsible fashion.

ANTHONY HARRIES: We need to move to the next question because there are a lot of questions waiting. Number six?

Sure, thank you. My name is Kadur Amata [misspelled?] I work for the Institute for Health Care Improvement, an organization that focuses mainly on systems improvement. I wanted to ask a question about the TB/HIV lack of coordination seems to me to be a product of system disintegration, and we've talked a lot about that already. In the final presentation, Dr. De Cock mentioned IPT as a potential game changer. But in the presentation that was given just before it, we saw the coverage of IPT being less than 1-percent worldwide.

My question is, do we not need another mechanism, a different game changer, that looks at heath system strengthening and possibly goes beyond the system solutions that we can come up with, but looks outside of health care to other systems that have greater reliability and service delivery. The question I suppose is, what are we doing in

order to look at those other possible mechanisms for service delivery and improving that performance?

KEVIN M. DE COCK: Just a comment around the IPT, so in order to get the impact at the population level, we have to scale up IPT massively, and the combined use of IPT and ART is complimentary. So we only have to look at the health system certainly to strengthen it, and I believe that integration will be key to driving up usage of IPT. Maybe you can share with us some examples of other systems that improved service delivery. I know it's around not getting hope to people in rural villages, and we want to get pills into people's mouths and vaccines into their arms, so maybe you can just share with us what you think.

But, Kadur, just to feed back to this, I mean it's an interesting point. Isoniazid is a TB drug, and it generally has been within the province of the TB control programs. IPT is in fact an HIV intervention given by HIV programs to people to stop them getting tuberculosis. There's got to be a sort of mind shift here a little bit about the HIV programs, the HIV community, taking a TB drug and being responsible for it. I know your question was broader than that, but sometimes, it's the devil in the detail that's required to make these things happen.

ANTHONY HARRIES: The next one is number two.

SANDRA KALIE: Sandra Kalie [misspelled?] from the World Health Organization. So as we have heard from the presentation and from the question from the audience, it is not likely that there will be one fit-size approach for the TB integration.

I would like to bring the possibility of decentralizing antiretroviral therapy into the TB clinics, and Kenya is starting to do so. I would like to ask Lucy and Kevin if they have some details to share with us about programmatic challenges and also program reserves and patient reserves. Thank you.

LUCY CHESIRE: I fully agree with you. The experience of Kenya has actually taught us, and this goes back to when you look at Kenya as a country, we have 600 comprehensive care clinics that actually provide antiretroviral therapy. But if you're to make a comparison with the TB treatment sites, we have about 1,800. So at the end of the day, it really makes sense, and that's the reason why Kenya has actually been able to pilot the issue, the rollout of antiretroviral therapy in three provinces. The results are quite impressive, because at the end of the day, you're actually seeing patients not only benefiting from the services, but being able to live a very, very productive life, considering that denying or the aspect of integration in TB Clinics like rolling out antiretroviral therapy then at the end of the day, goes long, long way in

loosing out on many, many patients. I guess for us, the lesson learned is there's the need to insure that all other TB clinics within the country, the 1,800 sites that are already providing anti-TB treatment should also start doing antiretroviral therapy.

ANTHONY HARRIES: No other comments about Kenya. Number 5.

GABE SHANNING: Yes, hello, thank you. My name's Gabe Shanning [misspelled?] from the Makerere University UCSF Collaboration. I had a question for Gavin Churchyard about intensified case finding. Often it's presented as a strategy to be enrolled in HIV clinics as well as in congregate setting. I was curious about your thoughts on strategic targeted strategies for intensified case finding both among HIV-infected and uninfected persons out in more community casual settings.

GAVIN CHURCHYARD: Thanks, I think there's a stark contradiction in your question in that you're talking about targeted and community based. Certainly, I think the definition of intense case finding needs to be broadened. What's you're really referring to is active TB case finding where you go out into the community and you do broad-based TB screening as are shown in the DetecTB. I think the evidence is emerging from the DetectTB study, and from another very large cluster randomized trial design of enhanced TB case finding called the ZENSAR study being done in Zambia and South Africa,

will certainly give us very clear evidence of the benefit of a population level screening and the effect that that will have on TB incidents at a population level.

If you really want to have an impact at a population level, we have to screen very broadly. We need to have the tools to do it, and I think what was so good about the DetecTB was that it was a very simple, cheap, and effective system.

ANTHONY HARRIES: Yes, Jerry, up to you.

GERALD FRIEDLAND: Thank you, Jerry Friedland from Yale University and Tugela Ferry Care and Research Collaborative. Since I followed Anne Goldfeld, I want to make a comment about HIV/TB integration and how anxious we are to hear the results of the CAMELIA study. In the SAPIT trial there are two arms that are similar in that they are integration arms at different periods of time, an early and a delayed integration so that we're awaiting those results also, and SAPIT is not finished at all. It will probably provide similar, hopefully, or supportive information for the DATA from the CAMELIA trial. So SAPIT is not finished. It's ongoing. It's just that the delayed or the sequential part of that study has been reported. So there will be more information coming, and I do agree that the issue of when to start within the context of tuberculosis therapy remains unresolved and really critically important.

I wanted to, in a sense, pull together a little bit of what this wonderful panel has discussed. There was a lot of

similarities in presentations about integration and the need for flexibility in policy and practice based on prevalence of the two diseases in different settings, the history of the health care system, the levels of training and resources and the funding streams. I think it's very important to keep that in mind because there are so many differences in terms of the models of integration and levels of integration. I think the Kalecha model and Losoto [misspelled?] is going to be very, very hard to do in many places. But elements of it can still result in improved outcomes of both TB and HIV. One has to be sensitive to the local circumstances in which these programs are developed.

I wanted to say one more thing about the critical issue of both tuberculosis and HIV integration and also drug-resistant tuberculosis remains early identification. In that is really the pitiful way in which we still diagnose tuberculosis, particular drug-resistant tuberculosis, and that is changing rapidly. In the short term a lot of this issue will be addressed.

In answer to Anne's question, more successfully when we're able make these diagnoses rapidly so that individuals can be treated appropriately or separated appropriately and the circumstance of continuing transmission can be broken.

The third thing I wanted to mention also came up, and that is that we tend to focus still so many of the activities

in the clinical care setting—in the clinics, in the hospitals where most of the tuberculosis—and most of the HIV treatment occurs in community settings and will continue to do that. We haven't adequately exploited certain strengths in resource-limited settings that actually don't exist in developed countries, and that is the strength of the family and the community. For both of those diseases, there is this infrastructure. It's not the bricks and mortar infrastructure but really a people infrastructure that hasn't been adequately exploited in term of successful treatment, and also identification of cases early. So we really have to, in terms of paradigm shifts, and maybe not necessarily deal breakers, or I forgo the term that was used. Kevin, what was it?

KEVIN M. DE COCK: Game changers.

GERALD FRIEDLAND: Game changers, it all comes from sports analogies. More development and support of programs that occur actually in the community for these two diseases is another relatively inexpensive and available way to go.

ANTHONY HARRIES: Thank you. Unfortunately, we'll only have space for one last question, number nine over there. I'm sorry to say so, but we have a flashing screen that you don't see there saying one minute left, and we are fortunate to be in this big room, but unfortunately it's booked for just after this session, we'll have to be strict with time, number nine.

ZINGANI CHILWA: Thank you very much. Mine is a quick one. My name is Zingani Chilwa [misspelled?] from HIV/AIDS Department in Malawi. My question is to the second speaker. I just want to find out in terms of integration, how they have handled their procurement supply management system. I think Professor Harries alluded to the fact that ITP is essentially a TB drug, but now it has to be supplied in an HIV setting. Have they managed to integrate the PSM system? If not, how are they handling issues of procurement and supply.

GILLES VAN CUTSEM: As I said, the integration in Kalecha [misspelled?] is at the primary care level. The higher levels, they're still a national TB program and national ARV program, and so they still have different supply chains even though they use one central depot at the provincial level. So you have different supply chains right now.

ANTHONY HARRIES: Okay, we have to close this session, unfortunately now, and invite anyone who still wants to raise some question to be in direct with contact with the panel member and raise your question outside this room.

What to say in conclusion, well, I'll paraphrase you, Kevin. Maybe it's a subject where there is abundance of opinion and a paucity of data, so we'll probably have to work on bringing more model, not one size fits all. It was said. It's a regional problem for where the coinfection is extremely high. It's not case for the whole world. It is happening. We

heard the story about Kenya wanting to decentralize ARV service within every single TB clinic in South Africa. You heard the Minster [inaudible]. Clearly that's one of the primary key objectives is to bring ARVs to every single TB clinic. Instead of being reluctant and conservative, we'd better take the bull by the horn, and prepare for what will happen. It will happen, I would say, in a correct way, Lucy, if people living with HIV and TB have a voice. I'll take this to say it should happen more rapidly and without drug failure.

Thank you for your participation. It was a lively debate as usual, and we'll close it here.

[END RECORDING]

[1] The Kaiser Family Foundation makes every effort to ensure the accuracy of written transcripts, but due to the nature of transcribing recorded material and the deadlines involved, they may contain errors or incomplete content. We apologize for any inaccuracies.