

**Conference: 15th Annual International AIDS Conference
World Bank: AIDS Treatment and Prevention
July 11, 2004**

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EMMANUEL JIMENEZ: On AIDS treatment and prevention.

I'm chairing this session, I'm Manny Jimenez, from the World Bank. I'm director for Human Development for the World Bank's East Asian Region. We have a very distinguished panel today of presenters and commentators who'll be working with us on this topic. It's a very fortunate time in history right now in which ART is more widely available on an economical basis. And this session we'll be looking at not whether or not such treatment should be made available, but how it should be made available. And the implications for policies and for countries. We'll have case studies from three countries, for India, Thailand and South Africa and all of these studies were conducted in teams of people from various disciplines as well as the participation of people from communities who are engaged in AIDS. Really, this is a very fortunate time for us to be able to listen to the research.

Of course, all the focus on treatment doesn't mean that there should be any less emphasis on the policy part of the agenda and those issues will be discussed as well. The way we're going to organized the session is to have the three case studies presented on after the other. Each presenter will have about 15 or 20 minutes maximum and then we'll ask each of the panel commentators to talk for about 5 to 7 minutes, no more that please, so that we can have at least 40 minutes or so for

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discussion with the audience.

With that, let me go on to now present to you each of the presenters of the case studies. We are fortunate to have presenting the case study on India, Mead Over, who is the lead economist in the World Bank's Development Research Group on the extreme left of me. To my right, the case study on Thailand will be presented by Ana Revenga who is the lead economist in the Human Development Unit based here in Bangkok, who will be presenting the case study with Dr. Weewat, research associate from the East West Center and the Thai Red Cross. The South Africa case study will be presented by Mr. Siyabonga Jikwana, acting director, Health Financing and Economics, National Department of Health, of South Africa.

With that, let me turn it over to Mead for the first presentation on India. Mead..

MEAD OVER: Thank you Manny and thanks for the comment in the back, it is important to know whether we can be heard. Is this loud enough? Can people hear me in the back of the room? Can you hear me in the back of the room? Yes. Okay. The work that I am presenting today is the product of a collaboration between many people as our Chair, Manny, has just said. I'm proud to say, as a result of this work we now have a publication which is entitled, "HIV AIDS Treatment and Prevention in India" modeling the costs and consequences. That book will be available in limited numbers at the World Bank

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booth for distribution and it can also be ordered from the world bank bookstore. It has a CD Rom in the back which includes all the background papers. The team that produced the report is represented on this slide and many of the team members are in this room. During the question period I hope that some of them will participate in answering those questions. I won't go through the list because we really do have a shortage of time and I have to try to go very fast.

Let me start with a part of the conclusions of our report. Manny mentioned that we are at a propiscious time in the history of the AIDS epidemic because of the feasibility, economic feasibility, for the first time in many countries, of expanding access to anti-retroviral treatment. A few years ago when we did the analysis of the cost effectiveness of anti-retroviral treatment it would have cost \$10,000.00 or more to save a healthy life year. Our work in India suggests that we would be saving healthy life year for less than \$300.00. And in fact or possibly as little as 146, as you can see on this slide, per healthy life year saved. That's not as cheap as some other public health interventions, but in comparison to just a few years ago it makes all the difference. Much of the discussion at this conference on treatment is due to the fact that these costs are so low now.

The presentation is going to first start by looking at a conceptual framework that we used in India in order to

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analyze the potential impact of the introduction of anti-retrovirals. This was at a time before the Indian government had taken a decision on anti-retroviral therapy and therefore all of our work was hypothetical and prospective. Now that the Indian government has taken such a decision, it is interesting to see how these modeled results will, hopefully to some degree, indicate in which direction the Indian government's decision will take India. We'll talk about the baseline, that is what would have happened in the absence of any decision by the government to fund anti-retrovirals. We'll talk about the analysis of the different ART policy options that the government asked to analyze. Then, we'll draw conclusions.

A starting point for our analysis was the recognition that ART not only saves the lives and postpones serious illness for the people who receive it, but it also has effects on prevention. It has effects which can be categorized in these ways; it has biological effects and behavioral effects. The biological effects are partially very beneficial on prevention because the reduction of viral lode in the blood and in the semen means that to some degree ART can be a preventive measure. As you'll see in modeling results, that turns out to be very important. But, unfortunately there are biological effects, which might speed transmission, other things equal, and those are listed on the slide. There are also possible behavioral impacts. Some of which might benefit the prevention

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effort, but some might retard the prevention effort. Those we were not able to model explicitly in our baseline or even in our first policy models because so little is known about these behavioral impacts. But we do do sensitivity analysis about those impacts, which I will show you.

The framework for the model was to imagine that the government of India has certain instruments, certain policy levers or control knobs, that it can adjust which affect the behavior of the epidemic. So, we imagined that prices, distances, information, regulation, results based financing, the degree of accountability, the degree of involvement of the community, that these were some things that the government could affect directly and that by affecting these things, the epidemiological trajectories would be affected. And as a result of those changes in the future epidemic, we modeled a thirty year period. There would be certain health benefits that would accrue to the Indian population and there would be certain financial costs. We were looking particularly at the benefits and the costs from the government's perspective and asking "how much would the government have to spend in order to achieve certain health benefits?" And that first slide I showed you, which suggested somewhere between \$150.00 and \$300.00 per healthy life year saved is the product of that analysis.

What would have happened if the Indian government had

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not decided to finance anti-retrovirals? In order to do this modeling we constructed, with the help of a Rotterdam modeler, his name is Nico Nagalkarki, an epidemiological model of the epidemic. And you'll see another epidemiological model in the next presentation. You'll notice that this one is, I'll say it's relatively simple. It looks complicated but wait until you see the next one. I'm not sure whether I can figure this out in the next... here we go.

People who do not receive ART do not benefit from it, but we also model two different types of anti-retroviral therapy. Unstructured therapy, which is therapy, which we hypothesize to be taking place in the Indian setting in the absence of government intervention to control quality. We believe that the Indian health sector is very dynamic and operates in a *lassiez faire* environment. Which means in the absence of the government decision to do a lot of financing, a lot of direct public delivery, the private sector would have done a great deal. And that's the unstructured ART scenario. Then we have some patients who passed through this higher structured quality ART.

We also have a behavioral part of the model, which models sexual transmission which is the most important mode of transmission in the Indian population and this is a conventional model, with some people having a great deal of sex and others having less. Interventions that affect the behavior

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of the highest risk groups are the ones that are most effective in slowing the epidemic.

This slide shows you our baseline projections. In blue we have the unstructured, or on the slide here you can see here we used the nickname "Wild." This is what would have happened, we projected, to the growth of anti-retroviral therapy in the absence of a government intervention. The red line is what would have happened to the growth of high quality therapy. The difference between the dash and the solid lines represents the development of people carrying a resistant strain of the virus which would not be amenable to at least first line treatment.

Now the policy options which the government asked us to look at, were three in number. We looked at a relatively less expensive option, which depended more on improving the performance of instructed therapy in the private sector that we called the "Adhere Option". And we also looked at an option which has actually already begun at the time of our analysis, which is to add a treatment component to the MTCT Plus program that was already in place. And finally, BPL, is Indian acronym which stands for their poverty program, their Below the Poverty Line targeted programs. We had our most generous policy would offer free anti-retroviral therapy, publicly provided to that 40% of the ART eligible population that was below the poverty line.

This graph shows you what happens to the path of new

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HIV infections under the four different scenarios. The baseline is the pink line and as you can see the most generous of the policies, the BPL policy, the one that funds therapy for 40% of the people actually has the largest impact on the epidemic, as you would expect.

This is a slide which shows the costs that are involved. As you can see, the cost of the BPL is very great, it is about seven billion dollars, that's discounted dollars. Discounted to 2,002 over the next thirty years and it's about - and the adhere policy costs about a quarter as much money. The MTCT policy would also cost even less but it serves, because of the assumptions we built in or the difficulty of actually attracting people, with the fact that many people don't go to public any natal clinics and are therefore unidentified, it serves far fewer people.

The lessons from just the cost part of this model are here on the slide in front of you. The costs are large, yes they are large, but Indian budgets are also large. So we have to compare those costs on an annualized basis to those budget numbers. As you can see, the least expensive option, the MCTC Plus option, would still be quite expensive. It's going to be about 59% of the current health budget in each year. The most expensive option would be 62% of the entire national double health and social expenditure budget. Of course, if we believe the cost effectiveness number, this expenditure is buying

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healthy life years for less than \$300.00 a year, this may well be an area where the Indian government would want to expand spending.

But it's also important to look at the sensitivity of these projections to other types of variation and a key parameter in this model because of the structure of the Indian AIDS epidemic turns out to be condom use among those people who have the most sex. This shows that if we take the 50% level, which is the current level in India, represented by this fuchsia or pink line, this shows what would happen to the growth of the epidemic if we alter condom use among that highest risk group by the amounts given. For example if we alter it to 70% we reduce the epidemic from the pink to the green line if we are able to increase condom use. If we increase to 90% it drops down and the epidemic is essentially extinguished. On the other hand, if condom use were to decline the situation would actually get worse. The number of new HIV infections would increase. I think it's important to have in your mind, I hope you still have in your mind, the projections that we did that were out of the same variable that showed the sensitivity to the introduction of the anti-retroviral therapy. I think you can see that the sensitivity to this other parameter is far greater.

Now there is a concern, there is a concern. We don't have any data to back up this concern, the only data that I am

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aware of comes from men who have sex with men populations in the developed world. Or from this cohort of prostitutes in Nairobi which was studied by Elizabeth Maguchi and Frank Plumber and others. What the showed was on two occasions in 1990 and in 1995 when the press announced with the great fanfare that the a cure had been developed for AIDS condom use went dramatically down. And stayed down in this cohort for a long period, despite the fact that this cohort was receiving active and highly component interventions to encourage condom use. So this slide is not, of course, the sort of randomized control trial that would be the gold standard for research on this topic, but to me it's highly suggestive that the introduction of real anti-retroviral therapy which is actually effective, might unfortunately lead to complacency in the risk taking population and decrease condom use. If that were to happen, instead of a 25.2 million healthy life year gain over the thirty-year projection period of our model, which is what we projected with our BPL, the most generous of our policy scenarios, there would actually be a decline of 18.1 million in discounted healthy life years.

But our group focused intensively on the possibility of synergy between treatment and prevention. We believe that it's possible to construct in India and set of incentives to the states and to the municipal governments which would encourage prevention and at the same time that the treatment is financed.

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Suppose that such a mechanism could be developed. Prevention would have to be encouraged not only among those people under treatment, who are the natural object of prevention interventions by the physicians who are treating them but much more importantly prevention would have to be encourage among the high risk groups. Among the sex workers, among the clients of sex workers who may be HIV negative or who certainly do not know their HIV status. If such a set of incentives could be defined we called it transmission minimizing anti-retroviral therapy or TMART. If there is such a thing as a TMART policy, if the Indian government could define such a policy then what would it look like? Well it would certainly include high quality ART therapy that would maximize adherence, that's a foregone conclusion we must have that. But it would also include incentives, both for the physicians and for the state and local policymakers, to encourage prevention as well as treatment. And there would absolutely necessarily have to include monitoring and evaluation at a very fine grained level within the municipalities, within the risk groups, you would have to social and economic research and behavioral research to discover in which groups prevention was actually encouraged by the introduction of treatment and in which groups it was discouraged. Learning the reasons why it was discouraged in some groups and encouraged in others would allow us to fine tune the TMART policy so that transmission would be minimized

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by treatment. If we were able to manage that the number of healthy life years which would be saved from the introduction of ART, which shoot upward, imagine that we were able to do what Thailand did for example, and increase condom use in India from it's current level of 50% up to 90%. Then we would increase by, what is that, about five times the total health benefits of the anti-retroviral therapy policy. And if we manage that then the cost effectiveness automatically improves, of course. We would pull down the BPL policy cost effectiveness, instead of costing \$280.00 per healthy life year saved, if we were able to use that introduction of generous treatment to raise condom use up to 90% to the Thai level, then what we would see is that we would be buying healthy life years at only \$35.00 per life year. And that is a number that is truly competitive among other public health interventions among which India must choose today.

So the conclusions, we saw that the Adhere policy was the most cost effective in the absence of any behavioral change. That was the least interventionious policy, it was not the least expensive but it was the most cost effective. That's because if one can strengthen the private delivery of anti-retroviral therapy by providing training, by providing testing for free so that patients can increasingly take advantage of the generic drugs in India and have high quality care, essentially structured care in the private sector, that would

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be the most cost effective approach. But if ART causes complacency or risk inhibition in the risk taking population unfortunately the losses will outweigh the gains. The bottom line is that I think that India and quite frankly I think that all countries need to look for something like thing Transmission Minimizing Anti-Retroviral Therapy Policy that we talked about in this presentation. So our bottom line is that India should of course proceed with the expansion Anti-Retroviral Therapy, but we think it should proceed cautiously. It must do so in order to avoid the trend dangers of viral resistance, which we did not actually find to be a big problem in our model but it must be closely watched and also the danger of complacency within high-risk populations. It must be rolled down in such a way that the Indian government can follow the degree to which the program is actually enhancing the synergy between ART and prevention. Most important of all monitoring and evaluation must accompany the rollout to an unprecedented degree. Because to an unprecedented degree anti-retroviral therapy will go right or wrong depending on how closely it is monitored and how closely it is evaluated.

Thank you very much.

[APPLAUSE]

EMMANUEL JIMENEZ: Thank you very much, Mead, for a very clear presentation and a very timely one, you were exactly

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20 minutes. I'd ask you to please hold off on your questions, please save them up, until we hear all the presentations and the panel speakers, we will have time for them. I'd like to invite now Ana Revenga and Dr. Wiwat to make their presentation, they will also have 20 minutes.

ANA REVENGA: Can you hear me or...? I don't have as loud of voice as Mead does, so if I need to speak louder please tell me.

MALE SPEAKER: You have to get closer to the mike.

ANA REVENGA: It's a bit hard when you're short like I am to get this close, I feel like...

Well let me start by saying that the work I'm going to present on Thailand, that Wiwat and I are going to present on Thailand, that this is very much work in progress. Unlike the case of India we don't have a finished report, we don't have a publication. What we are going to present to you is mainly the motivation for our work, the approach that we followed and then we are going to give you a hint of some preliminary results that we're getting. I guess one advantage of the work not being finished is that we are very receptive to comments and suggestions from the audience because we are in the midst of getting this work done.

I think one thing that is unique about this study is the fact that we brought together a very large and multi-disciplinary team. This work was initiated at the request of

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the Ministry of Public Health in early 2003, shortly after they announced their decision to expand public provision of ART. And also, they wanted us to work together to look at what the impact of that policy decision would be on the epidemic and also on costs and they made an explicit request that we work collaborative and with a very large team. As you can see we brought together a policymakers for the Ministry of Public Health from the international health policy program here in Thailand together with respected clinicians such as Julian Gold, Chris Duncam, Dr. Winiat from Siriat Hospital, David Wilson from MSF. We also brought in some respected social scientists from Thailand, Dr. Siripompit, moderist Tim Brown and Wiwat standing next to me, and then some economists like Emi Kolwe and myself. I think that working in this multi-disciplinary setting has been a huge challenge and a huge asset. A challenge because in reaching compromises in how we talk about ART, it's taken a long time but it's also a huge asset because as a result we have reached an approach that is acceptable to all of us and hopefully more complete.

Now before I launch into a discussion about policy design and policy instruments and a quantitative discussion that is awfully dry and abstract, I thought it was very important to put up there and keep in mind one perspective of ART that is critical, and that's of the PHA's themselves. What you see here are some excerpts from testimony that were collected by

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Dr. Sari as part of his qualitative fieldwork with PHA's in northern Thailand and from focus groups all across the country. And the message that really comes across from these testimonies is that of hope. The hope that ART and the access to ART in Thailand is bringing to thousands of people. The other thing that the testimonies tell us is the incredible hardship that is associated with being on ART, the painful and often disfiguring side effects, the financial difficulties, the confusion and sometimes lack of information and also the very strong need for support from family, communities and other PHAs. And I think as we go forward and talk about model and measurements and very dry things, it's very important to keep coming back to these things.

Now very quickly what I will do is go briefly through the expansion of ART in Thailand and then tell you a little bit about our conceptual approach. Dr. Wiwat will talk about the model and then we will present some preliminary, very preliminary, results and then tell you about what we hope to do next with this work.

ART in Thailand really became available on a very small scale in 1992. That was mainly as monotherapy targeted at low-income groups. Over time this program evolved to include dual and eventually triple therapy, but it was mainly in a clinical research setting and reaching only limited numbers of people. In 2000 the Ministry of Public Health initiated its access to

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care program, its pilot and as first step to having nationwide access to ART. At the same time the government took the decision to strengthen domestic capacity to manufacture anti-retrovirals that were off patent through the government pharmaceutical office. In 2002 this culminated in a GPO producing a single tablet three-drug combination regime known as GPO VR. With the advent of GPO VR that became the standard of care for triple therapy for all live patients, it also opened the door for large-scale expansion of public ART in Thailand. At the end of 2002, early 2003, the ministry announced its commitment to provide triple therapy as its standard of care to all symptomatic HIV/AIDS persons in Thailand under this program called , NAAPA or National Access to Anti-retrovirals for PHAs. This program has been in place since the end of 2002. It has expanded very rapidly and what you have here is a snapshot of what has happened to access, to public access, to ART of these years. You see there is a very large expansion in 2003 and 2004. As of April this year there were about 27,000 people receiving ART through the public health system. The target for the end of the year is to reach 40 to 50,000.

Now what you see in blue is estimates from the projection model of the number of people living with AIDS in Thailand. Which in some sense is the target eligible group, now these numbers may come down, a little bit, as they revise

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the projections. But in case what this means is that the government's ambition is that at least 85%, 85 to 90%, of symptomatic HIV/AIDS people will have access to ART by the end of 2004 which is an incredibly ambitious target.

Very quickly, as I don't think I'm running out of time yet, this is another perspective on the expansion of ART in Thailand. What this map shows you is the increase in the number of facilities providing ART from 2001 through 2003, now hospitals participate in NAAPA on a voluntary basis and today there are still hospitals who choose to stay out of the program or who take only very small quotas of patients who don't think they can handle more or for other reasons. But, nevertheless, the number of facilities providing ART in Thailand in the public health system has increased dramatically from about 110 in 2001 and with a high geographical concentration in the north to really much broader national access and now there are over 860 facilities providing ART through the public system in Thailand.

The objectives of the study when we started were three-fold. One, to help assess the impact of the epidemic and the costs of the government's decision to expand ART, to put in place NAAPA. As we worked together we also realized that we needed to consider policy alternatives and policy options that may make NAAPA more effective. Particularly in two directions, the direction of encouraging people to be tested earlier and

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hence recruited earlier into treatment and in the direction of increasing adherence. Currently what's happening is that patients are coming in for treatment very late in the disease, with CD4 counts that are often below 50, certainly below 100. At that point many of them are not strong enough to survive being put on treatment, something like 17 to 20% of people may die during the first 6 months of ART. And also the benefits of ART may be affected. So efforts to encourage people to be tested and recruited earlier could affect the effectiveness of the program and the same thing on adherence. These are the type of policy options that we are exploring with the Ministry of Public Health.

Another aside objective of the work is to highlight information gaps and needs that are simply are not there and are important to implementation of the program.

When we talk about measuring the impact of current policy we need to measure that against something. For economists it's often intuitive to think that we ought to measure that against what would have happened had the policy not been in place. This is not the kind - that everybody thinks about but I think that during the course of our work together we have all come to understanding that this is one very useful way to look at impact. What we do in our study is actually use the model to look at NAAPA, at the current program and we look at how those to compare to what would have happened under a baseline, which

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is what would have happened if the government had not introduced its public expansion of ART nor strengthened subsidized production of GPO VR? This is essentially the situation that existed in 2001. So, what we're doing is comparing the effects of the epidemic of NAAPA to what would have happened had policy remained static in 2001. And then what we're going to do as a second step is look at alternative modes of implementing NAAPA, so this is the current program we're going to look upstream at what would happen if we could to find ways to encourage people to come in earlier for testing and hence be recruited earlier when they're asymptomatic. And also look at ways one could encourage adherence through mechanisms such as [inaudible] or a greater involvement of NGOs. And finally we will look at programs in which we combine more adherence and more VCT. And look at the performance of ART under those different scenarios.

Now before I hand this over to Dr. Wiwat, I just want to say a few words about policy modeling. Unfortunately government cannot will things to happen. Sorry, governments can not go out there and find everybody who needs ART and make sure they get treated and make sure they adhere and make sure that the providers are providing the type of care that they need. They can only affect outcomes through policy instruments or policy levers that include such things as price that people have to pay, the distance they may have to travel, the quality

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of care they're being provided with , the information. And also the rate of growth of supply and by that I don't mean the growth rate of supply of drugs but something that's much more complex which is the ability of the public health system to provide care to these patients. And that means human resources, counseling, monitoring. These are all policy parameters that the government can affect, and what we've done in our work is to actually put all of these policy parameters into these policy input sheets that then integrated in the model, the epidemiological model, so then we can look at what the impact is ultimately on the epidemic of different combinations of those policy levers. I know the picture looks very complex and I don't really have time to go into it, but the key is these policy instruments interact with people's behavior and the behavior of providers to ultimately determine how many people are on ART. That gets fed into the model to then predict a series of outcome.

At this point I'm going to let Dr. Wiwat take it on from here and talk about the model.

DR. WIWAT PEERAPATANAPOKIN: Thank you Ana. For this project, we are going to use the Asian epidemic model. In summary the Asian epidemic model is the [inaudible] model and is [inaudible] in HIV dynamic in Asian testing. It keeps up the rate of transmission routes, including the combination of sex and injecting drug user, the male to male sex, intra and

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extra marital sex and also matters [inaudible]. The model need to input, to size up important operations, the behavior of [inaudible] and transmission parameters. And for the ART input the model will need the two sets of criteria for recruitment into the treatment which include asymptomatic criteria and symptomatic criteria. This has three treatment arm, the first one is the public arm, this is the biggest one. The second is the [inaudible] public, this is the same as the public system but it has enhanced and document by PHA group or NGO group. Like the whole project in [inaudible], you have some HIV positive people who help each other who help them keep adherence to the treatment, we call them augmentic public. The last one in the pilot system, this include the pilot [inaudible] and [inaudible]. The model, we'll keep that up, who fall in the first regiment and who followed with the second regiment.

Here is the other model with the ART. Start from here we looked only at the client [inaudible] now. This is a male client who is a sex worker, start from when they were infected. They receive, the sex workers, who some sex workers have [inaudible] virus and some sex workers have a resistant virus and they kept infection from these sex workers depending on the frequency of sex, condom used, and the SAD combination. They get the HIV from these sex workers and become infected and they will place into there. Within every developing country it's

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allowed in nine years, in Thailand also nine years. During the [inaudible] here when they have symptoms, they become, they go to treatment and they go to three different treatment; the public arm, the augmentic public arm and the private arm. This is one of the criterion. The other criterion is the asymptomatic criterion, when they don't have symptoms but they go to the facility and get tested and they find out they are HIV positive. If that [inaudible] is unreachable for the treatment, like in Thailand they said that 234 [inaudible] is reachable for the treatment, they go into this criterion and go to a different arm. They go to augmentic public or private arm, at the public arm they have the option to go, they can progress until they are dead. Some of them drop out and go back to the no treatment because of some toxicity of the behavior of sex workers. And some of them also go to the second regiment, this is the second regiment. At the second regiment, they can back to there and they can drop out back to no treatment. The other augmentic public and private are also the same diagram.

This is the [inaudible] model, the HIV model with ART. This only the [inaudible] component of the epidemic model we have many compartments. We have [inaudible], we have [inaudible], we have IDU, we have MSM, MSW, we have sex workers, so this is the model, but this is just lovely to show you on [inaudible] compartment.

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ANA REVENGA: The chairperson is looking at me like I should hurry up, so just very quickly just give you a hint of what I should stress again. These are very preliminary results and we still need to do a lot of work revising these and also modeling different scenario. What you have here are the outcomes of the current scenario, NAAPA, compared to that baseline what would have happened if things stayed the way they were in 2001. The first result that comes out is that actually because people are in treatment they live much longer so the total number of people with HIV/AIDS goes up, the prevalence rate goes up.

Here is the graph of what happens to annual deaths and you can see that there's a very sharp decline as people go into treatment up front. Unfortunately as first and second line fail, some of these people get sick again, the big benefit is up and then it tapers off. But this abstracts from the fact that one may have third line regimens coming in over time, right now our model doesn't take that into account.

This is just a graph of the total number of people on ART over time. You can see it going up and then tapering off. It follows the dynamics of the epidemic.

And finally, a graph on what happens to the cost of providing treatment to all of these people. This is the cost of ART netted out of savings because you don't have to take care of OI's. But eventually as treatment fails and people get

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sick you do have take care of OI's so some of those OI costs are coming in later and this based on the costing work done by IHPP and WHO in two separate studies.

One last comment to put this in perspective, in 2003 the work that's been done by Dr. Virat and Kummaranya on expenditure, national expenditure in AIDS, in 2003 total expenditure in AIDS in Thailand was about 72 million U.S. dollars of which the public sector was a very big chunk. About 30% of that was on ART proper, about 20 something million, which is very similar to what we plot here. Costs go up to peak at 2012, 2013 at slightly above the current national expenditure on AIDS. What we take from these very preliminary results is a sense that Thailand can definitely afford this program but it's going to need to commit many more resources over time to AIDS and especially to ensure that prevention doesn't get squeezed out by treatment, because treatment could easily eat up the whole AIDS budget.

I guess I will leave it there just to say that I guess some of the questions we want to look at in our future work is what is exactly going to be the impact of encouraging VCT, how can you build those synergies between prevention and treatment? And also the unanswered question, we abstract from prevention and risk behavior here, but that's a questions that's being asked in this presentation; what happens if risk behavior does change?

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Thank you.

[APPLAUSE]

EMMANUEL JIMENEZ: Thank you very much Ana and Wiwat.

And I'm sure you'll find very useful, some of the comments that you'll receive later, as you proceed with the study/

Let me now ask Mr. Siyabonga Jikwana to present the South African case study.

SIYABONGA JIKWANA: Can you hear me in the back? Can you hear me now?

By the end of July this work will be a year old and credit goes to the task team members who worked tirelessly to ensure that the government of South Africa finally took the decision to implement ART. Credit goes to the following task team members; Martin Hemshaw was EU consultant based in health finance and economics in the National Department of Health, Vishal Princal was the director for health financing and economics in the National Department of Health, Nanelson Mandela was in charge of HIV and AIDS activity in South Africa, and finally Fareet Abdullah, who is here with me, the only task team member who is still part of the department.

Many people who have gone through the report will feel that I have cut a number of issues that maybe they are interested in, but if your personal hope is not in the presentation there report of it will be available at the end of the session.

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In August 2003 South African cabinet took the decision to commence the roll out of ART in the public health system. Many South Africans that are here, and those that are not, will probably agree with me that the decision to implement ART was taken against the background of extreme political sensitivity and political conflict over the issue of HIV and AIDS. Unfortunately we had some key political figures who expressed their highly skeptical views on the Africa scene and the safety of ART. This program is now implemented in South Africa as part of the comprehensive plan for AIDS treatment, care and support. However, it is worth mentioning now that some key elements of the program were implemented in South Africa even prior to the debate on ART and AIDS.

In 2001 Health Financing and Economics developed a comprehensive HIV prevention and AIDS care finding strategy for the public health sector. This is our attempt to mobilize additional resources to assist with dealing with the pressures of dealing with HIV and AIDS. However as many of you will probably recall that by that time talking about ART in South Africa was more like an omen. By late 2002 pressure was build in the department to begin to address some issues related to the provision of ART within the public health sector. During our joint budget sessions between the Department of Health and Treasury a decision was taken to establish a joint health treasury technical trust which had to look at the following

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issues; one to assess the issues of providing ARTs in the public sector, two to look at the affordability issues, three to look at the infrastructure requirements and feasibility of creating enhanced response on HIV and AIDS. I have mentioned that this report is a year old and it is being presented as it was delivered to the Cabinet. For the convenience of this audience we exchange, we looked at the, we converted the reins to dollars.

The approach of the South African government in dealing with HIV/AIDS centers around insuring that the HIV negative majority remain uninfected in the future. This entails a massive campaigning in providing condoms for people who are uninfected throughout the whole department. For the 4.7 million South Africans that are estimated to be HIV infected the government approach is to insure that those people slow down, the process and the progression to the HIV and AIDS is slowed down. With that approach is effective management of those HIV infected individuals who have moved to AIDS using a variety of interventions like [inaudible], like the provision of nutritional supplements. The technical task team convened an expert panel of clinicians both from the public and the private sector around during the end of 2002. What we wanted to get from them was their viewpoint around the simple regiment model that would be used in South Africa to provide ARTS. They recommended a simple two regiment model of care based on the

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WHO recommendations. All of them unanimously agreed that for patients that failed regimen two they won't be catching the regimen. For patients that developed TB in regimen two they recommended these drugs. These are the following tests that they recommended and the frequency throughout all the stages.

The clinical guidelines were costed to estimate the cost per patient in three areas; one to look at the drugs, two to look at the laboratory monitoring and the service delivery cost. We had numerous sessions with the NSF in South Africa to look at the costs of drugs and the international prices. Unfortunately at that time when we looked at the current prices based in South Africa, this was the session that was driven more by Farid Abdullah who is part of the task team, there was not enough information to base that given the fact that ARV drugs were still not part of the state tender. But what was interesting was that when we looked at the current prices, these were the prices of the drugs available in the country. We all found that of the drugs available in the country they were costly as compared to the drugs available outside the country.

We also had some sessions with the National Health Laboratory services in South Africa which is tasked to provide the lab tests to all departments. Our idea was to find out what is the test that is recommended to all ART cases. The least of all the tests that they recommended and the prices for

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all of these tests.

The full cost of care per person per year, it was interesting to find out for us, and we even recommended that looking at the current prices we probably need establish a team that will seriously negotiate with the pharmaceutical companies in South Africa to reduce the prices of drugs. If you look at regiment one, the price of drugs in South Africa is around 1.6 million dollars.

The task team deliberately took a decision to look at two models in estimating the demand for treatment. One, is the Western Cape model that was developed by Andrew Boule and Susan Cleary, she is probably amongst us. This was the model that was used by the Western Cape Department of Health in estimating the cost of providing ART in the Western Cape. The second model we looked at was the Kole's model, which was developed by - it's a product of Future's Group International we worked with John Stover the Kole's model so that it suited our own environment. Both models provided a consistent estimate of appropriations. The only difference between the two models was the Western Cape model assumes five years of survival long treatment, where as Kole's assumes five to six years.

Each model was run on three different scenarios, the 20% , 50 and 100%. We used the [inaudible] model which was developed by the University of Capetown, used by the Western Cape Department of Health to estimate to adult new cases over a

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long period. What we can see from this graph is that we put the [inaudible] survey, which is the routine survey that is conducted by the National Department of Health, and ran it in the Kole's model and were able to project a number of adult new cases over time. We used the Asset 2000 which was developed by the University of Capetown [inaudible] team and ran it in the Western Cape model and were able to project the adult and new cases over a long period.

We decided on running four scenarios in estimating the costs for the ART. One was a no ART treatment in the 20%, 50% and 100%. The reason for opting a no scenario was to plan that in case the Cabinet took a decision not to implement ART all the patients would be, the public sector still has the responsibility of providing the [inaudible]K. However the advice from the legal team, that used to advise the task team, recommended that in terms of the Constitution of the Republic of South Africa, if you provide 20% that would be viewed as discrimination. This was based on our experiences that we've been victims of the litigations, at times caught up in taking the decision on how the government should be implementing some interventions. We ran this scenario using the Kole's model. What was interesting for us, was that in running the non-ART scenario in the Kole's model we're able to estimate that on high levels of providing ART by 2010 we will reduce the cost of non-ART by around 270 million dollars.

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This is the slide that I will probably be running quickly over. This is the projected ARV drug in different - in 50% scenarios using two models. But you can see that in 2010 the cost of drugs covering all the AIDS patients would be around 1.3 billion using the Kole's model. It would be around 746 million using the Western Cape model.

Covering 100% of all the AIDS cases in 2010 would require 2 billion using the Kole's model and 1 billion using the Western Cape model. This is the total costs of the whole program. What you can see in actual fact that if this program had been implemented in South Africa in 2003 this would have been the cost of providing the program in all the different scenarios.

The primary reason for introducing ARTs would be to insure that you can impart on the mortality and mortability. In 2008 when we expect the epidemic to be at the highest peak, what we could see when we ran this scenario is the Asset 2000 that the highest coverage would be to reduce mortality to around this level. Vis a vis a scenario where we don't provide any interventions.

One of the visible critical impact of this program in South Africa is the increasing number of orphans with parents that are dying in each and every year. We ran this scenarios also using the Kole's model to look at the number of orphans that we would be reducing by introducing ART. In a non-ARV scenario we would be able to reduce 1.8 million over a ten period. If we

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introduce ART at 100% we will be able to reduce the number of orphans to one million.

Our experience in this work as the task team is that this is not a program that you run a cost effective analysis and present to the politicians, you probably have to bring them and persuade them that these interventions, they really work. Opinions in this program they changed dramatically. We found that we were criticized the most probably by those people who have read the latest article on the ARTs. Therefore it is important to be explicit, maybe in our case, by using different models that look at the interventions.

Good intentions at times are not enough, based on our experiences of the current levels of implementing this program in South Africa. When we worked with Treasury we were all promised that money is not a problem in providing the ART. When we were asked by the cabinet to develop an implementation plan, we were also told by some colleagues from the Clinton Foundation that money would not be a problem. But I think lessons is that before you take all of these people seriously the important question would be you would be to ask if it all they would be signing the check.

This was our experience out of what we've requested over the MSTs route from the past team report, this is what we managed to get from our Treasury.

Thank you.

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[APPLAUSE]

EMMANUEL JIMENEZ: Thank you very very much. I think we have had three excellent presentations. Very clear, very timely and I appreciate the time the researchers took to tailor the presentation to our timeframe. May I now invite our panelists, we have had some changes in them. We only have seats so may I ask please first Ms. Moranyan Chokholm, Director of NSSB, and Julian Gold, Director of the Albion Center from Australia, Tim Brown of the East West Center, and Paul Toh who is formerly of the UNAIDS in Bangkok. We also have Farid Abdullah Deputy Director, Director General of Western K Province will also make a comment, if you could come a little later that would be great. We will not have with us Prasada Rao, Secretary of Health in India, but we'll have the others.

So may I now ask Ms. Moranyan Chokholm, Director of NSDB to make her comments please.

I would ask each of the commentators to please restrict their comments to five minutes, if you can.

Thank you.

MORANYAN CHOKHOLM: Thank you very much Mr. Chairman. I have five comments, I think that I will make it on time for the five minutes.

Though I am not part of the [inaudible], I am a [inaudible] of the Thailand team involved in HIV/AIDS programs. I have five observations, that from presentation, I would like

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to include that when Thailand introduced ART programs it's also policy process and policy context, including economic condition, that lead to adoption this current policy too.

The second one is that as this work is still ongoing, my personal interpretation of some missing slide is that when we classify as impact of policy option, it's referred to financial impact or financial burdens, rather than physical burden of the country. It is not yet impact in terms of introducing HIV infection when introducing ART program.

My third point is that cost it would present would be minimum cost when we [inaudible], it would be minimum cost in expanding ART. As we are in every stage, and as it is still have limited information to do the analysis, definitely there will be cost explosion in the near future due to treatment failure, due to side effect failure, due to drop out rate. So in addition, in such a case, it is also, when we introduce that regiment, in a such a case it will mean cost explosion to that.

In addition that bearing in mind when Thailand introduced the ART program we already have a very good health care infrastructure. So what add on is only a cost of 220 per in the program in relation to ART, additional cost to ART. It is not additional cost build in a new health care infrastructure, in some country, in some setting there is still lack of health infrastructure there would be discourse. For us, we don't have infrastructure cost.

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My fourth point is that in the presentation when [inaudible] prevention that require to sustain such minimum costs as much as possible. Then also, suggest that to insure effectiveness of the program. You introduce VCT I also think that also level out [inaudible] that also to require. It is also strengthening the RND process as a build in to insure that they systems adapts its technology chain over the time too. Its also required strengthening prevention programs to insure we will not reach that stage of cost explosion too soon. And also that RND and prevention program should also be innovation one and adaptive with the regime.

And my last point is that, we are still open to new interest and new analysis. I think that we should take this as an opportunity to compare and asses an ART program prevention as well as health system as a whole.

Thank you.

[APPLAUSE]

EMMANUEL JIMENEZ: Thank you very much Moraynan. I hope that the researchers are taking good notes so they'll be responding after we hear from the audience as well. Tim, I ask you to come and make your comments please.

TIM BROWN: I will tend to focus my comments a little more on Asia, because that is my area of expertise. I think Asia has been extremely fortunate in that we have later and much more slowly developing epidemics than in much of the

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world. Also in the countries such as Thailand and Cambodia where we did have explosive HIV growth, we were fortunate to have very effective national prevention programs that kept the prevalence below 3% in both countries. But while the prevalences are low in the countries of Asia that doesn't mean that the problems of anti-retroviral delivery are any less complicated in this part of the world. In fact I think that low prevalence, actually coupled with the stigma and discrimination that we tend to see in most of the countries of Asia against people living with HIV and AIDS are going to actually make it much more difficult for us to actually locate people with HIV and get them into treatment. I think that these presentations have done a nice job of showing us the importance of other policies such as voluntary counseling and testing policies, stigma and discrimination reduction policies, and support for those initiating anti-retroviral therapy to make sure that they can stay on it. Those policies are at least as important as the policies we make regarding the provision of anti-retrovirals.

My second point would be that despite the low prevalence, for example here in Thailand we only have about 1.2% of the adult population living with HIV, we nonetheless are looking at 40 to 50,000 people per year who are going to be needing anti-retrovirals. And as these presentations have hinted, that is going to be an expensive proposition for

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Thailand and for larger countries such as India where we are dealing with potentially many more people. India itself has roughly the same number of people currently living with HIV as South Africa, those costs are going to be enormous for that country. The cost in and of themselves are not going to be low in these countries.

And finally, I think it is important that we keep in mind that we need to strengthen our prevention programs as we implement anti-retroviral delivery to ensure that we can keep these prevalences low and therefore be able to guarantee that people in the future will be able to continue obtaining access to anti-retrovirals.

So I think that the low prevalences of this region gives us a tremendous opportunity and that we can realistically look forward to being able to provide everybody in the region living with HIV access to anti-retrovirals, but in doing so it's very important that we keep a strong emphasis on our prevention programs so that we can continue to offer these services and the availability going into the future.

And finally, I think a point that Mead made in his presentation, I think is extremely important is that as we implement these anti-retroviral programs it is absolutely essential that monitor and evaluate not only what is happening with the quality and provisions of anti-retroviral services, but what is happening behavior in terms of behaviors of the

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population at large to ensure that introduction gets tied in directly to intervention programs to ensure that our intervention programs stay strong and we keep our HIV prevalences low.

Thank you very much.

[APPLAUSE]

EMMANUEL JIMENEZ: Thank you very much, Tim. May I now ask Paul Toh to make his comments?

PAUL TOH: My comments are basically in regards to the Thai, and also perhaps apply to the global epidemic as well. My comments basically are on the issue of adherence and compliance to the ART result. On one hand we are providing ARTs to the whole community, but on the other hand what level of adherence and compliance is important when you apply such a model. We did this...

MAN: Paul, they are saying they can't hear you in the back.

PAUL TOH: Sorry. Can you hear me better? Okay. My issue here is actually on the issue of adherence. I think it is important when we work on models like this in countries to seriously look at the issues of adherence. How people adhere to drugs itself. I mean, being a up here for the past 15 years and have being on AR for [inaudible] years, I can tell you that the road to compliance is not an easy one. So I think it's important when we look at issues of compliance and how people

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comply from the first line to the second line drops to the third line drops. Especially when we say it's cost effectiveness in the long run where people like myself can continue working and continue providing back to the economy. On the other hand look at how well we comply to drugs itself. So I think it's important the issue of compliance and adherence to the AR really is important.

Thank you.

[APPLAUSE]

EMMANUEL JIMENEZ: Thank you very much, Paul. Julian?

JULIAN: Thank you very much. I'm a clinician and I had an opportunity to work on the India project and more recently on the Thai project. As a clinician looking after patients with AIDS, this has been a unique opportunity simply because this is the first study that I've been involved with that's actually involved a multi-disciplinary team. As Ana referred to, really bringing together the idea of clinicians with economists with behavioral scientist with community representatives with people living with HIV together and be able to discuss these issues and be able to go beyond just the economics the AIDS modeling or just the clinical trial situation or just the individual impact of anti-retroviral therapy on the individual and their family has been very important.

I think as well we learned very important lessons from

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this type of modeling. And I think as well the most important lesson that I've learned is that we have a unique opportunity to supply anti-retroviral therapy to large numbers of people but we also have a risk of squandering that opportunity. What I mean is that governments at the moment are looking more towards supplying drugs, supplying tablets, supplying drugs to as many people as possible. But what we've been able to show in this model is that in fact it's not as simple as that and to look at the impact of changing adherence.

Mead referred to this idea of wild therapy or unstructured therapy in India. What we tried to do in that situation is model the real situation that's currently occurring in India where people can walk into a pharmacy with some money they've got from selling a cow or crops, buy a week or two supply of anti-retroviral therapy, take it for week or two until they feel a little bit better and then stop. The implications on that of developing resistance and needing to go into second line therapy are serious and important.

What we see also in Thailand is, as Ana referred to, was that at the time of diagnosis most people in Thailand have a CD4 count of less than 50. And that means that they need to start anti-retroviral therapy at the time they're diagnosed with HIV infection. We know that this is the least, or the situation that's least optimistic for adherence. We know also from anecdotal studies that perhaps 30-40% of people may drop

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out of first line therapy within the first 3 to 6 months of taking the drugs. Now, while we talk about the cost of GPO VW being 1,400 bard a month, the cost of anti-retroviral therapy is 7 to 8,000 bard a month. So in line with providing drugs and improving adherence, governments need to look at the ways of increasing voluntary counseling and testing, getting people to be treated earlier.

So, in summary, I think that these studies, these modeling studies are extremely important because they provide an opportunity for governments to decide where to put funding in terms of policy. Not only to buy drugs, not only to improve prevention, but also how to improve or maximize the benefit of anti-retroviral therapy.

Thank you.

[APPLUASE]

EMMANUEL JIMENEZ: Thanks very much. May I now call on Farid Abdullah from South Africa to make his comments. And I'd like alert the audience to also have your own questions ready because after this we'll open it up for open discussion.

FARID ABDULLAH: Thank you. Is that loud enough? I don't have anything important to add to I will use the tried and tested methods of repeating some of the points that Siyabonga made.

I think the first thing I would like to bring out is that when we have a large epidemic like we do in South Africa,

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you know about 5 million people infected, then governments and planners are extremely worried about the top-end financial risk of starting a treatment program. You know, what is going to cost when everybody who needs treatment receives treatment. This costing was able to put that figure in the right ballpark. I was very surprised to learn, in the first presentation that an ART program could cost 50 or 60% of the health budget. That's frightening. In our case we had a study five years ago which was funded by the Kaiser Family Foundation. The estimates there, and they offered treatment to everybody in stage three and four, whereas that's different from our study, whereas it would not only use up the whole health budget, but it would use up 25% of the whole country's budget. In many ways that set kind of us back a lot. But in the recent studies presented by Siyabonga today and in one or two other estimates done, there's a dramatic drop in prices and a better demographic model. We are able to show that the South African, to put everybody on treatment theoretically 100% of the people who need treatment on treatment, will cost between 15 and 20% of the South African government's health budget. So that immediately put us in a ballpark of that being doable. If anything it was the single biggest contribution of the Cabinet task team's investigation.

I think to bring out a second point, we used two different models. The Krole's model which is used widely

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throughout the world and can do many things and then a locally developed model which is very specific to costing treatment. It doesn't do any cost benefit work, it just estimates if you have X number of people on treatment what will cost over time. And that was a simple model, it was a demographic model which is, you know, has got a lot of credibility in South Africa and is able to project the epidemic up to 20 or 25, although we think the first 10 years are really accurate.

Then we built the treatment model. The treatment model was useful mainly because we built in drug switches using available literature. We know that 14% of patients on the viral pin will switch to new drugs within the first year and that was built into our costing model, the treatment cost model.

And then the weakest part of our modeling was modeling the costs on health services costs. And there we used the available local data on cost per visit, cost per admission, and that's not a very strong part of our model.

At full roll out which should be in about 5 or 6 years, we expect to have upwards of one million people in treatment in South Africa. And that's no small program. That's a large-scale operation that we have planned. Our president has announced in his State of the Nation speech that the South African government aims to have more than 50,000 people in treatment in the current year. It's quite an ambitious target.

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My own view and I think that Siyabonga agrees with me, is that we'll have two or three years of difficult time to get it rolling but then the number will go in the hundreds of thousands. And that, for those of who think that is not a very optimistic view, is an optimistic view in our setting.

The last point I want to make is that modeling is one thing. We're busy now converting the cost estimates that the models generated to a site-by-site budget. That's a different exercise altogether and the contribution of a model to that process is very limited.

Thank you very much.

[APPLAUSE]

EMMANUEL JIMENEZ: Thank you very much. And thank you to all of the commentators for all of you excellent comments which I hope the researchers have taken note of because then I will ask them to react a little later. For now, because of their timeliness we do have about 20 minutes to a half hour for open discussion. I am sorry this room isn't really conducive to intimate tête-à-têtes with the researchers, but please I would like to invite all of you if you have comments and questions to the panel, both the speakers as well as the commentators, to come to one of the microphones and please identify yourself and make your comment.

Can we please raise the lights up so that I can see who would like to make comments? If you do want to make a comment

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please go up to one of the mikes and make your comment.

ED BECK: Thank you very much, Eddie Beck, WHO. It was a very impressive presentation from three different countries and I would like to congratulate everyone on the work done so far and they are also very encouraging.

One point I just wanted to raise, a number of the speakers commented about the need to monitor and evaluate roll out of anti-retroviral therapy and HIV service provision in particular. What is actually being done practically at the ground, in the cold phase, in those terms. Like for instance, in Thailand you have a well-established infrastructure. To what extent are you side-by-side evaluating that and being able to roll that out? And to what extent do you think that in organization like WHO and other organizations actually contribute to that process?

EMMANUEL JIMENEZ: Yes, please over there.

SEEPALM TATTI: Yes, my name is Seepalm Tatti from South Africa from the Treatment Action Campaign. I have a question particularly for the World Bank speaker and I think it's line with the rising concerns of many people that will be expressed at this conference about how increasing [inaudible] needs are perceived to be beginning to undermine the need to increase prevention efforts. I think you highlighted some of those concerns in your presentation.

I want to put a challenge to the World Bank, and I want

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to ask, I understand that condoms are not the only solution to our prevention needs, but I think that at the moment if we were to look at the extent to which we are distributing condoms, I think that there would be consensus that we haven't even begun really address even that single aspect of our prevention approach. And so I want to ask the World Bank to look into what would it take and what's the most ambitious estimate of condom distribution through public health programs? Public health programs that you think in your perception could make a huge difference in our prevention efforts. I think that we need to begin to talk about that and in the same vein that we begin to talk about, in much more concrete ways, about strengthening our prevention campaigns. I think that the problem I have with the way we are talking about prevention vs. treatment in the moment is that we are talking about prevention in the way that we should be promoting abstinence and promoting faithfulness, but we are not talking about giving people a choice. And so, what does the World Bank think could be the most ambitious estimate of condom provision?

And that's the same question that I would like to ask the South African speakers about.

If we were to begin to cost estimate a very ambitious public health condom provision program, because at the moment I think we are spitting in the wind if we're really serious about prevention.

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Thank you.

EMMANUEL JIMENEZ: Thank you. Number one please, over there.

JULIA WALSH: Julia Walsh, I'm from the University of California, Berkley. My question is directed to the South African speaker, the scientist, on your panel. It relates to the demonstration - can you hear me?

MALE SPEAKER: Yes.

JULIA WALSH: Ok, the demonstration that despite commitments on the part of the government that many was no object in the planning for the treatment programs, in fact only a fraction of the money that you had requested was finally committed. I'm curious, this is an excellent case study, it would seem to me, about did crowding occur? Did this treatment program end up crowding out or causing a limitation in the budget for prevention in that country? And I wondered if he had some comparable statistics about prevention programs in the same budget and whether or not the addition of the treatment affected the prevention program?

Thank you.

EMMANUEL JIMENEZ: Thank you. Please.

TIWAH TAYLOR: My name Tiwah Taylor from South Africa, [inaudible] Company. I am one of the privileged people who are on anti-retroviral drugs, but through the private health care sector. My question to Mr. Siyabonga Jikwana is that if the

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Treasurer has said money is not a problem, why has so little money been allocated for anti-retroviral drugs after much more had been requested?

And the second question is that how did the Cabinet justify so few people assisting needing treatment? I came to state the need of 400,000 people who are really sick with AIDS in South Africa.

JIMINEZ: Thank you. Here in the front please, number three, you have been very patient. Identify yourself please.

DEBBIE MEOHEAD: I'm Debbie Meohead, I'm from Orim Health Research in South Africa. First of all, just to echo Eddie Beck's congratulations for three excellent presentations but also particularly because I think it's very useful to compare costs and programs across settings that are looking at implementation. But just on that this really question for five costs, that I think some included and some didn't. I just wanted clarification on which of these costs were included in the models, and just to state that these should all be considered when we're looking at modeling of roll out programs.

Firstly, I know that the Thai program said that it did include costs of the savings, or savings related to reduced opportunistic infection, reduced HIV related health care utilization, just to find out whether the others did that. Also, increased costs of general healthcare utilization in those additional healthy years of life gained. I know it's a

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bit of a debate in economics whether we should be including those costs or not, but generally accepted that we should and whether those were included or not. Additional healthcare utilization in each. Mead's shaking his head no.

Also, the additional programs, there was a lot of emphasis, quite correctly placed on, and I work on a treatment program in the private sector that is implementing treatment, a roll out program, there is a lot of additional costs in trying to get people to adhere treatment, to uptake earlier through increased VCT, and those may not necessarily be there if we weren't rolling out anti-retroviral therapy. So, yes they're necessary, were the costs of also implementing them, particularly in the Thai section where you're looking at such a drastic hopeful rollout in one year period, you'll definitely need some programs there to encourage that and whether those costs were also included?

Just a caution to the first panelist who said we have the existing health care infrastructure, I presume that means personnel, equipment as well as buildings and therefore that is not a cost. Unless you have a huge amount of excess capacity in the system, that is still a cost, because we're all worried about anti-retroviral diverting from other programs. So certainly that's still a cost, that might not be a financial cost but it's an important economic cost to consider.

And then finally, and Farid, I know that this was

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something that the South African model was excellent, but that we didn't consider initially and that is the supervision, monitoring, and evaluation and we keep saying how important that is. At a national, provincial, district level have the supervision, monitoring, and evaluation management costs been included in these models?

Thanks very much.

EMMANUEL JIMENEZ: Thank you. In the back please.

ZIWAT NATTEENAHAL: My name is Ziwat Natteenahal from Ace Network Development Foundation in Thailand. Thank you for the presentation. My question is for the Thai presentation. Quite often, I think that when we talk about the research, like this I think we can see broadly on the macro level of the policy on the national level, regional or even global levels. We are talking about the course, how can we increase the course of ART and increasing the number of people who are alive. And we can see the micro level of the HIV virus in human bodies or even CD4 cells in human board.

My question is regarding the first slide of the presentation, regarding to [inadubile] and her hope for ART. She said that if she can turn her face back she will re-decision on the time for taking ARTs. So, my question is in regards to being humans, is there any policies related to trying to respond to her voices? For Wasnah voices or not?

EMMANUEL JIMENEZ: Thank you.

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CHRIS STACKER: Chris Stacker from the United States. A question for the South African representatives. I was wondering how we could interpret that only one out of five of those who pushed through the analysis remain within the government health sector?

And a question on the Thailand. I was actually surprised that the baseline scenario on AIDS cases already was declining? What if that assumption is wrong? What if AIDS cases will be increasing over time under a baseline scenario?

EMMANUEL JIMENEZ: Okay, thank you. I don't see anyone else standing next to a microphone, so I am assuming that there are no other comments from the floor at this point. Okay. What I'd like to do now is turn to the panel of speakers, first of all, to get their reactions not just to the comments from the floor, but to the comments from the commentators. And then I'd also like the commentators to get any last words that they'd like to finish up. So why don't I ask the panel of speakers starting with Mead to comment.

MEAD OVER: Thanks Manny. And thanks for those very interesting questions and the comments from the panel, which I personally think greatly enriched what we were able to present today.

I want to respond on just a few points. First, where Ana pointed out that it is necessary to keep in mind that technology is changing rapidly in this area. And we must

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admit, all of us here engaged in this modeling, I think my co-speakers will join me in this that a great weakness of attempts to project into the future is that they're always wrong. One of the reasons that they're always wrong in this area, of course, is that technology always changes especially in this area of anti-retrovirals. If we had done these projections only a few ago, as I mentioned in my talk, the answers would have been completely different. And I think the argument, the lesson to draw from that is two-fold. The first is a very technical lesson that is that we must use discount rates. We must use some positive discount rate to project, to calculate, the present values of the benefits and of the costs so that we are placing more weight in our conclusions on near term costs and effects.

But the other is a more, I think, important lesson that we draw. And that is that the modeling exercise should be in every government built in to their planning, just as it was in the South African case. It should be a government function to update these models constantly and to see how changing technology and changing data, on risk behavior for example, changes the story.

Now the other question that I wanted respond to was the one from the person from South Africa who asked about condom promotion in South Africa. And I think that this allows to actually draw attention to one feature of the South African and

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the Indian situations which were quite actually different than the situation in Thailand. You did notice, I guess, Mr. Decker that the projections show a sharp decline, actually not a sharp but a gradual decline in the number of cases in the prevalence of HIV infection in Thailand. And that is the result of the extraordinarily effective prevention campaign. There are other countries beside Thailand, which have succeeded to some degree in prevention. But Thailand stands out as the only country, which has had such an extraordinary degree of success. And that was due to something called the 100% Condom Program that occurred in the late 80's. And that was substantially funded by the Thai government to the tune of 80 million dollars a year which at that time was about the same amount of money that the entire international donor community was spending on the AIDS program in the whole rest of the world. Well, the whole rest of the world was spending 300 million and the Thai government was spending 80. That substantial commitment made a difference and that's what accounts for the difference that you see in the baseline scenarios in both where South Africa and India and Thailand is falling.

Now let's just do a simple calculation. The Asian epidemic model has predicted in other work that they have done that in the absence of the 100% Condom Program there would ten times as many people who would need anti-retroviral therapy today as there, in fact, are. If there were ten times as many

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our optimistic preliminary result that AIDS treatment is affordable in Thailand would be less optimistic. And that, I think, underlines the comment that came from the South African person, how can condom promotion be improved in South Africa and in other places outside of Thailand.

Now I'm going to make a personal comment which is my own observation and I don't know how many of you will share it. But I think that we should try to imagine what a 100% Condom Program would look like in South Africa and in other parts of the world where prevention has not yet succeeded. I want to suggest for your appreciation the experiments that have been done in Cape town and in other parts of Africa, in what's called risk mapping. Where interviewers go out question people on the street, ask, "Where do you get a hot date in this town?" Through this process of social risk mapping it's possible to establish a priority for the municipal government of where they should be intervening with condom promotion. I think you can define 100% Condom Program in South Africa as having done that risk mapping in every substantial urban community and having empowered the municipal governments and the cooperating NGOs to make sure that every one of those hot spots is covered with a prevention program. I don't see why South Africa can't do that and I certainly think that other African countries can do that as well. Until they've done it, I don't want to hear from anyone that condom promotions doesn't work in Africa.

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Thank you very much.

ANA REVENGA: Okay, let me - does this work - even though Mead just made that comment, I would just like to restate that the reason that Thailand can contemplate the possibility of providing ART to everybody who needs it and may well be able to afford it, is because they succeeded in their prevention effort that lowered, dramatically lowered, the number of new infections. And that's why the baseline keeps going down. The gentleman was raising the question, "What if that's not true?" Those projections are true based on past prevention behavior. The risk for Thailand is complacency and there are signs of increasing risk behavior among certain groups that are much harder to target in terms prevention such as, secondary school students, youth. And clearly the message there for Thailand, and they're well aware of it, is they cannot afford to be complacent in their prevention efforts.

I think there were a number of very good points raised. Kumaranya has some suggestions for our future analysis that I definitely welcome. It's true that Thailand does have an infrastructure in place that allows them to try to roll out this program, probably in a way that may not be feasible in some low income countries, but even with the infrastructure in place there is a question of what kinds of pressure that is going to put on the system. In particular, in terms of training of human resources. And the costing that we've done

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has, for the moment, abstracted from some of those training needs and training costs although we plan to incorporate that into our analysis. We also plan to incorporate, to explicitly cost interventions such as expanded VCT and mechanisms to strengthen adherence such as working more closely with NGO. So all that is work that we are hoping to do in the next month or so.

There was, I think, a very interesting question raised about, you know, what type of policies as humans can we put in place to respond to those voices of the PHAs. Talking about the hardships associated with being in ART. I think the message that came from the PHA's very strongly in all the fieldwork was the incredible role that community and community-based support can play. And I think that's why, implicitly, the Ministry of Public Health, when it thinks about rolling out its ART program, its ideal, its vision is that eventually all of it will be augmented public. That is it all of it will occur within the public sector but with a very important role to be played by the PHAs themselves and by NGOs in helping the prevention efforts, but also in helping bring people into treatment and by supporting them during the process to adhere. I think that's the vision that the Ministry has and hopefully the direction that they can move on.

I think I'll leave it there. I don't know if Dr. Wiwat wants to add anything but I think that we've dealt with the

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issue of declining AIDS cases, so I'll leave it at that.

DR. WIWAT PEERAPATANAPOKIN: Thanks Manny. Thank you. I think I'll run through a couple of questions which have been asked from me and as far it will take that. I think the last question is, it is not the policy of the Department of Health in South Africa to stop anybody from progressing in their careers. Even though, let me say that it is quite sad that all of us should have been, that we lost [adjusting microphone]. What I have said is that it is quite sad for us who in the Department of Public Health that colleagues we have worked with tirelessly in the technical task team, they're all gone. But it's also not the policy of the department and it's not our intention as some people that are still remaining in the department are a part of the task team to prevent anybody from progressing in their careers.

I think a number of task team members, if at all you would have worked in the Department of Public Health in South Africa before and now, there's a lot of pressure that they took throughout this process. It's probably a good time to bring in new people with new ideas who will take this process forward.

The second question from Debbie is that this is supposed to be a two-pronged process. One was to develop a report that will enable the Department of Health or the task team members to convince the cabinet to take the decision. And our recommendation was that we need to develop a long-term

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implementation plan where we look at all of these different components like the monetary evaluation. And unfortunately our experiences was that due to the political pressure from the government and outside things weren't speedily, I mean as [inaudible] as the expectations of the task team. As a result we are still battling now with all of the core issues that were suggested as the technical task team members. And the decision that was taken within the department was to try to decentralize this program as much as we can. It should not be the responsibility of a certain individual to do different components. I think the problem now is concentrating all of these different assignments that have been decentralized, because things are not falling into the right places as we speak now.

Anybody who has worked in government, who has been dealing with the treasuries from whoever they go, they will probably tell you from South Africa that its not necessarily the case in South Africa where the relationships between the Department and the Treasury, they always go sour. This is the reflection of the promises that we believe, they haven't been kept by the Treasury. And at some point in time our frustration as the task team members was that we believed that when the Cabinet and us made the decision to commence with the program it entirely meant that there is a commitment from the government to commit resources on this program. But somewhere,

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somehow in any government somebody takes a decision in allocating resources in all of the different departments, then this is reality that we are facing. I think Farid mentioned also that there is revision now in terms of the target that has been set for health. We were projecting in the testing report to 387 patients in this [inaudible] but unfortunately Farid explained that during the President's State of the Nation report those numbers have been revised to 53,000. I have been working with one of the colleagues who is probably down there, I cannot see Susan Cleary, to try to revise this estimate on the basis of the 53,000 that the President has said. I think even though we are still at the initial stages things, they don't look far from the resources that we have been allocated by Treasury.

The last question on the counting, I think Farid will take it.

EMMANUEL JIMENEZ: Thank you for your comments. Let me know ask any of the other commentators if they would like to say something. I will begin with Farid because I think that there are some questions [inaudible] asked you to state. Then we'll go to Tim and the others. Please.

FARID: Just two quick comments. I think that I'm a little more kind of friendly with our Treasury people than my colleague here. I think that when you put it all together that African Treasury has committed the money that is needed for

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treatment. Its estimates don't match with the requests because the requests were vary intensive on the additional infrastructure needs, that's one thing, which they thought were unrealistic. Two, is that the health departments haven't been able to spend our AIDS budgets for the last two years in a row and they have an unusual policy where they have committed money and they have given a kind of open kick to say if you need more, there will more in the appropriation of the mid-term budgets and the end of year budgets.

The second thing is, and there is a difference of opinion on this, is that a small group of people that some money who believe that some money that would have been committed to prevention programs have been lost in this process. My honest estimate is that both the budgets for treatment, as well as the budgets for prevention programs have increased, but not marginally, substantially. I mean, our budgets are increasing 100 and 200% percent year in year. So that's the kind of commitment that's being made. It's all new money, not money that's being shifted. Notwithstanding that, I think that we have a very weak and poorly financed condom prevention program in the country and I think Seepalm's comments are well placed but that's because of a failure of the health family to put the substantial policy on the table to be funded. So the short answer is that I don't think there's crowding out taking place. At the moment, and one can spend a

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long time explaining it, but basically our macro fiscal policy is expansion and it will be for the next five years probably. The last five years we were doing some good belt tightening and the health spending in general didn't grow at all in real terms. But our macro fiscal policy now is clearly on the path of better spending, especially on social services.

Thank you.

EMMANUEL JIMENEZ: Thank you. Tim?

TIM: Let me address a few of the questions that came up. I'll actually start with the last question, which was, "Are AIDS cases declining in Thailand?" I have been involved in the Thai modeling since the very beginning in this country. Basically what was shown on the graph is that HIV prevalence is declining. HIV prevalence definitely has been declining we continue to see declines among pregnant women in the country, among military conscripts, so that definitely is the case. AIDS cases, on the other hand, in Thailand have more or less plateaued and perhaps are very slowly declining. I think there is a little misunderstanding of what was shown in that slide. But at the same time let me say that, yes, I am worried about a possible resurgence of HIV in Thailand as a consequence of the introduction of anti-retrovirals. Because if we do see the kinds of increases of risk behavior that we have seen in other communities it is then possible for Thailand to see risk behavior go up and therefore HIV prevalence again start to

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climb.

That brings me to the second point I'd like to make on the question that somebody asked on expanding monitoring and evaluation along with the rollout of anti-retrovirals. While I can't speak as much to the treatment side, I can certainly say that in India and Thailand I certainly believe that our surveillance monitoring and our behavioral monitoring are currently too weak as we enter the period of anti-retrovirals. We definitely need better behavioral data in Thailand, we need better surveillance data, the system needs to adapt to where new infections are occurring and basically to look at that.

And then the final point I'd like to make, our South African colleague had raised the point that their prevention programs had been fairly weak. That is a global failing. That is a failing not just in Africa, that is a failing in Asia, far too many people have pointed to Thailand and Cambodia and said that Asian programs are successful. Well, frankly those are the exception for programs in Asia, not the rule. In most of the countries of Asia the programs are far too weak and HIV continues to spread.

So, let me say in closing that I think in Durbin we made a radical change. We the international community said that we were no longer going to accept resource constraints as a reason for people not getting access to anti-retrovirals. And I think in the last four years we have seen an incredible turn

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around to the point in that we are actually here about getting people access for all. At this conference I think we need to make a commitment that we are not dealing with prevention or care, but we need to be dealing with the simultaneous scale up of both prevention and care. And I think that out of Bangkok we need a resolution that says we are no longer going accept resource constraints for prevention or for care and we want to mobilize resources for both of those to happen.

[APPLAUSE]

EMMANUEL JIMENEZ: Paul, would like to make any comments?

PAUL: My comments is also on care and prevention. I think in today's conference we can't differentiate between care and prevention. We can't separate them. I guess by giving ARTs to infected persons it's important that care supports prevention and prevention supports care as well. We have seen some models where by providing ERV's to positive people we are working with positive networks, you can see the professional expects coming in to get along with the care model that we provided.

Thank you.

EMMANUEL JIMENEZ: Thank you very much. Julian?

JULIAN: Thank you. Just one point which was raised by the representative of WHO which struck me as being important and that is the role of WHO and the role of UN agencies in

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this. It's quite clear that as we look at expanding anti-retroviral therapy perhaps one of the most important issues is the health care worker engagement in providing anti-retroviral therapy. One of advantage of this modeling is to enable governments to see the policy implications and therefore to allocate some resources into supporting in developing programs to engage health care workers. But merely scaling up, merely providing the drugs is not enough.

EMMANUEL JIMENEZ: Thank you. Moranya?

MORANYA: English is my problem understanding is yours. I want to clarify a point about infrastructure, because cost when I mentioned about how infrastructure, because cost in modeling based on existing infrastructure that Thailand has 92 provincial hospitals, 800 community hospitals and approximately 8,000 community health centers. So this cost is not included in the modeling. And that's why I suggested that also the impact of ART program on health system, because I know that we will need more doctors and this need time to train to the new doctors. And not mentioning globalization, that Thailand wants to be a medical hub of Asia and introduce one million incoming patients a year. So this is also a burden that would effect the health system when we introduce ART as well. So that I know that is all the additional costs.

Thank you.

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EMMANUEL JIMENEZ: Thank you very much. Well, I won't try to summarize. I think that Tim actually did a pretty good job of summarizing the main messages of the session and the need to move ahead on treatment and prevention as well as to take into account the possible sensitivity of our results to the changes in behavior that are likely to take place in the future.

So with that let me just say two last things. One is to ask all of you to put your hands together and thank both our panel and our commentators for what I think has been a tremendously good learning experience. [APPLAUSE] The other is, I believe unless others have eaten them already there are snacks and coffee outside the conference room, so please enjoy it and interact more with the researchers.

Thank you again.

[END RECORDING]