Gregory Härtl, WHO:
Good evening, welcome back, this is Gregory Härtl from WHO in Geneva. It's just after 6 o'clock here and with me is Dr Keiji Fukuda, WHO Assistant Director-General for Health Security and the Environment, to talk about the outcomes of the 2-day meeting which has just finished on research issues around the H5N1 virus. Before we start, can I remind you please that if you wish to ask a question please dial 01 on your keypad to enter the queue and, like always, a transcript will be available of this VPC afterwards, the WHO website is www.who.int. I will now hand over to Dr Fukuda.

Keiji Fukuda, WHO:
Thank you Gregory, welcome everybody. Thank you for joining this press conference. We have just finished two days of very interesting and quite intense discussions and what I'm going to do is in the next few minutes go over some of the discussion, and some of the issues and the points of consensus and then we will throw it open for questions to everybody. For the last two days 22 public health and global influenza experts have been meeting in Geneva to discuss some of the most urgent issues arising from two recent research studies on H5N1 viruses. The reason why this meeting was held on those studies is that these studies have resulted in laboratory modified viruses which appear to be more transmissible in mammals and also the research has identified some of the genetic changes which may be associated with increased transmissibility in mammals. This means that the findings are directly relevant for mammals and it still remains a little bit unclear how relevant they are to people but I'll come back to this later. One of the groups is based in the Netherlands and the other group did its research based in the United States and both of these groups conducted this research to see whether in fact the H5N1 viruses out there can become more transmissible among mammals because this has become a matter of intense scientific debate for the past several years and if so, what may be the basis for that transmissibility. The answer from the studies is yes that it is clearly possible for the H5N1 virus to be become more transmissible among mammals but again what this means directly for people is not established by these studies so that remains a matter of some speculation. This work has created a lot of discussion and a fair amount of heat over many of the topics and this discussion has also become global in scope which is the reason why WHO convened this meeting really as a first step to begin to address some of the issues and really to address some of the most urgent issues. We convened this meeting on an urgent basis. It was put together really quite quickly because we wanted to address some of the most concrete and urgent issues relating to the
research and in particular related to questions about the publication of the information
and the handling of the new laboratory modified viruses. I can say as an overall
statement the discussions over the past two days were quite wide ranging, quite intense,
but very constructive and the group really came together as a consensus on all of the
major points.

One of the points that they wanted to emphasize and that they did emphasize as an overall
context for the work and for this area is that they had significant concerns about the risk
of another pandemic including the risk of a future pandemic possibly related to this H5N1
virus and in fact the results from these studies showing that the virus can become more
transmissible among mammals if anything has only reinforced the importance of that risk
- the potential future risk of a pandemic from H5N1. On the basis of that they agreed
again very strongly that research in this area needed to continue. Moreover, they agreed
that the new knowledge gained by these studies and the work being done in general in
this area, such as on the transmissibility of H5N1 viruses and on the pathogenicity of
these viruses, was critical for filling in some of the important gaps in knowledge that we
have and in really helping us to understand better how these H5N1 viruses work. And
also what are some of the changes we ought to be looking for out there in the real world
in terms of trying to keep on top of whether these viruses are becoming more dangerous
in terms of causing a pandemic. It was also interesting because this group also clearly
understood that the new pandemic influenza pandemic preparedness - the so called PIP
framework which was recently passed - also had an important bearing on how this kind
of research should be conducted and that it would form a good basis for broadening the
work being done in this area among many countries. There was also a quite strong
agreement that full disclosure of the information contained in these studies was preferable
and in part because it was recognized that the information itself is really important from
both the public health and from a scientific perspective - both of those uses - but also
because it was recognized that when the alternate option of having a so-called redacted
article come out - that is an article that would be severely edited - would come out - that
there turned out to be a very large number of very complex and very-difficult-to-solve
issues related to how one would do that and when we looked at all of those considerations,
again the unanimous consensus was that creating such a process to put out redacted
articles was not going to be possible in the short run - to do it quickly overnight. And in
fact this would require considerable thought on how to do that. In this context there is
unanimous agreement among the researchers and the rest of the participants in the
meeting that extending the self-imposed moratorium on the research involving these new
lab modified viruses and on transmissibility research for H5N1 viruses should be
extended.

Currently we are in a period in which the researchers have voluntarily put a hold on their
work and they and the participants all agreed that given the current situation it was best to
continue that moratorium. At the same time they clearly made the point that additional
work needed to be done before the full disclosure or full manuscripts could be put out in
the public. So what does this mean? Well, they recognize that right now there is a lot of
concern about the safety aspects of this kind of research and the safety aspects of these
particular studies and the newly created lab modified viruses. So it was recognized that it
was important that public awareness and awareness of other groups about the nature of the research, the importance of the research and the context of the research be understood and that this was the most important step for making sure that anxieties would not be unnecessarily increased.

It was also recognized that these newly-transmissible or these more-transmissible lab modified viruses also had led to a lot of questions as to what are the best biosafety and biosecurity conditions for this kind of work. So they agreed that it was best that these viruses stay where they are. Right now they are in very well run, very well maintained, high-security laboratories but they should stay where they are and that the overall conditions and the approach to biosafety and biosecurity for these more-transmissible H5 viruses should be looked at by the relevant scientific and other authorities before going ahead with research. So basically a pause on the use of the research and keeping a pause on the publication and a pause on conducting further work on these new viruses.

These are some of the important points which came out of the discussion over the past two days and I think at this point Gregory I'll throw it open for questions.

**G. Härtl:**
Thank you very much. Before we go over to questions, just a couple of reminders to you, to ask a question, to get into the queue, type 01 on your telephone, and shortly after the briefing is over we will be posting both an audio file and a transcript on the WHO website. Thank you very much and over to the first question which is from Helen Branswell of Canadian Press.

**Helen Branswell, Canadian Press:**
Dr Fukuda, what are the steps forward from here? How does the work proceed? How do you get from here to where this needs to go?

**K. Fukuda:**
Thank you, Helen. I think there are now a number of steps that have to be done. For example, if we look at the current situation where we now have an agreement to have a moratorium on more research on the viruses right now and also the moratorium on publishing the full manuscript, then it means that the group agreed that there needed to be some very focussed work on increasing the communications and understanding about this kind of research with these viruses and what it actually means and to put it in context. So I think this is one concrete step that WHO and other organizations working together really need to increase public awareness and the awareness of a number of different sectors about these kinds of issues.

The second step is that it was recognized that there are some very competent or very relevant scientific and other bodies which need to look at or examine the safety conditions and the biosecurity conditions related to these new kinds of viruses and that this would be a useful and important step to take before going ahead with further research in this area.
These are the two main concrete steps in terms of moving forward with both the viruses and then the information from the current studies.

G. Härtl:
Thank you. Next question is from Deborah MacKenzie of New Scientist:

Deborah MacKenzie:
Thank you for taking my question. I am wondering why if there was consensus that the research should be published in full, there has been a delay in publishing it. Is this to try and explain to everybody why it should be published in full or is this to discuss possible mechanisms for communicating details of the research that will eventually be redacted out to those who need to know them. I am not sure whether the delay is basically so that you can pursue the conversation or whether it is a delay so that you can come up with that mechanism that you were discussing before for possibly partially publishing but then making sure that people who need the information get it.

K. Fukuda:
Good question Deborah. First let me deal with the second part of the question which is the group recognized that putting out the articles in a redacted form that is a severely edited form was distinctly a less preferable option and the reason for that is that it was felt that the information contained in the full article really was needed to or was helpful for the scientific purposes and the public health purposes of the information but at the same time it was also recognized when we looked very carefully at what are all of the requirements for putting out a redacted article, that is - who holds on to the sensitive information - under what conditions would that information be released - what are the other complicating factors. It was recognized that coming up with such a mechanism would really be very difficult to do overnight - if not impossible. Those were the two reasons why coming out with the full disclosure of information was considered to be preferable. However, at the same time, the thinking was that rather than just put it out tomorrow, that this whole controversy, and the issues arising from this discussion on the research really shows how strongly concerned many groups are, many individuals are, about the safety aspects of this research. So for example there are lots of concerns about whether this has created a super virus, there are lots of concerns about whether this virus might escape easily from a laboratory and get into populations and that before putting out the full manuscripts that really raising public understanding, public awareness, but also awareness and understanding in many of the other non-scientific groups, was important and that this would be the most prudent way to go forward so that there is not a new wave of anxiety created by the manuscripts coming out. I hope that makes it clear.

G. Härtl:
Thank you Dr Fukuda. The next question is from Laurie Garrett of the Council on Foreign Relations.

Laurie Garrett, Council on Foreign Relations:
If I understand right, basically the scientists all feel that what they are doing is safe and reasonable but they think that the public is hysterical so they want to delay everything
until WHO and other unnamed agencies have calmed the public down and informed them so that the scientists can go forward. Is that correct?

K. Fukuda:
No, I don't think that's quite the correct way to characterize it. I think that the group which includes scientists but also several people who are not influenza scientists but who are public health people feel that the work done in these studies and also the work done in general in this area is really important work and it needs to go forward so I think the value of that was seen and it is also felt that the work that has been done, has been done in a relatively good way. There were review mechanisms that were in place that were conducted and the studies did not just take place overnight but they really went through quite substantive review before they were done and then after they were done. But on the basis of that it is also recognized that in fact these studies have indeed raised a lot of questions and it's not that the public is hysterical but that these questions that have been raised are important questions and they are difficult questions and they are ones which are not so easily resolved and so rather than just plough ahead and ignore those concerns the group felt that one of the things that would be important to do would be to try to increase public awareness about these studies and the understanding about them, really what do they mean, what do they suggest. This group went over the manuscripts themselves. The group signed confidentiality agreements and examined the manuscripts themselves carefully and they also had a chance to hear from the researchers directly about the studies and to question the researchers about the studies and on the basis of that I think they all came away with much greater appreciation about the studies themselves, but in recognizing that there are valid and important concerns about how these studies are conducted, how they are reviewed, are there any safety issues that in fact it would be important to address those. I think that was the sense of the discussions and the sense of the meeting. Having these issues addressed was an important part of actually putting out the information. I hope that's clear.

G. Härtl:
Before we go to the next question, a reminder that if anyone would like to ask a question but hasn't got themselves in the queue yet, dial 01 in your keypad and also to remember that the audio file and the transcript will be available on the WHO website. Next question is from Jon Cohen from Science magazine.

Jon Cohen, Science:
Thanks for taking my question. It sounds like the decision is in direct disagreement with the NSABB and you had the Chair of the NSABB there and you said that it was a unanimous decision. Can you speak to the relationship of the decision to the NSABB.

K. Fukuda:
Yes, that's an important question. As you know well the NSABB conducted a very, very thorough examination of the issues and came out with some recommendations. I think Jon you also know those discussions took place several weeks before this discussion took place and they took place in the United States. I think in the interim period we have now had a fuller understanding both about the global implications of these studies and
probably have a somewhat broader understanding about some of the questions raised through the NSABB process but overall to provide a context I see that these discussions held by the group here are in many ways very much reflective of the thoughts of the NSABB and the conclusions that they came to. The NSABB really again was in a sense saying that these are important issues and that if anything we ought to move along carefully and not immediately jump ahead with publishing the results. In this meeting here, again the group was quite aware of the need to look at the thinking of the NSABB and so we had the Chairman explain the reasoning and the different perceptions but in addition to that this group also had the advantage of hindsight and so for example we have had the chance now to think about the difficulties of putting out redacted articles and they are considerable. For example, when you look at redacted articles and you put the questions as to who would do it, under what conditions they would be done, what would be the principles, or who would make those decisions and who would make the decisions about who should get the articles. In fact you see that these are extremely difficult for probably any organization to actually put in place. I think these are new aspects of understanding the full implications of the situation which are available to us because we have now had several weeks more to look at the different opinions coming out and looking at the different issues and understandings of the issues which have occurred over the past several weeks. Again I see in fact that much of the thinking of this group here was similar in many respects to that of the NSABB but it has been augmented by having much more time to look at the implications of many of the issues.

G. Härtl:
Now over to the next question from Denise Grady at the New York Times.

Denise Grady, New York Times:
Two-part question please. One is you have mentioned several times the thought that there's a need for better communication and understanding. So my question is: what exactly does that mean; what is going to happen; who's going to do or say what about that? And then, it sounds as if you are saying that the full information from the studies will be published, that redacting is not an acceptable option, and if that's the case, is that correct and if it's correct, is there a timetable for that?

K. Fukuda:
Denise, let me address both of those questions. But before I do, Jon, I just want to correct something that I said in my response to you and also perhaps to Helen and Deborah. I do want to point out that on some of the issues, and particularly the issue related to the manuscripts and the redaction that the representative from NIH pointed out that himself and the others from the US on record comply and understand and support the NSABB discussion. Having said that, they and all of us expect that these discussions in Geneva will lead to further discussion about what is the best way to go forward among all of the countries involved in the discussion over the past few days. In terms of your question about the need for better understanding, what does this actually mean and how is anything going to go forward? Again, I think that many of the discussions have been characterized by these viruses for example being seen as super
viruses, for example some people have simply said well you've taken something dangerous and made it more dangerous and why would you do that. I think that this is a good example of some of the things which the participants felt needed to be addressed directly. In fact, the research studies were done for very good reasons. We have these viruses which are circulating out in the wild. They do pose a risk for humans but there has been an important debate going on for quite a long time, in fact is it possible for these viruses to become adaptable and transmissible among people. So understanding that question was felt to be important because it would change our perceptions about the risks of a pandemic from this virus and also some of the things that we would do, in how we might conduct surveillance. So the information which was collected from these studies has been directly helpful for both public health and scientific purposes and the viruses which were created by these studies are not exactly the same. They are different in many different ways and in fact the question of whether they are more highly transmissible among people has not yet been clearly answered. These studies have told us yes we should be concerned about the possibility of these viruses becoming adapted to people. There are some potential ways that this could happen. It's not always that it could happen but there are some potential ways that it could happen and there are some things that we can now do to increase how we look out for changes in these viruses. What's important to look out for. It was felt by the participants that helping people to understand these kinds of issues would put the research in perspective and would put these particular studies in perspective and that would be important to do. This was highlighted in fact by people who were coming from some of the countries not in Europe and not in the United States but some of the other countries. The importance of helping public awareness on these kinds of points and so the group was fully in agreement with that and felt in fact in all countries increasing that awareness would help and so I think this means that organizations like WHO, organizations like CDC and NIH, organizations in other countries will need to work together to specifically try to increase the understanding of these kinds of issues and about these particular studies. So really a targeted increase in communications on these issues.

In terms of your second question, will the full information be available? Yes, the group felt that this was important, that it was important to get out all of the information because this was going to give the most public health and scientific benefit and that it would not - in fact much of the information about things such as the methods are already out there and this would not increase the danger from having the methods about the information known. The intent or at least the consensus of the group is that this information should be gotten out fully. It is hoped for that the steps that I discussed earlier - increasing the public awareness and communication campaigns and looking at some of the biosafety and security issues would be dealt with in the next several months and this would allow the publications to be put out in full.

**G. Härtl:**
The next question is from - and excuse me if I don't have the name exactly right - Mr Nuno Domingez from Spain - go ahead please.

**Nuno Domingez:**
Two questions to ask. First one is you said discussions will go on over the next several months and previously you said the opinion of the panel was to extend the moratorium. Is there any agreement on a precise period to expand that moratorium - are we looking at 60 more days - 3 months - I don't know? The second question is if that period goes longer, are you concerned that this discussion could somehow reduce the possibilities of confronting a flu virus that has mutated to be transmissible among humans in nature not in a lab? You know having all these discussion groups somehow and not doing research with variants that work here created in the lab could reduce the chance of confronting a natural virus that is transmissible among humans.

K. Fukuda:
These are again very important questions. The group talked a lot about time - could a specific or precise time limit be put on a moratorium and it decided that it was really very difficult to put an exact time limit on the moratorium but instead what they did was again identify some things that should be done - the steps that I mentioned focusing on communications and looking at some of the biosafety and security issues but also they did not want these discussions and these activities to continue indefinitely into the future. They very much felt that these things should be done urgently and so that is the sense of the discussions and the consensus among the group and really I think hoped for that all of these activities could be done in a matter of months. So that was the sense of the group's discussion. In terms of your second question which is also important - would any such delay such as a moratorium on research possibly increase the danger from an event occurring in the wild among the wild type H5 viruses which are circulating naturally. Again, I must say that what the group did here was very helpful. They recognized that there were a couple of different needs for this information and in terms of one of the immediate needs which is to make sure that we are able to monitor what is going on out in the wild among these H5N1 viruses, there are some very helpful discussions about how to increase surveillance for the H5N1 viruses and in particular the kinds of mutations that might be important occurring among those viruses. So that was a matter of extensive discussion and I think that there will be some steps taken to strengthen surveillance that will be quite helpful so I think at least in that area the risk for these moratoriums lessening our ability to keep a watch on what's going on among these viruses is probably minimal. I think some of the steps that were discussed will in fact be quite helpful and so I'm not so concerned about any decrease in surveillance. If anything, surveillance will get stronger. In terms of whether it poses any risk for research, again I think this is hard to answer. I think that the work on understanding what makes viruses more transmissible, what makes them more or less lethal to people or animals is research which really takes a long time to do. There are many different studies that have to be done, many different studies by different groups which have to be done and so I hope that the moratorium does not lead to an appreciable slowdown of that kind of research and does not increase any of the risks that we may increase by slowing down some of that research. But it was felt that given the overall situation and the heat and the worry about the safety issues that all things considered having this kind of moratorium was in the best interests of everybody. Thank you.

G. Härtl:
Thank you Dr Fukuda. I will go to the next question and I believe it's NHK.

**NHK:**
Yes, thank you. Dr Fukuda, could you tell us, I understand there will be a meeting at WHO on similar issues maybe before summer and what kind of precedent this recommendation taken today could set for similar biosafety or security issues in the future. Thank you.

**K. Fukuda:**
Thank you for that question. When we were planning for this meeting here at WHO and working with the many participants who came we recognized that this was a small meeting and that it was only going to be able to address a few issues and we wanted to focus on the most urgent issues and the most practical issues that had to be dealt with first. So that was the reason why the meeting was relatively small and for two days but behind that it was recognized that in fact there are many broad issues that are going to be very complicated so I think that yes there will need to be additional meetings and consultations. I foresee that in fact they will need to be much broader than this meeting here. Some of the issues which are out there, for example, how do you balance the concerns about dual use against the potential benefits of research. Or how do you balance safety concerns about the need for getting new information from different studies. These are very complex questions and they have ethical dimensions, they have scientific, political, social dimensions, and they really go beyond viruses and go into other types of research. I think that in the future we will have to have additional meetings and I think that even one meeting cannot address everything. I think that now that we have finished with this meeting, we will have to regroup and take a look at what is the best way to move forward and I expect that we will be working with many stakeholders and partners on this but this is something we will now be looking at.

**G. Härtl:**
Before we go to the next question, just to warn you that we are running short of time and we will probably take two more questions. The next question is from Tom Paulson of KPLU - go ahead please.

**Tom Paulson, KPLU:**
I just want to follow on Denise Grady's question. I guess I want to know how you will decide when the public is sufficiently educated or inoculated against unwarranted anxiety and if anybody has any idea how long of a delay we are talking about.

**K. Fukuda:**
Yes, Tom, that's a good question and a difficult question to answer. I think that the need and the value of conducting effective communications is clear. I think that on the basis of that we hope that the appreciation and the understanding of these kinds of issues will be better both among the public but also among many other groups. As you know there have been many different sectors which have been involved in the discussions related to these two studies and so I think that we will focus on those activities, try to increase our communications, our outreach to the different sectors which are involved in these
discussions to really better explain the public health aspects, the scientific aspects, the implications of the research, the implications of not doing the research, the benefits of getting the information out and some of the downsides of holding back that information. We will proceed with that and hopefully be effective in that. These are things which will be difficult to measure with precision but anyway we will move ahead with trying to do this as effectively as possible. Thank you.

G. Härtl:
Next question, Katy Hobson from The Wall Street Journal, go ahead please.

Katy Hobson, Wall Street Journal:
Just a quick question. About the second part of that two-pronged strategy you were talking about, the first part the communications, the second part was looking at the biosafety and security issues, do you believe there are biosafety and security issues or is that also a matter of just assuaging the public's concerns about that. I think you said earlier that this research up to date has been conducted under safe, secure conditions. Are there valid issues that need to be investigated or is that again just reassuring the public that research is going on in a responsible and safe manner.

K. Fukuda:
Katy, we have absolutely no hint of any breakdown in the biosafety or biosecurity procedures associated with the studies done at both of these institutions and we know that these institutions are periodically assessed by other organizations. They don't just assess themselves but they are assessed by other organizations and we know that the laboratory conditions under which they were done are quite high security conditions, these …?????.......... conditions but at the same time I think that we are very cognizant that the idea of a virus like H5N1 being more highly transmissible than the other H5N1 viruses out there is a serious thought, it's a sobering thought and so I think it is not just the idea of mollifying people by saying that we'll look at these things, I think that we feel that the safety standards are high but these are new viruses and it's really worth re-examining the conditions under which research for these kinds of viruses are done and that that again would be a prudent step to take. Again we have had H5N1 viruses around for 10, 15 years but we have not had viruses which look to be as transmissible as these among mammals created in laboratories or modified in laboratories and so I think it's a good time to assess how do we do research on those kinds of viruses. Thank you.

G. Härtl:
Thank you and before we go to the last question, just to say once more that the audio file for this virtual press conference will be posted shortly afterwards on the WHO website and later this evening there will be a written transcript of the virtual press conference. So over to the last question and that's from Marieke Degen of German Public Radio. Go ahead please.

Marieke Degen, German Public Radio:
You said that there is a consensus that the studies will be fully published but in the statement and the NSABB said that there is also a great risk that the virus might be misused by terrorists. So how about that point?

**K. Fukuda:**
These are one of the concerns why these studies have been so controversial and have led to such a widespread discussion among many countries and I think that again it is in recognition that when we talk about safety concerns there are different kinds of safety concerns. There is a concern that viruses could be purposefully misused by a group or could be purposefully created to cause trouble but it is also recognized that viruses like this or research on developing viruses like this done under sub-optimal lab conditions or not the right safety conditions could lead to accidental release of viruses. Again it is in recognition that there are real concerns about these issues that the group and the participants decided that in fact it was best to have a moratorium on doing research on these viruses right now, have the competent or the relevant scientific authorities come together and assess these issues in a way - with the right people - this group was not really the right group to assess these issues fully but to have the right bodies assess them and then on the basis of that move ahead with research. It is in recognition that these are real concerns that the moratorium was extended to allow these kinds of concerns to be fully looked at and weighed. Thank you.

**G. Härtl:**
Dr Fukuda, thank you very much and to all of you who have dialled in to listen to this virtual press conference, thank you very much. That's it from WHO today, just to remind you that the WHO website is [www.who.int](http://www.who.int) and there you can find the audio file and the transcript.