deworm3

NATURAL HISTORY MUSEUM

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Hippolyte Houessou – *host*
Dr Euripide Avokpaho
Dr Manfred Accrombessi
Mr Innocent Togebevi
IRCB – Institute for Clinical Research, Benin
IRD - Institute for Research Development
CLIP – Centre for Integrated Control against Malaria
FSS – Faculty of Health Sciences
Inserm – National Institute for Medical Science, France
Comé – a commune in the department of Mono, Benin

DeWorm3 would like to acknowledge the immense undertaking by Eve Noirault at the Natural History Museum, London to translate the French speech to English text.

French repeated in broadcast in the Mina (Gen) language, spoken in the Mono Department of Benin. In 2006, there were 130,000 speakers of Mina in Benin.

[1:07] **HOST -** This is a special edition with people from the IRCB. Firstly, we will present the DeWorm3 project. Secondly, we will talk about the importance of the struggle against intestinal worms.

To shed light on this we have in our studio Dr Euripide Avokpaho (co-coordinator of the project), Dr Manfred Accrombessi (coordinatoring doctor) and Mr Innocent Togebevi
(sociologist and translator, assistant to the science implantation of the project).

It is a pleasure to have you in the studio. Technical support is provided by Paulin [Modjoh?].

We are now discussing the project itself and the disease caused by intestinal worms. First of all, we are talking about IRCB who is supporting the entire research.

So first Dr Euripide Avokpaho is going to talk about IRCB in general.

What is the structure of the IRCB?

[3:17] **EURIPIDE AVOKPAHO -** Thank you Mr Houessou. Before I start answering your question I am pleased to present to our dear public in the name of the IRCB and all its staff. Our best wishes to the population of Comé. We wish health and peace in the homes of Comé. We thank you for the opportunities given to us to present IRCB and to present the projects that IRCB carries in the city of Comé.

IRCB is, as its name says, a research institution that focuses on diagnostic tests. Before a medication arrives on the market, it has to be tested to check how efficient it is and that's one of the missions of our institution. It's based in Calavi and directed by Achilles Massougbodji who is from the department of Mono.

In the past, IRCB has assessed the efficiency of vaccines, for example for placental malaria. This is the first project we are working on that aims to test new methods for deworming the population. IRCB has already in the past carried out assessments of the efficiency of a vaccine against malaria. What took us to Comé is a project that aims to see if deworming the entire population can allow us to eliminate the propagation of intestinal worms. This mission to research is inherent to this institution and leads us to work closely with the population, which makes us different from other hospital institutions in that we endeavour to find, with the population, solutions to health issues. We need the population of Comé to actively participate in this research and we hope that together we will prove that it is possible to eradicate the transmission of intestinal worms.

[5:42] **HOST -** Thank you. We also have in this studio, Dr Accrombessi (coordinatoring doctor). Do you want to add something to what Dr Avokpaho said?

[6:00] **MANFRED ACCROMBESSI -** Thank you Mr Houessou. I'm going to go in the same way as Dr Avokpaho in presenting my best wishes to the population of Comé, especially to those who are listening to this broadcast.

I want to underline that IRCB is an institution that involves collaboration with other institutions such as FSS (Faculty of Health Sciences) in particular the departments of parasitology and ecology. We are also partners of the Institute for Research Development (IRD) which is a French institute that supports IRCB. We also have another French institution – Inserm - that is the national institute for medical science. We also have a fourth partner institution – CLIP (Centre for Integrated Control against Malaria) directed by Professor [Dorothy Kinde-Gazard] who is also from Mono.

I want to make it clear that it's a recently born institution that carries out numerous projects on clinical tests and fundamental research

[7:09] **HOST -** Yes, this institution IRCB is of course carrying out several projects including one in particular that is DeWorm3, and it DeWorm3 that is leading you to Comé. Dr Accrombessi, we are staying with you, can you tell us what DeWorm3 is exactly?

[7:29] **MANFRED ACCROMBESSI -** Thank you that is a very interesting question. I am going to try and make it simple so that the public understands everything in a broad sense.

To start with, DeWorm3 is an English term. 'Worm' means parasite. Deworm means remove parasites, and '3' is because we are interested in 3 species of intestinal parasites. We're interested in these parasites because they are very important and they are the most transmitted and their mode of transmission is from the soil. All of this is DeWorm3.

Why this project – I think it's interesting to explain a little bit to the public where this idea comes from. It appears that intestinal worms are responsible for several diseases (we'll come back to this). In general, these are diseases that are not very 'noisy', for instance like AIDs, malaria and other infectious diseases. These are diseases that have long-term consequences and that may cause damage with 'low noise'. In the medical language, we call them 'neglected tropical diseases'. This means that for the moment the scientific community is not very focussed on these kinds of diseases because they are not diseases that make a lot of 'noise'. But they are diseases that make 'noise' and damage in the long-term, especially in children. That's it, that's where it started, this idea of looking at neglected tropical diseases and in particular the helminths. It appears that there are lots of efforts that are put towards other illnesses such as malaria, AIDs and other diseases. We are starting to see

that the neglected tropical diseases are having increased effects and that the effects are being seen in a more important way.

The idea of this project is that we thought it would be interesting to see to what extent we can really go in the way of once and for all stopping the progression - because as you know a disease lasts in time when it's transmitted.

So if we can find a way of stopping this transmission - at some point if no more children or adults are infected, the disease would disappear by itself. That's the idea of this programme and we began here because currently in endemic countries, and in particular in Benin, there is a national programme from the ministry that takes care of all these transmissible diseases, especially intestinal worms as part of this programme they already have a strategy in place.

This strategy consists of deworming children who are of school-age and some children who are pre-school age. This strategy has been in place for quite some time now. It's a strategy that consists of deworming every year, once a year. Even with this strategy in place, in appears that we are still not reaching the objective to stop the transmission of intestinal worms.

A new approach has been thought, and this new approach was fortunate to get funding from the Gates Foundation, who said 'well we're interested in this disease because it's a disease that creates symptoms and consequences with 'low noise' and we would be interested in what you think, and what would you do to stop the transmission of this disease.'

So we went in this direction and got this funding and we thought of a new approach that would be not to deworm only children of school-age but to deworm the entire community. We're not limited to children anymore as we are also going to deworm adults and children not of school age - so every person from 2 years of age will be treated.

[11:08] **HOST -** Dr Accrombessi, why deworming in the community?

[11:12] **MANFRED ACCROMBESSI -** Because we think, […] it's a disease that has dire consequences, especially in children. For example, children who have a heavy infection (children who have lots of parasites in their belly) are children who have serious problems. This new strategy that I'm talking about will be applied to the entire commune of Comé, in particular in the five arrondissements of the commune – Comé, Oumako, Ouèdèmè-Pédah, Agatogbo, Akodéha. We are going to work in these zones, and the programme is to last 2 years.

[11:48] **HOST -** We welcome Innocent Togebevi to our studio, sociologist assistant to the science implantation of the project to translate into local dialect.

[the above is relayed in Mina (local language) by Mr Innocent Togebevi]

[18:07] **HOST –** Ladies and gentlemen, for those who have just joined us, we're broadcasting live on 97.7 (the Voice of the Nightingale), more precisely we're in a programme on the Institute for Clinical Research, Benin, IRCB – a programme that is currently about the project DeWorm3 - a project that fights to stop the transmission of intestinal worms.

Dr Euripide Avokpaho, please tell us in a few words about the strategy that will be developed in the field when we are talking about implementing the project DeWorm3.

[18:48] **EURIPIDE AVOKPAHO -** Thanks you very much, Mr Ouessou. There will be several steps to implement the project DeWorm3. The first step is an awareness campaign, which is what we are doing here through this radio, among other things.

As soon as the population is aware and understands the precise background of the project, the next step is the census, which has more or less already started. This census aims at counting all individuals aged two or more in every household, and it differs from the census that the government usually carries out. The objective is to know the total population accurately in order to know which quantity of medication we need to bring.

Then, we will make groups of households – we will call these groups "clusters". Depending on the situation of the household, the people will be either treated as usual by the governmental programme, i.e. treating the children of school age in schools, or the entire household will be dewormed.

The population of Comé will be split into two groups with on the one hand household that we receive treatment for everyone from two-year-old children to seniors, and on the other hand people who will be treated with the current strategy that the government has set up.

It is not clear whether one strategy or the other is the best, it is at the end of the study that we will assess the results and see in both groups what the prevalence of infections by intestinal worms is. The treatment will last two years.

In the intervention group, deworming of the entire population will happen twice a year; and in the control group – the group that keeps the current governmental strategy- there will be one deworming a year for children in schools, children of school age. At the end of these two years, we will see in which group there is the least parasites, and after that we will implement this in other countries if the strategy is successful.

[21:15] **HOST –** Yes. Doctor Accrombessi, you have an input.

[21:19] **MANFRED ACCROMBESSI –** I would like to confirm what Dr Avokpaho has just said in his last sentence. If this strategy works there will be Benin first, because the fact that the commune of Comé was chosen is really a great privilege, because it will be Comé that will be the commune to initiate what is really interesting in this programme, that we managed, for the first time in the world, to stop the transmission.

[21:45] **HOST –** Why did you choose the commune of Comé, if I may ask?

[21:50] **MANFRED ACCROMBESSI –** The commune of Comé has been chosen because […] preliminary studies have been carried out nationwide in Benin, where we have made a map of all Benin. This was made by the team of Professor Moudachirou Ibikounlé - who is also one of the principal investigators in this project- and this map shows the areas where we have the most prevalence - the highest proportions in the rate of people infected by parasites – according to this study. Also based on the acceptability of the logistical conditions, it appeared that Comé was the most ideal commune to carry out this study. So that's it, roughly speaking.

There are also other parameters and I am not going to go into technical details because it would be too complicated to understand, but roughly speaking it is one of the major reasons. I simply would like to go further regarding the different steps as Dr Avokpaho has just said.

This programme is to last three years. So every year with different steps, particularly the census as Mr Innocent has said and Dr Avokpaho has elaborated. It is important to us to know exactly how many people live in the commune of Comé, in the households, to accurately estimate what quantity of medication we need to plan, as well as know exactly - because if we don't know the exact number of people in the commune, we might leave behind people who will not be treated, and this strategy, we might wrongly say that it's not efficient while it is efficient, just because we have left people untreated. So the census is a very important step.

Then, another thing that is important and will be done, is collecting the faeces. You know, we are doctors, but it's not about going into the houses and just say: "yes, you are infected" or "no, you are not infected". We have to perform analyses, that's how the health sector works, when you're ill you go to hospital and we do analyses, so that we can know what it is that you have. This is why we will be collecting the faeces, because it is only by doing so that we will know who is infected and who is not. This is also an important step that will be carried out by next month.

It's really important that the population is aware of this step, independently of treatment, because what is going to prove that we are efficient? We need to know what the starting point is. How many are infected in the population of Comé and then after treatment to analyse the faeces again to see how many people are still infected. Does the number decrease in a significant way or is it still very high? It's also a step that is important to point out. Thank you.

[24:20] **HOST –** So first, when you are talking about collecting faeces, I am personally wondering whether (I'm not pessimistic, I'm just wondering) this will be an easy task. With what is happening nowadays, is the population prepared enough to let this happen, as it should? Are the authorities involved to make the task easier for you?

[24:49] **MANFRED ACCROMBESSI –** It's a very good question. We can't just arrive in a commune and start a study, this is not possible. This study that is carried out –and this needs to be clear right from the beginning - is also made with the support of the commune. The commune has been chosen, so of course the authorities are aware. We understand that for any study, for any action or intervention in communities, when population awareness is not good we will face many difficulties. We are trying to use every possible means [to inform people], for example the radio that is a good diffusion channel for people to hear about us.

But we also have other means to communicate, if I can quickly summarize it – we have planned to make "cascade awareness", so now the information has been diffused into the communal authorities, the arrondissements, village leaders, all of them in the commune are aware of this study. What we are to do in the days to come is to try and gather, in the community, opinion leaders, religious officials, traditional leaders, crowned heads, to explain to them how pertinent what we want to do is, and so that they can go tell the people who trust them about the pertinence and usefulness of it.

Then we are also planning to go to the villages, in particular rural villages, to make the general public aware and talk about the study. We will not let any opportunity to raise awareness go – because it's important. We are successful if the commune of Comé is successful […] It opens new opportunities for the commune, because other programmes, seeing this success, will necessarily be interested in the commune. Also it will be a pioneer commune, because after that we will try to do the same things in every commune. It is very interesting that we can work together and make this operation successful.

[26:50] **HOST –** We all pray for this project's success in the commune of Comé. We are talking about the project DeWorm3. Dr Avokpaho, you are going to tell us a little bit about the diseases, the infections that are due to intestinal worms. What are the inconveniences that can be linked to the presence of intestinal worms in an organism?

[27:20] **EURIPIDE AVOKPAHO -** Thank you, Mr Ouessou. Intestinal worms are responsible for many diseases. Very often, they can cause abdominal pain - this is the most frequent. What we have to remember here is that intestinal worms mostly affect some segments of the population, for example, pregnant women and children under five are particularly affected.
In particular, for pregnant women, an infection by intestinal worms is a source of anaemia, which means in simple terms that the blood may lack iron because those organisms feed on the blood. Then, as she's pregnant, she has a [foetus]. The foetus in utero does not have the possibility to grow in a normal way, so we will see a developmental delay of the foetus. This developmental delay can be even worse – I mean that the developmental delay could lead to foetal death in utero. And, if by any chance the foetus didn't die, the baby would be born with a low birth weight, which is a factor of weakness for the child – for the first days and months of its life, it might be more at risk of contracting serious diseases.

This means that, if the child has malaria, it will be a serious form of malaria compared to another child whose mother was not infected. In children under five, there can be developmental delay too.

A child who should weigh 20 kilograms will weigh 15 or 10 kilograms, due to the worms in his body that do not let the nutriments be absorbed well. The worms obstruct the intestines and prevent the correct absorption of nutriments by the body. They can also have anaemia, which means that the blood will lack iron in the body, and if those children ever have malaria, it will be the serious form right away, and we will have to go get blood. These are aggravating factors for the usual diseases.

Another thing is that the children can have a psychomotor delay. The ability to think, to walk early, to play just as other children do may be diminished. They will have a delayed learning at school, the child will not have good academic outcomes, and this may be due to intestinal worms – that's why the child needs deworming. If a child is delayed in his learning, he won't be a productive adult – this means reduction of productivity with a socio-economical delay in general. That's a summary of the consequences that intestinal worms may have.

[30:27] **HOST –** Ladies and gentlemen, for those who just joined us, we are broadcasting live on 97.7, to be more precise in a programme of IRCB.

[31:00] *[the above is relayed in Mina (local language) by Mr Innocent Togebevi]*

[39:33] **HOST –** Ladies and gentlemen, the time given to us is ending. Dr Avokpaho, what will be the final aim of this project? You have cited the different steps earlier; now please tell us about the purpose.

[39:51] **EURIPIDE AVOKPAHO -** Thank you Mr Houessou. In a few words, the purpose of this project is to see whether it is possible to stop the transmission of intestinal worms for good, based on the results we will obtain. This means that we are going to compare both strategies – the new one, which is to deworm all the people no matter their age, and the old one, which is the current Ministry of Health and the WHO strategy, and consists in deworming only children of school age, in schools.

[40:34] **HOST –** Dr Manfred Accrombessi, you are the coordinating doctor of the project DeWorm3. This programme is about to finish, do you have a take-home message for the population?

[40:48] **MANFRED ACCROMBESSI –** Thank you very much Mr Houessou, thank you very much for the opportunity you are giving us. We have a very important message for the population of the commune of Comé, it is that we are really asking them to help us to improve the health in Comé. I'm talking about health because […] intestinal worms are the origin of damaging diseases and have adverse consequences in the long term. If we manage to stop the transmission of this disease - you can see all the good it can do to this commune.

Initially to the commune, but also to the whole of Benin. When we compare to the strategy of the ministry, the country and commune is lead to save money. Finally the parents, because all the diseases caused - we did not have time to provide examples - but having intestinal worms makes you more likely to be affected by other diseases, we haven't talked about that.

So, all of this is important for our community. You know, if your children thrive, they do well at school; if yourself, you thrive, you are saving money. Instead of waiting in the hospital, instead of running from one doctor to the other - it will help you save time and money for your family.

We ask the population for their understanding. We are available at all times – you can get in touch with us at the town hall, and we are in touch with the different health agencies, with the leaders in arrondissements, districts and villages, we are here if you have questions. Even at the radio, we are going to leave our contact details to the radio, so if you have questions, or worry about something, we are available. We need to work together for the progress of the commune and for Benin. Thank you.

[42:46] **HOST –** Dr Euripide Avokpaho, you are the co-coordinator of the project DeWorm3. What is your take-home message?

[42.45] **EURIPIDE AVOKPAHO -** Thank you Mr Houessou. It is difficult to talk after your superior, but with his permission, I would like to send a call to all household leaders in Comé.

I would have them be understanding and to make census agents' task easier. They are going to come to the households and ask questions that may sometimes sound long or too intrusive, too personal. We ask you to help us, please, because we need to have the information that census agents will ask about. We hope that together, we will succeed in this project. Thank you very much.

[43:34] *[the above is relayed in Mina (local language) by Mr Innocent Togebevi]*

[44:06] **HOST –** Acknowledgements