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Roel Coutinho—Director of the Centre for Infectious Disease Control Netherlands

Interviewed by Marc Vandenbruaene

In 2005, Roel Coutinho became the first director of the Netherlands' new national coordination centre for infectious diseases. After graduating in medicine in 1972 from Amsterdam University, and a sojourn as a physician in tropical medicine in Senegal and Guinea-Bissau, Coutinho returned to the Netherlands to specialise as a medical microbiologist. Coutinho joined the Municipal Health Service of Amsterdam in 1977 as the head of the Public Health Department, where in 1984 he completed a PhD on sexually transmitted diseases among men who have sex with men. He was one of the founders of the Amsterdam cohort studies. In 1989, Coutinho was appointed Professor in the Epidemiology and Prevention of Infectious Diseases at the Academic Medical Center, University of Amsterdam. In 2000 he became General Director of the Municipal Health Service of Amsterdam, a post he occupied until joining the RIVM (National Institute for Public Health and the Environment) in 2005.

Roel Coutinho has contributed to more than 450 international publications. Since 2000 he has been a coeditor of the international scientific journal *AIDS*. He has two children and two grandchildren.

TLID: What drew you into medicine?

RC: I am not completely sure anymore. I had a vague interest in psychiatry at the end of secondary school and that's probably what made me choose a degree in medicine. I'm still interested in psychiatry but professionally I have never done anything with it.

TLID: What fuelled your "revolutionary period" in the early 1970s?

RC: After my medical studies I did extra training in tropical medicine. I was approached by a group of students from Amsterdam who were members of an idealistic organisation in touch with liberation movements in the last three Portuguese colonies in Africa—Angola, Mozambique, and Guinea-Bissau. They needed a medical doctor for Guinea-Bissau, and I offered to go. The country was a war zone in those days, so I took extra training in surgery. I worked in a small hospital with 30 beds just across the border in Ziguinchor, in the south of Senegal, where we treated many refugees from Guinea-Bissau. I also had to make long-distance treks—by foot—into Guinea-Bissau for clinical consultations and to undertake vaccination campaigns.

TLID: In 1975 you worked in Bangladesh, during the last major smallpox outbreak in the world.

RC: After returning from Senegal and Guinea-Bissau I applied for a job as a trainee in internal medicine, but I had to wait for a year before I could start. Instead, I worked in a microbiology laboratory, investigating herpesviruses as possible causes of tumours. But nothing came out of it, which was very frustrating. My professor was involved in the smallpox eradication programme in India and told me that more doctors were needed. While I was training for the programme, the disease became eradicated from India, so I volunteered to go to Bangladesh. On arrival in Dhaka I found a country in complete chaos. I had seen a lot of poor people in Africa, but they always had something to eat, and there was no real shortage of food. But in Bangladesh I saw people dying from starvation in the street—a shocking experience. I thought eradicating smallpox in these circumstances was impossible, but amazingly enough, ring vaccination worked—ie, find a case, go after the contacts, then look for their contacts, and vaccinate them all. I found the success of this strategy in such difficult circumstances absolutely fascinating. This experience made me choose a career in infectious diseases and public health.

TLID: In terms of bioterrorism, smallpox is considered a category A threat and given the highest priority. Does the Netherlands take the risk of bioterrorism seriously?

Roel Coutinho on a vaccination campaign in a rural area of Guinea-Bissau, 1973

RC: Bioterrorism is taken seriously, but we have to look at it in context. I think that the chances of a bioterrorist attack are very low, because throughout history bioweapons have rarely been used. However, the anthrax attacks in the USA have shown that it can happen. Biowarfare is often seen as the poor man's weapon, but in reality up till now, the poor man's weapons are bombs and not biological weapons. In the Netherlands discussions on biological threats had already started before 2001. The 2001 events accelerated things—for example, we now have protocols on how to act if such an attack occurs.

TLID: Does the threat of bioterrorism influence science?

RC: I am amazed by actual discussions about whether certain research findings should be published or not, whether access to certain data should be limited to certain people, and discussions on censorship. I have seen a European Union (EU) green paper discussing the possibility of articles with a double publication plan. Some parts would be published in open access journals and some parts would only be accessible for a restricted group of people. Such a strategy is impossible. It doesn't fit with the basic idea of how science is organised. On the one hand I can understand these discussions, but on the other hand the danger exists that a new bureaucratic world would control science. That will never work. You can't stop science.

TLID: In 2005 a new national coordination centre for infectious diseases was set up in the Netherlands. You are its first director. Why was a new centre necessary?

RC: Before 2005, infectious disease control in the Netherlands was too decentralised at a local level. National

coordination was lacking. The responsible minister argued that if a nationwide problem occurred, he lacked the power to implement an appropriate response. That was the impetus for setting up a national centre. The US anthrax letter attacks in 2001 and the emergence of severe acute respiratory syndrome (SARS) in 2002 gave the final push. I had been responsible for infectious disease control in Amsterdam for many years, and in that position I had often criticised infectious disease control in the country. When I was offered the opportunity to lead the new national centre, it was an offer I couldn't refuse.

TLID: You have now been in charge for 3 years. What are your main achievements?

RC: The original infectious disease units at the National Institute of Public Health were pretty research-oriented. What you see now, and what I try to do, is to make them more public-health-oriented. The Netherlands has had some notable disease outbreaks since 2005—for example, Q-fever and meticillin-resistant *Staphylococcus aureus* (MRSA) in pig farmers. In handling these outbreaks we combined research with action in the field.

The national press were not aware of the centre in the beginning but that has changed; they now call us for information about every infectious disease problem in the Netherlands or elsewhere. The centre also organises and implements the national vaccination programme for children.

TLID: You were one of the founders of the Amsterdam AIDS cohort studies. Can you tell us how this cohort was set up? What were the objectives of this research project in the early 1980s?

RC: In 1977 at the age of 31, I became the head of the infectious disease department of the Municipal Health Service of Amsterdam. No one else wanted that job, and many people thought I was crazy to accept the post. Infectious diseases were "out". At that time, sexually transmitted infections (STIs) were spreading rapidly, mainly among men who have sex with men and drug-using prostitutes and their clients. Homosexual men didn't care about syphilis—it was treatable, so why worry? However, they took hepatitis B, which was highly prevalent among this population, more seriously because no treatment was available. I became involved in studies with an experimental hepatitis B vaccine, produced from plasma of chronic hepatitis B virus carriers collected by the Netherlands blood transfusion service. By setting up STI awareness and prevention campaigns, we built good relationships with homosexual men and injecting drug user organisations. These contacts and the hepatitis B vaccine trial cohort were very useful in the early 1980s when AIDS came along.

For more information on the Amsterdam cohort studies see <http://www.amsterdamcohortstudies.org>

For more information on the Centre for Infectious Disease Control in the Netherlands see <http://www.rivm.nl/en/aboutrivm/organization/cib/>

TLID: *You already had an infrastructure to study HIV/AIDS in these populations?*

RC: I was in the right place at the right time. I had contacts at the public-health level with men who have sex with men and injecting drug user organisations. I also had good contacts with the virology group of the Amsterdam University and the Netherlands blood transfusion service who were strong in immunology. Right from the beginning social scientists were involved in the research. When we started to set up the project at the beginning of 1982 we didn't know the cause of AIDS. We knew it had to be a sexually transmitted microorganism—probably a virus. Jaap Goudsmit, our virologist who had been working in Robert Gallo's laboratory, set up HIV antibody testing in our laboratory. The Dutch gay men's organisation argued that the situation in the Netherlands was completely different from what was happening in the USA, and they were confident that the HIV prevalence would be low. The first results showed that 30% of the 750 men who have sex with men from Amsterdam included in the first 6 months of the study were HIV positive, all of whom were asymptomatic. It was an absolute shock for all of us. A year later similar results were found in injecting drug users. Drugs users' organisations and support organisations argued that their harm reduction programmes had prevented people from getting HIV. We included hundreds of symptomless drugs users from Amsterdam in our cohort study and one-third were found to be HIV positive.

TLID: *Some people call the Amsterdam AIDS cohort a research gold mine.*

RC: It turned out to be an enormously productive group. We did a lot of work on prognostic factors. The concept of HIV phenotypes (syncytium-inducing and non-syncytium-inducing virus types) was first described in the Amsterdam AIDS cohort. Now these variants are called HIV R5 and HIV X4. The multidisciplinary nature of the study group was unique. There were always epidemiologists, virologists, immunologists, clinicians, and social scientists involved. There was a lot of conflict too, of course. That's very human. Who gets the honour? It is not all green and nice.

TLID: *What are the research questions of the Amsterdam cohort to date?*

RC: Basic epidemiology questions have all been answered. For 20 years we have meticulously stored samples, serum, and cells of cohort members. These samples are very well documented—for example, we know the exact HIV seroconversion date, date of first symptoms, clinical outcomes, and epidemiological data for many patients.

It is a unique longitudinal collection for immunological, virological, epidemiological, and social scientific studies.

TLID: *You recently coauthored a paper on hepatitis C: is hepatitis C virus (HCV) a sexually transmitted infection?*

RC: In the past we didn't consider HCV to be an STI. To our surprise we saw HIV-positive men who have sex with men infected with the virus. At present, between 10% and 15% of HIV-positive men visiting the Amsterdam STI clinic are HCV positive, which is an incredibly high prevalence—it used to be below 2%. What is going on? When we first suggested in 2006 that sexual transmission of HCV might occur, some argued that there was no evidence for this statement, since HIV/HCV coinfection among men who have sex with men wasn't seen in the USA. However, HIV/HCV coinfection among men who have sex with men emerged in the UK, France, and other European countries, and has more recently been reported in New York. So the concept is not disputed anymore. But one thing still puzzles me: why do we see sexually transmitted HCV now and why didn't it occur in the past? Some people argue that it happens in groups of HIV-positive people with very high-risk behaviour. But even in the 1980s, when I started my career, the same kind of high-risk behaviour existed.

TLID: *Could the reason be the recent introduction of HCV among men who have sex with men?*

RC: But HCV was already circulating at that time. Maybe sexual transmission of HCV is enhanced by the coinfection with lymphogranuloma venereum, or maybe syphilis. But then again, syphilis was highly prevalent in the 1980s too.

TLID: *Chlamydia trachomatis screening programmes have been done for the past two decades in the Netherlands. Have the results of these programmes been implemented in clinical practice? Do you see an influence on pelvic inflammatory disease (PID) incidence?*

RC: We had long and complicated discussions about whether we should start implementing chlamydia screening programmes. Data from other countries were not so convincing: one of the central questions was do screening programmes lower PID incidence on a population level? Maybe people can recover from their chlamydia infection. Or maybe immunity wanes if you introduce a screening programme, which could have negative consequences on PID incidence. In the end we decided to go for it and in April, 2008, a pilot implementation programme started in Amsterdam, Rotterdam, and the southern part of Limburg. We want to reach 300 000 people by internet or email. All young people between 16 and 29 years in these areas have been asked to send in a specimen, urine, or a

For more on the **first HIV prevalence studies among drug users and drug-using prostitutes in Amsterdam** see *AIDS* 1988; 2: 55–60

For more on **hepatitis C virus in an STI context** see *J Infect Dis* 2007; 196: 230–38; DOI:10.1086/518796

For more on **syncytium-inducing and non-syncytium-inducing HIV types** see *J Virol* 1989; 63: 2118–25

vaginal swab and to answer a short online questionnaire. We will carefully assess the effect of the programme, since the results will help us to decide whether to implement screening programmes nationwide.

TLID: The Netherlands has low levels of antibiotic resistance and hospital-acquired infections. What can the international infectious diseases community learn from the Dutch success?

RC: In hospitals in the Netherlands, the prevalence of MRSA is below 1%. In the neighbouring countries—Belgium, France, and the UK—MRSA levels are very high. We are very careful about antibiotic use in the Netherlands. Doctors follow guidelines—we don't use antibiotics if they are not necessary. If we find a hospital case of MRSA we do everything to find the source and, if necessary, close certain departments. Hospital room furniture is designed for preventing MRSA—for example, cupboards without legs are attached to the ceiling to enable better cleaning. However, the Dutch antibiotics policy has been criticised. Some years ago we had a large legionella outbreak with high mortality rates. Maybe the high mortality was associated with the guidelines for outpatient treatment of pneumonia, which recommended drugs that legionella was not sensitive for.

We are now having discussions about antibiotic use in cattle. The Netherlands has an intense cattle industry in which pigs, cows, and chickens are given many antibiotics. Recently, an MRSA strain that originated in cattle emerged in human beings. In one hospital they detected a patient with MRSA who had not been abroad. The family came from a pig farm. Subsequent investigations found a 15% MRSA prevalence among pig farmers. One-third of pigs carried MRSA strains. The use of antibiotics in intensive farming is too high. We are now doing studies to identify how these MRSA strains are transmitted from pigs to human beings.

TLID: You headed an AIDS programme in Ethiopia from 1994 until 2005. What was the aim of the project?

RC: At the 1992 International AIDS Conference in Amsterdam, the Dutch minister for international cooperation, Jan Pronk, gave a speech in which he insisted on intensifying AIDS research collaboration with Africa. He was impressed by the Amsterdam cohort studies. We proposed to install a similar research project in Africa. Pronk added one condition: we had to engage in capacity building, by setting up laboratory facilities and providing training. He financed us for 10 years. In 1994, Ethiopia had

just come out of a civil war. The new leaders offered hope for a new Africa. Scientifically the country was interesting because the HIV/AIDS epidemic was just beginning and only a few research groups were working there. We wanted to know if HIV/AIDS in Africa was similar to the disease in Europe in terms of its clinical picture, immunology, and virology. We set up a prospective study modelled on the Amsterdam cohort studies based on PhD programmes. We trained many people including local postgraduate students. These people now have an important role in the health infrastructure in Ethiopia.

Later on the atmosphere in the Dutch ministry changed. Research in Africa was not considered a priority and funding stopped. That was a big frustration for me. The criticism that we should have done more public-health-oriented research was correct, but we had made progress in this area. Over the years we had built a good relationship with the Ethiopians, based on trust. You need to engage in very long-term collaboration in Africa, not just hit-and-run projects. Researchers go there, collect data, and leave. Only long-term collaboration is in the interest of the country. Luckily for the Ethiopian Health and Nutrition Research Institute in Addis Ababa, the US Centers for Disease Control and Prevention came in when we left. The institute is doing well at the moment.

TLID: Some critics argue that most HIV prevention trials and HIV therapy programmes in Africa are run with money from the President's Emergency Plan for AIDS Relief or from charity funds. Where does the EU stand?

RC: The EU is less focused on research than the US National Institutes of Health (NIH). NIH is far more steered by scientific questions. The EU is too bureaucratic. We do not have—and do not seem to want—strong EU research institutes that can steer research programmes.

TLID: How do you relax at the end of the week?

RC: I play soccer every Saturday morning for 40 years. My son has now joined the football club, which has members aged from 16 to 70. Young people confront you with the fact you are getting old. I play tennis too. I also try to read a lot. I love fiction, especially Dutch, Italian, UK, and US writers. When I was young I was fond of Russian writers. I like to be carried away with a good story.

Roel Coutinho answers more questions in a webappendix.

See Online for webappendix