INTERNATIONAL COMMISSION
FOR THE CERTIFICATION OF
DRACUNCULIASIS ERADICATION

FIFTH MEETING
WHO, GENEVA
9–11 MARCH 2004

REPORT AND RECOMMENDATIONS
International Commission
for the Certification of
Dracunculiasis Eradication

Fifth Meeting
WHO, Geneva
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Report and Recommendations
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I. Introduction

The fifth meeting of the International Commission for the Certification of Dracunculiasis Eradication (ICCDE) was opened by Dr A. Asamoah-Baah, Assistant Director-General of the Communicable Diseases Cluster, World Health Organization (WHO). Dr Asamoah-Baah welcomed the Commissioners and reminded them that ICCDE was WHO’s highest scientific advisory board. He also pointed out that the dynamics, experience and wisdom of the Commission were needed to support the eradication process. The dracunculiasis problem is now limited to the African continent; in some endemic countries, the situation is worsening. Fortunately, other previously endemic countries such as Senegal have succeeded in their efforts to break dracunculiasis transmission.

While the world welcomed the eradication of smallpox, the importance of infectious and communicable diseases in the 21st century should not be underestimated; emerging and re-emerging communicable diseases including severe acute respiratory syndrome and avian influenza are reminders that it should remain vigilant.

Dr Abdul Rahman Al-Awadi was elected chair, Dr J. Breman was elected vice-chair. Professor O. Doumbo and Dr P. Magnussen were appointed as rapporteurs.

The provisional agenda was adopted, with few modifications.

II. Epidemiological situation of dracunculiasis in countries with more than 100 cases

A total of seven countries reported more than 100 dracunculiasis cases in 2003: Burkina Faso, Ghana, Mali, Niger, Nigeria, Sudan and Togo.

Sudan remains the country with the highest number of cases. However, an important reduction in the number of cases has occurred, from 118 587 in 1996 to 54 890 in 2000, 49 471 in 2001, 41 493 in 2002 and a significant drop to 19 484 cases in 2003.

Mali, Burkina Faso and Niger have experienced differing levels of success. In 2003, the number of cases in these three countries varied from 858 to 818 (–5%), 580 to 178 (–68%) and 233 to 279 (+20%), respectively. Most cases are located in the border areas where nomad populations move between countries. A surveillance system has been established by WHO to allow the national programmes of these countries to trace infected people in nomadic populations and to share this information in order to promptly establish prevention measures.

Togo reduced its number of cases from 10 394 in 1993 to 1502 in 2002 and 625 (–58%) in 2003. Togo shares a border with Ghana, and a number of cases are imported from this country.
**Nigeria** has achieved remarkable success, decreasing the number of cases from 3825 in 2002 to 1,460 (–62%) in 2003. While the coverage of interventions has been high, some concerns remain regarding surveillance in previously endemic areas. Nigeria is now the third country with the largest number of cases.

**Ghana** has reported more cases in 2003 than in 2002. During this period, the number of cases increased from 5606 to 8285, respectively (a 48% increase).

Figure 1 compares the number of dracunculiasis cases reported by Sudan with those reported in the remaining endemic countries, from 1989 to 2003.

Figure 1. Comparison of dracunculiasis cases reported in Sudan and other endemic countries, 1989–2003
III. Epidemiological situation of dracunculiasis in countries with fewer than 100 cases

There are currently five countries reporting fewer than 100 dracunculiasis cases: Benin, Côte d’Ivoire, Ethiopia, Mauritania and Uganda. It has been difficult to predict when these countries will reduce the number of cases to zero.

Ethiopia and Uganda

Both countries have had fewer than 100 cases since 2000, i.e. for four consecutive years. However, despite important efforts, it has not been possible to achieve a steadily decreasing trend in the annual number of cases. In Ethiopia, the residual focus consists of a single village (Awkoy) affected by chronic instability, making it difficult for the national programme to carry out eradication activities. In Uganda, insecurity also prevails. Although there is one single endemic village (Nawapoet), it appears difficult to reduce the number of cases to zero. Table 1 shows the number of indigenous and imported cases from 2001 to 2003 for countries reporting fewer than 100 cases.

One striking point is the sex imbalance in the number of indigenous cases in Ethiopia and Uganda: most indigenous cases are female. In these two countries, people affected by dracunculiasis are sent to a containment centre. The fact that mostly women attend these centres raises the hypothesis that infected males may not accept containment while they have day-to-day duties to fulfil.

Côte d’Ivoire

Côte d'Ivoire has reduced the number of cases from 198 in 2002 to 40 in 2003, a reduction of 80% in one year. However, these figures should be viewed with caution: internal conflict has split de facto the country into two areas, one of which is inaccessible to the programme. The validity of this important reduction should be confirmed once travel within the country has been completely restored.

Benin

Benin has also reduced the number of cases, from 181 in 2002 to 30 in 2003, a reduction of 84% in one year. Although a remarkable achievement, some threat remains of importation of cases from neighbouring Togo and from Ghana. Movement of populations from Ghana are fairly important and, in the past, most imported cases have been from Ghana. The situation in Benin therefore seems tightly linked to the progress achieved in Ghana and, to a lesser extent, to Togo.
Mauritania

Over the past 10 years, Mauritania has steadily decreased the number of cases, reporting fewer than 100 cases during the past three years. In 2003, there were only 12 dracunculiasis cases.

Mauritania is the only country in this group that has shown a clear and undisputed decreasing trend in the annual number of cases. In contrast with the other countries with fewer than 100 cases, it is also the only country that has had no imported cases. Whether a relationship exists between importation of cases and the time to reach zero cases remains an open question.

IV. Situation in countries in the precertification stage

There are currently five countries in the precertification stage: Cameroon, Chad, Kenya, Senegal and Yemen.

Cameroon

The number of indigenous dracunculiasis cases reported by Cameroon declined from 393 in 1991 to zero in 1998. From 1998 onwards, all reported cases were imported from neighbouring Nigeria, mostly from Borno State, as follows: 1997, 23 cases; 1999, 8 cases; 2000, 5 cases; 2001, 5 cases; 2002, 3 cases. All of these cases were contained and managed in Cameroon, as reported by the health authority, and none had resulted in local transmission of the parasite in the following year.

In 2003, for the first time since the establishment of the national Guinea Worm Eradication Programme, Cameroon reported zero cases, whether indigenous or imported. This also corresponds to the dramatic decrease in the number of cases from neighbouring Borno State in Nigeria, which reported only 34 cases in 2003. The Nigerian villages bordering Cameroon that had previously exported cases to Cameroon were free of dracunculiasis transmission in 2003.

Chad

Chad reported the highest number of dracunculiasis cases (1213 cases) in 1992. The number of cases declined rapidly thereafter, reaching 25 cases in 1997 and only 3 cases in 1998. Chad has consistently reported zero incidence of dracunculiasis since October 1998 and was considered to be in the three-year precertification period. However, an external evaluation in February 2001 showed that 3 dracunculiasis cases had occurred in Oueleye village (Guera Prefecture) during August and September 2000. All 3 cases were recorded by the village health worker, confirmed by the supervisor and contained. Because the area was isolated during the rainy season, the cases were only reported to the responsible district officer in October 2000. No cases were reported in 2001, 2002 and 2003. In 2001 a total, of 125 formerly endemic villages were under surveillance.

In 2003, WHO supported a case search in areas that, for security reasons, could not be surveyed previously. These are the prefectures of Bathia in the centre of the country,
Biltine in the east and Logone Oriental in the south. During this survey, 1678 villages were investigated for the presence of dracunculiasis (Bathia, 496; Biltine, 508; Logone Oriental, 674). No dracunculiasis cases were reported in the three prefectures.

The prefectures of Borkou, Ennedi and Tibesti form the extreme north of the country, a Saharan area that is almost a desert. The population density of this zone is 0.14 inhabitants per km² and is unlikely to be at risk of reintroducing dracunculiasis.

There has been a recent influx of approximately 150 000 refugees from Sudan into the north-eastern part of Chad, more specifically in the localities of Adré, Tinné and Tissi. While it seems likely that most of the refugees come from two states in Sudan (North Darfur and South Darfur), these states are not highly endemic. In 2003, 7 cases were reported from North Darfur, all of them imported from endemic states within Sudan. In South Darfur, 12 cases occurred in 2003; only 5 were indigenous. Although there seems to be a very limited risk of exportation of cases to Chad, a surveillance system is being designed and will be supported by WHO. It should be effective in April 2004.

Kenya

Kenya reported the last indigenous cases in October 1994, which were confined to the north-west of the country in West Pokot and Turkana districts bordering Uganda and Sudan respectively. In the following years, only imported cases were reported, mainly from Sudan. Kenya was due to be considered for certification but, given the influx of about 1000 refugees per month from southern Sudan and the continuous population movement from neighbouring endemic countries (Ethiopia and Uganda), the country is vulnerable to reintroduction of the disease.

With the prospect of peace in Sudan, refugees may return to areas of the country where transmission is still continuing. WHO is therefore launching a training programme targeting the refugee populations that are currently in Ethiopia, Kenya and Uganda in order to raise awareness of dracunculiasis, educate people and introduce methods of prevention.

Senegal and Yemen have completed their precertification period. Both countries are reviewed separately and in detail below, as they have applied for certification.
Table 1 shows the annual number of dracunculiasis cases reported globally from 1989 to 2003.

Table 1. Number of dracunculiasis cases reported by endemic countries and countries in precertification stage, 1989–2003

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<td>63,717</td>
<td>54,638</td>
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\(^1\) CAR denotes Central African Republic.
V. Review of countries applying for certification

Yemen

Dracunculiasis was widespread in Yemen during the first half of the 20th century and even earlier, as indicated by Lindberg in 1950. Dracunculiasis cases among immigrants to Saudi Arabia were recorded during the 1960s–1980s, but no cases were officially reported in Yemen. The disease was rediscovered in areas in Amran, Dhamar, Ibb and Taiz governorates in 1994. Surveillance and interventions were introduced in those areas, resulting in a decline in the number of cases. The last cases were reported in September 1997, when Yemen began its three-year precertification period. Rumours of cases, recorded in 1999 but not investigated immediately, shed doubts on the assertion of interruption of transmission and delayed the certification process. WHO strengthened its support to the programme in the following years, and all of the recorded rumours of cases were found not to be dracunculiasis cases.

In December 2003, the International Certification Team (ICT) visited Yemen to prepare a report for the certification of eradication. Almost all formerly endemic and at-risk areas were visited from 2 to 8 December 2003 by three teams. A checklist was used for governorate and district levels and questionnaires for interviewing 529 people, mostly male farmers.

All those interviewed had not seen a dracunculiasis case during the three years before the date of interview. About 50% of informants had seen a dracunculiasis case 10–30 years ago; approximately 54% knew about the reward for reporting a case, of whom half recalled the exact amount of the reward.

On the basis of these findings, and despite inadequacies in surveillance and rumour registration, ICT members took into consideration the high amount of the reward for reporting a case (about US$ 500) and the absence of any proven rumour of cases. The ICT believes that Yemen has been free of dracunculiasis transmission for the past three years. Furthermore, there is no evidence of risk reintroducing the disease from the African continent.

The Commission raised a number of questions about the country report. Clarifications were provided by e-mail during the meeting. The Commission granted certification because the ICT was convinced during their mission that dracunculiasis transmission had been interrupted. However, it requested that Yemen integrate dracunculiasis surveillance into its national disease surveillance as soon as possible and to continue surveillance until eradication is declared.

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1 Lindberg, K. (1950) La dracunculose en Asie, particulièrement au Moyen-Orient, avec liste des cyclopides recueillis dans des régions endémiques, Revue du Paludisme et de Médecine Tropical, 8: (1, 87-11)
Senegal

Dracunculiasis has been endemic in Senegal since at least the 18th century. The disease was first distributed in foci throughout the country, but during the past 15 years it has been limited to the eastern part of Senegal, along the Falémé river and in the Kédougou area. The disease disappeared from the central and northern areas of the country with the general provision of safe drinking-water from drilling in the 1960s. The disappearance of the disease in this area was confirmed before the establishment of the national Guinea Worm Eradication Programme. The search for endemic villages in 1991, supplemented in 1993, made possible confirmation that the residual focus was limited to eastern Senegal only. The establishment of the national programme and intersectoral collaboration made possible removal of the last dracunculiasis focus in Senegal.

During the survey undertaken by the ICT in the field, 593 people were interviewed; none had seen a dracunculiasis case within the four years preceding the investigation. Most people knew about the disease, and some even had it. The average age of people who saw a patient with a worm or those who had had the disease was higher than that of people who had never seen the worm. This indicates that the disease is better known by older people and that the younger generations, who were less or not exposed to the disease, knew less or nothing about it.

The development of a programme for drilling and installing manual pumps for the supply of potable water to isolated populations was crucial for the interruption of transmission. In addition, there have been individual initiatives for digging and protecting wells in areas that are extremely difficult to access.

The surveillance system for dracunculiasis is specific to the programme and rests on the active search for cases at community level. With the disappearance of the disease, monitoring will be integrated in the new surveillance system that is being set up in Senegal. However, as for the polio eradication programme, specific monitoring of the disease will continue until the end of the programme. In the non-endemic zones, dracunculiasis must be notified through the national health information system until eradication is declared. It is therefore likely that if a dracunculiasis case were to occur, it would not pass through the surveillance net.

The Commission accepted the ICT report and recommended that Senegal be certified free of indigenous transmission. However, it recommended the continuation of active and passive community-based, integrated surveillance until eradication is declared. The Commission also recommended that provision of safe drinking-water be extended and that existing water facilities be well maintained.
Guinea-Bissau and Gambia

There has been no evidence of local dracunculiasis transmission in Guinea-Bissau or Gambia for 30 years. The Commission accepted the ICT reports and recommended certification of interruption of transmission.

Sierra Leone

The Commission recommended that further searches be undertaken for evidence of transmission of *Dracunculus medinensis* in Sierra Leone during the past 50 years. On the basis of the findings, it will be decided whether an additional epidemiological investigation should be carried out or not.

VI. Countries without a history of dracunculiasis transmission

African Region

The following eight countries were reviewed and certified on the basis of documents provided by their respective ministries of health: Cape Verde, Comoros, Congo, Equatorial Guinea, Madagascar, Mauritius, Rwanda, Sao Tome and Principe.

The Democratic Republic of the Congo was not certified. The Commission requested that a search be undertaken for historical foci and that verification be carried out through existing health programmes to ascertain the absence of dracunculiasis transmission in areas bordering endemic countries.

Eastern Mediterranean Region

The West-Bank and Gaza Strip was certified.

Afghanistan should be visited by the ICT team.

Djibouti, Eritrea and Somalia should be reviewed for certification separately from Ethiopia.

Region of the Americas

Uruguay was certified after it provided information on water supplies.

The Secretariat will approach the Netherlands for clarification of the situation in Bonaire and Curaçao.

European Region

Israel, Serbia and Montenegro and The former Yugoslav Republic of Macedonia were certified.
VII. Recommendations

The Commission made the following conclusions recommendations.

Conclusions

1. Progress towards dracunculiasis eradication has been reflected by a reduction of some 99% since the programme was instituted.

2. The leadership of WHO, the role of The Carter Center and of UNICEF as well as other organizations and country programmes is commendable.

3. To date, some 168 countries have been certified free of dracunculiasis transmission. The disease is endemic in only 12 countries, all in the African continent. All other geographical regions are free of transmission. Only 12 countries remain endemic, of which 75% of cases are in Sudan.

4. The work of WHO and other partners in this very significant public health achievement is to be commended. However, it is recognized that, as for other diseases with targets for eradication, a requirement exists for a proportional increase in resources as the number of cases detected declines, in term of cost per case identified. This will require strengthening of dracunculiasis eradication and elimination capability at WHO headquarters, regional offices in the African and Eastern Mediterranean regions, in endemic countries and in other countries undergoing certification.

5. The Commission recognizes that WHO has identified specific epidemiological issues that needed to be addressed in a transnational approach through enhanced intercountry liaison. It recognized the following examples of cross-border issues:

- Burkina Faso, Mali and Niger, which have nomadic populations moving across the borders.

- the uncertain epidemiological status of Liberia, Sierra Leone and the possible importation of cases from Ghana, which harbours large numbers of refugees;

- those countries bordering Sudan that have common problems as a result of migration, resettlement and limited surveillance capacity;

- Benin, Ghana, Nigeria and Togo, which may have migrations of populations between countries.

Recommendations

1. Countries that have recently interrupted dracunculiasis transmission should continue surveillance. Diagnosis of the disease should be kept on the curricula and training programmes of junior doctors.
2. In reiteration of previous recommendations, continued efforts should be made to develop diagnostic tools for the discrimination of *D. medinensis* from animal species. In particular, efforts should be made to finalize the genomic sequencing.

3. Good progress has been achieved in reducing the number of cases in most remaining endemic countries. However, the last cases will require additional efforts to interrupt transmission. It is strongly recommended that appropriate human resources and funds be made available for WHO to fulfil its mandate as the sole body able to certify countries.

4. All countries that have recently interrupted dracunculiasis transmission should integrate surveillance of dracunculiasis in the national disease surveillance system.

5. Partners engaged in dracunculiasis eradication should remain proactive under the WHO umbrella until eradication is achieved.

6. Strong advocacy should be maintained. A field visit by the Director-General of WHO should be encouraged, particularly when the number of dracunculiasis cases becomes very low.

7. Border meetings should be encouraged to tackle the risk of imported cases.

8. Dracunculiasis should be included on the agenda of the annual meeting of the Ministry of Health of Sudan in Khartoum.

9. The national programme in Kenya should be urged to strengthen surveillance and eradication activities in formerly endemic areas, particularly along its border with Sudan and the northern border with Uganda.

10. Epidemiological research into the basic reproductive rate of guinea worms should be encouraged.

11. The Commission strongly recommends that increased human and other resources be provided by WHO and collaborating partners to fulfil mandates and requirements to certify countries successfully after transmission is interrupted.

12. Wherever possible, national or international staff working on poliomyelitis eradication in the field should be involved in dracunculiasis surveillance.

13. Resources for the Guinea Worm Eradication Programme should be increased because the last cases will require additional efforts at an extra cost.
ANNEXES
Annex 1. Map of countries, territories and areas certified free of dracunculiasis transmission by March 2000
Annex 2. Agenda

FIFTH MEETING OF THE INTERNATIONAL COMMISSION FOR THE CERTIFICATION OF DRACUNCULIASIS ERADICATION
WHO headquarters, Geneva, Switzerland, 9–11 March 2004, Room M205

Tuesday, 9 March 2004

08:30 Registration

09:00 Opening of the meeting

Appointment of the Vice-Chairman and Rapporteur

Adoption of the Agenda

Adoption of the report and recommendations of the fourth ICCDE meeting


09:30 II. State of the art of dracunculiasis epidemiological situation in endemic countries with no more than 100 cases

Dr J. Maguire

10:00 III. Progress report on certification of dracunculiasis eradication

Dr M. Karam

Docs: Programme Report on countries with fewer than 100 cases and countries in the precertification stage

Rapport de mission conjointe d'évaluation du programme d'éradication de la dracunculose au Tchad (CDS/CPE/CEE/2001.25)

Évaluation du programme national d'éradication du ver de Guinée au Cameroun (CDS/CPE/CEE/2000.8)

10:30 Tea/coffee break

11:00 IV Certification of countries that have claimed interruption of transmission

Yemen


12:30 Lunch
IV. Certification of countries that have claimed interruption of transmission (cont’d)

Senegal

Docs:  
ICT report – French  
Country report – French  
ICT report – English (résumé)  
Country report – French

Guinea-Bissau

Doc:  ICT report

Gambia

Doc:  Report of a survey

Sierra Leone

Doc:  Report

15:30 Tea/coffee break

16:00 V. Certification of countries submitting a declaration of dracunculiasis-free status

African Region

Cape Verde Islands
Comores
Congo
Rwanda

Dr O. Doumbo
Dr M. Karam
Dr A. Prata
Dr M. Karam
Dr F. Wurapa/
Ms M. Mwangola
Dr A. Maiga
Wednesday, 10 March 2004

08:30 V. Certification of countries submitting a declaration of dracunculiasis-free status

African Region (cont'd) Dr A. Maiga
Equatorial Guinea
Madagascar
Democratic Republic of the Congo

10:30 Tea/coffee break

11:00 V. Certification of countries submitting a declaration of dracunculiasis-free status

African Region (cont'd) Dr A. Maiga
Mauritius
Sao Tome and Principe

Discussion and recommendations

12:30 Lunch

14:00 V. Certification of countries submitting a declaration of dracunculiasis-free status

Eastern Mediterranean Region Dr Z. Hallaj
Introduction
West Bank and Gaza Strip

Discussion and recommendations

15:30 Tea/coffee break

16:00 V. Certification of countries submitting a declaration of dracunculiasis-free status

Region of the Americas Dr M. Karam
Uruguay
Bonaire
Curaçao

Discussion and recommendations
Thursday, 11 March 2004

08:30 V. Certification of countries submitting a declaration of dracunculiasis-free status

European Region

Serbia and Montenegro
Israel
The former Yugoslav Republic of Macedonia

Discussions and recommendations

10:30 Tea/coffee break

11:00 Recommendations to the Director-General

11:30 Other business

12:00 Closure
Annex 3.  List of participants

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* Invited but unable to attend.
Annex 4. Chairman's letter to the Director-General of WHO

WORLD HEALTH ORGANIZATION

Dr LEE Jong-wook
Director-General
World Health Organization
Geneva

11 March 2004

Dear Dr Lee,

I should like to inform you that the documents submitted to the Fifth International Commission for the Certification of Draconelasis Eradication (ICCDES), which met in Geneva from 9 to 11 March 2004, have been examined by the Commission.

I now submit for your consideration, the decision of the Commission.

With best regards.

Yours sincerely,

[Signature]

Dr A.-R. Al-Awadi
Chairman
International Commission for
The Certification of Draconelasis Eradication.
Annex 5. Countries and territories certified free of dracunculiasis transmission at ICCDE5

RECOMMENDATION OF THE FIFTH MEETING OF THE INTERNATIONAL COMMISSION FOR THE CERTIFICATION OF DRACUNCU LISIASIS ERADICATION

Based on careful examination of the evidence and in accordance with the established criteria, the Fifth Meeting of the International Commission for the Certification of Dracunculiasis Eradication recommends that:

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are certified by WHO’s Director-General as being free of dracunculiasis transmission. This recommendation is based on the Commission’s findings at its meeting from 9 to 11 March 2004 that these countries fulfilled the requirements for certification.

For the International Commission for Certification of Dracunculiasis Eradication:  
Approved by:

Dr. Abdul Rahman Al-Awadi  
Chairman

Dr. Lee Jong-wook  
Director-General

Dated at Geneva  
11 March 2004  
Dated at Geneva  
31 March 2004