

CASE CONTAINMENT STRATEGY FOR ERADICATION OF DRACUNCULIASIS IN AFRICA



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1. Introduction.

- 1.1 Complete and rapid interruption of all transmission of dracunculiasis ("zero cases") will require that all national eradication programs implement a case-containment strategy in all endemic villages as soon as possible. In 1991, the World Health Assembly declared its commitment to the goal of eradicating dracunculiasis by the end of 1995, this being technically feasible given appropriate political, social and economic support. As of September 1994, of the 16 national Guinea Worm Eradication Programs in Africa, only a handful have begun to implement case containment. In Asia, India and Pakistan have both done so.
- 1.2 There is no drug or vaccine to treat or prevent infection and thereby prevent transmission, and each worm which emerges but is not detected risks the possibility of new infections a year later, as a result. During the last stage of development of a dracunculiasis eradication program, it is essential to develop capacity at the village level to detect all infected persons very rapidly and to manage each patient so as to prevent infection of others in the community.
- 1.3 It is no less essential to ensure that the necessary measures at village level for case containment are being taken reliably, and in a timely and effective fashion. This requires regular and frequent supervision and support of the activities in each endemic village, and monitoring of the program at every level. It also requires an intense nationwide public awareness campaign, using all available means to disseminate information about the eradication campaign to mobilise everyone.
- 1.4 This paper summarises relevant information regarding the case-containment strategy for eradication of dracunculiasis, to make it more conveniently available to leaders of national and regional dracunculiasis eradication programs at this critical juncture in the global campaign.

2. Definitions.

- 2.1 Case containment in dracunculiasis eradication is the process of completely preventing transmission of dracunculiasis from an infected individual (called for purposes of convenience a case) to other persons.
- 2.2 Case-containment strategy is a systematic plan to detect cases of dracunculiasis rapidly (preferably before worm emergence) in each affected village and immediately contain each case to eliminate the possibility of further transmission.

3. Measures to be taken by the Village Health Worker (VHW).

- 3.1 Effective case containment depends on measures taken by the VHWs and by their supervisors. The list of measures which follows is intended to convey the essential tasks involved in case containment, not as a manual for VHWs. Each national program needs to produce its own manuals, adapted to local conditions and strategy, for VHWs as for other program workers.
- 3.2 Establish arrangements to ensure that all cases can be consistently detected very quickly, preferably before worm emergence. In practice, this means that patients, their relatives and their neighbours should be motivated to come and report to the VHW spontaneously. Continued active surveillance by the VHW will assist this.

- 3.3 Interview each patient to assess whether the individual may already have contaminated any source of drinking water, so that preventive measures can be taken. The patient and members of the household should also be educated during the interview to ensure that the patient does not enter water sources while the worm is emerging.
- 3.4 Treat the patient (see Appendix 1). The offer of free treatment is an important motive for self-reporting of cases, especially if it is relatively painless and helps to promote rapid emergence of the worm. It also helps to prevent transmission and infection of the wound.
- 3.5 Mobilise the community to undertake appropriate preventive measures such as preventing entry of cases into drinking water sources, using safe sources (where available) for collection of drinking water, or filtering copepods out of unsafe drinking water. The community should be informed of cases detected and contained during each month, and of any water sources which they may have contaminated. (Publications giving details of health education and mobilization strategies are listed in Appendix 6.)
- 3.6 Ensure that all households in the village have cloth filters in good condition, if appropriate, and know how to use and maintain them.
- 3.7 Fill out the appropriate case containment form (see examples in Appendix 4).
- 3.8 Report the occurrence of each case to supervisors as rapidly as possible, to permit confirmation of the case, verification of containment, and further action.
- 4. Measures to be taken by the supervisor during village visits.**
 - 4.1 Check the information recorded in the village case register and any additional case containment form.
 - 4.2 Confirm the diagnosis of all cases if possible, and verify whether they have been successfully contained. Collect, review and record travel histories. A form for reporting of cases from other countries is given in Appendix 5; similar forms can be used to report cases imported from other regions. The supervisor should also correct any deficiencies discovered during the confirmation of the case and its containment.
 - 4.3 Observe and support health education given by the VHW, to cases and/or at public meetings. If possible, organise a public health education session during the visit, to publicise recent case detection and potentially contaminated sources.
 - 4.4 Check and replenish the VHW's stock of cloth filters and medical supplies.
 - 4.5 If appropriate, pay rewards due to cases and those who have reported them.
 - 4.6 If appropriate, arrange for treatment of potentially contaminated drinking water sources with Abate.
 - 4.7 Report cases and their containment to district level for further action, and if appropriate refer cases for surgical extraction.
- 5. Supplementary measures from district level.**
 - 5.1 Offer cases medical care to prevent or treat secondary infection or to facilitate worm extraction as an incentive for early case reporting, as resources permit. Surgical extraction may also be offered, as long as staff are available who have been trained to do it safely and painlessly, and also tetanus immunization.

- 5.2 Treat sources of drinking water with Abate if they may be contaminated by cases, beginning within 7 days after contamination possibly occurred, and every four weeks thereafter.
- 5.3 Offer rewards (cash or in kind) to persons who report cases, who have the disease themselves, and/or who notify program representatives in time for case containment to be carried out, and/or who comply with containment procedures, as possible and appropriate. Rewards may also be offered to whole communities which report and contain all their cases.
6. Operational requirements.
- 6.1 There may be variations in how containment is carried out in an individual program or in individual cases, but two operational requirements guide effective case containment:
- ▶ each new case must be detected quickly (before or within 24 hours of worm emergence); and
 - ▶ each case must be contained immediately and so completely that there is no possibility of transmission to other persons.
- For any program to have a reasonable expectation of meeting these requirements a solid foundation must be in place; at a minimum all endemic communities must be known and appropriately trained village health workers must be available for each of these communities.
- 6.2 VHWs will not carry out case containment effectively and reliably unless they are regularly supervised. In practice, full case containment cannot be assured unless they are visited at least once a week; this frequency also allows the supervisor to treat potentially contaminated water sources in time to prevent transmission. A system to provide regular supervision, feedback to village level of the program's performance, and monitoring of the program at all levels is essential, but usually accounts for most of the cost of a Dracunculiasis eradication program. The intensity with which this supervision can be provided will depend on the terrain, on the resources available, on the number of endemic villages and cases, and on other factors.
7. Increasing intensity of supervision.
- 7.1 In some districts, the resources available for dracunculiasis eradication (such as funds, vehicles and staff) do not enable supervisors to visit each endemic village more frequently than once a month. Even in such conditions, it is feasible to implement a strategy involving some containment measures carried out by the village health worker (see Section 3 above). This cannot be called fully-fledged case containment, but is referred to here as "Intensified Case Management".
- 7.2 In districts where more resources are available or can be obtained, or when the number of endemic villages in a district is smaller, it should become possible to increase the frequency of supervisory visits by each VHW's supervisor to at least once a week. The supervisor can then personally confirm the diagnosis and containment of each case reported, and take remedial measures if appropriate, such as Abate treatment of water sources. There would also be more frequent monitoring visits to each village by the supervisor at district level, possibly a medical officer. This is referred to below as "case containment".
- 7.3 When only small numbers of cases remain, and the available resources can be concentrated on a few endemic villages, the case-containment strategy can be intensified to a level where the VHW reports all cases to the supervisor within 48 hours, for immediate confirmation of the diagnosis and the containment measures. This is termed "intensified case containment".
- 7.4 Suggested guidelines, and an outline of the resources required, for each of these three levels of intensity

of supervision are given below. Countries must decide which level is appropriate in accordance with the resources available to them and the number of cases and endemic villages in each district. However, the choice for each district should be part of a coordinated national strategy. For example, there is not much sense in investing heavily in a full case-containment strategy in a few low-incidence districts, when other districts in the area still have hundreds of cases and have not even achieved the regular monthly supervisory visits which are essential to Intensified Case Management. Priority in resource allocation should go to the most endemic regions and districts.

- 7.5 However, it takes time to develop the detailed strategy appropriate to each region and to gain experience of implementing it on the ground. For that reason, all endemic countries should aim to implement case containment as soon as possible, in all areas where it can be done without diverting supervisory and financial resources to the detriment of the program in the more highly endemic parts of the country. Certainly it should already be possible to implement at least Intensified Case Management in most of the endemic districts of Africa.
- 7.6 A number of countries have endemic districts or regions where circumstances are especially difficult, due to civil strife, inaccessible terrain, or very great distances. Monthly visits may not always be feasible in such areas, and special strategies for case containment are needed. These are likely to involve decentralisation of supervision to local level.
- 7.7 Table 1 outlines how the case-containment strategy differs from the strategy employed earlier in a typical national dracunculiasis eradication program. **The most important difference between the two strategies is the need during case containment to respond to each detected case as an urgent medical emergency in order to achieve the greater effectiveness of control measures which that strategy requires.**

8. Supporting elements.

- 8.1 As already mentioned (paragraph 1.3), a national case-containment strategy must include an intense nationwide public awareness campaign, using all available means to disseminate information about the eradication campaign with the intent of mobilizing everyone. Key messages should cover the following points:
 - ▶ the individual's role in preventing transmission, i.e. filter all drinking water, do not contaminate sources of drinking water, prevent other persons with Guinea worm lesions from contaminating sources of drinking water, and
 - ▶ procedures for containment of cases, including rewards for reporting (if appropriate).
- 8.2 Indeed, the awareness campaign is all the more important when the number of endemic villages and cases is small. When intense supervision is focussed on the few endemic villages which remain, the danger, and the harmful consequences of a case arising in a previously non-endemic village and not being adequately contained, are far greater. Awareness among the public at large is essential to rapid detection and effective containment of such cases.
- 8.3 Efficient functioning of the other elements of a basic Guinea worm eradication program becomes even more necessary when a case-containment strategy is implemented. These include:
 - ▶ Regular monitoring and timely supervision of the activities of the village health worker. Forms and checklists are powerful managerial tools to ensure this, though they should only include the minimal necessary information that will be used (See Appendix 4).
 - ▶ Liaison with the national water sector to provide safe drinking water to as many villages with endemic disease as possible, particularly villages with large numbers of cases.
 - ▶ Compulsory notification of cases of dracunculiasis by all primary health care posts, health centres,

hospitals etc.

9. Standards for case containment.

- 9.1 Table 2 shows the conditions which are probably required for effective implementation of a case-containment strategy at each level of supervision intensity without massive additional resources. Note that an important precondition, and also a standard to be maintained by the program, is that there should not be more than 500 people per VHW, and that each supervisor should not be responsible for more than 20 VHWs, and preferably less than 10.
- 9.2 Table 2 also shows the essential standards applicable to the implementation of case containment with supervision at each level. These are minimum standards, and programs should aim to exceed them where conditions and resources permit.
- 9.3 An outline of the personnel and material resources required for each level of supervision is given in Table 3. The requirements are similar in spite of the progressive increase in the intensity of supervision from one level to another, because at each level the resources can be focused on a smaller number of cases and endemic villages.
- 9.4 Appendix 2 illustrates the working of the Intensified Case Management strategy in further detail. Each country needs to work out its own strategy, at the level appropriate to each district, in similar detail. Examples of the development of case-containment strategies in individual countries are given in Appendix 3. Appendix 4 gives examples of some of the forms used in case containment and for monitoring. These would need to be adapted to local conditions before application in other countries.

10. Standards for supplementary interventions.

- 10.1 If Abate is used in response to reporting of specific cases (as in full case containment), it should be applied within 7 days of worm emergence to any source of drinking water that may have been or may yet be contaminated by the case. The timing is within the period required to kill copepods that may have been infected from the first day of worm emergence. After the first treatment, Abate should be reapplied every 30 days throughout the transmission season. The persons who apply Abate should be trained to do so in accordance with the appropriate guidelines and their work should be monitored regularly. Village workers involved with other aspects of case containment should not be expected to apply Abate.
- 10.2 If cash rewards are offered as an incentive for case detection, at least 80% of household heads in the area (not only in the known endemic villages) should be aware of the reward offer, and rewards should be paid immediately on confirmation of a case. Reward incentives can strengthen case detection (and compliance with containment measures) but they will not be effective unless they are widely advertised and understood. A reward that is not large enough to encourage some attempts at cheating is not enough to be effective, so that careful case confirmation is required. Rewards to whole communities are ethically preferable and may be more effective in promoting containment.
- 10.3 If surgical extraction is offered to strengthen case detection and containment, trained and well supervised technicians should be employed so that cases will have access to a safe extraction procedure, without charge, either on demand at a health centre or by a mobile team visiting every endemic village no less often than fortnightly. This potentially powerful tool should be closely monitored to assess safety and prevent abuses. If it acquires a reputation as a painful procedure, patients will not seek it and it will not help the program.

11. Monitoring.

11.1 Programs should monitor each month:

- 1) the proportion of all cases reported that month which were successfully contained;
- 2) the proportion of endemic villages under case containment; and
- 3) the proportion of endemic villages under intensified case management.

Table 1: Differences in standards under the basic and the case-containment strategy

Activity	Basic eradication strategy	Case-containment
Case detection	Village-based. Enumeration of cases each month.	Village-based detection before or within emergence of the
Case confirmation	Occasionally by supervisor of VHW during monitoring.	Each case and its confirmed by the next supervision
Case recording and reporting	Case registers, monthly.	Details of whether contained. For further the reporting is v
Travel history	Only in villages reporting few cases to check if cases are imported or indigenous (i.e. if villages had cases last year).	Ascertain whether contaminated water worm emergence containment, not their area (or country)
Case management	Medical care for individuals if available.	Immersion and discourage transmission incentive for self Appendix 1).
Health education	Periodically, for the village.	Immediate education family regarding contamination of community, given cases detected and potentially contaminated
Cloth filters	Distribution to all affected villages without safe water, once before each transmission season.	Immediate check appropriate and, distribute to all affected village(s)
Vector control	Abate applied in selected sources of drinking water once per month.	Abate applied, if days of worm emergence water potentially patient; and monitoring
Rewards/awards	Not appropriate, except to exemplary program staff and VHWs.	Highly recommended intensified case containment



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