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 strategies of eradication.

Activity	Basic eradication strategy	Case-containment strategy
Case detection	Village-based. Enumeration of cases each month.	Village-based detection of each case before or within 24 hours of the emergence of the Guinea worm.
Case confirmation	Occasionally by supervisor of VHW during monitoring.	Each case and its containment must be confirmed by the supervisor on the next supervision visit.
Case recording and reporting	Case registers, monthly.	Details of whether each case is contained. For full case contaiment, the reporting is within 7 days.
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 patient may have contaminated water sources since worm emergence. For full case containment, notify imported cases to their area (or country) of origin.
Case management	Medical care for individuals if available.	Immersion and occlusive bandaging to discourage transmission, and as an incentive for self-reporting (see Appendix 1).
Health education	Periodically, for the village.	Immediate education of the patient and family regarding prevention of contamination of water. Education of community, giving information on cases detected recently, and sources potentially contaminated by them.
Cloth filters	Distribution to all affected villages without safe water, once before each transmission season.	Immediate check of availability if appropriate and, if not available, distribute to all households in the affected village(s).
Vector control	Abate applied in selected sources of drinking water once per month.	Abate applied, if appropriate, within 7 days of worm emergence in sources of water potentially contaminated by the patient; and monthly thereafter.
Rewards/awards	Not appropriate, except to exemplary program staff and VHWs.	Highly recommended, especially in intensified case containment.

Table 2: **Conditions probably required, and guideline values for effective implementation of case-containment with supervision at each level of intensity.**

	Intensified case management	Case containment	Intensified case containment
Required conditions (Each is a maximum) Endemic villages	30	10	6-7
Cases/village/month (Peak month; most endemic village)	30	12	4-5
Cases/village/year (Most endemic village)	100	35	16
Cases/district/year	1000	350	100
Population per VHW	500	500	500
VHWs per supervisor	20 (preferably 10)	4	3
Guidelines/standards: Case detection time	24 hours	24 hours	24 hours
Reporting time to supervisor	30 days (supervisor's visit)	7 days (supervisor's visit)	2 days (VHW reports)
Case confirmation	sample of cases	all cases, by VHW's supervisor	all cases, by district staff
Frequency (or max. response time) of visits by supervisor to end. village	30 days	7 days	per case, within 3 days
Frequency of district coordinator visits - to each supervisor - to each endemic village	30 days 180 days	30 days 60 days	per case per case

Table 3: Likely resource requirements for implementation of case-containment strategy at each level of supervision.

	Intensified Case Management	Case Containment	Intensified Case Containment
VHW Tasks Personnel Equipment/transport	Detect & contain cases; 1 per village (up to 500 pop.) first aid kit.	Detect and contain cases; 1 per village (up to 500 pop.); first aid kit.	Detect, contain and report cases; 1 per village (up to 500 pop.); bicycle, kit.
Supervisor Tasks Personnel Equipment/transport	Supervise VHW monthly; 1 part-time for 10 VHWs; bicycle or motorbike each.	Supervise VHW weekly; 15-25 supervisor days/month/district; bicycle or motorbike each.	Confirm all cases; 10-20 supervisor days/month/district; bicycle or motorbike each.
District Tasks Personnel Equipment/transport	Monthly supervisors' meeting, visit 5 villages/month; 2-3 person-days/month; car or pickup truck (part-time).	Monthly supervisors' meetine, visit 5 villages/month; 5-6 person-days/month; car or pickup truck (part-time)	Monthly supervisors' meeting, visit villages weekly, confirm all cases; dedicated GW worker; car or pickup truck (full-time)
Regional Tasks Personnel Equipment/transport	Supervision, monitoring, and evaluation; data feedback. full-time GW worker; car.	As for Intensified Case Management; full-time GW worker; car.	As for Intensified Case Management; full-time GW worker; car.
National	As required for monitoring, evaluation and an intense nationwide public awareness campaign.		

APPENDIX 1: TREATMENT OF DRACUNCULIASIS CASES

The treatment of Guinea worm patients is an essential component of case containment strategy, for the following reasons.

- The offer of treatment is an important factor in motivating patients to report to the VHW;
- The provision of care is rewarding to the VHW, and helps to ensure better case reporting;
- The reduction or elimination of secondary infections by this means reduces the incidence and duration of disability due to guinea worm;
- In endemic communities, a person with an emergent worm is often not considered to be sick. If the site of emergence of the worm is not such as to prevent the person from going about, the patient will continue "almost normally" with their daily activities, which will tend to spread the infection. The application of a bandage transforms the patient into a "sick person", who will be more likely to be looked after by their family and less likely to contaminate water sources.

THE DIFFERENT STAGES OF INTERVENTION

There are no "miracle remedies" for Guinea worm disease, and each national or regional coordinator will need to adapt the treatment offered to suit the means and skills available. Not all existing traditional practices should be rejected; rather, the work of traditional healers should be adapted and completed so that "modern" methods can be incorporated into the existing systems providing care.

1. Before emergence of the worm.

A few days before the formation of the blister which precedes the emergence of the worm, one is aware of the movement of the worm beneath the skin. This is the only stage at which surgical extraction of the worm may be attempted. This technique, developed by an ayurvedic practitioner, has given positive results in Rajasthan, India, and in Ghana; however, it is **not recommended** for application on a wide scale because it requires great skill and there is a high risk of breaking the worm in the process, with serious consequences for the patient; pain, and possible secondary infection. On the other hand, the application of wet compresses and medication (paracetamol) for the reduction of inflammation, fever and pain are recommended.

2. When the blister bursts.

In the middle of the ulcer formed when the blister bursts, something white can be seen; this is the front of the worm. Take hold of it and pull very gently. The first few centimetres come easily, as the worm stretches. As soon as one encounters any resistance or the patient shows signs of pain, **stop immediately** and roll the protruding part of the worm around a small stick such as a matchstick. This is known as the "traditional method", and is highly recommended. The worm should be wound around a stick because otherwise it tends to be pulled back into the wound. Antibiotic ointment applied to the open lesion will help to prevent the risk of secondary infection.

- Although it is not on the list of essential drugs, Chlortetracycline 3% skin ointment, Aureomycin®, is most commonly used in French speaking African countries, where it costs about US$ 0.40¢ for a 15g tube. One can also use ophthalmic ointment with 1% or 3% in tubes of 5g at 15¢ each. Other ointments may also be used; Oxytetracycline, Tetracycline-Polymixine (tried successfully by the Danish Bilharziasis Laboratory in Ghana) and Neomycin(5mg)-Bacitracin(500IU).

After application of the ointment, cover with a compress and protect with a gauze band (occlusive bandage). This should be repeated until the worm is completely removed. It is easy to know when the last part of the worm is removed, as its end is hook-shaped. Depending on the worm's path, the worm can sometimes be extracted all at once. However, this is exceptional and usually it is necessary to repeat the operation several times, over a number of days.

In the Nigerian programme, it is recommended that the lesion should be immersed in a bucket of clean water for 10 minutes to 1-2 hours, to encourage the release of larvae by the worm and so render the patient less infectious. It is also held to facilitate removal of the worm, but others have claimed that the immersion can be painful and that immersion increases the risk of breaking the worm as it becomes more fragile after expulsion of its larvae.

Some traditional treatments are valuable, but others are disastrous. Cauterisation with red-hot iron, and the application of poultices which can cause serious secondary infections, are definitely not recommended.

3. Secondary infection.

If preventive measures are not taken, roughly half of all guinea worm cases are complicated by secondary infection. These can be dramatic: phagedenic ulcers and abscesses. Tetanus, however, is relatively rare, but can be fatal.

The first measure is to clean the wound and remove necrotic tissue. If it is dirty, the wound should be cleaned with soap and clean water, and then rinsed to remove all traces of soap. One of several antiseptics can then be used:

- Iodised polyvidone (IPV) or Betadine® or Isobetadine®: antiseptic and disinfectant, concentrated solution of 10% IPV in 200 ml bottles at $1.80 each. Use after dilution (1 part of 10% solution to 3 parts water); can be kept for up to a week.

- Chlorexidine + Cetrimide or HAC® or Savlon®: an antiseptic with a detergent. Concentrated solution of 1.5% chlorexidine and 15% cetrimide, bottle of 1 litre for $ 4.00. Dilute before use (20 ml of concentrate to 1 litre of water); can be kept for up to a week.

- Chloramine, or Chloramine T, or Sodium tosylchloramide or Clonazone® or Hydroclonazone®: these are antiseptic and disinfectant, in powder or tablets of 250mg, 500mg or 1g. Tablets of 500mg cost US$ 11 for 1000. The antiseptic solution at 5g per litre can be kept for up to a week. This solution is particularly recommended by phagedenic ulcers.

- Methylrosalinium chloride or gentian violet, or crystal violet: antifungal, antiseptic, drying (?). Solution at 0,5% (5g of powder per litre); 25g of powder costs $2.60, and the solution can be kept for up to a week.

Once the wound has been disinfected, one of the following can be applied:

- Vaseline with 10% zinc oxide; astringent, antipruritic, to be applied two or three times daily; one tube costs $1.30.

- Antibiotic ointment (see above). The antibiotic ointment for dermatological application is not generally recommended, as it can lead to the development of resistance. However, its systematic use for cases of emerging guinea worm has given excellent results. Its use depends on the pharmaceutical policy of the country concerned.

Then apply an occlusive bandage.

In the case of serious and extensive secondary infections, antibiotic medication should be given orally and the abscess or drained by the nurse in charge of the health centre. Tetanus toxoid immunization is also recommended.

Note: The information on medicines and their prices given in this Appendix is taken from:
Médecins sans Frontières, Guide pratique d'Utilisation des Médicaments essentiels, 2nd edition. Paris: Hatier éditions, 1993.

APPENDIX 2: Detailed functioning of Intensified Case Management strategy.

ACTIVITY	PERFORMED BY	COMPONENTS	FREQUENCY	RESOURCES
Case detection	VHW	Self-reporting and reporting by others, through community mobilization and active search	Within 24 hours of emergence	One VHW/500 villagers or 70-100 households
Case recording	VHW; supervisor	Standard forms; pictorial in areas of low literacy; name, adult/child, sex, whether contained (also dates of emergence and of control measures, if possible)	As cases are identified - reported out monthly to supervisor	Standard forms
Case reporting	VHW	Supervisory visit	Monthly	Transport
Case management	VHW	Health education, occlusive bandaging (and controlled immersion if appropriate)	Immediate bandaging when case identified and then as needed, possibly after 3-4 days	First aid supplies, health education materials
(Optionally) surgical extraction	Qualified extractor	Visiting mobile team, or fixed extractor	Fortnightly visits or on demand at health centre	Two mobile teams or at least one fixed extractor
Case confirmation	VHW's supervisor	Only a sample of cases checked on monthly visits	Monthly - work towards increasing frequency	Supervisor; transport (bike or motorcycle)
Travel history	VHW; supervisor	Check for possible source contamination since emergence	Immediately upon case detection; supervisor to review	Suitable form
Health education/ mobilization	VHW and supervisor	Use details of cases detected during the month; publicise contaminated sources, stress need for self-reporting	On-going; also 1-to-1 for cases when detected/managed; supervisor to observe, check and support on monthly visits	Health education materials; possibly, loudspeakers; supervisory time

ACTIVITY	PERFORMED BY	COMPONENTS	FREQUENCY	RESOURCES
Filter distribution	VHW, supervisor	Check coverage and stocks; ensure coverage, if appropriate in newly-detected villages	Whenever cases detected, but at least annual review before transmission season	Filters, production capacity, transport
Vector control	VHW's supervisor or mobile specialist teams	Abate supplies, trained teams, forms and records, higher supervisors	Monthly in selected endemic villages with appropriate sources	Trained teams, Abate, equipment, transport
Supervision of VHW	Supervisor	Supervision, surveillance and containment check, health ed. support, replenishment of filter stock and first aid supplies	Monthly; district coordinator to request extra visits to a few villages, with written report, at monthly meeting	At least one, preferably two supervisors for every 20 VHWs; transport
Monitoring from district level	District coordinator	Household visits, random checks of KAP and VHW activities	Every village visited once every 6 months	Transport (car or motorcycle); checklists
Evaluation	Internal by program managers, or external by specialists	Visits to villages; interviews with VHWs, households and staff, using check lists	On-going by managers; periodically by external evaluators	Transport; funding for external evaluators

APPENDIX 3: EXAMPLES OF EXPERIENCES OF PROGRAMS USING CASE CONTAINMENT

1. Pakistan

The Pakistan Guinea Worm Eradication Program introduced the concept of case containment nationwide in 1991 (following its annual end-of-year review in 1990), when 106 cases were reported nationwide, from 23 endemic villages. Specific forms were developed and used for monitoring the implementation of case-containment measures (see Appendix 4). Annual field evaluations involving external advisers used the information on these forms, and specific performance standards that had been set for each activity, to assess systematically the program's effectiveness. Case-containment capacity was developed only in villages that were currently endemic, while maintaining surveillance in villages considered at risk. The reward offered to cases is currently of the order of a doctor's monthly salary. Some of the lessons learned in Pakistan's case-containment phase are:

1) the final stages of eradication are difficult;
2) incentives for health workers and the public are helpful; and
3) monitoring of implementation is essential.

Pakistan reported two cases from one village in 1993. From January to August 1994, no cases were reported. Cash rewards for reporting of cases have been offered since 1992.

2. Cameroon

Case-containment began in 1992, when the country had 127 cases of dracunculiasis in 32 endemic villages. The standard used there is that any case which is identified more than 24 hours after the worm has emerged is considered not to have been contained. Interventions include:

1) individual medical care of patients (bandaging of wounds with "Tamale oil" to promote complete emergence in 3-5 days);
2) education of the patient and other members of the household about the disease and how to prevent its transmission to others; and
3) treatment of potentially contaminated sources of drinking water with Abate.

With time, performance standards have become more stringent; e.g. the standard at the beginning of the case-containment effort was to report each case to the next level supervisor within seven days, whereas currently the standard for reporting on time is 48 hours.

Small cash rewards were given to reporters of cases, beginning in 1993. Early detection of 77% of cases has been achieved with a reward worth US$ 4 to patients reporting in time (plus $2 to the reporter or health worker), but the offer of an additional $6 was not enough to persuade most patients to stay in hospital until their worms were fully emerged. An award of $60 offered to any village which successfully contains all its cases seems to have generated considerable interest. An important lesson has been to publicise rewards not only in endemic villages but also in places such as markets, and to start the publicity several months before the transmission season.

From a total of 129 cases in 1992 when implementation began, the incidence of Guinea worm disease in Cameroon fell in 1993 to 72 cases. In the first eight months of 1994 there were 22 cases.

3. Ghana

Case-containment efforts were begun in December 1992, when the country reported 33,464 cases in 3,105 endemic villages. In 1993 the case-containment strategy was implemented nationwide, when 17,918 cases were reported from 2,267 villages. Starting later in 1993, the Program began to review surveillance reports from the previous year, in order to anticipate when and where cases were likely to occur in the current year (1994). It then began targeting each affected village for mobilization and training 1 to 3 months prior to the month when cases were expected. Approximately 63% of the endemic villages in Ghana were being covered satisfactorily by case containment at the beginning of 1994. In the first three months of 1994, about 60% of cases were reported within 24 hours of emergence of the worm.

Case management, including surgical extraction of the worms, is a prominent feature of case containment in Ghana. In early 1994, 90% of cases had some management within three days of worm emergence, and the goal is to increase that to 100% of cases receiving case management by the end of the year. Tamale oil is used in the bandage to promote rapid emergence of the worms.

No cash rewards for reporting of cases have been used in the program so far. Extractors, however, are paid the equivalent of $1.50c per worm successfully extracted, and the transport expenses of those coming for extraction are reimbursed. Ghana reported 5,751 cases in the first 8 months of 1994.

APPENDIX 4: EXAMPLES OF FORMS USED FOR REPORTING AND MONITORING OF CASE CONTAINMENT

GUINEA WORM ERADICATION PROGRAMME

GUINEA WORM CASE CONTAINMENT
(Status report form)

Case ref. No. _____
(to be added by
District Coordinator)

Dépt. _____ **S. Pref.** _____ **Commune** _____

Administrative Village _____ **Hamlet** _____

Name of Patient _____ **Age** ____ **Sex** ____ **Name of household head** _____

Date worm first appeared _____ (day/month/year) **Date seen by VHW** _____ (day/month/year)

Date when case and its containment confirmed by supervisor (day/month/year) _____

Has the patient entered a water source since the worm emerged? (yes, no, don't know) _____

If yes, in this village? _____ (yes, no) **In other village?** _____ (yes, no) **Names of villages** _____

Did the patient live or travel outside this village about one year before the worm appeared? (yes, no, don't know) _____

If the case is imported, indicate the presumed country, region and village where infection was acquired

Give the dates (day/month/year) or "not done" for each of the following measures:		
Patient and family advised to keep patient away from all water sources !!! _____		**First controlled immersion** _____
Bandage applied _____	**Village chief advised that case is present** _____	**Health education session given to village** _____
Most recent application of Abate _____	**Confirmed that every household has a filter in good condition and uses it** _____	

Has the case been contained?
(i.e. treated within 24 hrs of worm emergence, without contamination of water sources; Yes/No) _____

Case & containment confirmed by _____

Form completed by (Name, position) _____ **Date** _____

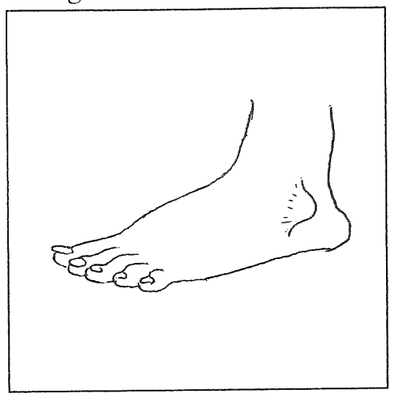
REPUBLIQUE DU NIGER
MINISTERE DE LA SANTE PUBLIQUE
PROGRAMME NATIONAL D'ERADICATION
DU VER DE GUINEE

FICHE D'ENTREGISTREMENT DE L'ISOLEMENT DE CAS

Région .....
Arrondissement .....

Village .....

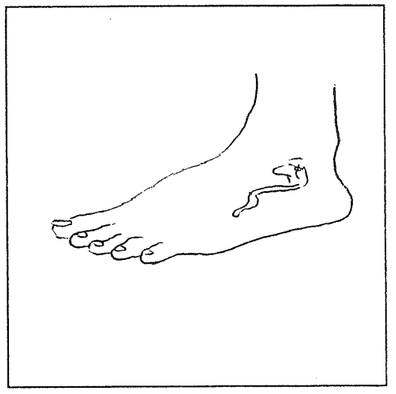
Mois de ..... 19 .....



Malades traités avant la rupture de la phlyctène

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

Noms des malades:



Malades traités quand la phlyctène est déjà rompue

00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000
00000	00000	00000	00000

Noms des malades:

PROGRAMME D'ERADICATION DU VER DE GUINEE

FICHE D'APPRECIATION D'ISOLEMENT DES CAS

Département de _____ **Sous-Préfecture de** _____ **Mois de** _____ **199__**

No. du Cas	No. INSAE[1] du Village Admin.	Localité	Date d' apparition du ver	Cas traité en 24 heures?[2] (Oui/Non)	Utilisation des filtres confirmée?[3] (Oui/Non)	Mares traitées en 7 jours?[4] (Oui/Non)	Si le cas est importé: lieu d'origine probable[5]	Observations: - cas isolés[6] - cas non isolés

VOIR VERSO

PAKISTAN GUINEA WORM ERADICATION PROGRAMME

STATUS OF CASE CONTAINMENT: SUMMARY TABLE FOR REGIONAL DIRECTORS

SERIAL NO.	AGE/SEX	VILLAGE	PROVINCE	DATE			PROBABLE SOURCE OF INFECTION (NAME OF THIS VILLAGE, OTHER VILLAGE, OTHER COUNTRY)	CONTROL MEASURES			
				WORM EMERGED	VILLAGE HEALTH WORKER BEGAN CONTROL	CASE REPORTED TO REGIONAL MGR.		AMOUNT OF REWARD GIVEN (RUPEES)	ALL HOUSEHOLDS GIVEN FILTERS AND HEALTH ED.	DATE ABATE APPLIED	PROVISION OF SAFE WATER
1	23/F	GANJU	NWFP	23 JUNE 92	24 JUNE 92	27 JUNE 92	GANJU	1,000	YES	29 JUNE 92	YES
2	18/M	J.MACHIAN	NWFP	23 JUNE 92	24 JUNE 92	27 JUNE 92	MACHIAN/GANJU	1,000	YES	26 JUNE 92	?
3	23/M	GANJU	NWFP	1 JULY 92	1 JULY 92	3 JULY 92	GANJU	1,000	YES	29 JUNE 92	YES
4	20/M	SARA GARA	NWFP	1 JULY 92	1 JULY 92	4 JULY 92	SARA GARA	2,000	YES	25 JUNE 92	?
5	12/F	GANJU	NWFP	6 JULY 92	6 JULY 92	6 JULY 92	GANJU	1,000	YES	29 JUNE 92	YES
6	30/M	GANJU	NWFP	16 JULY 92	16 JULY 92	16 JULY 92	GANJU	2,000	YES	29 JUNE 92	YES
7	40/M	GANJU	NWFP	27 JULY 92	27 JULY 92	27 JULY 92	GANJU	2,000	YES	29 JUNE 92	YES
8	17/F	GANJU	NWFP	27 JULY 92	27 JULY 92	27 JULY 92	GANJU	2,000	YES	29 JUNE 92	YES
9	6/M	GANJU	NWFP	28 JULY 92	28 JULY 92	28 JULY 92	GANJU	1,000	YES	21 JULY 92	YES
10	9/F	GANJU	NWFP	17 AUG. 92	17 AUG 92	17 JULY 92	GANJU	1,000	YES	21 JULY 92	YES
11	30/F	GANJU	NWFP	18 AUG. 92	18 AUG. 92	18 JULY 92	GANJU	1,000	YES	21 JULY 92	YES
12	10/F	GANJU	NWFP	23 AUG 92	23 AUG. 92	23 AUG. 92	GANJU	2,000	YES	21 AUG. 92	YES
13	24/M	GANJU	NWFP	2 SEPT. 92	2 SEPT. 92	2 SEPT. 92	GANJU	2,000	YES	21 AUG. 92	YES
14 [1]	7/F	GANJU	NWFP	6 SEPT. 92	7 SEPT. 92	7 & 13 SEPT	GANJU	2,000	YES	NO	YES
15	4/M	GANJU	NWFP	7 SEPT. 92	7 SEPT. 92	8 SEPT. 92	GANJU	1,000	YES	21 AUG. 92	YES
16	10/M	KOT MUSA	NWFP	11 SEPT. 92	16 SEPT. 92	16 SEPT. 92	KOT MUSA	2,000	YES	NO	NO
17 [2]	8/M	BHUBAR	SINDH	23 JULY 92	14 JULY 92	14 JULY 92	BHUBAR	2,000	YES	24 JULY 92	NO
18	15/M	BEKNAR	SINDH	8 AUG. 92	9 AUG. 92	9 AUG. 92	BEKNAR?	2,000	YES	25 JULY 92	NO
19	13/M	BHUBAR	SINDH	2 SEPT. 92	2 SEPT. 92	2 SEPT. 92	BHUBAR	2,000	YES	25 AUG. 92	NO
20	23/M	BINDAR	NWFP	27 SEPT. 92	27 SEPT. 92	27 SEPT. 92	BINDAR	1,000	YES	28 SEPT. 92	NO

No. du Cas	No. INSAE' du Village Admin.	Localité	Date d' apparition du ver	Cas traité en 24 heures?[2] (Oui/Non)	Utilisation des filtres confirmée?[3] (Oui/Non)	Mares traitées en 7 jours?[4] (Oui/Non)	Si le cas est importé: lieu d'origine probable[5]	Observations: - cas isolés[6] - cas non isolés

NOTES

1 Il s'agit du numéro INSAE complet de 7 chiffres.

2 "Traité en 24 heures" signifie que, dans le délai de 24 heures à partir de l'émergence du ver, on a appliqué un pansement occlusif et conseillé le malade et sa famille de garder le malade à l'écart des points d'eau.

3 Ceci signifie que, dans le délai de 7 jours a partir de l'émergence du ver, on a confirmé que chaque ménage dans la localité possède un filtre en bon état, et l'utilise.

4 Ecrire "Oui" si toutes les sources d'eau de boisson à risque ont été traitées à l'Abate dans le délai de 7 jours à partir de l'émergence du ver. S'il n'y en a pas, écrire "Pas de mares".

5 Signaler le pays, département et village où la maladie a été un an avant l'émergence du ver.

6 Un cas se considère "isolé" si le malade est traité dans le délai de 24 heures, sans avoir contaminé des mares. Pour chaque cas isolé, écrire "isolé"; pour chaque cas non isolé, donner les raisons, si possible.

PAKISTAN GUINEA WORM ERADICATION PROGRAMME
STATUS OF CASE CONTAINMENT: SUMMARY TABLE FOR REGIONAL DIRECTORS

SERIAL NO.	AGE/SEX	VILLAGE	PROVINCE	DATE				PROBABLE SOURCE OF INFECTION (NAME OF THIS VILLAGE, OTHER VILLAGE, OTHER COUNTRY)	AMOUNT OF REWARD GIVEN (RUPEES)	CONTROL MEASURES		
				WORM EMERGED	VILLAGE HEALTH WORKER BEGAN CONTROL	CASE REPORTED TO REGIONAL MGR.	COMPLETE EMERGENCE OR EXTRACTION			ALL HOUSEHOLDS GIVEN FILTERS AND HEALTH ED.	DATE ABATE APPLIED	PROVISION OF SAFE WATER
21	26/M	GANJU	NWFP	12 OCT. 92	12 OCT. 92	15 OCT. 92	15 OCT. 92	GANJU	1,000	YES	24 SEPT.92	YES
22	23/F	GANJU	NWFP	15 OCT. 92	15 OCT. 92	15 OCT. 92	15 OCT. 92	GANJU	1,000	YES	24 SEPT. 92	YES
23	37/M	BHUBAR	SINDH	16 OCT. 92	17 OCT. 92	16 OCT. 92	?	BHUBAR	2,000	YES	28 SEPT. 92	NO

AWARDS: 1,000 RUPEES TO EACH PATIENT WITH CONFIRMED AS A CASE; PLUS ANOTHER 1,000 RUPEES IF TH

[1] REPORTED FROM A VILLAGE WITHOUT PONDS ON 7 SEPT. BUT, RETURNED TO GANJU ON 13 SEPT.

[2] CASE CONTAINMENT BEGAN WHEN WORM WAS PRE-EMERGENT.

APPENDIX 5: **PROPOSED REPORTING FORM FOR CASES IMPORTED FROM OTHER COUNTRIES**

DETECTION OF CASE Country:	PRESUMED ORIGIN OF CASE Country:
1. Full name of patient: _____ 2. Age: _____ Sex: _____ 3. Village of reporting: _____ 4. District: _____ 5. Region: _____ 6. Date of arrival in the village: _____ 7. Date of worm emergence: _____ 8. Date case confirmed: _____ 9. Confirmed by: _____	10. Village: _____ (or chief's name) 11. Name of household head: _____ 12. District: _____ 13. Region: _____ 14. Nearest town: _____ 15. Date of departure from village ____ 16. Remarks (e.g. water sources possibly contaminated in place of origin; other patients, other villages potentially involved):
Case ref. no. in country where detected (if applicable):	Date received by WHO in country of origin:
Date form sent to WHO: _____ Completed by: _____ (Officer of national programme)	National programme advised: _____ (date) District of origin advised: _____ (date) Name and signature: _____
Comments/action taken by WHO	Action taken in country of origin:

APPENDIX 6: LIST OF USEFUL PUBLICATIONS

Guidelines for Health Education and Community Mobilization in Dracunculiasis Eradication Programs. Atlanta, USA: Centers for Disease Control, with Global 2000 and Carter Center, Inc. 1991

Guidelines for Chemical Control of Copepod Populations in Dracunculiasis Eradication Programs. Atlanta, USA: Centers for Disease Control, 1989.

Helping Communities to Eradicate Guinea Worm; a Training Guide. WASH Field Report No. 322. Washington DC: Water and Sanitation for Health Project, USAID.

Criteria for the Certification of Dracunculiasis Eradication. WHO/FIL/93.187. Geneva: World Health Organization, 1993.

Fifth African Regional Conference on Dracunculiasis Eradication; Final Report. Brazzaville: WHO Regional Office for Africa, 1994.