

7: VL AND PUBLIC HEALTH INTERVENTIONS

7.1 How can sandfly vectors be controlled?

Sandflies that rest inside buildings (endophilic vectors) can be controlled by spraying houses, chicken houses, stables, etc., with residual insecticides. Sandflies that rest outside houses (exophilic vectors) cannot be controlled in this way. (Appendix 12)

Repeated use of ultra-low volume application of insecticides to the entire community can reduce sandfly numbers but this is a method for use only in epidemics.

7.2 What personal protection methods can be used to prevent attack by sandflies?

Use of fine mesh mosquito nets or preferably nets impregnated with synthetic pyrethroids (the impregnation of bednets by insecticides allows the use of bigger meshes), (Appendix 3) provides good personal protection, especially in foci where humans are the sole reservoir.

Screening houses with fine mesh nets and/or curtains may reduce the density of sandflies indoors.

The establishment of settlements in areas of known high risk should be avoided.

7.3 How are epidemiological surveys for human cases conducted?

Passive case detection

Passive case detection depends on:

- (a) an obligatory system of notification by which public health authorities are informed of each case (and records of all cases are assembled);
- (b) a standardised diagnostic service (see sections 1, 2 and 3);
- (c) a constant supply of drugs.

All diagnosed cases must be treated and should be followed up.

Active case detection

This is to discover undetected cases.

A search is made in the community for individuals with signs or symptoms of VL (Slide 38).

Blood samples are taken in the field for serological diagnosis. Individuals with a doubtful clinical picture may be referred for parasitological diagnosis.

Diagnostic methods that are applicable to active case detection are described in section 3. A positive leishmanin skin test is usually only found in patients who have recovered from infection and this can be used to help distinguish present and past cases.

All patients found to have clinical VL must be treated and should be followed up.

7.4 **How are dogs systematically screened and controlled?**

Passive case detection of canine leishmaniasis depends upon reports from veterinarians who should be required to report cases to a central authority (for example, the Ministry of Health or the organization responsible for the Control of Zoonotic Diseases).

Active case detection requires prior announcements in the community to inform them when and where to gather with their dogs for a free examination. More dogs can be surveyed in this way than examining dogs door-to-door. Active case detection can also be associated with rabies vaccination programmes (section 7.7).

The name and address of the owner and dog are recorded. Each dog is examined for clinical signs of canine VL, bled for serological diagnosis and samples taken for parasitological diagnosis (see section 6). Results of serological and parasitological tests should be communicated via civic authorities to owners, with recommendations to have all parasitologically positive dogs destroyed. In endemic areas of human VL it is recommended that all serologically positive dogs be destroyed as they almost certainly carry active infections and will contribute to the spread of human disease.

Parasitological tests are in general less sensitive than serology but even serology is likely to fail to detect some infected dogs, especially those in the early stages of VL.

7.5 **What health education/publicity measures are required?**

The first priority is to train the health professionals to perform effectively the functions required at each level of disease control (primary health care worker, physician, laboratory diagnostician, veterinary surgeon etc.).

Schools and other organizations (e.g. religious communities) should be used as entry

points to inform and motivate the community, and to explain the benefits of control of human (and canine) VL.

All health education should be accompanied by clinical support and early intervention.

All means of communication (posters, leaflets, radio, TV, slides, videos) should be exploited in health education.

7.6 **How should priorities be assigned to control measures?**

Intervention should be assessed in terms of cost and feasibility.

The first priority is the early treatment of passively detected human cases.

The second priority is the improvement of the detection, diagnosis and treatment of human cases especially in foci where humans are the sole reservoir.

The third priority is the training of all personnel involved in control.

In foci where the vector is known to be endophilic, and the number of cases is high, house-spraying with residual insecticides is an effective control measure and is the next priority.

In foci where domestic dogs are reservoir hosts, the efficacy of detecting and destroying infected dogs as the only or primary means of control is currently being questioned (see section 9).

Components of a control campaign against VL should be (a) coordinated and integrated (see section 8), (b) complete (not interrupted by failure of resources), and (c) sustained long enough to have an impact (usually several years for VL).

7.7 **How can control of VL be integrated with other disease control programmes?**

House-spraying with insecticides should be coordinated with other programmes aimed against arthropod-borne disease, e.g., against vectors of malaria, Chagas disease, Dengue, Japanese B encephalitis, etc.

Control of canine VL should be integrated with the control of rabies and hydatid disease.

7.8 **What special measures are required in response to epidemics?**

A local plan of action must be ready with the aim of halting epidemics. This plan should be updated annually in the light of new information. The plan must include provision for

gathering funds and allocating local, regional and national resources for prompt mass diagnosis, treatment and intervention. Prompt and effective treatment is of high priority in foci where humans are the sole reservoir in order to arrest spread of the epidemic. Measures for vector and reservoir controls should be implemented provided sufficient information can be obtained about the epidemiological cycle. Ultra low volume spraying (ULV) of insecticides is an additional measure for the control of epidemics. ULV provides an immediate, short-acting (a few hours only) but expensive reduction of high sandfly populations. For longer-term effect it needs to be repeated at short intervals (e.g. on consecutive days, followed by once or twice a week over several months). Public awareness should be improved by all means (press, handouts, radio, posters, television, educational programmes, etc.) and at all levels concerned. The population at risk should be given practical instructions on diagnosis and treatment.

7.9 **How can the success of control programmes be evaluated?**

Reduction in sandfly numbers may be difficult to quantify and by itself is not a sufficient means of evaluation of the success of control.

The best criterion for evaluation is an annual reduction in the number of clinical cases in the human population.

7.10 **What minimum or special equipment and services are required for public health interventions (case management, vector and dog controls)?**

Supply of drugs; record sheets; reagents and supplies for diagnosis; residual insecticides, equipment for individual protection; spraying equipment; provision for training, training materials, leaflets, posters and, if possible, audio visual means of public education; equipment and reagents for the humane killing of infected dogs.