



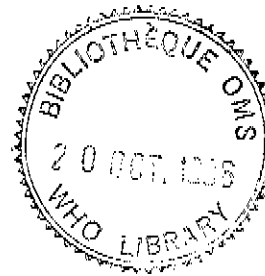
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SCIENTIFIC GROUP ON THE INTEGRATION AND  
MANAGEMENT OF VECTOR CONTROL IN  
PRIMARY HEALTH CARE

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THE CORE CONCEPT IN VECTOR CONTROL

by

Dr N.G. Gratz

and

R.J. Tonn

Chief, Planning, Management and Operations  
Division of Vector Biology and Control  
World Health Organization  
Geneva

General considerations

For a number of technical and administrative reasons, vector control operations, as is the case with other public health interventions, have not always been successful. Failure may be due to having based the programme on an inadequate knowledge of the one aspect or another of the biology and ecology of the target vector, or to a lack of information on the susceptibility of the target vector to the pesticide, chemical or biological, which had been selected to control the vector, or perhaps to other technical shortcomings such as a failure to take into account human population movements or changes in the local epidemiological situation. Failures due to administrative reasons are most frequently due to factors such as inadequate supervision or evaluation of the control operations whatever the method selected; other administrative failings may be due to inadequate budgeting, late procurement of supplies or the failure to provide for necessary transport or fuel. Taking these many factors into account, it can be seen that the integration of vector control activities into primary health care services is likely to be difficult. Any such transfer of responsibilities and authorities to lower administrative levels will, initially at least, highlight the weaknesses which have been briefly touched upon above. It is thus clear that the conversion of vector control programmes, and indeed of any complex disease control programme, will require some type of a vertical infrastructure to enable the organization and management of activities at the peripheral levels. In addition central expertise will be necessary to deal with the necessity for emergency/epidemic vector-borne disease control situations which might arise or any other previously unanticipated situation such as the appearance of insecticide resistance in the target species at a level which impedes the successful implementation of the operations. Many countries have existing specialized operational control programmes directed towards one or more vector-borne diseases. These programmes should be reorganized and reoriented to make them more compatible with primary health care.

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The seventh report of the WHO Expert Committee on Vector Biology and Control\* suggested the establishment of technical core groups with responsibilities for the planning, implementation and surveillance of vector control by means of integrated methods. They recommended that "the main duty of the core group was to produce for each particular epidemiological stratum, a simple and effective programme design that can be applied at the community level, and to monitor continuously the operational impact of the programme with a view to adjustment and improvement". These groups would provide technical support to primary health care services and would carry out activities requiring a degree of technical knowledge and skills beyond that which workers at the peripheral level could be reasonably expected to have.

There is general agreement that any core group should consist of individuals of more than one discipline and that the group establish linkages within and outside of the ministry of health. The leader of the core group should have both technical and managerial ability and should be given resources adequate to the responsibilities involved. The professional make-up of the core group would depend upon the disease problems of the country and the resources available for their solution. It is our belief that the minimum should be an entomologist (vector control specialist), a sanitary engineer, an epidemiologist, a health educator and an administrator. This nucleus could be strengthened by additional similar staff and/or with sanitarians, technicians, statisticians and depending upon the problem malariologists, arbovirologists, parasitologists, etc. There is no question that such a core group, if it does not already exist, will add additional cost to the given programme but, in the long run, may well be cheaper than the costly failures all too often seen as a result of inadequate professional support.

A core group at the central level might be strengthened by established similar groups at the regional or other lower administrative levels. As in any vertical structure, clear lines of authority and delegation of authority must be established. The managerial infrastructure should include the creation of job descriptions outlining objectives, qualifications, tasks, responsibility, lines of authority and salary. Objectives and targets drawn up within plans of action must be logical, clearly defined and possible to achieve. Obviously, the more complex the epidemiological situation and the more demanding the control level, the more technical and administrative skills will be required.

Whenever other sources of expertise such as universities and research institutes are available, the formation of advisory boards to the core group should be considered. This will facilitate the flow of research and development information into the infrastructure and, at the same time, ensure the greater involvement of such universities and research institutes in actual vector-borne disease control problems than has hitherto been the case.

#### Training considerations

The UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) provides support for formal training towards an M.Sc. in Medical Entomology at seven universities. Through this training source and academic institutions in the developed world, it is hoped to achieve 50% self reliance for implementation and

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\*WHO Technical Report Series No. 688, 1983 (Seventh report of the WHO Expert Committee on Vector Biology and Control.

evaluation of vector control strategies by 1989. However the training being received is basically along classical lines with little emphasis on vector control problems or on how to provide for the role of primary health care and community participation in its implementation. If at present there was an abundance of professional entomologists, work at the lower administrative levels would provide the experience as the individual moves upward. Unfortunately, many of these recent graduates may find themselves in senior decision-making positions before they have had the opportunity to acquire the experience and technical background which will enable them to effectively undertake their responsibilities.

The educational objectives of universities may be different from the needs of a core group entomologist. Many universities lack experienced staff to teach the skills which are required for the core concept or provide the training for the implementation of the practical aspects of vector control to the student. However, most of them have the potential to provide a balanced amount of taxonomy, ecology, epidemiology of vector-borne diseases and medical entomology, to give the student a foundation to build upon.

As core groups are formed, consideration should be given to have the staff trained as a unit as a type of in-service training. The group would learn the basic aspects of each other's disciplines and to recognize the needs and limitations of each.

Thus, a team concept could be developed leading towards more efficiency and avoiding compartmentalism of professionals. This training should also be ladder oriented towards starting at the community level to develop an appreciation of the problems, needs and abilities of this level. Training should be situation-oriented and aimed at developing skills to solve problems.

The roles of the community and the primary health care worker will change with time and there will be a need for some mechanism of continuous education to be built into the core system. The concept of continuous education although supported by many regional WHO training programmes, requires further upgrading to meet the changing picture of health priorities, to understand the needs and abilities of communities to actively take part in vector -borne disease control with the support of the core group and to provide the technical competence to meet these challenges.

#### Qualifications for the core group entomologist

Today probably few entomologists would truly qualify as a "core group entomologist" as the individual must be technically both a specialist and a generalist at the same time as well as having the attributes in communication, motivation and discipline well above the average and yet be community oriented along with the ability to understand and deal with the administrative and technical problems he or she must face.

More specifically some of the qualifications for the entomologist within the core group would be:

1. Knowledge of integrated vector control and its individual components;
2. Knowledge of field assessment and the use of reliable vector monitoring techniques, including statistical analysis methods in relation to this.

3. Knowledge of how to assess the equipment, material and manpower requirements of the vector control programme.
4. Knowledge to assess environmental and health impact of control measures.
5. Knowledge of how to determine the costing of operations and to monitor cost-effectiveness of the various aspects of an operation when to call
6. Knowledge of how to most effectively use and maintain various types of pesticide application equipment.
7. Knowledge of the safe use of pesticides for the applicator, the inhabitants and the environment.
8. Knowledge of the application of emergency vector control procedures.
9. Knowledge of environmental management techniques and the ability to anticipate vector problems due to mismanagement of the environment through land and water resource development and construction activities.
10. Knowledge of basic and applied entomology and ecology.
11. Ability to work with others to produce learning materials at community and referral levels.
12. Knowledge of basic communication skills to be able to carry out effective health education and to train vector control personnel.
13. Knowledge of basic managerial tools needed to organize all aspects of a control operation.
14. Knowledge of local health legislation and health administration structure.

#### The core group as a support system

The role of the core group as a support system in primary health care will depend upon the structure of the primary health care service and the priorities the community and the service place on vector control. As a management team the core group would be involved with defining the various control activities feasible in different situations, the adaptation of these activities to the community and to the health infrastructure, the training and mobilization of workers, the design and implementation of appropriate technology dealing with specific vector problems, the coordination of information gathering, and its flow and utilization in the decision making process (i.e. in the supervision/monitoring and evaluation of programmes). The core group would be involved in procurement of resources, development of referral mechanisms and liaison with others involved. This group could encourage research in all aspects of vector biology and control, especially in the selection of technology in the context of local situations. Research could be utilized in drawing up guidelines for the planning and implementation of plans of action of vector control within the strategy of primary health care.

### Organization of the core group

What is needed is a centralized core group that is capable of utilizing complex technology when that is what is required but can also coordinate the use of simple appropriate technology at the community and referral level. Countries differ widely in the administrative structure of the ministries of health and in the range of functions assigned to the lower level health workers. Therefore, no common administrative structure can be recommended. The important point is that decentralization does not diminish the role of the core group and from the above it can be seen that such decentralization will, in fact make the role of a core group even more essential than it has been in the past. The group must be situated within the administrative structure in a position where it can function effectively and efficiently. It should have an action role not merely an advisory one; it should have both responsibility and the authority to react along clearly defined lines of command.

For vector control to be integrated and managed within a primary health care system, motivation and action on the part of the community is not enough. The cause and effect mechanism associated with the control of vector-borne diseases through action at the peripheral level requires that the action be as effective, efficient and as economic as possible. The community does not have the expertise to select and design this type of activity and must rely on reliable expertise from higher administrative levels. To complete the circle the "expertise" must also understand the needs, wants and abilities of the community to serve as an active participant in vector control operations where ever possible and provide the techniques and motivation to ensure that it is possible for the rural and urban community to undertake whatever role they can.

Finally it should not be forgotten that while most people can make some contribution to the control of certain vectors by environmental actions, there are many vector species for which this will not be feasible including those whose larval habitats or breeding areas are too dispersed or inaccessible and the community itself, if motivated to do so, may provide someone to be trained to undertake specialized vector control actions at the village or neighbourhood level providing that some modest compensation is provided for the individual's time and that adequate guidance is provided by the core group.

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