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Integrated vector management - Part II

Part I of this article was published in the last issue of the Weekly Epidemiological Report in which we discussed integrated vector management [IVM]. In this article we will discuss about the important attributes of IVM.

The important attributes of Integrated vector management [IVM] are described below.

Cost-effectiveness

At the core of the IVM concept is the need to obtain maximum value for money. Like most health-sector programmes, vector control has to operate within budget constraints. This implies that the vector control measures selected to be used as part of the IVM approach need to be tested for their cost-effectiveness, both individually and, taking into account possible synergies, collectively. For this reason, national vector-control programmes must have the capacity to carry out cost-effectiveness analyses.

Intersectoral action

The environmental and social determinants of health change constantly as a result of decision-making that takes place outside the health sector. For instance, irrigation schemes change the environmental receptivity for vectors, new transport infrastructure allows parasites and vectors to travel greater distances, and population resettlement may introduce parasite carriers to receptive areas or to those who are not immune to pathogens transmitted by vectors. There are opportunities, within the context of IVM, to include measures undertaken by other sectors to help reduce transmission risks through project design, implementation and operation. Moreover, in other economically productive sectors, resources are often orders of magnitude larger than those available in the health sector.

Regulatory and operational measures

The intersectoral framework within which IVM must operate underscores the need for regulatory as well as operational measures. Traditionally, vector-control professionals have been predominantly operation-oriented. However, lessons from the environmental sector show that results may often be achieved much more effectively and efficiently by regulating the actions of others. Establishing standards and norms that are supported by sound legislation gives vector-control programmes a strong instrument to engage others within the scope of IVM.

Subsidiarity

Vertical vector-control programmes, often exclusively based on chemical interventions, have a top-down decision making structure and are often challenged by the need to obtain the cooperation of local communities. In IVM, the involvement of local communities is a critical element. Therefore, the concept of subsidiarity is a key component of IVM: it foresees decision-making at the lowest possible levels (that is, any decision-making higher up in the administrative structure than strictly necessary is subsidiary to local decision-making). This concept also reconfi rms the need to assign different responsibilities to different levels:

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centrally, there should be a core group with strong technical capacities; regionally, there should be quality-control entities; and at the local level, the operational units should exist.

Decision-making

Decision-making on vector-control action at the lowest possible level requires criteria that are relevant to the local eco-epidemiological setting and the inclusion of those control measures that can be locally applied. Clearly, not all necessary expertise will be available at all times at all places, and therefore a regional or national core group should be able to provide technical support to local vector-control operators. Similarly, independent quality control of vector-control operations will be required to ensure that the health-based targets set for IVM are met in an optimal way. Responsibility for such quality control may be efficiently placed at the administrative mid-level – for example, with the provincial authorities.

Inability

In a natural-resource context, sustainability as defined by the World Commission on Environment and Development (1987) refers to intergenerational equity: the current generation should use natural resources to fulfill their needs in a way that will permit future generations to use them to fulfill their needs. This has a bearing on vector control, for example, when it comes to possible environmental modification, to the impact of the use of insecticides and to the introduction of new species as predators of vectors in stable ecosystems. In addition, there is the need to ensure that vector control is economically sustainable. One of the weaknesses of global efforts to eradicate malaria through the use of indoor residual spraying was that it could be only a time-limited effort, since the level of investment required was impossible to sustain. This led to the premature reduction of activities and the re-channelling of vector-control resources to other health-sector priorities before the outcome of the effort was fully consolidated.

A growing need for IVM

The IVM approach to the control of vector-borne diseases is justified in the interests of global public health for the reasons given below.

a) The health status of a population is strongly influenced by social and environmental determinants that are perpetually changing. IVM provides an opportunity to address these changes effectively in an intersectoral context as part of a broader plan to manage public health.

b) IVM will help consolidate and sustain public-health achievements that result from the investment in and scaling-up of the global malaria initiative.

c) Concerns about the environmental impact of overreliance on chemical control methods continue to haunt policy-makers. The World Health Assembly and the Stockholm Convention on Persistent Organic Pollutants advocate reducing reliance on pesticides for vector control. IVM provides the wherewithal to reduce this reliance.

d) The arsenal of insecticides is limited, and there are few prospects for new candidate compounds coming to market. At the same time, there is a growing problem with insecticide resistance. The application of IVM principles to vector control will contribute to the judicious use of insecticides and extend their useful life.

Conclusion

Vector-borne diseases are responsible for 17% of the global burden of parasitic and infectious diseases. They result in avoidable ill-health and death, economic hardship for affected communities and are a serious impediment to economic development. IVM has an important part to play in controlling these diseases. WHO promotes these management principles as set out in the Global strategic framework for integrated vector management. This position statement is intended to support the advancement of IVM. Member States are invited to accelerate the development of national policies and strategies, which in some regions has already shown significant progress. International organizations, donor agencies and other stakeholders are encouraged to support the capacity strengthening necessary for implementation.

Sources:

1. WHO position statement on vector management. Weekly Epidemiological Record. WHO, No 20, 2008, 83,177—184 [http://www.who.int/wer].

2. Global Strategic Framework for Integral vector man agement. WHO Geneva 2004. WHO /CDS/CPE/ PVC/2004.10

This article was compiled by Dr Samitha Ginige - Consultant Epidemiologist.

Table 1: Vaccine-preventable Diseases & AFP

21st - 27th June 2008 (26thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	01 GM=1	01 NE=1	00	00	00	00	00	00	00	02	02	51	48	+6.3%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	01 VA=1	00	00	00	00	00	01	03	60	41	+46.3%
Tetanus	00	00	00	00	00	00	00	00	00	00	01	19	18	+5.5%
Whooping Cough	01 KL=1	00	00	00	00	00	00	00	00	01	00	21	22	-4.5%
Tuberculosis	24	16	155	01	17	00	28	22	00	262	151	4342	4978	-12.8`%

Table 2: Newly Introduced Notifiable Diseases

21st - 27th June 2008 (26thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Chicken-pox	34	04	06	00	06	06	04	06	15	81	55	2934	1859	+57.8%
Meningitis	02 GM=2	01 KD=1	05 GL=2 HB=2 MT=1	00	01 BT=1	01 KR=1	00	01 MO=1	02 KG=2	13	18	770	145	+431.0%
Mumps	04	08	14	00	15	03	04	03	08	59	35	1330	756	+75.9%

Key to Table 1 & 2

Provinces: W=Western, C=Central, S=Southern, N=North, E= East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.

DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 3: Laboratory Surveillance of Dengue Fever

21st - 27th June 2008 (26thWeek)

Samples	Number tested		Number positive *		Serotypes									
					D_1		D_2		D_3		D_4		Negative	
	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH
Number for current week	01	08	00	02	00	00	00	00	00	01	00	00	00	00
Total number to date in 2008	96	94	07	19	00	00	04	08	01	06	00	00	02	00

Sources: Genetech Molecular Diagnostics & School of Gene Technology, Colombo [GT] and Genetic Laboratory Asiri Surgical Hospital [AH]

* Not all positives are subjected to serotyping.

NA= Not Available.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases: Tuberculosis.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

21st - 27th June 2008 (26thWeek)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephal-itis		Enteric Fever		Food Poisoning		Leptos-pirosis		Typhus Fever		Viral Hepatitis		Human-Rabies		Re-turns Re-ceive
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	19	937	04	87	01	07	01	57	01	62	06	218	00	02	05	69	00	00	**92**
Gampaha	09	577	06	96	01	13	01	31	00	66	09	225	00	04	03	77	00	03	**79**
Kalutara	03	295	10	197	00	08	00	42	00	16	19	278	00	02	00	25	00	00	**100**
Kandy	05	131	05	140	00	05	01	34	00	39	10	252	01	57	01	86	00	01	**88**
Matale	03	65	05	132	00	02	01	32	00	04	16	547	00	01	01	20	00	00	**83**
Nuwara Eliya	00	15	07	137	00	02	07	178	03	110	02	32	00	34	03	82	00	01	**85**
Galle	01	65	04	101	00	11	00	11	01	43	13	207	00	10	00	06	00	03	**100**
Hambantota	00	54	01	52	00	03	00	06	00	07	02	66	01	55	01	05	00	00	**100**
Matara	04	141	07	113	01	05	00	22	00	02	10	208	02	115	00	08	00	01	**94**
Jaffna	00	52	00	78	00	01	00	203	00	08	00	00	00	140	00	24	00	00	**13**
Kilinochchi	00	00	00	14	00	00	00	00	00	00	00	02	00	00	00	01	00	00	**25**
Mannar	01	25	00	11	00	06	01	109	00	00	00	00	00	01	00	11	00	00	**50**
Vavuniya	00	10	03	35	00	02	00	03	00	13	01	05	00	01	00	04	00	00	**75**
Mullaitivu	00	00	00	02	00	00	00	08	00	12	00	00	00	01	00	06	00	00	**00**
Batticaloa	00	84	00	55	00	03	00	17	00	19	00	03	00	01	00	77	00	05	**82**
Ampara	00	20	13	149	00	00	01	05	00	00	00	16	00	00	00	05	00	00	**71**
Trincomalee	01	173	01	58	00	00	01	10	00	12	00	24	00	15	00	12	00	00	**60**
Kurunegala	02	226	03	143	00	11	02	35	02	13	03	153	00	16	01	33	00	04	**94**
Puttalam	02	255	00	47	02	08	05	123	00	21	00	20	00	32	02	25	00	03	**100**
Anuradhapur	01	109	02	50	00	06	00	08	00	05	01	214	00	10	00	10	00	02	**89**
Polonnaruwa	02	54	02	75	00	01	00	21	00	06	00	53	00	01	00	16	00	00	**71**
Badulla	02	50	05	252	00	04	02	74	00	13	02	30	00	69	01	64	00	01	**100**
Monaragala	00	41	70	228	00	02	01	28	00	110	00	82	02	66	02	21	00	00	**91**
Ratnapura	00	138	07	162	00	22	00	41	00	43	01	111	02	73	00	41	00	00	**63**
Kegalle	08	251	03	206	01	22	05	43	01	02	13	188	02	46	07	387	00	00	**100**
Kalmunai	00	29	13	172	00	02	00	09	00	10	00	00	00	02	00	19	00	00	**85**
SRI LANKA	**63**	**3797**	**171**	**2792**	**06**	**146**	**29**	**1150**	**08**	**636**	**108**	**2934**	**10**	**754**	**27**	**1134**	**00**	**24**	**83**

Source: Weekly Returns of Communicable Diseases (WRCD).

***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.

****Timely** refers to returns received on or before 5 July, 2008 Total number of reporting units =238. Number of reporting units data provided for the current week: 254

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