

ANNOUNCEMENT

Diploma Course Integrated Vector Management (IVM)

**(6 weeks)
(3 Feb- 14 March 2018)**



**Department of Medical Entomology and Vector Control
School of Public Health
Tehran University of Medical Sciences**



World Health Organization



Institute for Environmental Health Research

Course organizers :

**Professor Hassan Vatandoost, Dr. Ahmad Ali Hanafi-Bojd
School of Public Health, Tehran University of Medical Sciences**

Introduction

Vector Borne Diseases still are a major health problem in the world. The main activities of the countries for vector control management are:

Reducing man-vector contact

- Insecticide-treated mosquito nets (ITN, LLITN)
- Improved housing
- Repellents and mosquito coils

Adult mosquito control

- Insecticide treated nets (ITN, LLITN)
- Indoor residual spraying (IRS)
- Space spraying
- Sterile male techniques
- Magnetic traps
- Biological control

Larval control

- Larviciding using chemical larvicides
- Source reduction
- Larvivorous fish
- Biological control using microbial agents

The aim of this course will focus on capacity building for authorities and people who are involved with Vector Borne Disease control.

Course organizers

This course is organized jointly by, School of Public Health, Tehran University of Medical Sciences and World Health Organization (WHO).

It will provide participants with the knowledge and skills in Entomology and Vector control through small group work, field exercises, exchange of experiences and discussion with qualified specialists

Objectives

The objectives of the course are for the participants to gain sufficient knowledge and skills to be able to:

- Identify the vectors in their country
- How to use different methods for calculation of Vectorial capacity
- Be familiar to different vector control measures
- How to use insecticide at the appropriate way
- How to monitor insecticide resistance in the country
- Develop a plan for vector control for the country

- Organize a training course for capacity building for vector control.
- Integration of Vector Management

Entry requirements

The course is designed for authorities involved in vector borne disease control, who are presently, or will be in future, responsible for vector control activities. This includes managers and potential managers of disease control programmes and provincial and district personnel. Candidates will be expected to have a medical degree or a PhD or MSc in medical entomology, medical parasitology, epidemiology or a related subject and to have a good command of English language.

Course timetable

The duration of this course is 6 weeks and is partially practical oriented (laboratory and field) with lectures kept to a minimum, and with emphasis on group work. A minimum length of time will be devoted to each subject in the class. Sessions will be held for a minimum of seven hours per day from Saturday to Thursday. Towards the end of the course, participants will be required to spend extra times to complete their assignments for vector control plan.

Language

This course will be conducted entirely in English. Participants will be expected to be fluent in spoken and written English and may be asked to provide evidence for their English proficiency.

Attendance and certification

The participants will be expected to attend all sessions throughout the course and to attend the opening and closing ceremonies without exception. Travel arrangements should therefore be made accordingly in both directions before arriving in teaching center. Participants are encouraged not to make changes to their flight reservations.

Follow up activities

After completion of the course, participants need to use the knowledge, skills and competence acquired appropriately. It is expected that participants will be selected for this course who will, upon returning to their countries or place of work, be deeply involved in vector control activities. This would include Plan for vector control and implementing action.

Application procedure

This course has a maximum capacity of 30 places. Interested individuals should apply preferably through their governments to their nearest office of WHO-EMRO. Applicants should apply to their nearest office of the WHO for a fellowship application form. After completion and obtaining government endorsement, it should be submitted to WHO. Selection of candidates will be

made in consultation between experts of WHO and School of Public Health, Tehran University of Medical Sciences.

Admission to the course

Applicants who are selected to participate in the course should obtain a visa to enter the Training site. The visa must cover the entire period of the course up to, and including, the date of flight departure. This must be obtained at least one month before the course.

The deadline for admission to the course is maximum 2 days after commencing the course. Any participant who has not been accepted by this date will **not** be admitted to this course.

Accommodation and Tuition fee

A tuition fee includes two-twin bed accommodation for each participant, two coffee breaks, breakfast, lunch, dinner, books and training materials to use during the course and to take back with them for future reference. The amount is 4500 US\$. Participants should ensure that they have adequate travel insurance.

Contact Addresses

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Week1

Date	Time	Subject	Tutor
Saturday		Arrival of participants	
Sunday	8.00-08.30	Pre-test on Mosquitoes and Mosquito-Borne Diseases (MBDs)	Course organizers
	8.30-09.30	Pre-test on MBDs Entomology (laboratory)	Course organizers
	09.30-10.00	Break	
	10:00-12:00	Epidemiology of Arthropod-Borne Diseases (Malaria, Dengue, Yellow Fever)	Prof. H. Vatandoost
	15:00-17:00	Epidemiology of Arboviruses (West Nile, Filariasis, Encephalitis)	Prof. H. Yaghoobi-Ershadi
	17:00-17:30	Break	
Monday	17:30-19:00	Status of MBDs in EMRO	Dr. Raeisi
	8.00-10.00	Biology and ecology of Culicidae mosquitoes + Film	Prof. H. Vatandoost
	10.00-10.30	Break	
	10.30-12.30	Differentiation of <i>Anopheles</i> from other culicidae, <i>Culex</i> and <i>Aedes</i>	Dr Kazemi
	15:00-17:00	Differentiation of <i>Anopheles</i> from other culicidae, <i>Culex</i> and <i>Aedes</i> (practical)	Dr Kazemi
	17:00-17:30	Break	
Tuesday	17:30-19:00	Main characters for Adult mosquito differentiation	Prof. H. Vatandoost
	8.00-10.00	Identification of major malaria vectors at the adult stage (practical)	Dr. Kazemi, Dr. Edalat, Eng. Abai
	10.00-10.30	Break	
	10.30-12.30	Main characters for larval mosquito differentiation	Dr Kazemi
	15.00-16.30	Identification of major malaria vectors at the larval stage (practical)	Dr. Kazemi, Dr. Edalat, Eng. Abai
		<i>Anopheles</i> species complexes and their identifications	Dr. Oshaghi
	16.30-17.00	Break	
Wednesday	17.30-18.30	Life cycle of malaria parasites, sexual and asexual stages, calculation of malaria indices, ABER, SPR, API	Dr Basseri
	8.00-10.00	Different methods for mosquito collection at the adult stage (theory)	Dr. Basseri
	10.00-10.30	Break	
	10.30-12.30	Different methods for mosquito collection at the adult stage (theory)	Dr. Basseri
	14.00-16.00	Different methods for mosquito collection at the larval stage (theory)	Dr. Basseri
Thursday	16.00-21.00	Field visit for mosquito collection (CDC light traps, Night collection)	Dr. Basseri
	6.00-10.00	Early morning field visit for mosquito collection (Total catch, larval collection)	Dr. Basseri
	10.00-10.30	Break	
	10.00-12.30	Preservation and identification of the collected mosquitoes (Adult/larvae) from the field	Dr. Kazemi Dr. Edalat, Eng. Abai
	15.00-16.30	Preservation and identification of the collected mosquitoes (Adult/larvae) from the field	Dr. Kazemi Dr. Edalat, Eng. Abai
	16.30-17.00	Break	
	17.30-19.30	Preservation and identification of the collected mosquitoes (Adult/larvae) from the field	Dr. Kazemi Dr. Edalat, Eng. Abai

Week 2

Date	Time	Subject	Tutor
Saturday	8.00-10.00	Mosquito dissection (theory)	Dr. Kazemi
	10.00-10.30	Break	
	10.30-12.30	Mosquito dissection for midgut, salivary gland and ovaries (practical) Abdominal stages, Anthrophilicity and Zoophilicity Index,	Dr. Kazemi Dr. Edalat, Eng. Abai
		Blood meal identification (ELISA/PCR-RFLP)	Dr. Oshaghi
		Molecular detection and identification of malaria parasites in the vectors	Dr Oshaghi
	15.00-16.30	Mosquito rearing in the insectary (theory-Practical)	Eng. Abai
	16.30-17.00	Break	
Sunday	17.30-18.30	Group discussion on MBDs in the countries of the course participants	Tutors' group
	8.00-08.45	Post-test on Mosquitoes and Mosquito-Borne Diseases (MBDs)	Course organizers
	9:00-10:00	Post-test on MBDs Entomology (laboratory), pre-test on Vector Borne Disease control	Course organizers
	10:00-10:30	Break	
	10.00-10.45	Biology, medical importance of fleas	Dr. Sedaghat
	11.00-12.30	Biology, medical importance of nuisance, sting and blister insects	Dr. Oshaghi
	16.30-17.00	Break	
Monday	17.30-19.00	Biology, medical importance of black fly	Dr. Telmadarrei
	8.00-10.00	Biology, medical importance of tsetse fly	Prof. H. Vatandoost
	10.00-10.30	Break	
	10.30-12.30	Biology, medical importance of lice and scabies	Dr. Basseri
	15.00-16.30	Biology, medical importance of scorpion	Dr. Navidpour (Razi Institute)
Tuesday	16.30-17.00	Break	
	17.30-18.30	Biology, medical importance of kissing bugs	Prof. H. Vatandoost
	8.00-10.00	Biology, medical importance of cockroaches,	Prof. H. Vatandoost
	10.00-10.30	Break	
	10.30-12.30	Group discussion on vectors and other medically important arthropods in the countries of participants	Prof. H. Vatandoost
Wednesday	15.00-16.30	Group discussion on vectors and other medically important arthropods in the countries of participants	Tutors' group
	16.30-17.00	Break	
	17.30-18.30	Pre-test on VBDs vector control	Course organizers
	8.00-10.00	Introduction to toxicology, nomenclature, classification	Prof. H. Vatandoost
	10.00-10.30	Break	
Thursday	10.30-12.30	Public Health Pesticides , formulations of Pesticides	Prof. H. Vatandoost
	15.00-16.30	Botanical insecticides (theory and film)	Prof. H. Vatandoost
	16.30-17.00	Break	
	17.30-19.30	Pyrethroids, discovery and properties	Prof. H. Vatandoost
Friday	8.00-12.00	Insect pheromones and its importance in pest control	Dr. Oshaghi
	15.00-16.30	Pheromones of insects (film) Genetic control and sterility	Dr. Oshaghi
	16.30-17.00	Break	
Saturday	17.30-18.30	Transgenic and Paratransgenic Mosquitoes	Dr. Oshaghi

Week 3

Date	Time	Subject	Tutor
Saturday	8.00-010.00	Repellents, mode of action	Prof. H. Vatandoost & Team
	10.00-10.30	Break	
	10.30-12.30	Chemosterilants	Prof. H. Vatandoost & Team
	15.00-16.30	Personal protection and insecticide safety	Prof. H. Vatandoost & Team
	16.30-17.00	Break	
Sunday	17.30-18.30	Synergists	Prof. H. Vatandoost & Team
	8.00-010.00	Judicious use of insecticides	Prof. H. Vatandoost & Team
	10.00-10.30	Break	
	10.30-12.30	Fumigants, carcinogenicity of pesticides	Prof. H. Vatandoost & Team
	15.00-16.30	Persistent Organic Pollutants (POPs) (theory and film)	Prof. H. Vatandoost & Team
Monday	16.30-17.00	Break	
	17.30-18.30	Management of Public Health Pesticides	Prof. H. Vatandoost & Team
	8.00-010.00	Anticoagulants	Prof. H. Vatandoost & Team
	10.00-10.30	Break	
	10.30-12.30	Attractants, Adjutants	Prof. H. Vatandoost & Team
Tuesday	15.00-16.30	Environmental Protection Agency (APE)	Prof. H. Vatandoost & Team
	16.30-17.00	Break	
	17.30-18.30	Novel insecticides	Prof. H. Vatandoost & Team
	8.00-010.00	Entomotoxicology	Prof. H. Vatandoost & Team
	10.00-10.30	Break	
Wednesday	10.30-12.30	Mechanisms of insecticide resistance in Arthropods	Prof. H. Vatandoost & Team
	15.00-16.30	Molecular basis of insecticide resistance	Dr. Oshaghi
	16.30-17.00	Break	
	17.30-18.30	Pesticide residues, principal concepts	Prof. H. Vatandoost & Team
	8.00-010.00	Introduction to the Thin Layer Chromatography (TLC) apparatus	Dr. Shaeghi
Thursday	10.00-10.30	Break	
	10.30-12.30	Introduction to High Performance Liquid Chromatography (HPLC) apparatus	Dr. Shaeghi
	15.00-16.30	Pesticide extraction procedures	Dr. Shaeghi
	16.30-17.00	Break	
	17.30-18.30	Insecticide used for vector control	Prof. H. Vatandoost & Team
Friday	8.00-010.00	Formulation of insecticides (theory)	Prof. H. Vatandoost & Team
	10.00-10.30	Break	
	10.30-12.30	Formulation of insecticides (practical)	Prof. H. Vatandoost & Team
	15.00-16.30	Different methods for MBDs vector control (theory)	Prof. H. Vatandoost & Team
	16.30-17.00	Break	
	17.30-18.30	Different methods for MBDs vector control (theory)	Prof. H. Vatandoost & Team

WEEK 4

Date	Time	Subject	Tutor
Saturday	08:00-10:00	Different equipments for vector control with emphasis on Indoor Residual Spraying (IRS) (theory)	Prof. H. Vatandoost & Team
	10:00-10:30	Break	
	10:30-12:30	Different equipments for vector control (practical)	Prof. H. Vatandoost & Team
	15:00-16:30	Different parts of Hudson pump sprayer (theory + practical)	Prof. H. Vatandoost & Team
	16:30-17:00	Break	
	17:00-18:30	Measurement of insecticide used for indoor residual spraying , safety measures	Prof. H. Vatandoost & Team
Sunday	08:00-10:00	Practical work for indoor residual spraying in the station	Prof. H. Vatandoost & Team
	10:00-10:30	Break	
	10:30-12:30	Impregnated bednets (theory + practical)	Prof. H. Vatandoost & Team
	15:00-16:30	Larviciding for mosquito control (theory)	Prof. H. Vatandoost & Team
	16:30-17:00	Break	
	17:00-18:30	Larvivorus fish and <i>Bacillus thuringiensis</i> (theory)	Prof. H. Vatandoost & Team
Monday	08:00-12:00	Larvivorus fish and <i>Bacillus thuringiensis</i> (application in the field)	Prof. H. Vatandoost & Team
	16:00-18:00	Group discussion on MBDs vector control methods and coverage in the countries of the course participants	Prof. H. Vatandoost & Team
Tuesday	08:00-10:00	Adult susceptibility test (theory)	Prof. H. Vatandoost & Team
		Molecular detection of insecticide resistance	Dr. Oshaghi
	10:00-10:30	Break	
	10:30-12:30	Adult susceptibility test (practical)	Prof. H. Vatandoost & Team
	15:00-16:30	Larval susceptibility test (theory)	Prof. H. Vatandoost & Team
	16:30-17:00	Break	
Wednesday	17:00-18:30	Larval susceptibility test (practical)	Prof. H. Vatandoost & Team
	08:00-10:00	Results of Adults susceptibility test (practical)	Prof. H. Vatandoost & Team
	10:00-10:30	Break	
	10:30-12:30	Interpretation of adult susceptibility test	Prof. H. Vatandoost & Team
	15:00-16:30	Results of larval susceptibility test (practical)	Prof. H. Vatandoost & Team
	16:30-17:00	Break	
Thursday	17:00-18:30	Mechanisms of insecticide resistant in mosquitoes	Prof. H. Vatandoost & Team
	08:00-10:00	How to calculate the required amount of insecticides, bed nets for special region How to draw a map for calculation of area for malaria vector control implementation,	Prof. H. Vatandoost & Team
	10:00-10:30	Break	
	10:30-12:30	Vector control practical project for presentation of Integrated Vector Management (IVM) for their region or district	Prof. H. Vatandoost & Team
	15:00-16:30	Vector control practical project for presentation of Integrated Vector Management (IVM) for their region or district	Prof. H. Vatandoost & Team
	16:30-17:00	Break	
	17:00-18:30	Vector control practical project for presentation of Integrated Vector Management (IVM) for their region or district	Prof. H. Vatandoost & Team

WEEK 5

Date	Time	Subject	Tutor
Saturday	8.00-09.45	Post test on VBDs control	Course organizers
	10.00-10.30	Break	
	10.30-11.15	Pre-test on Leishmaniasis	Course organizers
	11.30-12.30	Description, history and geographical distribution of Leishmaniasis in the world and EMRO region	Prof. Yaghoobi-Ershadi & Team
	15:00-16:30	An overview of vectors and reservoirs of Leishmaniasis	Prof. Yaghoobi-Ershadi & Team
	16.30-17.00	Break	
Sunday	17:00-18:30	Biology and ecology of sand flies, Epidemiology of cutaneous leishmaniasis	Prof. Yaghoobi-Ershadi & Team
	08:00-10:00	Taxonomy of sand flies, identification criteria, explaining of identification keys	Prof. Yaghoobi-Ershadi & Team
	10:00-10:30	Break	
	10:30-12:30	Identification of sand fly genera: different sub-genera of Phlebotomus genus (laboratory Practice)	Prof. Yaghoobi-Ershadi & Team
	15:00-16:30	Identification of sand fly genera: different sub-genera of Phlebotomus genus (laboratory Practice)	Prof. Yaghoobi-Ershadi & Team
	16:30-17:00	Break	
Monday	17:00-18:30	Epidemiological aspects of visceral leishmaniasis vectors	Prof. Rassi
	8.00-10.00	Sampling methods: sucking tube, CDC light traps, Funnel traps, Sticky traps and other techniques, collection of sand flies on human and animal baits, Dissection of sand flies for detection and isolation of <i>Leishmania</i> parasites	Prof. Yaghoobi-Ershadi & Team
	10.00-10.30	Break	
	10.30-12.30	Different methods of prevention and control of cutaneous and visceral leishmaniasis, Methods for evaluation of leishmaniasis control, principals of Integrated Pest Management, IPM planning	Prof. Rassi
Tuesday	16:00-21:00	Collection of sand flies by different methods (from rodent burrows, on human and animal bait)-(field work)	Prof. Rassi & Team
	8.00-12.00	Collection of sand flies by aspirator from the field, collection of sticky paper traps	Prof. Rassi and team
	15.00-16.30	Dissection of sand flies for detection and isolation of <i>Leishmania</i> Parasites.	Prof. Yaghoobi-Ershadi & Team
	16:30-17:00	Break	
Wednesday	17.00-18.30	Preservation and Mounting of collected sand flies in the station laboratory	Prof. Yaghoobi-Ershadi & Team
	8.00-10.00	Rodent leishmaniasis, Biosystematic of rodents	Dr. Akhavan
	10.00-10.30	Break	
	10.30-12.30	Identification of main reservoir hosts	Dr. Akhavan
	15.00-16.30	Biology, Ecology, Distribution and behavior of rodents, Criteria for incriminating animals as reservoirs	Dr. Akhavan
	16.30-17.00	Break	
Thursday	17.00-18.30	Methods of field and laboratory studies of reservoirs of cutaneous leishmaniasis	Dr. Akhavan
	8.00-10.00	Different methods of rodent control	Dr. Akhavan
	10.00-10.30	Break	
	10.30-12.30	Measurement of rodenticides for application in the field circumstances, Preparing of poisoned bait, Education of workers, Field application impact.	Dr. Akhavan
	14.00-15.30	Molecular epizootiology of rodent leishmaniasis Molecular detection of <i>Leishmania</i> parasites in vectors	Dr. Akhavan Dr. Oshaghi
	15.30-16.00	Break	
	16:00-17:30	Integrated management of leishmaniasis Group discussion on the control of leishmaniasis in the countries of participants	Dr AA Akhavan

WEEK 6

Date	Time	Subject	Tutor
	08:00-08:45	Post-test: Leishmaniasis	Course organizers
Saturday	08:45-09:30	Pre-test: Tick-Borne Disease, Myiasis, Geographical Information Systems	Course organizers
	09:30-10:00	Break	
	10:30-12:00	Epidemiology of CCHF in the world	Dr. Sedaghat
	14:00-15:30	Tick-borne Relapsing Fever (TBRF)	Dr. Oshaghi
	15:30-16:00	Break	
	16:00-17:30	Biology and ecology of ticks (Hard, Soft) Collection methods for ticks	Dr. Sedaghat , Dr Telmadarrey
	17:30-18:00	Break	
	18:00-19:30	Identification criteria for ticks with emphasize on CCHF vectors (Practical)	Dr. Sedaghat , Dr Telmadarrey
Sunday	8:00-12:00	Field visit, tick collection	Dr. Sedaghat , Dr. Telmadarrey
	14:30-16:30	Identification of collected specimens: laboratory	Dr. Sedaghat Dr. Telmadarrey
	16:30-17:00	Break	
	17:00-19:00	Identification of collected specimens: laboratory	Dr. Sedaghat , Dr. Telmadarrey
Monday	8:00-10:00	Identification methods of CCHF/Borrelia infection in ticks	Dr. Oshaghi
	10:00-10:30	Break	
	10:30-12:30	Control methods for ticks	Prof. H. Vatandoost & Team
	12:30-14:30	Break	
	14:30-16:30	Group discussion on CCHF control/prevention in EMRO countries	Tutors' Group
	16:30-17:00	Break	
	17:30-19:00	Group discussion on TBRF control/prevention in EMRO countries	Tutors' Group
Tuesday	8:00-10:00	Definition of Myiasis	Dr. Akbarzadeh
	10:00-10:30	Break	
	10:30-12:30	Flies that causing myiasis	Dr. Akbarzadeh
	12:30-14:00	Break	
	14:00-16:00	Control of myiasis agents	Dr. Akbarzadeh
	16:00-16:30	Break	
	16:30-18:30	Identification of myiasis agent (Adult)	Dr. Akbarzadeh
	18:30-19:00	Break	
	19:00-20:30	Identification of myiasis agent (Larvae)	Dr. Akbarzadeh
Wednesday	8:00-10:00	Geographical Information Systems: An introduce to ArcGIS	Dr. Hanafi-Bojd, Eng. Charrahy
	10:00-10:30	Break	
	10:30-12:30	ArcGIS and mapping health Data	Dr. Hanafi-Bojd, Eng. Charrahy
	12:30-14:30	Break	
	14:30-16:30	Exercise: making a database, data export, maps	Dr. Hanafi-Bojd, Eng. Charrahy
	16:30-17:00	Break	
	17:30-19:00	Global Positioning System: Data collection by GPS device	Dr. Hanafi-Bojd, Eng. Charrahy
Thursday	8:00-10:00	GPS Data entry to ArcMAP	Dr. Hanafi-Bojd, Eng. Charrahy
	10:00-10:30	Break	
	10:30-12:30	Locating the perfect places for collection of target insect vectors	Dr. Hanafi-Bojd, Eng. Charrahy
	12:30-14:30	Break	
	14:30-16:30	Interpolation	Dr. Hanafi-Bojd, Eng. Charrahy
	16:30-17:00	Break	
	17:30-19:00	Post-test: CCHF, Myiasis, Geographical Information Systems	Course organizers
	19:30.20.30	Closing ceremony and awarding Diploma	Course organizers

