1. INTRODUCTION

The magnitude of sexually transmitted diseases (STD) in the Eastern Mediterranean Region (EMR) is not exactly known but they are considered to be not uncommon. A large number of people with sexually transmitted infections (STI) are asymptomatic. It was common practice in the past to treat patients with STD after clinical or etiological diagnosis but syndromic approach to diagnosis and treatment has been adopted recently. However, the etiology of STD syndromes and the antimicrobial sensitive pattern of pathogens are not known and need to be studied. A few countries have already started carrying out such study, while a few others are in the process of preparing the proposal for the study.

In order to help Member States conduct study to find out the causes of common STD syndromes and antimicrobial sensitivity of certain pathogens, the Regional Office for the Eastern Mediterranean (EMRO) of the World Health Organization (WHO), with collaboration of the Jordanian Ministry of Health and Health Care and UNAIDS, organized the Intercountry Workshop on STD Prevalence Study in Amman, Jordan from 12 to 15 October 1998.

The specific objectives of the workshop were to:

- review the present situation of STD in the Eastern Mediterranean Region (EMR);
- prepare/refine the proposal for STD prevalence study; and
- prepare a plan of action for STD prevalence study.

The agenda and programme of the workshop are given in Annex 1 and 2 respectively and the list of participants in Annex 3. Dr Ali As'ad of Jordan was nominated as chairman of the workshop and Dr Humayun Asghar of Pakistan as rapporteur.

Dr Hussein A. Gezairy, WHO Regional Director for the Eastern Mediterranean opened the meeting. In his opening address, Dr Gezairy referred to the high morbidity, complications and sequelae due to STD in the Region and the control programmes launched in a number of countries. He emphasized the need to undertake a quick assessment of the STD situation through prevalence study and other studies.

Dr Gezairy highlighted the importance and usefulness of syndromic approach to STD case management which has been adopted by the Member States. He pointed out the absence of any alternative to syndromic approach in places where facilities for laboratory tests do not exist. However, he stressed the need to conduct STD prevalence study periodically in order to find out the causes of STD syndromes and effective drugs for cure. The findings of such study could also be used for developing STD control programme as a whole and as baseline data for future evaluation.

H.E Dr Nael Ajlouny Minister of Health and Health Care of Jordan welcomed the participants in Amman and thanked WHO for their support to countries of the Region and emphasized the importance of collaboration between WHO and the Member States of the Region in the field of disease control and prevention. He also indicated that STD constitute a major public health problem. As the extent of this problem is not exactly known, there is a need for studies to measure the prevalence of STD in countries of the Region. He also indicated that although this

Region is considered as a low prevalence area regarding STD and HIV infection, there are several factors which favour its transmission in the Region. So efforts should be made to control STD including AIDS in the Region. STD control programmes would be more effective if they are established on solid ground based upon the prevalence of STD pathogens and their sensitivity pattern.

2. STD SITUATION

Sexually transmitted diseases are very common in the world and are responsible for high morbidity, complications and sequelae. They cause discomfort and illness and can also cause infertility, abortion and life threatening ectopic pregnancy. They can also affect the newborn babies. A lot of stigma is attached to STD and as a result, very few people with STD seek care and there is considerable delay in seeking care.

STD constitute a major health problem in the world. About 333 million cases of curable STD are estimated to occur every year in the world i.e. about 1 million cases per day or more than 40 000 cases per hour. About 170 million cases are due to trichomoniasis, 89 million cases due to chlamydial infection, 62 million cases due to gonorrhoea and 12 million cases due to syphilis. STD trends vary in different parts of the world, being more common in developing countries. Geographically, South and South East Asia is the worst affected region with 150 million cases, followed by sub-Saharan Africa (65 million), Latin America and the Caribbean (36 million), East Asia and Pacific (23 million), Eastern Europe and Central Asia (18 Million), Western Europe (16 million), North America (14 million), North Africa and Middle East (10 million) and Australasia (1 million).

STD are more common in urban areas than in rural areas. In urban areas, there are more men than women, more economic instability, poverty and deterioration of health and social services, leading to risky sexual behaviours. STD rates are high among young adults, 15–29 years of age, because of lack of easy access to STD services and condom and of frequent and multiple sexual partners. A large number of people with STI, particularly women, are asymptomatic leading to difficulty in their recognition, although asymptomatic infection too can cause complications and long term sequelae.

In the EMR, efforts have been initiated to establish and improve the reporting system. Ten countries are reporting on STD syndromes and serological test for syphilis and six countries on etiological diagnosis of STD. Reporting is still very limited in extent. In 1997, vaginal discharge (69%) was the commonest syndrome reported, followed by urethral discharge (16%), genital ulcer (6%) and others (8%). Among the STD reported etiologically in 1997, candidiasis (43%) was the commonest, followed by trichomoniasis (28%), chlamydial infection (23%), gonorrhoea (3%), chancroid (1%) and syphilis (1%). Less than 5% of the estimated 10 million cases were reported in 1997.

Reports of screening of pregnant women for syphilis were received from 8 countries in 1997. The highest prevalence was reported by Djibouti (3.1%), followed by Morocco (3.0%), Sudan (2.4%), Islamic Republic of Iran (0.7%), Qatar (0.4%), Bahrain (0.2%), Jordan (0.1%) and Iraq

(<0.1%). Screening of blood donors for syphilis in 1997 showed the highest prevalence in Morocco (1.3%), followed by Qatar (1.1%), Oman (0.5%), Tunisia (0.4%), Bahrain (0.2%) and Islamic Republic of Iran (0.2%).

During discussions, the following comments were made.

- The estimates of STD are based on the data from published papers and reports in the region/world.
- The magnitude of STD prevalence can be assessed by establishing and/or improving STD surveillance and reporting system in the countries.
- The VDRL & RPR tests are not specific and can give false positive results. Therefore, syphilis infection should be confirmed by TPHA test.
- Quality control (QC) system should be established/used for the STD diagnostic laboratories to assure that the laboratories are proficient and results are reliable. The idea is worth considering and it is necessary to take into consideration the resources required, networking, etc.

UNICEF and STD

UNICEF involvement in STD earlier involved support to national MCH programmes in screening for syphilis in antenatal care services. This was due to the impact of syphilis in pregnancy on child survival. As the epidemic of HIV/AIDS became a reality with a major impact on women, youth and children, UNICEF expanded its support to STD/HIV/AIDS control and prevention programmes in many countries in the following areas.

- Work within the primary health care system to ensure that STD/HIV/AIDS prevention and control services for youth, women and children are an essential component of the minimum package of services which will be offered at the primary health care (PHC) level.
- Life skills for youth both in-school and out-of-school to equip them with the skills and information they need to protect their health.
- Communication for behaviour change: Use all communication channels to provide appropriate messages on STD/HIV/AIDS prevention and control
- Prevent mother to child transmission of HIV.

UNICEF at the country level will provide maximum support in this area. National managers are advised to closely work with UNICEF offices in the national situation analysis to highlight the magnitude of the problem and the impact of STD/HIV/AIDS on the health of children, youth and women.

3. STD PREVALENCE STUDY

3.1 Objectives and rationale of STD prevalence study

STD prevalence study is important because it sheds light on the scale and nature of these diseases in the country. In some countries of the Region, there are only indirect but alarming indications on the extent of the STD problem. STD are important not only because they require medical and preventive interventions to reduce their incidence and spread but also they can cause damaging and debilitating long-term effect on health, the foetus and newborn child. The fact that STD play a significant role in the transmission of HIV, is of critical importance.

With the lack of appropriate laboratory support and with the difficulty in establishing accurate clinical diagnosis, providing therapy that covers all presumable causes of an STD syndrome has proven to be effective in STD management and control. The syndromic approach may have limitations in the management of vaginal discharge because of the low sensitivity of the clinical signs in the diagnosis of cervical infections especially among low risk women. Risk assessment improves the predictive value for vaginal discharge and helps rationalize treatment. In order to use the syndromic approach successfully and to maximize its advantages, data need to be available on the local prevalence/incidence of STD, etiologies of the STD syndromes, and antibiotic sensitivity pattern.

The overall objective of STD prevalence study is to determine the prevalence of STD and their etioligical profile among the study population

The specific objectives of STD prevalence study are:

- to determine the prevalence and patterns of STD among the study population,
- to determine the antimicrobial susceptibility patterns of some STD pathogens,
- to determine the seroprevalence of HIV among the study population, and
- to determine the proportion of asymptomatic STD cases.

The data generated from the STD prevalence study should be used to guide programmatic interventions and to assist in defining programme priorities and targeted actions.

The following comments were made during the discussions:

- This type of study requires the approval of Ministry of Health (MOH). It is not easy to convince the policy makers to support such study. The policy makers can be persuaded with the support of the WHO and by presenting data on STD prevalence, sequelae of the problem and cost–effectiveness of the interventions. It is suggested that the MOH in the countries be persuaded to facilitate the study.
- Most of the STD cases are not seeking treatment from the government health facilities and prefer to go to the private health facility (PHF). It is therefore suggested that a big PHF with high turnover of STD cases may be included in the study. The involvement of the PHF is difficult but possible if someone in the PHF is personally interested to be a member of the study team.
- There is another group of STD patients who go to pharmacists to get the treatment and together with the patients visiting PHFs they make a large group. The question is how these patients can be reached.
- The study population should be defined and sample size calculated accordingly.

3.2 Design of Study

The proposed study is a cross sectional study to determine the etiology of STD syndromes and the prevalence of STD in women. The study participants will be antenatal clinical attendants and gynaecology clinic attendants. The study site will be antenatal and gynaecology clinics. Sites will be chosen provided they attend to sufficient number of patients, they have staff who are willing to participate, and they have the capacity to enrol, interview, examine and investigate study subjects.

800 pregnant women attending antenatal clinics and 200 attending gynaecology clinics will be recruited. Study participants will be enrolled consecutively till the required numbers are reached. Informed consent will be obtained from eligible subjects. HIV seroprevelance study will be anonymous and unlinked.

Two clinicians will be involved in enrolling subjects and carrying out the interviews and examinations. An experienced microbiologist will be needed to perform the laboratory tests. Clerical staff and data entry persons will be required. Selected health facilities will need to be equipped with the necessary equipment and a room where subjects can be examined in privacy will be necessary.

Comments made during the discussions included the following.

- It is a cross-sectional study. This study cannot be called a sentinel surveillance because sentinel surveillance is a series of cross-sectional surveys done at regular interval.
- Every patient with STD visiting the clinic should be given syndromic treatment. However, samples for laboratory investigation should be collected and the patient should be asked to return after one week for reviewing the treatment and for follow-up.
- This study will give the clinic-based prevalence of STD in particular groups and particular areas and does not truly represent the whole country.
- The question related to use of antibiotics may not elicit correct response because many women may not have the level of education to know the use of antibiotics. However, it is important to find out the use of antibiotics, if the organism is to be grown and to exclude those who have used antibiotics within the last three weeks.

3.3 Interview and examination

The interview should be conducted in privacy and the subject should be assured of confidentiality. The reasons for asking subjects detailed question regarding their sex life should be explained. Truthful answers should be obtained and meticulous attention should be paid to details. A questionnaire will be used for interview and examination.

When examining the patient she should be told what the clinician will be doing. A careful examination should be carried out. This should include a general examination, genital examination, speculum examination and a bi-manual pelvic examination. The presence or absence of vaginal discharge should be noted.

All findings should be recorded in a standardized format.

Comments made during the discussions were as follows.

- Informed consent is a must for inclusion of the patients in this study.
- The questions related to sexual behaviour and practices are difficult to ask due to religious, cultural, and social barriers.

- Privacy, confidentiality and re-assurance can help to get more information from the patients. The patients can be convinced about the need for treatment of their sexual partners through repeated counselling.
- Same-sex communication i.e. male-male or female-female, is a better mode of communication for interview and examination in this study.
- It is important to develop rapport with the patients and to make them comfortable before interviewing and examining them.
- The design of the questionnaire should be based on the required information. Data tables should be prepared in advance and questions designed accordingly. Based on this fact, questions may be deleted or added in the proposed questionnaire, as necessary. The questionnaire should be pre-tested for the feasibility and appropriateness.
- The information generated from the study will be used by the country to design strategies for STD control. Therefore, questions in the questionnaire may be limited to specific issues and can be added or deleted in the proposed questionnaire accordingly.
- Meticulous attention should be paid to each question and enough time should be spent on each question to get the required information. However, arrangements should be made to avoid the wastage of time in the clinics during interview, examination and sample collection. An efficient team with designated job could do this.
- Risk assessment is important and relevant questions may be included in the questionnaire as appropriate.
- Where it is difficult to include pregnant women in the study, the alternative would be to include women attending family planning clinics and women of reproductive age who visit the gynaecological clinics for regular check-up.
- Countries are in favour of syndromic approach to STD case management but this approach should be validated periodically.
- Physicians and nurses will be responsible for interview, examination and collection of samples.

3.4 Collection and transportation of specimens

Urethral and endocervical swab: for gonococcal infections, use cotton wool swab or charcoal coated swabs. For *Chlamydia*, use dacron or calcium alginate swabs on aluminium sticks (not wooden sticks). For gonococci, use transport media (Stuart or Amies). For *Chlamydia*, use 2SP transport medium. First voided urine (centrifuged) has very high sensitivity and specificity for gonococci and chlamydia.

For syphilis: 5 ml blood (not turbid, not hemolysed) should be sent for serology. In primary and secondary syphilis, specimens may be collected from lesion for dark field illumination.

For vaginal infection: a vaginal swab collected for *Candida* and another swab for *Trichomonas* which should be transported in Stuart medium.

3.5 Laboratory Tests

Gonococcal infection

Gram stained smear: intracellular Gram-negative diplococci, many pus cells and occasional epithelial cells are seen. A good experienced microscopist is required. It is quick, reliable and inexpensive. Sensitivity is 95% in symptomatic males and about 50% in asymptomatic males and all female patients.

Direct immnofluorescence using monoconal or polyclonal antibodies is not better.

Culture on selective medium: modified Thayer-Martin medium containing vancomycin, colistin, nystatin and trimethoprim to inhibit contaminants. Incubate in 3–10% CO_2: CO_2 incubator with 70–80% humidity or candle jar. Colonies are small, low convex, glistening and non-haemolytic, oxidase positive. Confirm by sugar utilization test (gonococci are glucose positive and meningococci are glucose and maltose positive)

ELISA (Gonozyme) sensitivity is 90% and specificity is 95%.

PCR (Amplicor – Roche) and LCR (Abbott) for gonococci plus *Chlamydia* together are expensive but quick (within 4 hours), 100% sensitive and 99.5% specific. They do not need viable organisms but they can not give antimicrobial susceptibility report.

Chlamydia

McCoy Cell Cultures: sensitivity 70% “Gold Standard”.
ELISA – simple , automated, sensitivity is 70–90%.
Direct immunofluorescence using monoclonal antibody is more sensitive and specific but cost is higher and requires an experienced worker.
PCR and LCR are excellent and available on non-invasive specimens, such as urine and vulval swabs.

Syphilis

Nontreponemal test: VDRL or RPR. Positive early, becomes negative with treatment, biologic false positive common.

Treponemal tests: TPHA is the easiest, very rare false positive. Once positive stays positive indefinitely.

Soft chancre

H. ducreyi: Gram stained smear shows gram negative coccobacilli, culture on chocolate agar with CO_2.

Herpes ulcers: are superficial, multiple and very painful. Confirm by virus isolation or direct immunofluorescence.

During discussions, the following points were made:

- Clear View test, a rapid test for *Chlamydia* diagnosis, has a low sensitivity and specificity.
- The sample for *Chlamydia* diagnosis can be kept in transport media for 24–48 hours at 4–8° C, or at −70° C for 7–8 days for batch testing.
- A larger number of bacteria is required for the smear to be positive for gonococcus (GC) while culture could be positive with a smaller number.
- The selective media inhibits some gonococci. Both selective and non-selective media can be used but it will increase the workload. The solution would be to decrease the vancomycin content from 4 μg to 3 μg in the media.
- Saponin treated horse blood could be another alternate for GC culture.
- Commercially prepared media have variation in quality and isolation rate from manufacturer to manufacturer.
- Quality control (QC) should be used during GC culture.
- *Chlamydia* diagnosis can be made by EIA easily. Immunoflouresence (IF) assays can be used by those who have the facilities and expertise.
- Declining titer of VDRL antibodies is a sign of successful treatment.
- Either RPR or VDRL test can be used as screening test but RPR is simpler and is preferable. TPHA should be used as a confirmatory test.
- Fresh samples should be examined for motile trichomonads. Otherwise, the samples may be transported in a suitable medium.
- Algorithm for HIV testing should be decided by the countries themselves.
- HIV testing should be unlinked anonymous.

3.6 Data management

Proper data management is an essential component of STD prevalence study. Data management should be planned right in the beginning with the involvement of the statistician. Tables should be prepared in advance and all data should be verified continuously.

Particular attention should be given to the design and filling of the questionnaire. The guidelines should be adapted to the local situation. Questions should be designed appropriately. Questions should be clear and easily understood. Once decided, all required questions should be asked and that too in the similar way by all interviewers, as difference in the way the questions are asked may generate varying response. All answers as well as physical findings should be recorded promptly at the spot. They should be cross-checked continuously by the other member of the team and regularly by the supervisor.

Appropriate software, according to the experience of the concerned staff, should be selected for data entry and analysis. *Epi-Info* is generally accepted as appropriate and is available free of cost from WHO.

4. STD CASE MANAGEMENT

All patients who are found to have STD should be offered comprehensive case management. This includes:

- making a diagnosis,
- giving appropriate antibiotics,
- providing health education on risk reduction,
- promoting condom use and providing condoms,
- arranging for partners to be treated, and
- arranging for a follow up examination.

The syndromic diagnosis is made after taking a history from the patient and carrying out an examination. The following STD syndromes should be recognized in women:

- vaginal discharge,
- genital ulcer,
- lower abdominal pain, and
- inguinal bubo.

While managing women with vaginal discharge syndrome an assessment for risk of cervicitis should be carried out. If the risk assessment for cervicitis is positive then the patient should be treated for cervicitis and vaginitis, and if the risk assessment for cervicitis is negative then the patient should be treated for vaginitis.

The management of vaginal ulcers is first to exclude vaginal herpes and then to manage the patient for syphilis and chancroid.

The management of genital herpes is essentially through education and counselling.

The etiologic diagnosis of STD may be made by taking history, examining the patients and carrying out laboratory investigations. Presumptive diagnoses of gonorrhoea, candidiasis, trichomoniasis and bacterial vaginosis can be made with simple laboratory tests.

It is necessary to carry out an assessment of personal risk status for each patient and to develop individual messages.

Partners of persons with STD should be treated as well. Patient should be counselled and should be encouraged to inform the partners to seek care.

5. GONOCOCCAL ANTIMCROBIAL SURVEILLANCE PROGRAMME

- Gonorrhoea remains a major global disease with a significant morbidity.
- Gonorrhoea is a significant co-factor in HIV spread.
- Effective treatment of gonorrhoea decreases the incidence of disease, prevents disease complications and reduces HIV spread.
- Effective treatment can be administered as single dose therapy on first diagnosis, but choices of treatment have become limited as antibiotic resistant gonococci emerge and spread.
- Antibiotic resistance in gonorrhoea needs to be monitored so that effective therapy is prescribed.

- Antibiotic resistance in gonococci is not uniformly distributed, and antibiotic resistant gonococci can spread quickly between countries and regions.
- Susceptibility surveillance should monitor both emergence and spread of gonococcal resistance.
- Models of regional gonococcal susceptibility surveillance networks which have produced valid data over long period are in existence.
- These models include details for establishing networks and the methods employed in these networks.
- A successful gonococcal antimicrobial surveillance programme (GASP) network requires input from regional offices, a regional reference laboratory and focal points in countries to develop and implement an operative plan developed by consensus.
- Participation in GASP networks requires an ongoing commitment, access to isolates and an ability to test isolates.

6. OPERATIONAL MANAGEMENT

Adequate attention should be paid to operational management to ensure the smooth conduct of the study. Before the study is begun, it is essential to ensure that certain prerequisites are fulfilled. Human resources required for the study should be available. Furthermore, they should be committed and willing to cooperate in the study. There should be adequate physical facilities, particularly the facilities for performing the selected laboratory tests. Collaborative approach among the partners facilitates the conduct of the study. It goes without saying that the required funds should be available right at the beginning. Once it is decided to conduct the study, it is essential to ensure that the required resources, human, material and financial, are available adequately and in time.

A coordination committee should be formed consisting of various concerned staff including epidemiologist, STD specialist, gynaecologist, laboratory specialist and statistician. One of them should be designated as the principal investigator. Field staff should be drawn from the participating clinics, each team consisting of two members, doctors/nurses (at least one of them should be female) and a supervisor. Laboratory staff should be drawn from serology and bacteriology sections. The number of teams and staff should be minimal in order to reduce the interobserver error. All staff should be trained adequately covering knowledge, attitude and skill and supervised regularly. On-site availability of guidelines for data collection and laboratory procedures help in improving the staff performance.

A rapid assessment of the clinics regarding case load, staff and facilities will be necessary before selecting the clinics. If a number of staff are working in any selected clinic, participating staff and the day(s) when samples will be drawn should be predetermined. Who will enrol the study population and how should be clearly stated in the protocol. There should be quality control and standardization in all participating clinics.

Laboratory aspects of the study should be given full attention. Who will transport the specimen and how, when and where should be clear to all staff. Certain laboratory procedures, such as wet mounting, preservation and storing, should be carried out promptly, meaning thereby that the laboratory working hours may have to be extended. Who will do the tests and when, and what results will be communicated to whom and when should be clear to the laboratory staff. There should

be quality control and standardization. If feasible, it is preferable to carry out the tests in a single laboratory.

The forms required for the study are the questionnaire, laboratory requisition slips and laboratory results. Test kits, reagents and other supplies are necessary for laboratory tests. STD case management requires the drugs selected in the regimen. It is essential to ensure that all supplies are available in time and in enough quantity.

Budgetary provision should be made for staff (incentive for extra work, training and supervision), supplies (stationery, forms, laboratory material, etc.), data management, and transport. A collaborative approach utilizing the existing resources is important, to be supplemented by external support where required.

7. PLAN OF ACTION

The whole study can be divided into five stages. The first stage, preliminary stage, includes writing, submission and approval of the proposal. The second stage is the preparatory stage which includes recruitment and training of staff, design and printing of forms and guidelines and procurement of supplies. The third stage of implementation consists essentially of collection of data in the clinics and laboratories and analysis and interpretation of data. In the fourth or reporting stage, a draft report will be prepared, reviewed and revised and a final report will be prepared and submitted. In the final stage of utilization of the findings, the findings will be disseminated, STD case management guidelines will be reviewed and drug regimen for treatment of STD will be selected.

The plan of action for the study should enlist all important activities, identifying the responsible person and target date for each activity. The following activities were suggested.

- Writing and submission of final proposal
- Approval of proposal by Ministry of Health
- Approval of proposal by donors
- Recruitment of staff
- Design and printing of questionnaire and forms
- Preparation of guidelines and training materials
- Procurement of supplies
- Training of staff
- Pretest
- Review, revision and printing of questionnaire and forms
- Collection of data
- Analysis of data
- Writing of draft report
- Review of draft report
- Writing and submission of final report
- Dissemination of study findings
- Review and revision of STD case management guidelines
- Selection of drug regimen for treatment of STD

Working in country groups the participants prepared or refined the proposal for STD prevalence study using a standard format of content for their respective countries. These proposals were presented at the workshop and discussed. They also prepared a plan of action as stated above. The standard format of content was as follows.

- Introduction

Magnitude of STD in the country: reported and estimated cases by disease or syndrome
Facilities for laboratory diagnosis of STD

- Objectives
- Rationale
- Study population
- Study sites
- Sample size in each site and by each study population group
- Sampling method including inclusion and exclusion criteria
- Consent of study participants
- Collection of data
- Collection, transportation and testing of specimens
- Laboratory tests: organism, nature of specimen, method of testing and location of laboratory
- Management of study participants with STD
- Date management
- Staff and training
- Report writing
- Budget: breakdown in detail
- Plan of action: by activity and target date

8. RECOMMENDATIONS

STD prevalence study

1. Member States should be encouraged and motivated to participate in the control of STD, mobilizing their own financial resources.
2. WHO should provide technical and financial assistance to selected countries in order that they may conduct studies to determine the prevalence of STD in pregnant women attending antenatal clinics and women attending gynaecology clinics.
3. Regular exchange of information between countries should be encouraged. The quarterly EMRO newsletter *EMR AIDSnews* could be a medium for such exchange.

STD case management

4. WHO should continue to conduct training of trainers workshops in the syndromic management of STD.
5. WHO should continue to provide assistance to countries to implement national training activities in syndromic case management of STD at the national level.

Laboratory services

6. Member States should develop adequate laboratory services to support STD control strategies.
7. Surveillance of the antibiotic susceptibility of *N. gonorrhoea* through a programme such as GASP should be introduced gradually in the Eastern Mediterranean Region to maintain effectiveness of treatments used in syndromic management.

Annex 1

AGENDA

1. Opening session
2. Introductory session
3. Objectives, rationale and design of STD Prevalence Study
4. Interview and examination
5. Specimen collection and transportation
6. Laboratory tests
7. Gonococcal antimicrobial surveillance programme
8. STD case management
9. Data management
10. Operational management
11. Preparation/refining of proposal
12. Plan of action
13. Closing session

Annex 2

PROGRAMME

Monday, 12 October 1998

08:30–09:00	Registration	
09:00–09:30	Opening session	
10:00–11:30	Introductory session	
	Introduction of participants	
	Nomination of officers	
	Objectives of the workshop	(Shrestha)
	Adoption of agenda	
	STD Situation in the world and in the region	(Shrestha)
	UNICEF and STD control	(Magan)
11:30–12:15	Objectives and rationale of STD Prevalence Study	(Tawilah)
12:30–14:30	Design of Study	(Latif)

Tuesday, 13 October 1998

08:00–10:00	Interview and examination	(Latif)
10:15–12:15	Specimen collection and transportation and Laboratory tests	(Chugh)
12:15–12:30	Tea break	
12:30–14:30	Laboratory tests (continued)	(Chugh)

Wednesday, 14 October 1998

08:00–10:00	STD case management	(Latif)
10:15–12:15	Gonococcal antimicrobial surveillance programme	(Tapsall)
12:30–14:30	Data and Operational management	(Shrestha)

Thursday, 15 October, 1998

08:00–10:00	Preparation/refining of proposal	(Participants)
10:15–11:15	Preparation/refining of proposal (continued)	(Participants)
11:15–12:15	Presentation of proposal	(Participants)
12:30–14:30	Presentation of proposal (continued)	(Participants)

Closing session

Annex 3

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