Training of Laboratory Technicians to Deliver STI/RTI Services

Facilitator's Guide

NATIONAL RURAL HEALTH MISSION
राष्ट्रीय ग्रामीण स्वास्थ्य मिशन
2005 - 2012

सत्यमेव जयते

NACO
National AIDS Control Organisation
India's voice against AIDS
Department of AIDS Control
Ministry of Health & Family Welfare, Government of India
www.nacoonline.org

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MAY 2011

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Sayan Chatterjee
Secretary & Director General

Department of AIDS Control, NACO, Ministry of Health and Family Welfare, Government of India

MESSAGE

The prevention, control and management of STI/RTI is a well recognized cost effective strategy for controlling the spread of HIV/AIDS in the country as well as to reduce reproductive morbidity among sexually active population. Individuals with STI/RTI have a significantly higher chance of acquiring and transmitting HIV. Moreover STI/RTI are also known ti cause use infertility and reproductive morbidity. Controlling STI/RTI helps decrease HIV infection rates and provides a window of opportunity for counselling about HIV prevention and reproductive health.

An operational framework for convergence between National AIDS Control Programme Phase III and Reproductive and Child health Programme Phase II under National Rural Health Mission has been developed. This will bring about uniformity in implementation os STI/RTI prevention and control through the public health are delivery system Through this, the availability and reach of standardized STI/RTI care at all levels of health facilities will be ensured.

The NACP III Strategy and Implementation Plan (2007-2012) makes a strong reference to expanding access to a package of STI management services both in the general population as well as for high risk behavior groups.

For nation-wide training of health functionaries on STI/RTI management standardized training modules and training aids/job-aids for various functionaries involved in provision of STI/RTI care have been developed to train doctors ANMs/Nurses, and to technicians on Syndromic Case Management of STI/RTI.

I am sure that these comprehensive operational guidelines will help towards ensuring the provision of quality STI/RTI services across the country.

(Sayan Chatterjee)

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सत्यमेव जयते

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PREFACE

Sexually transmitted infections and reproductive tract infections (STIs/RTIs) are important public health problems in India. Studies suggest that 6% of the adult population in India is infected with one or more STIs/RTIs. Individuals with STIs/RTIs have a significantly higher chance of acquiring and transmitting HIV. Moreover, STIs/RTIs are also known to cause infertility and reproductive morbidity. Controlling STI/RTIs helps decrease HIV infection rates and provides a window of opportunity for counseling about HIV prevention and reproductive health.

The implementation framework of National Rural Health Mission (NRHM) provided the directions for synergizing the strategies for prevention, control and management for STI/RTI services under Phase II of Reproductive and Child Health Programme (RCH II) and Phase III of National AIDS Control Programme (NACP III). While the RCH programme advocates a strong reference "to include STI/RTI and HIV/AIDS preventions, screening and management in maternal and child health services", the NACP includes services for management of STIs as a major programme strategy for prevention of HIV.

These modules are intended as a resource document for the programme managers and service providers in RCH II and NACP III and would enable the RCH service providers and NACO service provider in organizing effective case management services for STI/RTI through the public health care system.

(P.K. Pradhan)

सत्यमेव जयते

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FOREWORD

Community based surveys have shown that about 6% of adult Indian population suffers from sexually transmitted infections and reproductive tract infections. The prevalence of these infections is considerably higher among high risk groups ranging from 20-30%. Considering that the HIV epidemic in India is still largely concentrated in the core groups, prevention and control of sexually transmitted infections can be an effective intervention to reverse the HIV epidemic progress.

Syndromic Case Management (SCM) is the cornerstone of STI/RTI management, being a comprehensive approach for STI/RTI control endorsed by the World Health Organization (WHO). This approach classifies STI/RTI into syndromes, which are easily identifiable group of symptoms and signs and provides treatment for the most common organisms causing the syndrome. Treatment has been standardized through the use of pre-packaged colour coded STI/RTI drug kits. SCM achieves high cure rates because it provides immediate treatment on the first visit at little or no laboratory cost. However, it goes hand in hand with other important components like counseling, partner treatment, condom promotion and referral for HIV testing.

As per the convergence framework of NACO-NRHM for STI/RTI service delivery, uniform service delivery protocols, operational guidelines, training packages & resources, jointly developed by NRHM & NACO are to be followed for provision of STI/RTI services at all public health facilities including CHC and PHC. As per joint implementation plan, NACO/SACS would provide training, quality supervision and monitoring of STI/RTI services at all health facilities, thus overseeing the implementation. For tracking access, quality, progress and bottlenecks in STI/RTI program implementation, common information and monitoring system jointly developed by NACO and NRHM would be followed.

As a step to take convergence forward, it is envisaged that a resource pool of trainers is created at state and district level so as to enable roll out trainings for service providers in the public health care delivery system using the jointly developed training material and through the cascade models of trainings. The ultimate aim is to ensure high quality STI/RTI service delivery at all facilities with best utilization of resources available with both NACP III and RCH II/NRHM.

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ACKNOWLEDGMENT

Reproductive tract infections (RTIs) including sexually transmitted infections (STIs) present a huge burden of disease and adversely impacts the reproductive health of people. The emergence of HIV and identification of STIs as a co-factor have further lent a sense of urgency for formulating a programmatic response to address this important public health problem.

The comprehensive training modules on the Prevention and Management of STI/RTI have come through with the coordinated and concerted efforts of various organizations, individuals and professional bodies, who have put in months of devoted inputs towards it.

The vision and constant encouragement of Ms K Sujatha Rao, IAS, Secretary Health and Family welfare, Shri K Chandramouli, IAS, Secretary and Director General NACO, Ms Aradhana Johri, IAS, Additional Secretary NACO and Shri Amit Mohan Prasad, IAS, Joint Secretary RCH, Ministry of Health and Family Welfare is sincerely acknowledged, under whose able leadership these modules have been developed.

The technical content has been jointly developed by STI division, Department of AIDS Control (National AIDS Control Organization) and Maternal Health Division of MoHFW. The National Institute for Research in Reproductive Health (NIRRH), Mumbai under ICMR initiated and lead the process of reviewing the existing training material and developing updated training modules through the organization of a number of meetings and workshops. The preparation and design of material also involved the technical assistance, funding support and other related support provided by WHO, UNFPA, FHI and many other experts in the field.

Thanks are due to Dr. Anjana Saxena, Deputy Commissioner, Maternal Health Division, Dr. Himanshu Bhushan, Dr. Manisha Malhotra, and Dr. Dinesh Baswal, Assistant Commissioners Maternal Health Division for their constant technical inputs, unstinted support and guidance throughout the process of developing these guidelines. The hard work and contributions of Dr. Ajay Khera, then Assistant Director-General, and NACO STI team comprising of Dr. Shobini Rajan, Deputy Director, Dr. Bhrigu Kapuria, Technical Officer, Dr. TLN Prasad, and Dr. Aman Kumar Singh, Technical Experts and Dr. Naveen Chharang, Assistant Director at NACO have been invaluable in shaping the document.

Sincere appreciation is due to Dr. Sanjay Chauhan, Deputy Director, NIRRH who coordinated the whole process along with his team comprising Dr. Ragini Kulkarni, Research Officer and Dr. Beena Joshi, Senior Research Officer at NIRRH. Special mention is made of contribution of Dr. Deoki Nandan, Director, NIHFW, Delhi and for all those who coordinated the piloting of the module through State Health Directorates and State AIDS Control Societies of Uttar Pradesh, Madhya Pradesh, Assam, Kerala, West Bengal and Gujarat. I also thank to Public Health Foundation of India (PHFI) for providing assistance to print these modules.

(Dr. Sunil D. Khaparde)

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Ante Natal Care
ART	Anti Retroviral Therapy
ANMs	Auxiliary Nurse Midwives
BV	Bacterial Vaginosis
CA	Candidiasis, yeast infection
CHCs	Community Health Centres
CMV	Cyto MegaloVirus
CDC	Centre for Disease Control
DNA	Deoxy Ribonucleic Acid
EC	Emergency Contraception
ESR	Erythrocyte Sedimentation Rate
EIA	Enzyme Immuno Assay
ELISA	Enzyme Linked Immuno Sorbent Assay
Endo	Endogenous
FP	Family Planning
FHI	Family Health International
FTA-Abs	Fluorescent Treponema Antibody Absorption Test
GUD	Genital Ulcer Disease
HBV	Hepatitis B Virus
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HSV	Herpes Simplex Virus
Iatro	Iatrogenic
IPHS	Indian Public Health Standards
ICTC	Integrated Counselling and Testing Centre
IDUs	Intravenous Drug Users
IM	Intramuscular
IU	International Units
IUD	Intra Uterine Device
IV	Intravenous
KOH	Potassium Hydroxide
LCR	Ligase Chain Reaction
LGV	Lympho Granuloma Venereum

LHV	Lady Health Visitor
MOHFW	Ministry of Health and Family Welfare
MSMs	Men having Sex with Men
MCH	Maternal and Child Health
MHA-TP	Micro Haemagglutination Assay for antibodies to Treponema Pallidum
MTCT	Mother-To-Child Transmission
MVA	Manual Vacuum Aspiration
NACP	National AIDS Control Program
NRHM	National Rural Health Mission
NPCP-III	National AIDS Control Program-Phase III
NIRRH	National Institute for Research in Reproductive Health
NACO	National AIDS Control Organization
NGO	Non Governmental Organization
NGU	Non Gonococcal Urethritis
PHC	Primary Health Centre
PLHAs	Persons Living with HIV/AIDS
PAP Test	Papanicolaou Test
PPTCT	Prevention of Parent-To-Child Transmission of HIV
PSI	Population Services International
PCR	Polymerase Chain Reaction
PEP	Post Exposure Prophylaxis
PID	Pelvic Inflammatory Disease
ROM	Rupture of Membrane
RPR	Rapid Plasma Reagin
RTI	Reproductive Tract Infection(s)
RCH	Reproductive and Child Health Program
RCH-II	Reproductive and Child Health Program-Phase II
STI	Sexually Transmitted Infection
STD	Sexually Transmitted Disease
SACS	State AIDS Control Society
TPHA	Treponema Pallidum Haemagglutination Test
TI	Targetted Intervention
TV	Trichomonas Vaginalis
UTI	Urinary Tract Infection
UNFPA	United Nations Population Funds
VCT	Voluntary Counseling and Testing
VDRL	Venereal Disease Research Laboratory
WBC	White Blood Cells
WHO	World Health Organization

Contents

Instructions for Facilitators

1. The target audience for this workshop is Laboratory Technicians at the PHCs or the STI Clinics.
2. The content of the module is based on the National Guidelines for RTIs/STIs issued by Ministry of Health and Family Welfare and similar publications by World Health Organization (WHO).
3. It is expected that the Facilitators be well acquainted with adult learning principles and learning techniques such as interactive presentation, case study, role-plays and demonstration.
4. It is mandatory for the Facilitators to go through the entire content and methodology of the workshop, including the Power Point slides for each module.
5. It is essential that the Facilitators will arrange for dry run or practice run of entire workshop before facilitating the session with actual participants (trainees).
6. All the Facilitators must go through the entire training material so as to provide appropriate references to the modules discussed before their session/module.

Tips on using the Facilitator's Guide

The facilitator's guide has the following parts:

i. Module no.: Which denotes the module number

ii. Module caption

iii. Total time: Total time required for the module

iv. Module objectives: The learning objectives to be achieved at the end of the module

v. Materials required: List of materials required during that module. Every module requires some essential supplies such as blank flipcharts, marker pens. Other specific requirements for the entire module are listed here. The facilitators must review the list of materials while preparing for the session and make necessary materials available.

vi. Preparation by facilitators: Provides instructions for making the facilitators ready for the sessions in the specific module.

vii. Module outline: It shows the number of sessions in a particular module, along with proposed and recommended training technique or methodology.

Contd...

viii. Each module is divided into several sessions. It is expected that not more than 2 facilitators conduct any one session (preferably one facilitator, unless the session is too extensive, such as flowcharts or client education).

ix. All the Power Point slides are inserted into facilitator's instructions so that they can know and follow the sequence of slides in a systematic and step-by-by manner. The facilitator may shorten the content of the power point slides.

x. Where applicable, the checklists, such as checklists for history taking, clinical examination, are inserted in the facilitator’s manual.

MODULE NO. 1

INTRODUCTORY MODULE

(Total Time: 1 hour 30 mins)

SESSION 1

GETTING TO KNOW EACH OTHER

(Time: 30 mins)

Objectives:

By the end of this session, participants and facilitators will be able to:

- Identify each other in the group.
- Establish rapport amongst themselves.

Materials:

- Flipchart I–1
- Name tags
- Markers

Activity	Topic	Training methodology	Time
1	Group Introduction	Introduction in Pairs	30 mins

Introduction

This module provides an introduction to the 2 days training programme for laboratory technicians to understand the magnitude of STI/RTI problem in the community and country and to perform simple laboratory tests for diagnosing common STI/RTI, so that they can help doctors in delivering quality STI/RTI management and prevention services at primary health care system. This module helps to acquaint the participants to one another and to the facilitator(s). It also runs through the training objectives and participants' expectations and sets the ground rules and norms for the workshop.

Activity 1

- Introduce yourself and your co-facilitator(s).
- Welcome the participants to the training workshop to understand the magnitude of STI/RTI problem in the community and country, and to perform simple laboratory test for diagnosing common STI/RTI based on the infrastructure and facilities available at primary health care system and help doctors and other health care providers in delivering quality STI/RTI management and prevention services at primary health care setting.
- Explain that before starting the programme, a few minutes will be spent on general introductions.
- Pair the participants and facilitators.
- Put up flipchart I-1 and ask each pair to talk to each other for 5 mins and find out about each other (as per points written on the flipchart)
- Now ask each pair to come forward and introduce each other to the entire group.

FLIPCHART I-1

Find out the following about your partner:

- Name
- Designation
- Place of work
- Number of years she has been working in primary health care system
- A hobby

- Keep on noting and adding up the number of years of experience of everyone in the room as they are introduced.
- After the introductions, stress that there is a wealth of experience among the participants present in the room. Mention the total number of years of experience that all the participants together have in the room. Clearly there will be much that every individual can share with and learn from others in the group.
- Then distribute the name tags and ask the participants to write clearly the name they would like to be called during the programme, some people prefer their first name and others their surname. Encourage them to wear the name tags throughout the workshop.

SESSION 2

PROGRAMME OBJECTIVES AND SCHEDULE

(Time: 30 mins)

Objectives:

By the end of this session, participants will be able to:

- List out their expectations from the workshop.
- List out the objectives of the training programme.
- Have an overview of the 2 days workshop.

Activity	Topic	Training Methodology	Time
1	Listing participant expectations	Brainstorming	10 mins
2	Listing programme objectives	Presentation	10 mins
3	Overview of the programme	Presentation	10 mins

Activity 1

- Put up flipchart I-2, and brainstorm the participants what expectations they have from this orientation programme.

FLIPCHART I-2

Participants' expectations from the training programme:

1 .....

2 .....

3 .....

Note down their responses on a blank flipchart. Put up the flipchart on a wall and let it remain there throughout the 2 days.

- Tell the group that you will refer to their expectations again at the end of the workshop to see to what extent they were met with.

Activity 2

- Show flipchart I-3 and explain objectives of the programme.

FLIPCHART I-3

Specific objectives of the training programme

By the end of this programme, laboratory technicians will be:

- More knowledgeable on STI/RTI, their causative agents and complications;
- Able to understand the seriousness of complications of common STI/RTI, if left untreated and their impact on reproductive health;
- Able to assist doctors and other health care providers in collection of various body fluid samples such as blood, vaginal, cervical, urethral, urine, rectal samples;
- Able to perform simple laboratory tests to diagnose common STI/RTI based on the infrastructure and facilities available at primary health care system
- More knowledgeable on standard precautions for prevention of STI/RTI.

Activity 3

- Give participants copies of the Participant's Manual. Ask the participants to look at the agenda in Handout I and briefly run through it so that they know what will be done during each day of the workshop.

Schedule of the 2 day Workshop for Laboratory Technicians

Days/ Timings	Module: Topic and Duration	Contents
Day 1 (Morning)		
09 00 hrs	**Module 1:** Introductory module (1 hr 30 min)	• Getting to know each other • Program objectives and schedule • Pre-test
10 30 hrs	**Module 2:** Understanding Common STI/RTI (1hr)	• Basic information on common STI/RTI • Different types of STI/RTI and its causative organisms • Complications of STI/RTI
11 30 hrs	**Module 3:** Laboratory Tests for STI/RTI at Primary Health Care System (1 hr)	• Role of laboratory test in control of STI/RTI • Laboratory Tests for STI/RTI
12 30 hrs	**Module 4:** Disinfection and Universal Precautions (1 hr)	• Standard work precautions • Use of personal protective equipment • Use of disinfectants
13 30 hrs	LUNCH BREAK	
Day 1 (Afternoon) CLINICAL PRACTICAL		
14 30 hrs	Laboratory Diagnosis for STI/RTI (3 hrs)	• Practical demonstration by Facilitator on various laboratory tests for STI/RTI including sample collection
Day 2 (Morning) CLINICAL PRACTICAL		
9 00 hrs	Laboratory diagnosis for STI/RTI (5 hrs)	• Performance of various laboratory tests to diagnose STI/RTI by participants
13 00 hrs	LUNCH BREAK	
15 00 hrs	Disinfection control and standard precautions (1 hr 30 min)	• Demonstration by facilitator and performance by participants on standard precautions and use of disinfectants
16 30 hrs	Post test (30 min)	

- Explain that in the training programme particular subject modules have been selected on the basis of health problems and health risk for STI/RTI in general population.
- Explain that the programme is tightly structured, requiring everyone's presence and active participation.
- Inform the participants that during the workshop everyone will be asked to share their views and perspectives with others. In this way, everyone (including the facilitators) will be an equal participant.
- Tell them that in this workshop there are NO teaching sessions; we all will learn from each other.
- Explain what is a participatory learning process.
- Emphasize that there are some basic ground rules that would be followed throughout the workshop.
- Put up flipchart I-4. Ask the participants to formulate ground rules for the workshop and keep writing them on a flipchart, then match with the following:

FLIPCHART I-4

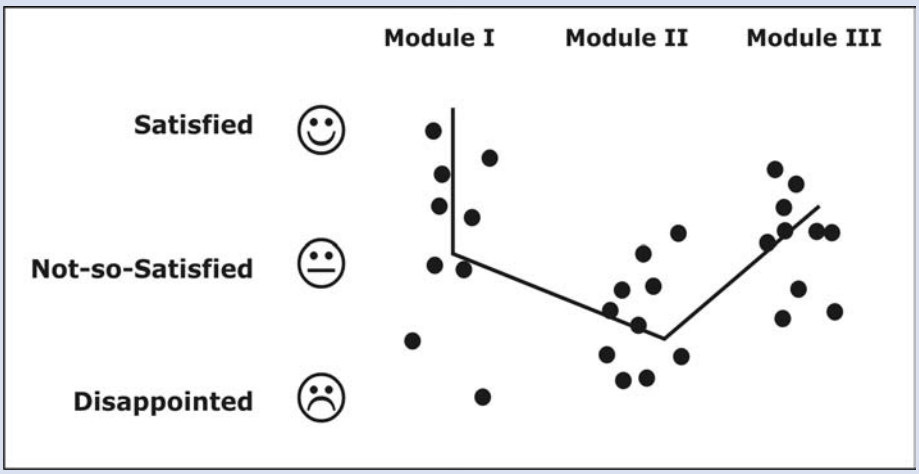
Ground rules for the workshop

- Treating everyone with respect at all times,irrespective of sex or age
- Ensuring and respecting confidentiality
- Agreeing to respect and observe time keeping and to begin and end the sessions on time
- Speaking one by one - Make sure that everyone has the opportunity to be heard
- Accepting and giving critical feedback taking care not to hurt any one's feelings
- Drawing on the expertise of facilitators and the participants in difficult situations

- Stress that adherence to these rules will help to ensure an effective and enjoyable learning environment. Paste the chart on a wall so that it can then be referred to throughout the workshop.
- Emphasize that respecting confidentiality is very important, so that facilitators and participants are able to discuss sensitive issues (such as those relating to sexual and reproductive health) without concern about repercussions.
- Put up the *Satisfaction Meter* (flipchart I-5) and explain it.

FLIPCHART I-5

The Satisfaction Meter



Tell that throughout the orientation programme, it will be used to assess how participants feel about each module.

The satisfaction meter should be put up in an accessible location in the training room. Explain that the three faces indicate the following in descending order: "satisfied", "not satisfied" and "disappointed". At the end of each module, the participants are asked to mark a spot, according to how they feel on this meter. Draw a line through the middle of the spots to create a simple graph that charts the "ups" and "downs" of the group.

The satisfaction meter can be used as a means of tracking the group's feeling about how the workshop is proceeding and as a starting point for discussion.

- Place the '*Mailbox*' in one corner of the room and explain that it will remain in this location at all times so that participants may write down any questions related to the topics covered each day. They need not write their names.
- Tell the participants that the facilitators will answer the questions raised every day.

Tips for facilitator

- The participatory approach to be used in the programme could be new to some (or many) of the participants, so it is important to spend some time discussing it with them. The following quotation comes from about 2500 years ago, and stresses what is an essential element of learning even today.

What I hear, I forget

What I see, I remember

What I do, I understand ***Confucius (551-479 B.C)***

Stress that we all learn best when we take an active part in finding out things that are new to us

- A class in which we take part in discussions is more interesting than a class in which we just listen to a lecture.
- A class in which we can see for ourselves what things look like and how they work, is more interesting than a class in which we only talk about things.
- A class in which we not only talk and see, but also actually do and acquire the skills ourselves, is exciting! When we learn by finding things out for ourselves, by building on experience we already have, we do not forget. What we learn through doing it becomes a part of us.

Tips for facilitator

- Remember to put up the ***Satisfaction Meter*** everyday for modules covered on that particular day. The **"Mailbox"** is a place for the participants to record any questions/matters arising during the course of the workshop so that you can address them later in the workshop. Place the ***Mailbox*** in an easily accessible place. Check mail every evening and answer the questions next morning.

SESSION 3

PRE-TEST

(Time: 30 mins)

Objectives:

By the end of this session, facilitators will be able to:

- Assess the participant's level of current knowledge regarding laboratory tests performed in the management of STI/RTI and other issues related to reproductive health along with exploring attitudinal issues.

Activity	Topic	Training methodology	Time
1	Pre-test	Each participant fills up a questionnaire	30 mins

- The purpose of this test is a pre-training evaluation of the knowledge and attitudes of the participants.
- Dispel the fear and embarrassment of participants by telling them that it does not matter if they do not know the answers to some questions. Their answers will help the facilitators/trainers to know their existing knowledge regarding laboratory tests performed in the management of STI/RTI and other issues related to reproductive health and will be able to give more emphasis on the topics with gaps in their knowledge and facilitate changes in attitude during training sessions.
- Give each participant a pre-test form.
- Explain to the participants that they have to complete the pre-test form in 30 mins. Ask the participants to respond to the questions on their own and not discuss them with their co-participants.
- Collect the answered pre-test forms from the participants after 30 mins.
- Thank the participants for filling up the pre-test.

Tips for facilitator

- Answer sheet for the pre-test form is given at the end of this session for your reference. One of the facilitators should correct the pre-test forms using this answered sheet and give scores. Facilitators to note, which questions most of the participants, could not answer.

  Note: There are 3 sections (A, B and C) in the exercise. The exercise carries total 50 marks. Each question in section A, B and C is of 1 mark. In the end add up the total marks obtained and calculate the score % by dividing marks obtained with maximum marks 50 and multiply by 100.

  Example: if a participant scores 35 marks. The score % is $\frac{35}{50} \times 100 = 70\%$

- The facilitators should analyse the forms during lunch time and evening after training on the same day to identify course areas where the participants have a gap in knowledge or issues relating to attitude and make note of it to be addressed and emphasized during the conduction of relevant session.

Training workshop for Laboratory Technicians on prevention and management of STI/RTI

Pre-test

Name of State _____ Name of District _____

Name of Block/Taluka _____

Name of Health facility _____

Name of Participant (Optional) _____

Dates of Test _____

Instructions. Answer all questions. Please read each question and the multiple choices carefully and circle correct answers in sections A, B and C. Follow specific directions for each section. This exercise carries total 50 marks.

Section A.

Tick circle T (True) or F (False).

1	The higher is the sensitivity, higher is the rate of false negative report (missed infection).	◯ True	◯ False
2	If specificity of a test is 95% and 100 people who are not infected are tested, 95 will have negative test results and 5 will have positive test results (even though they are not infected).	◯ True	◯ False
3	Antigen is a molecule, which is recognized by the immune system and induces an immune reaction (the organism itself).	◯ True	◯ False
4	Antibody is a class of serum proteins, which are induced following contact with antigen (an infectious organism).	◯ True	◯ False
5	False positives means people infected with STI/ RTI are diagnosed as positive.	◯ True	◯ False
6	False negatives means people infected with STI/ RTI diagnosed as negative (missed infections).	◯ True	◯ False
7	Positive predictive value of a test indicates how many are true positive among the positives detected by the test.	◯ True	◯ False

8	Sensitivity and specificity are used to give an indication of how good a diagnostic test is.	◯ True	◯ False
9	Laboratory testing can be useful in screening of subjects without symptoms who seek health care e.g. Antenatal and to confirm disease.	◯ True	◯ False
10	At primary health care facility, it is not possible to offer microscopic examination of stained samples of urethral and cervical discharges and wet mounts of vaginal discharge.	◯ True	◯ False

Section B.

Select only one answer to each question. Place tick before the correct answer.

1. RTI means:

a. Research and Training Institutes
b. Reproduction Training Institutes
c. Respiratory Tract Infections
d. Reproductive Tract Infections

2. Colour code of Serum collection vial:

a. White
b. Violet
c. Green
d. Red

3. Following are some of the STI/RTI except:

a. Pulmonary Tuberculosis
b. Chlamydia infection
c. Syphilis
d. Candidiasis

4. You can prevent STI/RTI by

a. Abstinence
b. Being faithful to partner
c. Use Condoms correctly and consistently
d. All of the above

5. Unsafe or high-risk activities means

a. Receiving blood transfusion of untested blood
b. Using unsterilized needles & syringes, or sharp instruments, on yourself or someone else
c. Having penetrative vaginal or anal sex where the penis enters the vagina or anus without using a condom
d. All of the above

6. Hepatitis B, hepatitis C, and HIV infection can be transmitted:

a. Through unprotected sexual intercourse with an infected person

b. Through sharing needles, razors, toothbrushes, skin-cutting tools, or tattooing instruments

c. From an infected mother to child during pregnancy and delivery

d. All of the above

7. Following are some of the commonly used laboratory tests for detection of STI/RTI except:

a. Rapid Plasma Reagin (RPR) Test

b. Wet mount microscopy

c. Gram stain microscopy

d. Liver function tests

8. Laboratory testing can be useful in:

a. Screening and detection of disease in those without symptoms who seek health care for other reasons

b. Testing a sample of the population to see the prevalence and incidence

c. Conducting simple studies to check on the accuracy of syndromic management

d. All of the above

9. Wet mount is seen under 40 x

a. True

b. False

10. What is the full form of VDRL ?

a. Venereal Disease Research Laboratory

b. Venereal Diagnostic Research Laboratory

c. Venereal Direct Research Laboratory

d. None of the above

11. Which organism is detected by Grams stain?

a. Trichomonas

b. Bacterial vaginosis

c. Neisseria gonorrhoea

d. All of above

12. What is the ideal pressure and time for autoclaving ?

a. 120 lbs for 20 mins

b. 121 lbs for 15 mins

c. 121 lbs for 20 mins

d. 120 lbs for 15 mins

13. Concentration of NaCl in normal saline?

a. 0.90%
b. 0.75%
c. 1.0%
d. 0.85%

14. What is the colour code of the bag to discard human organs?

a. Red
b. Black
c. White
d. Yellow

15. What is the concentration of Hypochlorite solution for use as disinfectant?

a. 0.01%
b. 0.25%
c. 0.4%
d. 1.0%

16. Which is an essential accessory for blood collection?

a. Scissor
b. Tourniquet
c. Scalpel
d. Band AID

17. What are the complications if STI/RTI are not treated?

a. Women may develop breast cancer
b. Women may become infertile
c. Men may develop brain tumour
d. All of the above

18. Which specific needle is used for blood collection?

a. 22G1
b. 24G1
c. 20G1
d. 18G1

19. Which infection is diagnosed by measuring the vaginal secretion pH ?

a. Candida
b. Chlamydia
c. Bacterial vaginosis
d. None of the above

20. Which of the following body fluid is handled as probably infected sample?

a. Blood
b. Cervical sample
c. Urine
d. All of the above

Section C.

Match the following:

Exercise 1

Sr. No	Laboratory Test Performed	For Detection of Type of Infection
1.	Wet mount	a. Chlamydia infection
2.	Dark field microscopy	b. Bacterial vaginosis
3.	Gram staining	c. HIV
4.	Antigen detection by Enzyme immunoassay (EIA)	d. *Trichomonas vaginalis*, Candida, yeast infection, Bacterial Vaginosis (BV)
5.	Vaginal pH	e. Gonorrhoea, BV
6.	Antibody detection tests	f. Gonorrhoea
7.	Culture of organisms (Growing the organism in the laboratory)	g. Syphilis

Exercise 2

Sr. No	Diseases or syndromes	Infectious agent/s
1.	Syphilis	a. Mixed infection by *Neisseria gonorrhoea, Chlamydia trachomatis,* and/or vaginal anaerobic bacteria
2.	Molluscum contagiosum	b. Mixed infection by Gardnerella vaginalis, Mycoplasma hominis, vaginal anaerobes
3.	Chancroid	c. *Chlamydia trachomatis*
4.	Chlamydial infection	d. *Trichomonas vaginalis*
5.	Gonorrhoea	e. Human immunodeficiency virus (HIV 1 & 2)
6.	Trichomonas infection	f. *Haemophilus ducreyi*
7.	Yeast infection	g. *Neisseria gonorrhea*
8.	Bacterial Vaginosis (BV)	h. Poxvirus
9.	Pelvic Inflammatory Disease (PID)	i. *Treponema pallidum*
10.	AIDS	j. *Candida albicans*
11.	Genital and anal warts	k. *Sarcoptes scabiei*
12.	Scabies	l. *Phthirus pubis*
13.	Pubic lice	m. Human Papilloma Virus (HPV)

Answer Key

Section A.

1. False
2. True
3. True
4. True
5. False
6. True
7. True
8. True
9. True
10. False

Section B.

1. d. Reproductive tract infections
2. d. Red
3. a. Pulmonary tuberculosis
4. d. All the above
5. d. All of the above
6. d. All of the above
7. d. Liver function tests
8. d. All of the above
9. a. True
10. a. Venereal Diseases Research Laboratory
11. b and c
12. b. 121 lbs for 15 mins
13. a. 0.90%
14. d. Yellow
15. d. 1.0%
16. b. Tourniquet
17. b. Women may become infertile
18. a. 22G1
19. c. Bacterial vaginosis
20. d. All of the above

Section C.

Exercise 1

1. d
2. g
3. e
4. a
5. b
6. c
7. f

Exercise 2

1. i
2. h
3. f
4. c
5. g
6. d
7. j
8. b
9. a
10. e
11. m
12. k
13. l

MODULE NO. 2

UNDERSTANDING COMMON STI/RTI

(Total Time: 60 mins)

SESSION 1

INTRODUCTION TO MODULE

(Time: 10 mins)

Objectives:

By the end of this session, participants will be able to:

- Get an overview of the module including its objectives.

Activity	Topic	Training methodology	Time
1	Introduction to module	Presentation	10 mins

Introduction

Reproductive tract infections (RTI) including sexually transmitted infections (STI) present a huge burden of disease and adversely impacts reproductive health of people. They are not only causing huge suffering for both men and women around the world, but their consequences are far more devastating and widespread among women than among men. STI/RTI often go undiagnosed and untreated, and when left untreated, they lead to complications such as infertility; ectopic pregnancy and cervical cancer. Pelvic inflammatory disease is a major public health problem and adversely affects the reproductive health of women. Due to the emergence of HIV/AIDS problem and identification of STI/RTI as a co-factor for acquisition and transmission of HIV, control and prevention of STI/RTI has become one of important public health program in the world.

Untreated or improperly treated STI/RTI infection can cause serious complications for the infected person, and it increases the risk of acquiring (getting) and transmitting (passing on) HIV transmission for his/her Partner(s). Each individual with untreated infection also has the chances of further transmission to his/her sexual partners in the community. Doctors and Laboratory Technicians working in the Primary Health Care system have an important role to play in correctly managing STI/RTI for those who use their services.

This module gives an overview of STI/RTI and its implications on reproductive health. This module is a foundation for understanding the subsequent module on role of laboratory in prevention and management of STI/RTI.

Activity 1

- Start by introducing the module's name and sessions.
- Put up flipchart II-1 and present the module objectives to the participants.
- Explain that the purpose of this session is to provide an overview of the problem of STI/RTI and that more specific information and skill development will be covered in later sessions.
- Remind the participants to put any questions/suggestions in the Mailbox after completion of the module.

FLIPCHART II-1

Module objectives

By the end of this module, participants will be able to:

- Get an overview of Sexually Transmitted Infection (STI)/ Reproductive Tract Infection (RTI).

Tips for facilitators

- Encourage the participants to ask questions and raise their concerns, if any.

SESSION 2

WHAT ARE STI/RTI?

(Time: 10 mins)

Objectives:

By the end of this session, participants will be able to:

- Understand the terms RTI and STI and their routes of transmission.

Activity	Topic	Training methodology	Time
1	What are RTI, STI, HIV/ AIDS and their routes of transmission	Presentation	10 mins

Activity 1

- The trainer should review the definitions by presenting them one by one on a flipchart-II.

FLIPCHART II-2

Definitions

- What are RTI
- What are STI
- What is HIV and AIDS
- What is the difference between STDs & STI

Explanation for flipchart II-2

Definitions

A. What are RTI?

- Reproductive tract infection is a broad term that includes sexually transmitted
- Infections as well as other infections of the reproductive tract that are not transmitted through sexual intercourse. In women, RTI includes infections of the outer genitals, vagina, cervix, uterus, tubes, or ovaries. In men, RTI involves the penis, testes, scrotum, or prostate. RTI are caused by bacteria, viruses, or protozoa that person gets either through sexual contact or by non-sexual route.

B. What are STD?

- STDs means sexually transmitted diseases caused by microbes that are passed from one person to another through sexual contact. The terminology is used to describe the diseases that are acquired through sexual contact. Sexually transmitted organisms may also be sometimes transmitted by nonsexual modes of transmission.

C. What are STI?

- The term "Sexually Transmitted Infections" (STI) is a newer term used to indicate that infections caused by microbes may not manifest as symptoms and do not always result in a disease.

D. What is the difference between STI and STDs

- Historically, the terminology used to describe infections and diseases acquired through sexual contact has demonstrated the social stigma attached to these infections. As these terms became laden with moral judgments and as medical and public health professionals began to see the need for a more accurate, technical description, the term 'STI' was approved by WHO and hence became the standardized term.

  Modes of transmission of STI/RTI

  - Due to lack of hygiene (Personal/Genital/Menstrual/Coital)
  - Due to usage of unsterilized medical instruments
  - Due to unsafe sexual practices
- The RTI due to unsafe sexual practices is also called as STI Hence, All STI are RTI BUT not all RTI are not STI

For example

A women may have vaginal discharge due to lack of genital hygiene; following procedures (e.g. IUD insertion) and due to infections developed after abortion or delivery–these are RTI.

In a women with vaginal discharge due to Trichomanas, then it is called as STI.

E. What is HIV and AIDS?

HIV stands for Human Immunodeficiency Virus, a retrovirus transmitted from an infected person through unprotected sexual intercourse, or by exchange of body fluids such as blood, or from an infected mother to her infant or by sharing of needles. There are two types of HIV–1 and 2. A person may be infected with either of them or with both.

AIDS stands for Acquired Immunodeficiency Syndrome. AIDS is the stage of HIV infection that develops some years after a person is infected with HIV. Since HIV is a STI and is transmitted through the same behavior that transmits other STI, whenever there is risk of STI, there is risk of HIV infection as well.

Note: *As most of the HIV is sexually transmitted (85%), HIV and AIDS are always included when we speak of STI in this training.*

- The trainer should explain the difference between RTI, STI and HIV/AIDS.
- Ask participants to name as many categories of RTI as they can, write them on the drawing, and add any content material not covered.
- Define STI and ask participants to list them, ending with HIV/AIDS. Make sure all content is presented
- **Ask participants:** What is the difference between HIV and AIDS and why is this important to know the difference as a Lab Technician
- **Possible response:** A person can be HIV-infected for years with no signs of illness, and can continue a normal life.
- Add any content material not covered.

FLIPCHART II-3

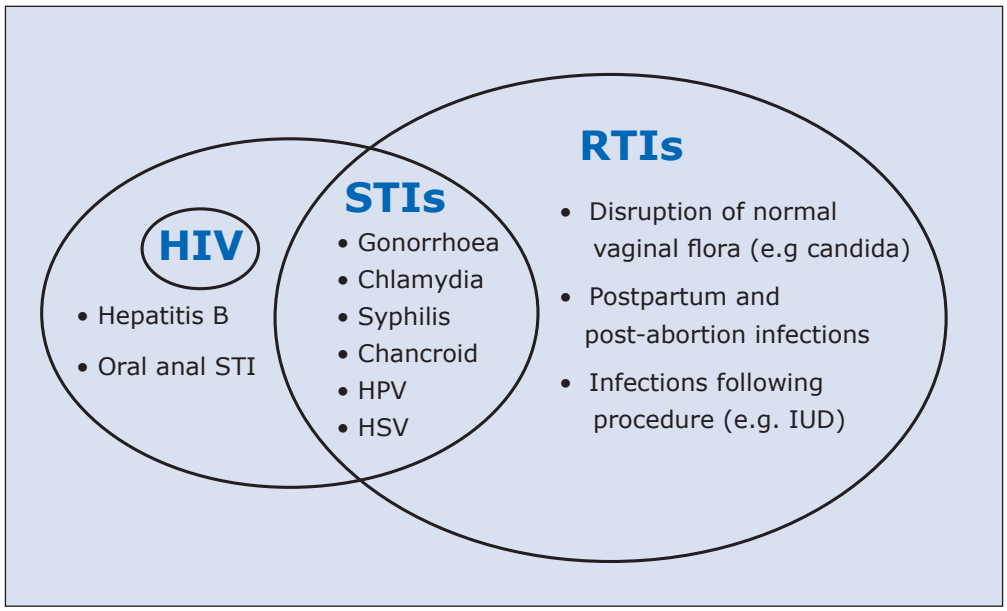


Figure 1: Reproductive Tract Infections (RTI); Sexually Transmitted Infections (STI); and HIV Infection

SESSION 3

COMMON STI/RTI AND THEIR CAUSATIVE ORGANISMS

(Time: 30 mins)

Objectives:

By the end of this session, participants will be able to:

- Know common STI/RTI in men and women
- Know the type of agent causing the STI/RTI

Activity	Topic	Training methodology	Time
1	Common STI/RTI	Brainstorming/Presentation/ Discussion	15 mins
2	The types of agents causing the STI/RTI	Brainstorming/Presentation	15 mins

Activity 1

- The trainer should follow up with the list developed in session 2 and start writing down the names of causing agents for each of the STI/RTI listed on flipchart II 4.

FLIPCHART II-4

Types of STI/RTI

RTI that are most common among women but may not be essentially sexually transmitted are:

1. Bacterial vaginosis
2. Vaginal yeast infection

The most common STI are:

1. Syphilis
2. Gonorrhoea
3. Chlamydial infection
4. Trichomonas infection
5. Chancroid
6. Genital herpes (HSV)
7. Genital warts due to Human papilloma virus (HPV)
8. HIV I & II infection
9. Hepatitis B and hepatitis
10. Donovanosis C infections
11. Lymphogranuloma
12. Molluscum venerum (LGV) contagiosum
13. Genital scabies
14. Pubic lice

Explanation of flipchart II-4

Different types of STI/RTIs

RTI that are most common but not sexually transmitted are:

1. **Bacterial Vaginosis (BV)**: A RTI in women that is caused by an imbalance in the vagina's normal environment and overgrowth of bacteria in the vagina.
2. **Vaginal yeast infection:** A RTI in women that occurs when the normal environment in the vagina changes and there is overgrowth of yeast, commonly *Candida albicans*.

There are over 20 STI. But the most common are:

1. **Syphilis**: A STI caused by *Treponema pallidum* that initially causes painless sore/s that will heal on their own but, if left untreated, can cause serious complications or even death.
2. **Gonorrhoea**: A STI caused by *Neisseria gonorrhoea* that causes discharge from the urethra in men, from cervix in women and from anorectum in both men and women. If left untreated can cause urethral and rectal strictures and infertility in both men and women. It can also cause ophthalmia neonatarum in new born.

3. **Chlamydial infection**- A STI due to infection by *Chlamydia trachomatis*. It is often asymptomatic.
4. **Trichomonas infection**- A STI due to infection by *Trichomonas vaginalis* in both men and women. It is often asymptomatic in men and causes frothy vaginal discharge in women
5. **Chancroid-** A STI due to infection by *Haemophilus ducreyi*, that causes lymph node swelling and painful ulcers in the genital area.
6. **Genital herpes (HSV)**- A STI due to *Herpes simplex* virus that causes painful genital ulcers; recurrent lesions is the hallmark of HSV infection.
7. **Genital and cervical warts due to** *Human Papilloma Virus* (HPV)- Growth or warts in the genital and/or anal area caused by some forms of HPVs. Other forms of HPVs can lead to cervical cancer.
8. **HIV infection–** is caused by Human immunodeficiency virus, it is a retrovirus that weakens the immune system and causes AIDS. There are two types –HIV 1 & 2.
9. **Hepatitis B and hepatitis** C infection- these virus can cause liver damage, and possibly even liver failure.
10. **Donovanosis**- A STI due to infection by *Calymmatobacterium granulomatis* or *Klebsiella granulomatis* that can cause soft, slowly spreading ulcers at genital, anal areas. These ulcers can cause permanent scarring and genital destruction and genital swelling
11. **Lymphogranuloma venereum (LGV)**-A STI due to a subtype of Chlamydia trachomatis that causes inflammation of and prevents drainage of the lymph nodes in the genital area. It causes swelling on one or either groins. LGV can cause destruction and scarring of surrounding tissue.
12. **Molluscum contagiosum-** A STI due to human pox virus that causes benign skin infections. Molluscum contagiosum infection can lead to secondary bacterial infections.
13. **Genital scabies-** A STI due to itch mite, *Sarcoptes Scabiei*.
14. **Pubic lice**- A STI caused by pubic lice *(Phthirus pubis)*.

Activity 2

- Put up 4 cards with each of the following headings on 4 different walls of the training room:

  a) Bacteria

  b) Virus

  c) Fungus

  d) Protozoa

- The trainer will read out the names of the organisms one by one and the participants have to come and stand near the card, which describes the type of the organism.

- The trainer will ask whether the participants, in their experience, know the STI/RTI caused by these infectious agents. List responses on flipchart. Ask for the terms commonly used in the community to refer to these diseases.

- The trainer should summarize the discussion by using flipchart II-4. Discuss in detail with the participants different types of STI/RTI commonly seen in clinical practice and the infectious agent or the type of agent causing it.

Diseases or Syndromes and infectious agent/s

FLIPCHART II-5

Syndrome	Diseases	Infectious agent/s
Genital Ulcer Disease syndrome –Non Herpetic	Syphilis	*Treponema pallidum*
	Chancroid	*Haemophilus ducreyi*
	Donovanosis	*Klebsiella garnulotomatis*
Genital Ulcer Disease syndrome – Herpetic	Genital herpes	*Herpes simplex virus*
Urethral Discharge Syndrome	Chlamydial infection	*Chlamydia trachomatis*
	Gonorrhoea	*Neisseria* gonorrhea
	Trichomonas infection	*Trichomonas vaginalis*
Vaginal Discharge Syndrome	Bacterial Vaginosis (BV)	Mixed infection by *Gardnerella vaginalis, Mycoplasma hominis*, vaginal anaerobes
	Trichomonas infection	*Trichomonas vaginalis*
	Yeast infection	*Candida albicans* Molluscum contagiosum *Pox virus*
Lower Abdominal Pain Syndrome	Pelvic Inflammatory Disease (PID)	Mixed infection by *Neisseria gonorrhoea, Chlamydia trachomatis*, and/or vaginal anaerobic bacteria
Inguinal Bubo syndrome	Chlamydial infection	*Chlamydia trachomatis L1,2,3 sero types*
	Chancroid	*Haemophilus ducreyi*
Painful Scrotal swelling syndrome	Chlamydial infection	Chlamydia trachomatis
	Gonorrhoea	*Neisseria gonorrhea*
Other STI – Genital and anal warts		Human Papilloma Virus (HPV)
Scabies		*Sarcoptes scabiei*
Pubic lice		Phthirus pubis
AIDS		*Human immunodeficiency virus (HIV 1 & 2)*
Hepatitis B, hepatocellular carcinoma	Hepatitis	Hepatitis B Virus

SESSION 4

COMPLICATIONS OF STI/RTI

(Time: 10 mins)

Objectives

By the end of this session, participants will be able to:

- Know that STI/RTI if left untreated or inadequately treated can cause serious complications in males, females and children.

Activity	Topic	Training methodology	Time
1	Complications of STI/RTI	Presentation/Discussion	10 mins

Activity 1

- The trainer should explain the participants the major complications that STI/RTI can cause in males, females and children if left untreated or inadequately treated by showing flipchart II-6.

FLIPCHART II-6

Module objectives

The major complications of STI/RTI in men, women and children

Complications in men:

1. Infertility
2. Cancer of the penis or ano-rectum

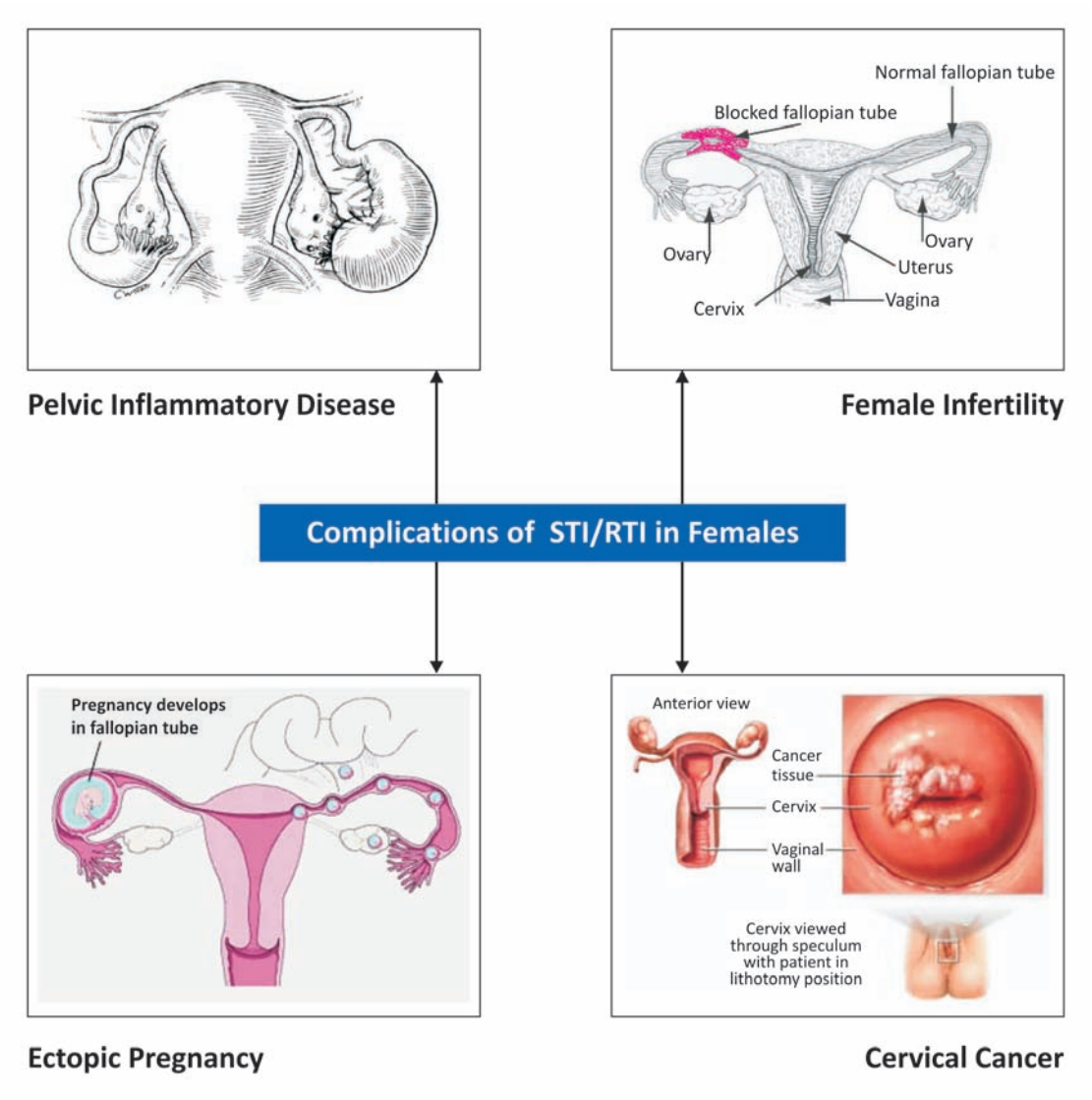
Complications in women:

1. Pelvic inflammatory disease (PID)
2. Ectopic pregnancy
3. Adverse outcomes of pregnancy: early labor and delivery, Low birth weight due to premature delivery or intra-uterine growth retardation, stillbirths and spontaneous abortions
4. Infertility
5. Cervical cancer

Complications in new born babies:

1. Congenital syphilis
2. Opthalmia neonatorum due to Gonorrhoea
3. Respiratory and ocular infections due to Chlamydia
4. Congenital transmission of Human immunodeficiency virus (HIV)
5. Congenital transmission of Herpes simplex viruses 1 & 2 (HSV1 & HSV2)
6. Congenital transmission of Hepatitis B virus
7. Prematurity
8. Low Birth Weight due to intra–uterine growth retardation

- By using the transparencies/slides, the trainer should show the participants the major complications associated with STI/RTI in men, women and children if left untreated.


Normal fallopian tube
Blocked fallopian tube
Ovary
Ovary
Uterus
Cervix
Vagina
Pelvic Inflammatory Disease
Female Infertility
Complications of STI/RTI in Females
Pregnancy develops in fallopian tube
Anterior view
Cancer tissue
Cervix
Vaginal wall
Cervix viewed through speculum with patient in lithotomy position
Ectopic Pregnancy
Cervical Cancer

MODULE NO. 3

LABORATORY TESTS FOR STI/RTI

(Total Time: 60 mins)

SESSION 1

INTRODUCTION TO MODULE

(Time: 5 mins)

Objectives:

By the end of this session, participants will be able to:

- Get an overview of the module including its objectives.

Materials:

- Overhead projector
- Flipchart
- Markers

Activity	Topic	Training methodology	Time
1	Introduction to module	Presentation	5 mins

Activity 1

- The trainer should present the module introduction and objectives using the prepared flipchart III-1.

FLIPCHART III-1

Introduction

The minimal laboratory tests enhances specificity and sensitivity of syndromic approach, leading to better management and prevention of STI/RTI. As public health standards and laboratory facilities are improving at Primary Health Care settings in our country, we can implement better syndromic approach by improving laboratory facilities.

In this module we will review the common laboratory tests used to support syndromic diagnosis of STI/RTI and their role in the control and prevention of STI/RTI.

Specific learning objectives:

By end of the module, participants will be able to:

- Understand the important terms used for STI/RTI laboratory tests
- Explain the role of the laboratory in STI/RTI control.
- Explain the utility of laboratory tests at the Primary Care level.
- Understand the procedures for carrying out the tests for diagnosis of STI/RTI

SESSION 2

ROLE OF THE LABORATORY IN STI/RTI CONTROL

(Time: 10 mins)

Objectives:

By the end of this session, participants will be able to:

- Understand the important terms used for STI/RTI laboratory tests
- Explain the role of the laboratory in STI/RTI control and prevention

Activity	Topic	Training methodology	Time
1	Important terms	Presentation	5 mins
2	Role of laboratory in STI/RTI control and prevention	Presentation	5 mins

Activity 1

- The trainer should start the presentation with some important terms used in laboratory methods by using prepared flipchart III-2.

FLIPCHART III-2

Definition of Basic Terms	
Antigen	*A molecule, which is recognized by the immune system and induce an immune reaction (the organism itself)*
Antibody	*A class of serum proteins, which are induced in response to the immune reaction following contact with antigen (an infectious organism)*
False Positives	*Uninfected people diagnosed as positive*
False negatives	*Infected people diagnosed as negative (missed infections)*

Sensitivity:

- How good a test is at identifying people who are infected
- The higher the sensitivity, the lower the rate of false negatives (missed infections)

Example: if sensitivity of a test is 95% and 100 infected people are tested, 95 will have positive test results and 5 will have negative test results (even though they are infected)

Specificity:

- How good a test is at identifying people who are not infected
- The higher the specificity, the lower the rate of false positives

Example: if specificity of a test is 95% and 100 people who are not infected are tested, 95 will have negative test results and 5 will have positive test results (even though they are not infected)

Sensitivity & specificity are used to give an indication of how good a diagnostic test is. Ideally one would like a test that has 100% sensitivity (i.e. everyone who is infected tests positive) and 100% specificity (i.e. everyone who is not infected tests negative).

Activity 2

The trainer should explain the role of laboratory tests for STI/RTI control with the help of Flipcharts III–3 and III-4.

FLIPCHART III-3

Laboratory testing can be useful in:

1. Screening and detection of STI/RTI in those without symptoms who seek health care for other reasons e.g. Pregnant women attending Antenatal clinic
2. Screening groups of people who may be at risk for a STI/RTI but have no symptoms.
3. Testing a sample of the population to see what percentage is infected (prevalence) and how many new infections are occurring in a certain time period (incidence).
4. Conducting simple studies to check on the accuracy of syndromic management (validation).
5. Testing for antimicrobial resistance.
6. Sentinel surveillance of STI.
7. Making an etiologic diagnosis for patients who present with STI/RTI symptoms.

In all those PHCs where the laboratory services are available, should try to perform minimal laboratory tests suggested for diagnosing syndromes in a better way.

- The trainer should ask participants to give examples of lab tests used in detection of STI/RTI. Record the responses of participants on a flipchart. The trainer should complete the content by adding remaining test names.

FLIPCHART III-4

Some examples may be:

1. Gram stain for urethral discharge and cervical discharge;
2. Syphilis screening in all pregnant women who come to antenatal clinics; and high risk group individuals attending OPD
3. pH testing of vaginal discharge
4. Wet mounts of vaginal and urethral discharge (saline and KOH preparations)
5. Quality assurance

SESSION 3

LABORATORY TESTS FOR STI/RTI

(Time: 45 mins)

Objectives:

By the end of this session, participants will be able to:

- Explain the role of the laboratory in STI/RTI control and prevention Perform simple laboratory tests for STI/RTI to support the diagnosis of common STI/RTI syndromes and/or detection of serological syphilis based on the laboratory facilities available at PHC.

Activity	Topic	Training methodology	Time
1	Laboratory Tests for STI/RTI	Presentation	45 mins

Activity 1

- The trainer should present the information about different laboratory tests used to support the syndromic diagnosis or detection of STI/RTI by using prepared flipchart III-5

FLIPCHART III-5

Different simple diagnostic tests for STI/RTI

A. **Microscopic examination:** Directly visualizing the organism on vaginal/cervical smear under the microscope. *Examples:* **Wet mount** for *Trichomonas vaginalis*, Candida (budding cells), Bacterial vaginosis (BV), **Gram staining** for gonococcus, BV causing organism, Candida and **Dark field microscopy** for *Treponema pallidum*

B. **Serological tests:** To detect presence or absence of antibody against the organism. *Examples:* RPR or VDRL test **for syphilis**.

C. **Culture of different organisms** (Growing the organism in the laboratory). *Examples:* Culturing *Trichomonas vaginalis, Candida albicans* and other species, *Chlamydia trachomatis* and *N. gonorrhoea*

D. **Other:** Use of **Vaginal pH** for BV

- The trainer should present the detailed information about common laboratory tests used in detection of STI/RTI by using prepared transparencies, flipchart III-4.

FLIPCHART III-6

The minimal laboratory tests for detecting common STI/RTI

1. Vaginal pH
2. Wet mount microscopy
3. Gram stain microscopy
4. Rapid Plasma Reagin (RPR) test for syphilis

Explanation for flipchart III-6

How laboratory tests are performed for detection of common STI/RTI:

1. Vaginal pH

- The pH of vaginal fluid should be measured using pH paper of appropriate range (3.8 to 6.0). The vaginal fluid sample is collected with a swab from the lateral and posterior fornices of the vagina and the swab is then touched directly on to the paper strip. Alternatively, the pH paper can be touched to the tip of the speculum after it has been withdrawn from the vagina. Care must be taken not to use any jelly (e.g. K.Y jelly) or disinfectant (eg. savlon) before doing pH test. Contact with cervical mucus must be avoided since it has a higher pH. The normal vaginal pH is 4.0. In bacterial vaginosis (BV), the pH is generally elevated to more than 4.5.
- The vaginal pH test has the highest sensitivity (less false negativity) of the four characteristics used for identification of BV, but the lowest specificity (more positivity); an elevated pH is also observed if the vaginal fluid is contaminated with menstrual blood, cervical mucus or semen, and in women with a T. vaginalis infection. In simple words it means that if pH test is negative the result can be taken as it is but if it is positive one has to rule out the other factors contaminating the sample such as menstrual blood, cervical mucus or semen or presence of T. vaginalis infection.

2. Wet mount microscopy

Wet mount microscopy is the direct microscopic examination of vaginal discharge for the diagnosis of trichomoniasis, candidiasis and bacterial vaginosis.

Box 1: Wet mount microscopy examination of Vaginal discharge	
Collect specimen	Take a specimen of discharge with a spatula from the sidewalls or deep in the vagina where discharge accumulates.
Prepare slide	Mix specimen with 1 or 2 drops of saline on a glass slide and cover with a cover slip.
What to look for	• Examine at low power magnification and look for typical jerky movement of motile trichomonads (ovoid, globular, pear-shaped flagellated protozoan). • Examine at high power magnification to look for yeast cells (round to ovoid cells with typical budding) and trichomonads. • To make identification of yeast cells easier in wet mount slides, mix the vaginal swab in another drop of saline and add a drop of 10% potassium hydroxide to dissolve other cells. Note any fishy odour to suggest BV. • Presence of clue cells (squamous epithelial cells covered with many small coccobacillary organisms). Wet mount shows stippled granular cells without clearly defined edges because of the large numbers of adherent bacteria present and an apparent disintegration of the cells. The adhering bacteria are predominantly G. vaginalis, sometimes mixed with anaerobes).
Important	Look for evidence of other vaginal or cervical infections, as multiple infections are common.

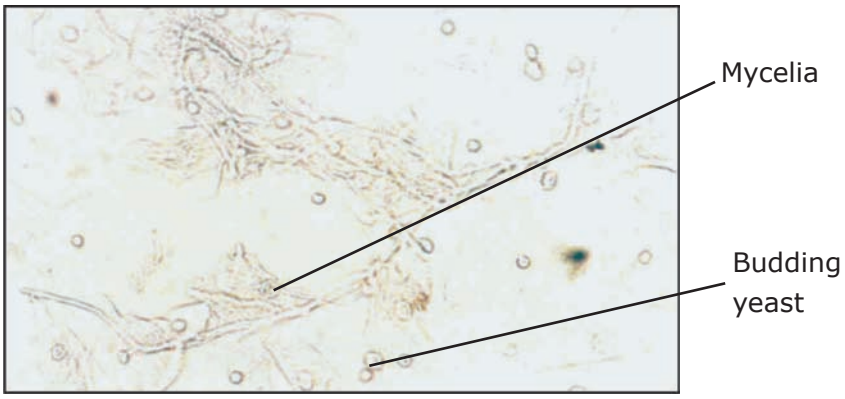


Figure 1: Potassium hydroxide (KOH) preparation of vaginal fluid showing budding yeast and mycelia

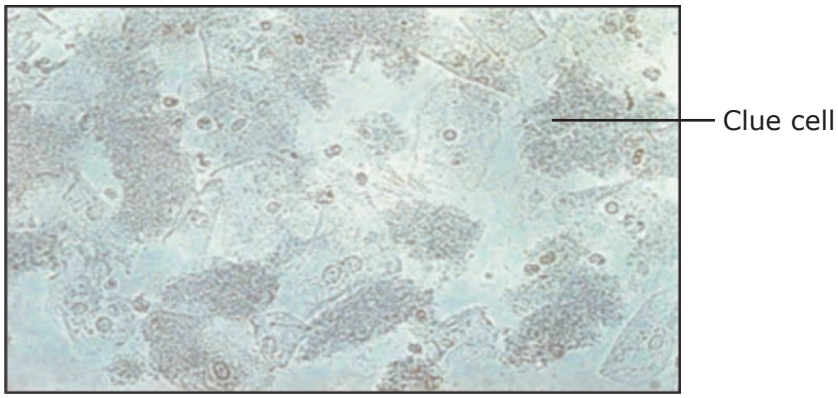


Figure 2: "Clue cells" in vaginal wet mount (high power)

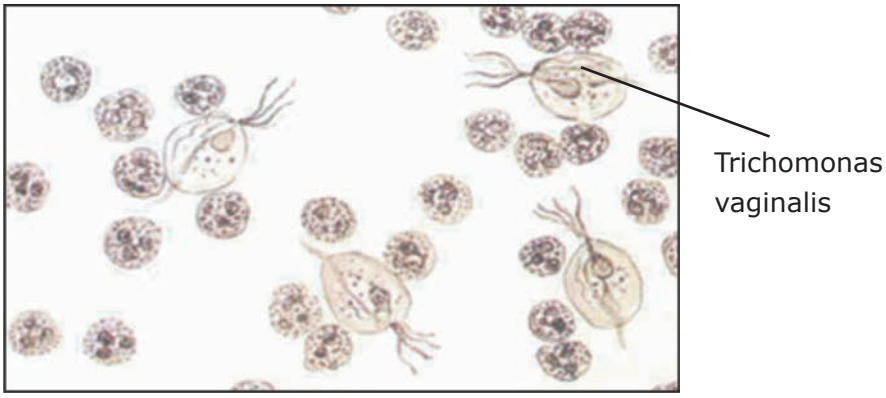


Figure 3: Trichomonas vaginalis in a wet mount of vaginal discharge (x 400)

Box 2: Clinical criteria for Bacterial Vaginosis (BV)	
BV can be diagnosed using simple clinical criteria with or without the aid of a microscope.	
Collect specimen	Take a specimen of discharge from the sidewalls or deep in the vagina where discharge pools (or use discharge remaining on speculum). Note color and consistency of discharge. Touch pH paper to discharge on swab or speculum and note pH.
Prepare slide	• Place specimen on a glass slide. Add a drop of 10% potassium hydroxide (KOH) and note for any fishy smell. • Make a wet smear with 0.9% normal saline, cover with cover slip and see under microscope for clue cells.
What to look for	The diagnosis of BV is based on the presence of at least 3 of the 4 following characteristics • Homogeneous white-grey discharge that sticks to the vaginal walls • Vaginal fluid pH >4.5 • Release of fishy amine odour from the vaginal fluid when mixed with 10% potassium hydroxide (positive whiff test) • "Clue cells" visible on microscopy on wet preparation
Important	Look for evidence of other vaginal or cervical infections, as multiple infections are common.

3. Whiff test

Women with BV often complain of a fishy or foul vaginal smell. This odour is due to the release of amines, produced by decarboxylation of the amino acids (lysine and arginine) by anaerobic bacteria. When potassium hydroxide is added to the vaginal fluid, these amines immediately become volatile, producing the typical fishy odour.

Place a drop of vaginal fluid on a glass slide and add a drop of 10% potassium hydroxide. Hold the slide close to nose to detect the amine odour. After a positive reaction, upon standing the specimen will quickly become odorless because the amines will be rapidly and completely volatilized.

4. Gram stain microscopy

A gram stain of a vaginal smear has a higher specificity (i.e lesser false positivity) for the diagnosis of bacterial vaginosis (BV) than a wet mount preparation. Moreover, a Gram stain allows good evaluation of the vaginal bacterial flora. Normal vaginal fluid contains predominantly lactobacillus species and exceedingly low numbers of streptococci and coryneform bacteria. In BV, lactobacilli are replaced by a mixed flora

of anaerobic bacterial morphotypes and G. vaginalis. However, gram stain microscopy has a very low sensitivity for detecting N. gonorrhoea among women; culture remains the method of choice.

Box 3: Gram stain microscopy of vaginal smears	
Collect specimen	A Gram stain slide can be prepared at the same time as the wet mount by rolling the spatula/swab on a separate slide.
Prepare slide	1. Heat fix. 2. Stain with crystal violet (60 seconds) and rinse. 3. Stain with iodine (60 seconds) and rinse. 4. Decolorize with acetone-ethanol for few seconds (until the liquid runs clear). 5. Stain with safranine (30 seconds) and rinse. 6. Gently blot dry and examine under oil immersion (1000X) and count each type of organisms.
What to look for	1. Lactobacilli (large Gram positive bacilli) only: Normal 2. Mixed flora, mainly lactobacilli with a few short rods (coccobacilli): Considered normal 3. Presence of clue cells; mixed flora, mainly Gardnerella and anaerobic bacteria with a few lactobacilli diagnose as BV 4. Presence of clue cells, mixed flora of Gram-positive, Gram-negative and Gram-variable rods; no lactobacilli diagnose as BV
Important	Look for evidence of other vaginal or cervical infections as multiple infections are common.

***Nugent score**

Scoring system (0 to 12) from Gram-stained vaginal smears

Total score	Lactobacillus morphotypes (large Gram positive bacilli)	Gardnerella and Bacteriodes spp. morpho- types (small Gram negative/Gram variable bacilli)	Mobilincus curved Gram-negative/ variable bacilli
0	0 + (>30/oif)	0 (0/oif)	0 (0/oif)
3	1 + (6-30/oif)	1 + (<1/oif)	1+ (</oif)
6	2 + (1-5/oif)	2 + (1-5/oif)	2+ (2-5/oif)
9	3 + (<1/oif)	3 + (6-30/oif)	3+ (6-30/oif)
12	4 (0/oif)	4 +(>30/oif)	4+ (.30/oif)

Morphotypes are scored as the average number seen per oil immersion field (oif). Note that less weight is given to curved Gram negative/variable rods. Total score = lactobacilli + G. vaginalis and Bacteriodes spp. + curved rods.

Interpretation of Nugent score

0-3 = normal, never treat

4-6 = intermediate, decide on symptoms for treatment

7-or more = BV infection, Treat

Use of gram stain for diagnosis of cervical infection

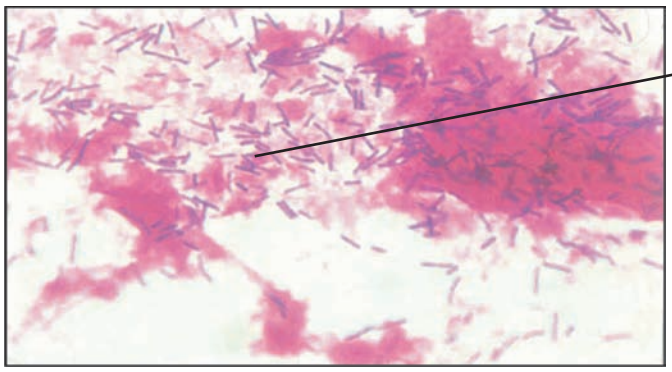


Figure 4: Gram stained vaginal smear showing a normal flora of lactobacilli (x 1000)

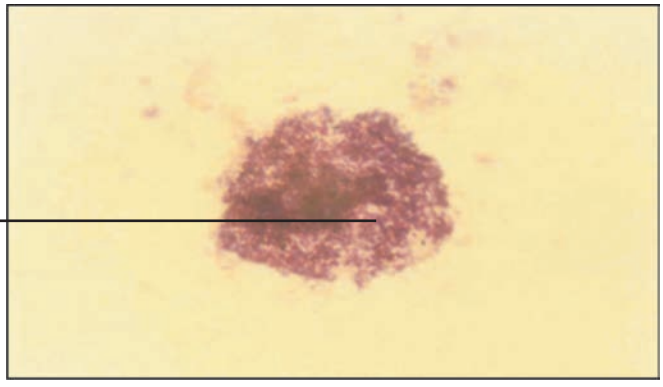


Figure 5: Gram stained vaginal smear with typical "clue cell" (x 1000)

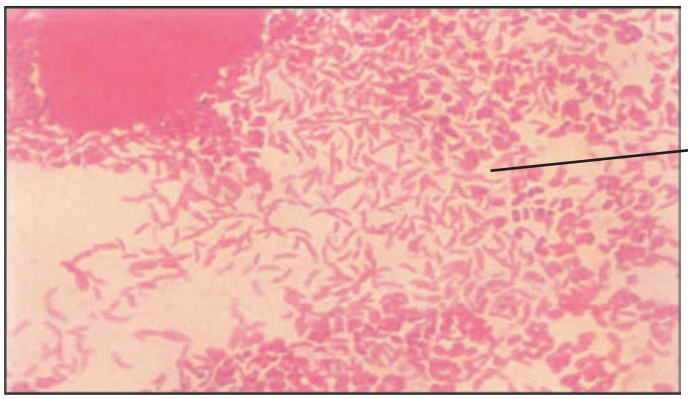


Figure 6: Gram stained vaginal smear showing large Gram- negative rods (Mobilincus mulieris) (x 1000)

1. The Gram stain method in female does not provide conclusive evidence of the presence of gonococcal infection. Presence of intracellular gram negative diplococci indicates infection but their absence does not rule out infection.
2. The costs associated with the method, including the cost of maintaining microscopes, outweigh the benefits in terms of improved quality of care.

Use of gram stain for diagnosis of Urethral/Ano-rectal infection

1. For men, gram stain microscopy of urethral discharge smear will show pus cells and gram-negative intracellular diplococci as well as extra cellular diplococci in case of gonorrhoea.
2. In case of non-gonococcal urethritis more than 5 neutrophils per oil immersion field (1000X) in the urethral smear or more than 10 neutrophils per high power field (400X) in the sediment of the first void urine, in the absence of N. gonorrhoea, is observed.
3. The Gram stain method in male provide conclusive evidence of the presence of gonococcal infection.

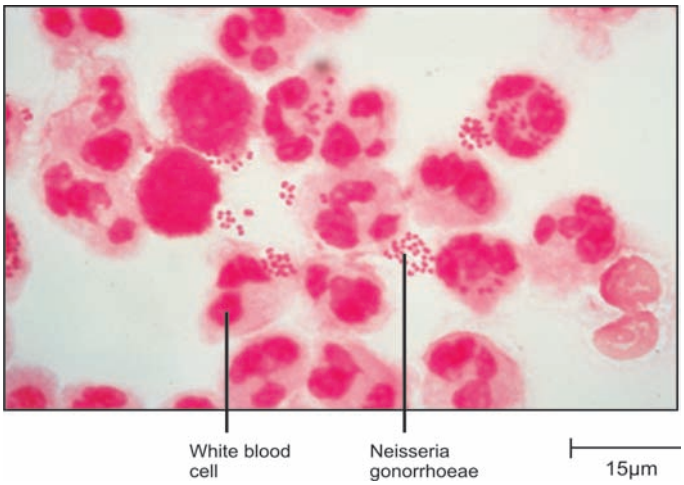


Figure 7: Gram stain Urethral discharge smear: Gram-negative diplococci of *Neisseria gonorrhoea*

5. Rapid plasma reagin (RPR) test for syphilis

The current non-treponemal tests for syphilis are Venereal Disease Research Laboratory Test (VDRL Test) and Rapid Plasma Reagin (RPR) test. RPR test is most suitable for the primary health care set-up.

Procedure of RPR test

- Seek consent
- Use a sterile needle and syringe. Draw 5 ml of blood from a vein. Put in a plain test tube
- Let the test tube stand for 20 minutes to allow serum to separate (or centrifuge 3–5 minutes at 2000–3000 rpm). In the separated sample, serum will be on top.
- Use sampling pipette to transfer the serum. Take care not to include any red blood cells from the lower part of the separated sample.
- Hold the pipette vertically over a test card circle. Squeeze teat to allow one drop (50 µl) of serum to fall onto a circle. Spread the drop to fill the circle using a toothpick or other clean spreader.

Important: Several samples may be done on one test card. Be careful not to contaminate the remaining test circles. Use new tip and spreader for each sample. Carefully label each sample with a patient name or number

- Attach dispensing needle to a syringe. Shake antigen.* Draw up enough antigen for the number of tests done (one drop per test).
- Holding the syringe vertically, allow exactly one drop of antigen to fall onto each test sample. Do not stir.
- Rotate the test card smoothly on the palm of the hand for 8 minutes (or rotate on a mechanical rotator.)

Interpreting results

After 8 minutes rotation, inspect the card in good light. Turn or tilt the card to see whether there is clumping (reactive result). Test cards include negative and positive control circles for comparison.

Interpretation of test results	1. Non-reactive (no clumping or only slight roughness): Non reactive for syphilis 2. Reactive (highly visible clumping): Reactive for syphilis 3. Weakly reactive (minimal clumping): Reactive for syphilis **Note:** Weakly reactive can also be more finely granulated and difficult to see than this illustration

* Make sure antigen was refrigerated (not frozen) and has not expired.

Correlation and confirmation of test results

- Tests for syphilis detect antibodies, which are evidence of current or past infection.
- Non-treponemal tests (such as RPR test and VDRL test) are the preferred tests for screening. These tests detect almost all cases of early syphilis, but false positives are possible. RPR test can be performed without a microscope.
- Quantitative RPR test titres can help evaluate the response to treatment.
- Treponemal tests, such as Treponema pallidum haemagglutination test (TPHA), fluorescent Treponema antibody absorption test (FTA-Abs), microhaemagglutination assay for antibodies to Treponema pallidum (MHA-TP), if available, can be used to confirm non-treponemal test results.

Quantitative RPR test titres can help evaluate the response to treatment.

RPR Quantitative Slide test

Additional Equipment and Reagent

1) Micropipette (1000ul) with blue plastic tips.
2) Normal Saline (0.9 %)
3) Test tubes or Cuvettes- 6 to 8 per reactive serum.
4) Rubber teats

Procedure:

A) Preparing sera in dilutions-

1 Take 6 test tubes (cuvette), label them from 1-6 and keep them in a rack.

2 Pipette 0.5 ml normal saline in each tube.

3 Pipette 0.5 ml of test serum in tube 1 and mix well. (Serum dilution = 1:2).

4 Take 0.5 ml of diluted serum from test tube 1 and add to tube 2. Mix well and transfer 0.5 ml to test tube 3, mix well and go on adding 0.5 ml of diluted serum to next tube till tube 6 is reached. The dilution obtained in these 6 tubes are 1:2, 1:4, 1:8, 1:16, 1:32, 1:64 respectively.

5 Dilutions can be done up to 1: 1024 levels by following above described procedure.

B) Performing quantitative testing of diluted sera -

6 Take a RPR card and add 0.5 ml of serum from the sixth tube on one circle as shown in figure 9.

7 Similarly add 0.05 ml of serum from the tube no 5, 4, 3, 2 and 1 in the remaining circles respectively.

8 In circle 1 take 0.05 ml of neat, undiluted serum as for the qualitative test.

9 Positive and negative controls for each qualitative test should be incorporated.

10 Add 1 drop (1/60 ml) of RPR antigen to each circle with a 18 gauge needle and syringe.

11 Rotate the card on a RPR/VDRL rotator for 8 min or as per manufacturers instruction making a diameter of 3/4 inch and rotating at a speed of 180 RPM.

12 Observe the card immediately under 10 x magnification of light microscope.

13 Report the titer as the highest dilution of serum that shows a reactive result.

Reporting:

Undiluted Serum	Serum Dilution*					Report
(1:1)*	1:2	1:4	1:8	1:16	1:32	
R	W	N	N	N	N	Reactive, undiluted only or 1 dil +
R	R	W	N		N	Reactive, 1:2 dilution, or 2 dils
R	R	R	W	N	N	Reactive, 1:4 dilution, or 4 dils
W	W	R	R	W	N	Reactive, 1:8 dilution, or 8 dils
N (ROUGH)	W	R	R	R	N	Reactive, 1:16 dilution, or 16 dils
W	N	N	N	N	N	Weakly reactive, undiluted only or 0 dil
*R = Reactive W = Weakly Reactive N = Non-reactive						
+ A titer of 1:1 means that the serum was reactive in a dilution of 1 to 1. This may also be termed as "1 dil"						

The following table can be used to interpret syphilis test results.

Note where additional tests are not available, all patients with reactive RPR or VDRL should be treated.

Interpreting Serological Test Result

	RPR	RPR titre	TPHA
Active infection	+	>1:8	+
Latent syphilis	+	Often <1:4	+
False positive	+	Usually <1:4	-
Successful treatment	+ or -	2 titers decrease (e.g. from 1:16 to 1:4)	+

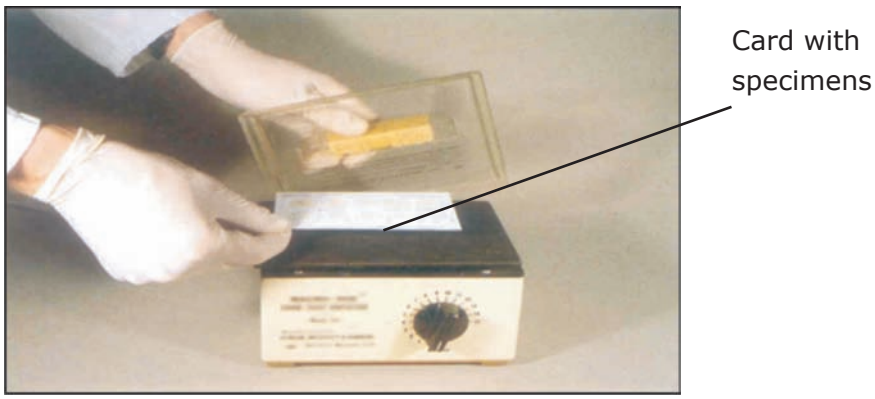


Figure 8: Test serum is mixed with antigen and the card is placed on appropriate rotator

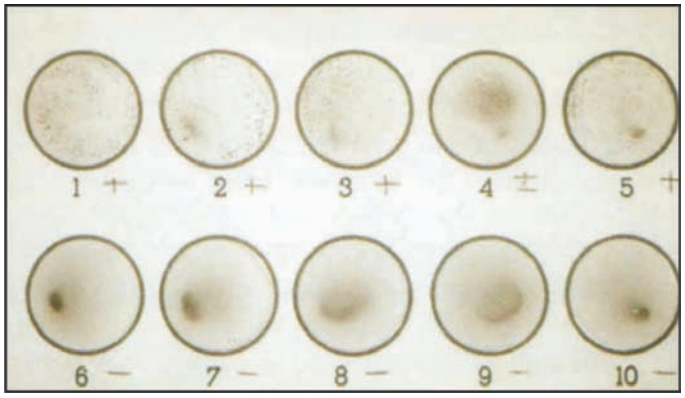


Figure 9: Reading RPR test results for 10 undiluted sera showing reactive (1,2,3,5, 4: Borderline) and non-reactive samples (6–10). The presence of small to large flocculated clumps indicates reactivity, whereas no clumping or a very slight roughness indicates non-reactivity

MODULE NO. 4

DISINFECTION AND STANDARD PRECAUTIONS

(Total Time: 60 mins)

SESSION 1

INTRODUCTION TO MODULE

(Time: 10 mins)

Objectives:

By the end of this session, participants will be able to:

- Get an overview of the module including its objectives.

Activity	Topic	Training methodology	Time
1	Introduction to module	Presentation	10 mins

Activity 1

- The trainer should present the module introduction and objectives using the prepared flipchart IV-1.

FLIPCHART IV-1

Introduction

Disinfection and standard precautions

The terms "Standard Precautions" and additional (transmission-based) precautions have replaced previous terms such as universal blood and body fluid precautions, universal precautions and barrier nursing.

Standard precautions require that health care workers assume that the blood and body substances of all patients are potential sources of infection, regardless of the diagnosis or presumed infectious status. Additional (transmission-based) precautions are needed for diseases transmitted by air, droplets and contact.

A number of STI/RTI can be spread from patient to health care provider or to other patients if basic precautions are not followed. Hepatitis B and C viruses and HIV are incurable infections that are easily transmitted by occupational exposure to contaminated sharps. Because STI/RTI are often asymptomatic, it is not possible to know which patients have an infection. For this reason, standard precautions should be followed by all the health care workers.

Module objective

To understand the importance of standard precautions in control and prevention of STI/RTI.

Specific objectives

By the end of the module, participants will be able to:

1. Discuss the standard precautions for STI/RTI prevention.
2. Describe standard precautions that are to be taken at the primary health care levels.

SESSION 2

STANDARD PRECAUTIONS FOR STI/RTI PREVENTION

(Time: 20 mins)

Objectives

By the end of this session, participants will be able to:

- Discuss the Standard precautions for STI/RTI prevention

Activity	Topic	Training methodology	Time
1	List of standard precautions	Presentation	5 mins
2	Standard precautions	Demonstration	15 mins

Activity 1

The trainer should present the standard precautions in STI/RTI control and prevention by using the prepared flipchart IV-2.

FLIPCHART IV-2

Standard precautions include the following:

1. Hand washing and antisepsis (hand hygiene)
2. Use of personal protective equipment when handling blood, body substances, excretions and secretions
3. Appropriate handling of patient equipment and soiled linen
4. Prevention of needle-stick/sharp injuries
5. Management of health care waste

1. Hand washing and antisepsis (hand hygiene)

Hand washing breaks the chain of infection transmission and reduces person—to-person transmission. It is the most important way to kill germs on the skin. You need to wash your hands even more thoroughly and for a longer time in the following situations:

- Before and after helping someone to give birth;
- Before and after touching a wound or broken skin;
- Before and after giving an injection, or cutting or piercing a body part;
- After touching blood, urine, stool, mucus, or fluid from the vagina;
- After removing gloves;
- Between contact with different patients

The hands must be washed for a minimum of 10-15 seconds, count to 30 as you scrub your hands all over with the soapy lather. Use soap or other disinfectant to remove dirt and germs. Use a brush or soft stick to clean under your nails, then rinse, using running water. Do not reuse the same water. Immersion of hands in bowls of antiseptics is not recommended. Common towels must not be used as they facilitate transmission of infection. If there is no clean dry towel, it is best to air-dry hands.

2. Use of personal protective equipment when handling blood, body substances, excretions and secretions

Using personal protective equipment offers protection by helping to prevent micro-organisms from:

- Contamination of hands, eyes, clothing, hair
- Being transmitted to other patients and staff

Personal protective equipment includes:

- Gloves
- Masks
- Aprons
- Gowns
- Caps/hair covers

Gloves:

- Use of gloves (clean, non-sterile) or a piece of plastic for handling dirty bandages, cloths, blood, vomit or stool.
- Disposable gloves should not be reused

- Gloves must be changed not only between contacts with different patients but between tasks/procedures on the same patient to prevent cross-contamination between different body sites.

3. Appropriate handling of patient equipment and soiled linen

Ensure that all reusable equipment is cleaned and reprocessed appropriately before being used on another patient. Keep bedding and clothing clean. This helps in keeping sick people comfortable and helps in preventing skin problems. Handle clothing and/or sheets carefully, which are stained with blood, urine, stool or other body fluids. Separate from other laundry for washing. Dry laundry thoroughly in the sun if possible or iron after drying.

4. Prevention of needle-stick/sharp injuries

All the used disposable syringes and needles, scalpel blades and other sharp items should be placed in a puncture resistant container having a proper lid. These containers must be located close to the working area. Never recap or bend used needles.

5. Management of health-care waste

Daily collection of waste must be encouraged and uncollected, long stored waste or waste within the premises must be avoided. The bio-medical waste should be segregated into containers/bags at the point of its generation into colour-coded containers/bags. The table below gives the colour, coding, type of containers used, categories and multiple treatment options for disposal of the bio-medical waste.

Colour code	Container Type	* Category	Treatment options
Yellow	Plastic bags	1, 2, 3 & 6	Incineration/deep burial
Red	Disinfectant container/Plastic bag	3, 6 & 7	A/MW/Chemical disinfection
Blue/white transparent	Plastic bag/ puncture proof container	4 & 7	A/MW/Chemical disinfection, destruction & shredding
Black	Plastic bag	5, 8 & 9	Disposal in landfills

A= Autoclave MW= Microwave

* Categories are given below:

Category	Type of waste
1	Human anatomical
2	Animal waste
3	Microbiology & biotechnology
4	Waste sharps
5	Discarded medicine & cytotoxic drugs
6	Soiled wastes (linen)
7	Solid wastes (non sharp disposables)
8	Incineration ash
9	Chemical waste

Activity 2

The trainer should demonstrate each of the standard precautions in STI/RTI control and prevention by using the required material.

SESSION 3

DISINFECTION OF INSTRUMENTS AND CLEANING OF HEALTH CENTRE

(Time: 30 mins)

Objectives:

By the end of this session, participants will be able to:

- Describe the disinfection of instruments and cleaning of health centre.

Activity	Topic	Training methodology	Time
1	Steps for disinfection of equipment and instruments	Presentation	10 mins
2	Disinfection of equipment and instruments	Demonstration	10 mins
3	Disinfection solution preparation	Demonstration	5 mins
4	Cleaning of health centre	Presentation	5 mins

Activity 1

The trainer should present the steps for disinfection of equipment and instruments by using the prepared flipchart IV-3.

FLIPCHART IV-3

Disinfection of instruments

Disinfect or sterilize equipment and instruments. Instruments must first be washed and then disinfected if they are to be reused to:

- Cut or pierce skin
- Give an injection
- Cut the cord during childbirth
- Examine the vagina, especially during or after childbirth, a miscarriage, or an induced abortion
- Perform any trans-cervical procedure.

High-level disinfection: Three steps

Cleaning instruments and equipment to get rid of nearly all the germs is called high-level disinfection. The following procedures could be followed to achieve it:

1. **Soaking:** Soak instruments for 10 minutes in 0.5% solution of bleach (chlorine). Soaking instruments in bleach solution will help protect you from infection when cleaning them. If you do not have bleach, soak your instruments in water.
2. **Washing:** Wash all instruments with soapy water and a brush until each one looks very clean, and rinse them with clean water. Be careful not to cut yourself on sharp edges or points. Wear gloves when washing instruments; if possible, use heavy gloves.
3. **Disinfecting:** Steam or boil the instruments for 20 minutes.
   - To steam them, you need a pot with a lid. The water does not need to cover the instruments, but use enough water to keep steam coming out of the sides of the lid for 20 minutes. Do not overload with instruments. No instruments should protrude above the rim of the pot.
   - To boil them, you do not need to fill the whole pot with water. But you should make sure the water covers all the instruments in the pot for the entire time. Put a lid on the pot.
   - For both steaming and boiling, start timing the 20 minutes after the water with the instruments started boiling. Do not add any new instrument to the pot once you begin to count.

Activity 2

The trainer should demonstrate each step for disinfection of equipment and instruments by using the required material.

Activity 3

The trainer should demonstrate each step for preparation of disinfection solution by using the required material.

Activity 4

The trainer should present the steps for cleaning of the heath centers by using prepared flipchart IV-4.

FLIPCHART IV-4

Cleaning of the Health Centers

Patient care areas must be cleaned by wet mopping. Only dry sweeping is not recommended. Any areas visibly conta minated with blood or body fluids should be cleaned immediately with detergent and water.

Common disinfectants used for environmental cleaning in health centers

1. **Sodium hypochlorite 1%**: In-use dilution, 5% solution to diluted 1:5 in clean water
2. **Bleaching powder**: 7g/liter with 70% available chlorine
3. **Alcohol (70%)**: Isopropyl, ethyl alcohol, methylated spirit

Annexure - I

REFERENCES AND SOURCE

We gratefully acknowledge the use of material that has been adapted from the following sources:

Source	Publication	Year
AVSC International	Sexually Transmitted and Other Reproductive Tract Infections	2000
Pathfinder International	Comprehensive Reproductive Health and Family Planning Training Curriculum (Module 12)	2000
World Health Organisation	Guidelines for the Management of Sexually Transmitted Infections	2003
World Health Organisation	Sexually Transmitted and Other Reproductive Tract Infections – A Guide to Essential Practice	2005
World Health Organisation	Draft Global Strategy for the Prevention and Control of Sexually Transmitted infections	2005
Engender Health	Sexually Transmitted Infections – Online minicourse	2006
Government of India	National Guidelines on Prevention, Management and Control of Reproductive Tract Infections including Sexually Transmitted Infections	2006

Annexure - II

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Annexure - III

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6.	**Dr. Sanjay Dixit** Professor, Dept. of Community Medicine, MGM, Medical College, Indore
7.	**Dr. Haresh Doshi** Associate Professor Dept. of OB & GY, B. J. Medical College, Ahmedabad
8.	**Dr. Shashi Gandhi** Associate Professor, Dept. of Microbiology, MGM Medical College, Indore
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10.	**Dr. Sumita Ghosh** Chief Medical Officer, Family Welfare Training & Research Centre, Mumbai
11.	**Dr. Rajesh Gopal** Joint Director, (STD), Gujarat State AIDS Control Society, Ahmedabad
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14.	**Dr. Jayashree Joshi** Deputy Director, Bharatiya Vidya Bhavan's SPARC, Vithalnagar, Juhu, Mumbai
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21.	**Dr. Jayanti Mania** Assistant Director, National Institute for Research in Reproductive Health, (ICMR), Parel, Mumbai

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30.	**Dr. C. Nirmala** Associate Professor, Obs. & Gynaec. SAT Hospital, Medical College, Trivandrum
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33.	**Dr. Chimanjita Phukan** Asst. Professor, Dept of Microbiology, Medical College, Guwahati
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35.	**Dr. Krishna Ray** Consultant Microbiologist, Prof and Head Microbiology Department, Manav Rachna College Foundation, New Delhi
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37.	**Dr. Sarada Devi. K. L** Associate Professor, Microbiology Medical College, Trivandrum
38.	**Dr. (Mrs.) Padmaja Saikia** Assistant Professor, Dermatology Medical College, Guwahati
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42.	**Dr. Renu Shahrawat** Lecturer, National Institute of Health and Family Welfare, Munirka, New Delhi
43.	**Dr. S. Suprakasan** Professor, Dermatology & Venereology Medical College, Trivandrum
44.	**Dr. Teodora Elvira Wi** Director, STI Capacity Training, Family Health International, Mumbai
45.	**Dr. Sanjay Zodpey** Prof & Head, Dept of Preventive & Social Medicine, Govt. Medical College, Nagpur

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