Sexually Transmitted Infections (STIs)

Dr. N K Goel

Professor & Head,

Department of Community Medicine

Govt. Medical College & Hospital, Chandigarh.

Specific Learning Objectives

- At the end of session, the learner shall be able to describe:
- > Classification of STIs
- ➤ Magnitude of STIs Problem
- ➤ Clinical features of STIs
- ➤ Prevention & Control Strategies
- ➤ Syndromic Case Management

Introduction

• Reproductive Tract Infections (RTIs):

Any infection of reproductive tract in male and female

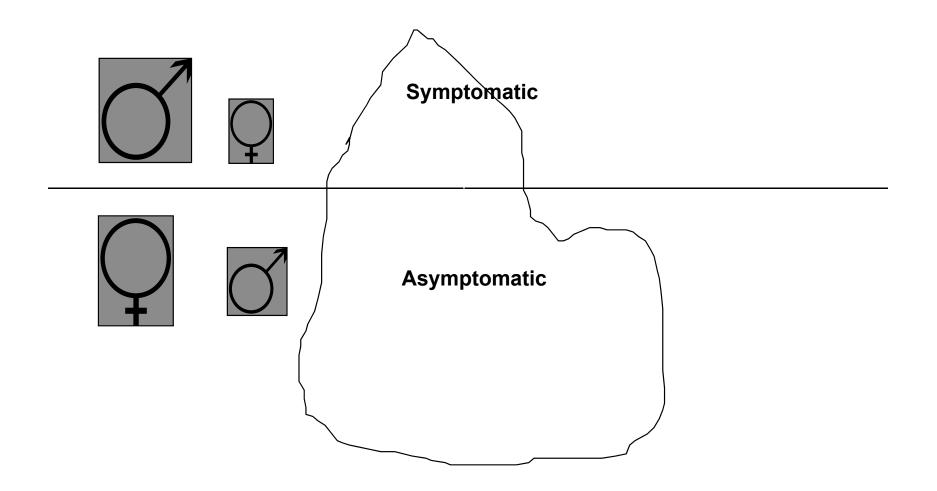
Sexually Transmitted Infections (STIs):

STIs are infections caused by germs such as bacteria, viruses, or protozoa that are passed from one person to another through sexual contact.

Introduction

- Sexually Transmitted Infections (STIs) and Reproductive Tract Infections (RTIs) have a major impact on sexual and reproductive health.
- Sexually transmitted infections are *an important cause of infertility* in men and women.
- A person can have an *STI without having obvious symptoms of disease*.
 - Therefore, the term "sexually transmitted infection" is a broader term than "sexually transmitted disease" (STD).
 - Common symptoms of STDs include vaginal discharge, urethral discharge in men, genital ulcers, and abdominal pain.

Sexually Transmitted Diseases



- STIs are caused by more than 30 different agents including bacteria, viruses and parasites.
- STIs are spread **predominantly by sexual contact**, including vaginal, anal and oral sex.
 - Some STIs may be spread via skin-to-skin sexual contact.
 - The organisms causing STIs can also be spread through **non-sexual means such as blood products and tissue transfer.**
 - Many STIs can also be transmitted from *mother to child* during pregnancy and childbirth (e.g. chlamydia, gonorrhoea, hepatitis B, HIV, and syphilis).

Classification of STIs

Bacterial agents

- *Neisseria gonorrhoea* (Gonorrhoea)
- Chlamydia trachomatis (Lympho granuloma Venereum, LGV)
- *Treponema pallidum* (Syphilis)
- Haemophilus ducreyi (Chancroid)
- Mycoplasma hominis
- Ureaplasma urealyticum
- Calymmatobacterium granulomatis (Granuloma Inguinale, Donovanosis)
- Shigella
- Campylobacter
- Group B Streptococcus
- Bacterial vaginosis related Organism

Viral agents

- Hepatitis virus B,HIV
- Human papilloma virus (genital warts)
- Molluscum contagiosum
- Human (alpha) herpes virus 1 and 2
- Human (beta) herpes virus 5

Protozoal agents

- Entamoeba histolytica
- Giardia lamblia
- Trichomonas vaginalis

Ectoparasites agents

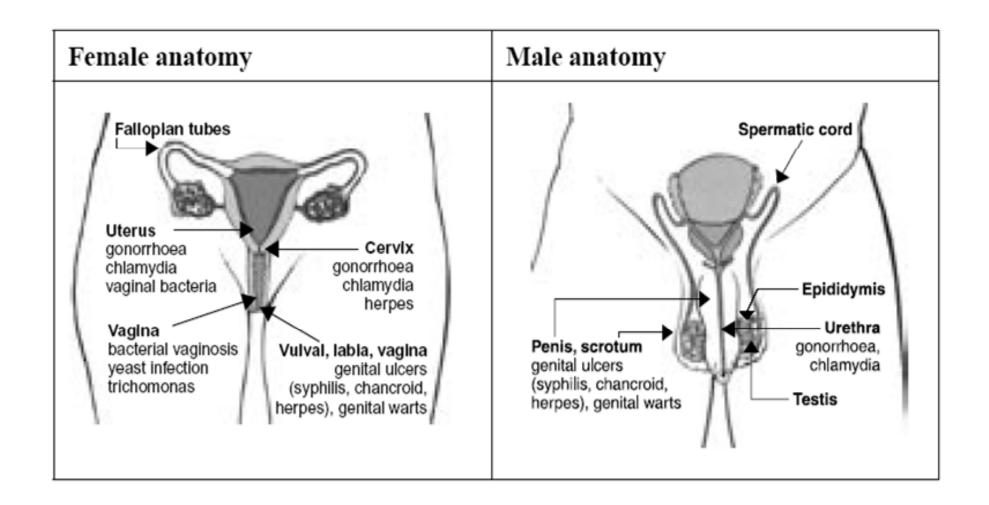
• Sarcoptes scabiei; Phthirus pubis

Fungal agents

• Candida albicans

- **Eight** of the more than 30 **pathogens** known to be transmitted through sexual contact have been linked to the greatest incidence of illness.
- ➤ Of these 8 infections, 4 are currently *curable viz.* syphilis, gonorrhoea, chlamydia and trichomoniasis.
- The other four are viral infections and are *incurable*, but can be mitigated or modulated through treatment *viz*. hepatitis B, herpes, HIV, and HPV.

Common sites for RTIs/STIs



Common RTIs/STIs

Only in Males:

• Epididymitis/Orchitis

Only in Females

- Pelvic Inflammatory disease (PID)
- Bacterial vaginosis

Symptoms and signs of RTIs/STIs in Men

- Urethral Discharge
- Burning or pain during micturition or urination.
- Genital Itching
- Inguinal swelling/Scrotal Swelling/swollen and painful testicles
- Blisters or ulcers on the genitals, anus or surrounding area, mouth, lips
- Itching or tingling in genital area.
- Warts on genitals, anus or surrounding area.
- Fever, body ache, muscle ache, dark coloured urine, jaundice.

Women

- Unusual Vaginal Discharge
- Genital Itching
- Lower abdominal pain (pain below the belly button, pelvic pain)
- Abnormal and/or heavy vaginal bleeding
- Dyspareunia

Identifying Syndromes

SYNDROME	MOST COMMON CAUSE
Vaginal discharge	Vaginitis(trichomniasis, candidisis)
	Cervicitis(gonorrhea, chlamydia)
Urethral discharge	Gonorrhea, chlamydia
Genital ulcer	Syphilis, chancroid, herpes
Lower abdominal pain	Gonorrhea, chlamydia, mixed anaerobes
Scrotal swelling	Gonorrhea, chlamydia
Inguinal bubo	LGV, Chancroid
Neonatal conjunctivitis	Gonorrhea, chlamydia

Male Syndromes

Inguinal Bubo



Genital Ulcer



Scrotal Swelling



Genital Ulcer

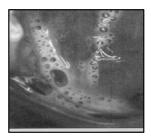


Vaginal Discharge Syndrome

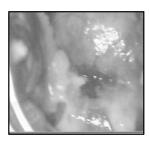
SYNDROME: VAGINAL DISCHARGE



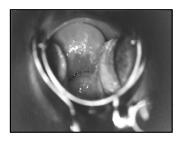
VAGINITIS



TRICHOMONIASIS



CERVICAL HERPES



CERVICITIS

Magnitude of the Problem

- More than 1 million people acquire a sexually transmitted infection every day.
- Each year, an estimated 500 million people acquire one of four sexually transmitted infections: chlamydia, gonorrhoea, syphilis and trichomoniasis.
 - A significant proportion of these infections occurring in developing countries.
- More than 530 million people are living with HSV2.
- More than 290 million women have an HPV infection, one of the most common STIs.

Estimated new cases of curable sexually transmitted infections (gonorrhoea, chlamydia, syphilis and trichomoniasis) by WHO region, 2008



Indian Scenario

- Sexually Transmitted Infections are an important public health problem in India.
- A community based STI/RTI prevalence study conducted by the Indian Council of Medical Research (ICMR) has shown that 6% of the adult population in India has one or more STI/RTI (during year 2002-03).
- The yearly incidence of STI's is 4 5% which accounts for 40 million cases per year.

i. Syphilis :

- Prevalence of 1.4 2.4% has been reported in serological surveys (year 2007).
- Maximum cases were from Andhra Pradesh, Karnataka, Maharastra, Madhya Pradesh, Chattisgarh and Gujarat.
- The cases are **almost** *equally distributed* amongst males and females.

ii. Gonorrhoea:

- *More widely prevalent* than syphilis.
- Maximum cases were from Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Karnataka, Maharastra, Assam, Jammu and Kashmir and Chattisgarh.
- More cases in *females than males*.
- iii. Chancroid: Widely prevalent in India.

iv. LGV:

- It is more prevalent in **southern states** of Tamil Nadu, AP, Maharashtra and Karnataka.
- Greater prevalence in *coastal areas* is found.

- Currently, the available data from the STI/RTI control and prevention programme suggests:
- ➤ A significant decline of bacterial STI (syphilis, gonorrhoea).
- ➤ Chancroid is almost on the verge of disappearance.
- ➢ Viral STI (herpes, genital warts, hepatitis B) are showing an increasing trend.
- There is a *significant burden of lower STI* (trichomoniasis, bacterial vaginosis and candidiasis) among women with no evidence to suggest a decline in their prevalence, thus *affecting the quality of their reproductive health*.

Why STIs are important?

- Serious consequences **beyond the immediate impact** of the infection itself.
- Increase the risk of HIV acquisition three-fold or more.
- **Mother-to-child transmission** of STIs can result in stillbirth, neonatal death, low-birth-weight and prematurity, sepsis, pneumonia, neonatal conjunctivitis, and congenital deformities.
 - In pregnant women with untreated early syphilis, 21% of pregnancies result in stillbirth and 9% in neonatal death.
- HPV infection causes 530 000 cases of **cervical cancer** and 275 000 *cervical* cancer deaths each year.
- STIs such as *gonorrhoea and chlamydia* are major causes of **pelvic** inflammatory disease, adverse pregnancy outcomes and infertility.

Complications in Men

- Urethral stricture
- Phimosis/paraphimosis
- Disfigurement of genitals
- Infertility
- Cardiovascular complications (syphilis)
- Neurosyphilis

Complications in Women

- Pelvic Inflammatory Disease (PID)
- Infertility
- Ectopic pregnancy
- Spontaneous abortions
- Stillbirths
- Low birth weight babies
- Increased susceptibility to opportunistic infections
- Cervical cancer
- Chronic pelvic pain

Risk factors

- Various chains and combinations of complex social, economic behavioural, environmental factors:
- ➤ Economic distress,
- ➤ Broken family
- Lack of security in childhood and adolescence,
- ➤ Disharmony in married life,
- > **Social persecution** of or an apathy for abandoned, abducted, waylaid, 'fallen' or forlorn and
- ➤ Failure to rescue and rehabilitate

Host factors

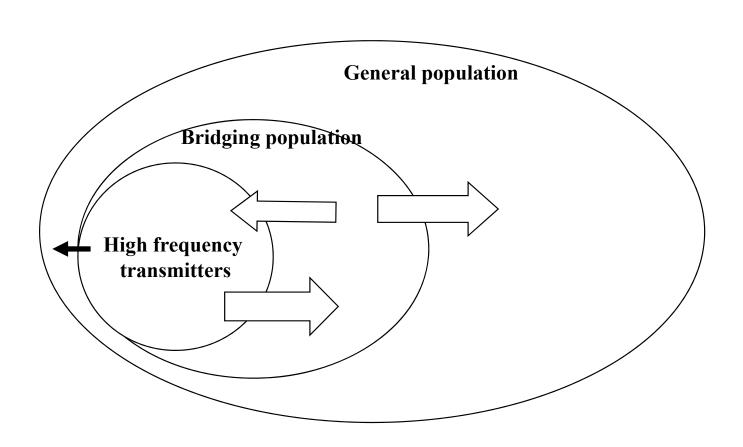
- Age
 - 20-24 years (15-29 years)
- Sex
 - Morbidity higher in men but more severe in women
- Marital status
 - Single, divorced, separated
- Socio-economic status
 - Lowest SES

Social factors

- Prostitution
- Broken homes
- Sexual disharmony
- Easy money
- Emotional immaturity
- Changing behavioral patterns (Westernization?)

- Urbanization
- Social disruption
- International travel
- Social stigma
- Alcoholism

STI transmission dynamics at population level



Vulnerable Groups for STI

- Commercial Sex Workers (earlier known as prostitutes)
 - Professional, commercialized and, to some extent, amateur female prostitution provides opportunity for male promiscuity.

• Identifiable groups of clients of CSWs

- Persons staying away from families due to compulsions of occupation; Long - distance truck drivers; Tourists/businessmen; Migrant workers, refugees, displaced persons; Single men in urban settings.
- Men who have sex with men (MSM)
 - Self identifying homosexual men; Bisexual and covert homosexual men.

• Substance users

• e.g. injecting drug users and their sexual partners

• Prisoners

• especially where juveniles are mixed with long - stay inmates.

• Young people (age 10 - 24 years)

• especially when out of school and unemployed (e.g. street children).

Prevention & Control

Primary prevention

- The responsibility of integrated or coordinated AIDS/STD programmes.
- The aim is **to prevent the acquisition of infection** and disease.
- This can be done by promoting :
 - Safer sexual behaviour;
 - The use of condoms for penetrative sexual acts.

• Health Education

Secondary prevention

- The provision of **treatment and care** for infected and affected persons.
- The activities should include :
- ➤ Promotion of health care seeking behaviour directed not only at those with symptoms of STDs, but also at those at increased risk of acquiring STDs.
- The provision of accessible, acceptable and effective clinical services, and which offer diagnosis and effective treatment for both symptomatic and asymptomatic patients with STDs, and their partners.
- ➤ Support and counselling services for both STD and HIV patients.

Early Detection & Treatment

- Intervention Strategies:
- 1. Case Detection:

It is an essential part of any control programme. Methods:

- i. *Screening*: Screening of special high risk or vulnerable groups.
- *ii. Contact Tracing*: The sexual partners of diagnosed patients are identified, located, investigated and treated.
- *iii. Cluster Testing*: The patients are asked to name other persons of either sex who move in the same socio sexual environment.

2. Effective STD care :

- Adequate treatment of patients and their contacts is the mainstay of STD control.
- Holding patient to ensure complete and adequate treatment is *key to effective management*.
- The STI care, should aim to provide the **comprehensive case management** that includes diagnosis, curative treatment, reduction of risk taking behaviour and the treatment of sexual partners.

3. Syndromic Management of STI

- Many STIs can be identified and treated on the basis of characteristic symptoms and signs.
- Syndromic management refers to the approach of treating STI symptoms and signs based on the organisms most commonly responsible for such syndrome.

- Many health care facilities in developing countries *lack the equipment and trained personnel* required for etiological diagnosis of STIs.
- Laboratory tests require resources, add to the cost of treatment, may require clients to make extra visits to the clinic and almost always result in delays in treatment.

STI – Syndromic Case Management

ADVANTAGES:

- Identifies and treats by signs & symptoms
- Syndromes easily recognized clinically
- Small number of clinical syndromes
- Treatment given for majority of organisms
- Simple and cost-effective
- Valid, feasible, immediate Treatment
- Risk assessment increases performance

STI – Syndromic Case Management

REQUIREMENTS:

- Adequate medical history
- Good sexual history
- Complete STI clinical examination
- Management guidelines
- Good supply of effective drugs

The Five Steps in Syndromic STI Case Management

- History taking and examination
- Syndromic diagnosis and treatment, using flow charts
- Education and counseling on HIV testing and safer sex, including condom promotion and provision
- Management of sexual partners
- Recording and reporting

4. Notification of sexual partners :

- Breaking the cycle of infection is a critical part of STI prevention
- The client should be encouraged to refer his or her partner(s) for treatment, **even when no clinical signs of infection are evident**.
- The process should be confidential, voluntary and non coercive.
- Approaches to contacting sexual partners:
- i. Patient referral
- ii. Provider referral

Support Components

1. Access to services :

- The provision of accessible, acceptable and effective services is important for the control of STIs.
- A balanced and comprehensive programme may require strengthening of public sector, the private sector and the informal sector who are providing STI services.
- It is recommended that routine STI services be integrated into primary health care.

2. Training of Health Care Providers :

- On the job training;
- Training within basic courses;
- Post basic courses utilizing venereology expertise concentrated in those specialized clinics selected as referral/reference centres;
- Training of trainers so that the health workers are encouraged to train their colleagues ("cascade" principle);
- Distribution of national guidelines in a form that can be understood and used without special additional training.

3. Healthy Diversions :

- Provide *alternative healthy diversions*, incentives and facilities for education and betterment in careers and providing a healthy psychological atmosphere for a tranquil life.
- Excellent facilities should be provided for indoor and outdoor recreation, organized games, educational and recreational outings, dramas and concerts.
- The leaders, managers and officers should themselves set an example by always maintaining *a high moral and ethical standard*.

4. Social welfare measures:

- To prevent or control the conditions leading to social promiscuity and STDs (*social therapy*)
- These measures include:
- ➤ Rehabilitation of CSWs
- ➤ Provision of recreation facilities in the community
- ➤ Provision of decent living conditions
- ➤ Marriage counselling
- ➤ Prohibiting the sale of pornographic material (books/ photographs/ web sites etc.) ?????

Syndromic Case Management (SCM) of STIs

STIs Syndromes in Women

Symptoms	Syndromes	RTIs/STIs
Vaginal discharge	Vaginal discharge syndrome	Gonorrhoea, chlamydia, trichomoniasis, herpes simplex, Candidiasis, bacterial vaginosis, cervicitis
Lower abdominal pain	Lower abdominal pain syndrome	Gonorrhoea, chlamydia, mycoplasma gardnerella, anaerobic bacteria (bacteroids, e.g. gram positive cocci)
Genital Ulcers	Genital ulcer syndrome	Syphilis, chancroid. Genital herpes
Genital skin conditions	Genital skin conditions	Genital warts, molluscum contagiosum, pediculosis pubis, scabies

STIs Syndromes in Men

Symptoms	Syndrome	RTIs/STIs
Urethral Discharge	Urethral/Vaginal discharge syndrome	Gonorrhoea, chlamydia, trcichomonas,
Genital ulcers	Genital ulcer syndrom,	Chancroid, syphilis, genital herpes
Inguinal bubos	Inguinal bubo syndrome	Lymphogranuloma venerium, Chancroid
Scrotal swelling	Painful Scrotal Swelling	Gonorrhoea, chlamydia
Genital skin conditions	Genital skin conditions	Genital warts, molluscum contagiosum, pediculosis pubis, scabies

Syndromic Flow Charts for SCM

- 1. Urethral discharge
- 2. Genital ulcer disease (M & F)
- 3. Vaginal discharge
- 4. Pelvic Inflammatory Disease (PID)
- 5. Scrotal swelling
- 6. Inguinal swelling
- 7. Ophthalmia neonatorum
- 8. Asymptomatic clients at high risk of infection

Using Flow Charts

- Determine the clinical problem
- Pick up appropriate flow chart by looking at the clinical problem box at the top
- Take history
- Perform clinical examination
- Make decisions based on history and clinical examination choosing "yes" or "no"
- Followed by more boxes to consider and make choices
- Follow the arrows
- No skipping of steps
- One step at a time until you reach the end of the branch
- Each exit path leads to action box that tell you how to manage the case

Risk Assessment Include:

- Sexual behaviours
- Specific exposures
- Sociodemographics/other high risk markers:
 - young age
 - marital status: not living with steady partner
 - partner problems
- History of reproductive health
- History of past STI

Rapid Laboratory Tests

May be used to narrow the spectrum of <u>initial</u> therapy. They include:

- Wet mount (vaginal discharge)
- Gram stain (UD, Cervix mucous)
- Darkfield (GUD/syphilis)
- Rapid serologic tests e.g., (HIV/GUD/syphilis)

Programmatic Advantages to Syndromic Management of STIs

- ✓ Allows <u>all</u> STI clinicians to provide excellent care without referring
- ✓ The most efficient system to realize a clinic's dual responsibility – cure the patient and protect the community from STI

SYNDROME: URETHRAL DISCHARGE IN MALES

RTIS/STIS: gonorrhea, chlamydial infection, trichomoniasis

- Causative Organisms
- Neisseria gonorrhoeae
- Chlamydia trachomatis
- Trichomonas vaginalis

Recommended regimen for Urethral discharge (uncomplicated gonorrhea + chlamydia)

- Tab. Cefixime 400 mg orally, single dose *Plus* Tab Azithromycin 1 gram orally single dose
- Advise the client to return after 7 days of start of therapy

When symptoms persist or recur after adequate treatment treat for *Trichomonas* vaginalis.

- If discharge or only dysuria persists after 7 days
- Tab. Secnidazole 2gm orally, single dose (to treat for *T. vaginalis*)

If the symptoms still persists

• Refer to higher centre as early as possible

If individuals are allergic to Azithromycin, give Erythromycin 500 mg four s a day for 7 days

Management of a pregnant partner

- Tab. Cefixime 400mg orally, single dose or
- Ceftriaxone 125mg by intramuscular injection

+

- Tab. Erythromycin 500mg orally qid for seven days or
- Cap Amoxicillin 500mg orally, tds for seven days

Quinolones (like ofloxacin, ciprofloxacin), doxycycline are contraindicated in pregnant women

Vaginal discharge

Causative Organisms - Vaginitis

- Trichomonas vaginalis (TV)
- Candida albicans
- Gardnerella vaginalis, Mycoplasma

Causative Organisms Cervicitis

- Neisseria Gonorrheae
- Chlamydia trachomatis
- Trichomonas vaginalis
- Herpes simplex virus

Treatment Vaginal discharge

Vaginitis (TV+BV+Candida)

- Tab. Secnidazole 2gm orally, single dose or
- Tab. Tinidazole 500mg orally, twice daily for 5 days
- Tab. Metoclopropramide taken 30 minutes before Tab. Secnidazole, to prevent gastric intolerance

Candidiasis

• Tab Fluconazole 150mg orally single dose **or** local Clotrimazole 500mg vaginal pessaries once

Cervical infection (chlamydia and gonorrhea)

• Tab Cefixime 400 mg orally, single dose *Plus* Tab Azithromycin 1 gram, stat

Treatment for vaginitis (TV+BV+Candida) during Pregnancy

In first trimester

- Local treatment with Clotrimazole vaginal pessary/cream only for candidiasis.
- Oral Flucanozole is contraindicated in pregnancy.
- Metronidazole pessaries or cream intravaginally if trichomoniasis or BV is suspected.

In second and third trimester

- Oral Metronidazole can be given
- Tab. Secnidazole 2gm orally, single dose or
- Tab. Tinidazole 500mg orally, bd for 5 days

Scrotal swelling

- Tab. Doxycycline bd for 14 days and Tab. Cefixime 400 mg bd for 7 days
- Refer immediately

Genital ulcer

- Herpetic- Tab. Acyclovir 400mg tds for 7 days
- Syphilis/ chancroid-
- Inj Benzathine penicillin 2.4 million IU IM after test dose in two divided doses (with emergency tray ready)
 - (In individuals allergic or intolerant to penicillin, Doxycycline 100mg orally, twice daily for 14 days)

plus

- Tab Azithromycin 1g orally single dose or
- Tab. Ciprofloxacin 500mg orally, twice a day for three days to cover chancroid
- Refer to higher centre as early as possible.

Pelvic Inflammatory Disease

• Tab. Cefixime 400 mg orally BD for 7 days

+

• Tab. Metronidazole 400mg orally, twice daily for 14 days

+

• Cap. Doxycycline, 100mg orally, twice a day for 14 days (to treat chlamydial infection)

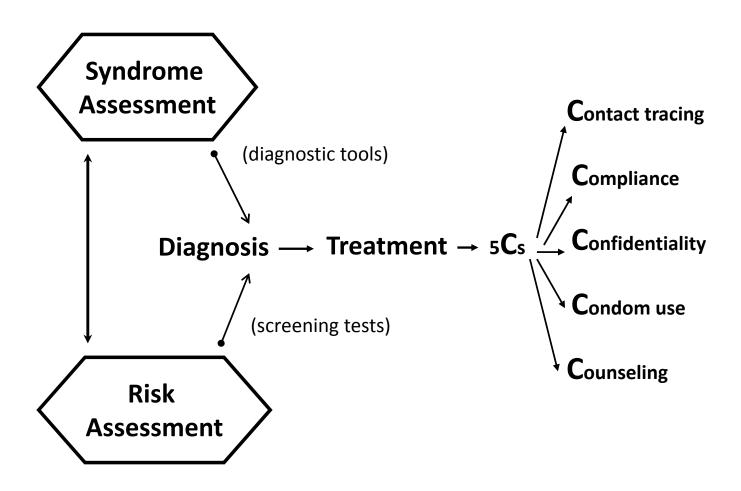
Inguinal bubo

- Cap. Doxycycline 100mg orally twice daily for 21 days (to cover LGV)

 Plus
- Tab Azithromycin 1g orally single dose
 OR
- Tab. Ciprofloxacin 500mg orally, twice a day for three days to cover chancroid
- Refer to higher centre as early as possible.

Kit No.	Syndrome	Colour	Contents
Kit 1	UD, ARD, Cervicits,	Grey	Tab. Azithromycin 1 g (1) and Tab. Cefixime 400 mg (1)
Kit 2	Vaginitis	Green	Tab. Secnidazole 2 g (1) <i>and</i> Tab. Fluconazole 150 mg (1)
Kit 3	GUD	White	Inj. Benzathine penicillin 2.4 MU (1) and Tab. Azithromycin 1 g (1) and Disposable syringe 10 ml with 21 gauge needle (1) and Sterile water 10 ml (1)
Kit 4	GUD	Blue	Tab. Doxycycline 100 mg (30) and Tab. Azithromycin 1 g (1)
Kit 5	GUD	Red	Tab. Acyclovir 400 mg (21)
Kit 6	LAP	Yellow	Tab. Cefixime 400 mg (1) and tab. Metronidazole 400 mg (28) and Cap. Doxycycline 100 mg (28)
Kit 7	IB	Black	Tab. Doxycycline 100mg (42) <i>and</i> Tab. Azithromycin 1 g (1)

Essential Steps In STI Care Management



YAVS

YAWS

- A non-venereal endemic treponematosis
- The bacterium *Treponema pallidum*, a Gram negative spirochete.
- Skin-to-skin contact among people with poor hygiene practices
- Warm and humid tropical areas of Africa, the Americas and Asia.
- Man is the only known reservoir of infection which is an infected person.
- The source of infection is usually the skin lesions and the exudates from early lesions.
- Children aged 2 5 years are the most vulnerable to infection

Declaration of Yaws Elimination

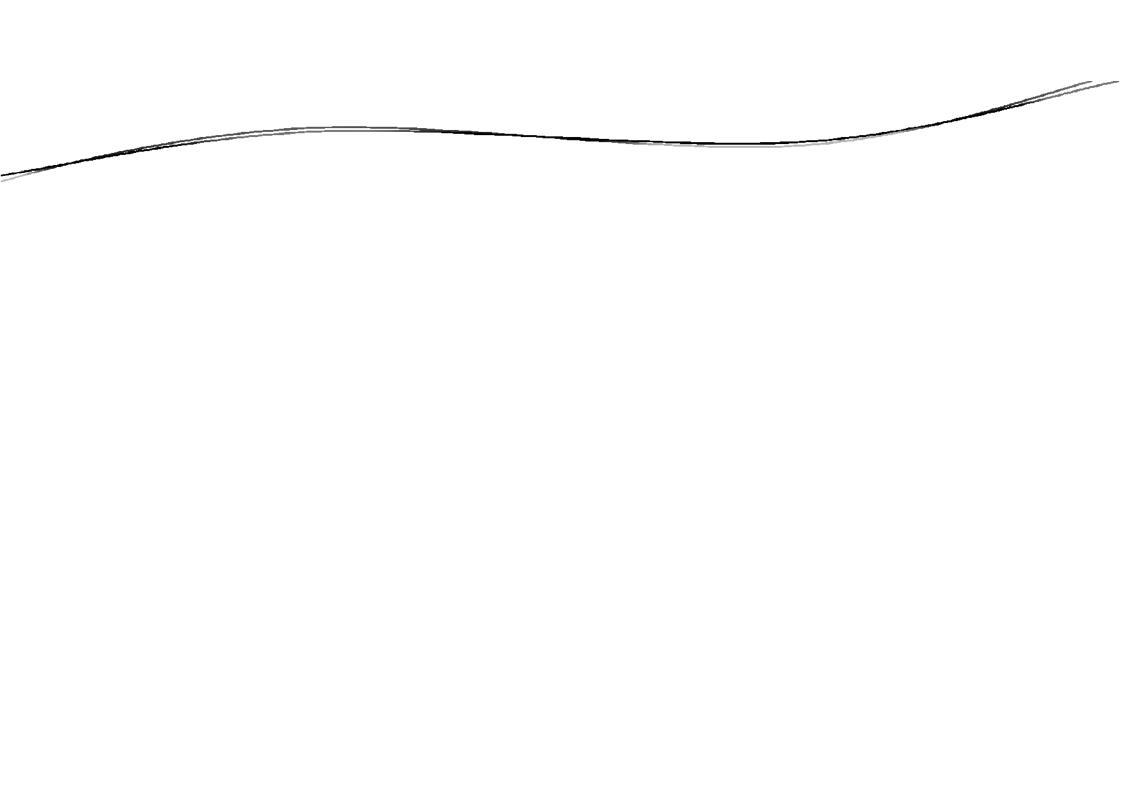
- Following nationwide implementation of the Programme, the number of reported cases fell from 3571 in 1996 to 735 in 1997 to 0 cases in 2004, and India reached zero yaws case status.
- At the third Task Force meeting in 2005, it was decided to incorporate laboratory confirmation of yaws in the case definition to ensure elimination status.
- In May 2006, the Task Force accepted the recommendation of the expert group that yaws had been eliminated from India.
- This was formally declared by the Minister of Health of India on 19 September 2006.

Steps in the Yaws Elimination Programme

- 1. Identification of affected areas
- 2. Advocacy
- 3. Piloting and expansion of the project
- 4. Staff development
- 5. Community mobilization through IEC
- 6. Detection & treatment of cases
- 7. Surveillance
- 8. Intersectoral coordination
- 9. Supportive supervision and Monitoring
- 10. Validation and Certification

The following activities are ongoing to ensure that success is achieved:

- Yearly active case searches and concurrent serosurveillance
- Surveillance and IEC activities
- Verification of reports by the states and districts
- Validation of the zero report through yearly appraisal of the Yaws Elimination Programme by independent experts
- Meeting of State Programme officers
- Verification of cases and investigation of rumoured cases
- Constitution of the National Commission for Certification of Eradication of Yaws from India and validation by international organizations.



Thanks