



Handbook on Prevention and Control of **Rheumatic Fever and Rheumatic Heart Disease**

For Health-care Providers at
Government Health Facilities

**Directorate General of Health Services
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Table of Contents

1. Introduction	1
1.1 Burden of RHD in India	1
1.2 Natural History of Rheumatic Heart Disease	1
1.3 Management and Prevention of RF/RHD	2
2. Bacterial Sore Throat	3
2.1 What is Bacterial Sore Throat?	3
2.2 What is the significance of Bacterial sore throat in RF and RHD?	3
2.3 How is Streptococcal sore throat distinguished from other causes of sore throat?	4
2.4 How to confirm the diagnosis of bacterial sore throat?	4
2.5 Does Bacterial sore throat spread from one child to another?	4
2.6 What is the management of Bacterial sore throat?	4
2.7 Which drug should not be given to treat bacterial sore throat ?	5
2.8 How to prevent bacterial sore throat among children?	5
3. Rheumatic Fever	6
3.1 What is Rheumatic Fever?	6
3.2 How to diagnose Rheumatic Fever?	6
3.3 Will the symptoms of Rheumatic Fever go away?	7
3.4 Does Rheumatic Fever run in the family?	7
3.5 What laboratory investigations are needed to diagnose Rheumatic Fever?	7
3.6 How to prevent Rheumatic Fever?	7
3.7 How to manage Rheumatic Fever?	8
3.8 How can another attack of Rheumatic Fever be stopped?	9
3.9 What if a child misses or forgets an injection?	9
3.10 What are the steps to administer Penicillin injection at primary health care setting?	9
3.11 How to manage reactions due to Penicillin injection?	11
3.12 What steps should the medical officer/ health staffs take when RF is diagnosed in a child?	13
4. Rheumatic Heart Disease	14
4.1 What are the symptoms and complications associated with Rheumatic Heart Disease?	14
4.2 How to diagnose Rheumatic Heart Disease?	14
4.3 How to manage Rheumatic Heart Disease?	15
4.4 How to prevent Rheumatic Heart Disease?	15
4.5 How to prevent and manage Rheumatic Heart Disease at Government Health-care settings?	16
Annexure	18
Annexure 1: Differentiation of bacterial sore throat from viral sore throat	18
Annexure 2: Algorithm for 'Suspected RF cases'	19
Annexure 3: Algorithm for 'Suspected RHD cases'	20
Annexure 4: Information, Education and Communication (IEC) tools	21



Acronyms

ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AYUSH	Ayurveda, Yoga, Unani, Siddha, Homeopathy
CCU	Cardiac Care Unit
CHC	Community Health Centre
GAS	Group A beta-hemolytic Streptococcus
IEC	Information, Education & Communication
NCD	Non-Communicable Disease
NPCDCS	National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke
PHC	Primary Health Centre / Primary Health Care
RBSK	Rashtriya Bal Swasthya Karyakram
RF	Rheumatic Fever
RHD	Rheumatic Heart Disease

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Introduction

Rheumatic Heart Disease (RHD) comprises of a group of cardiac complications, in which there is permanent and progressive heart valve damage caused because of recurrent attacks of Rheumatic Fever (RF).

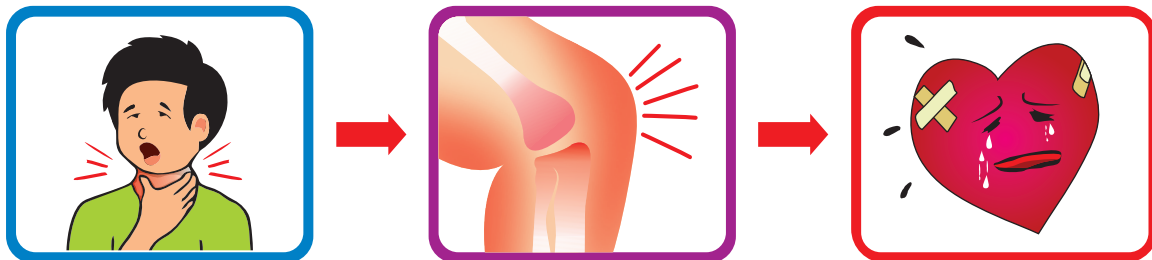
1.1 Burden of RHD in India

In India the prevalence of RHD is estimated at around 0.9 cases per 1000 children in the age-group of 5-14 years. Presuming 20% of the country's total population is in 5-14 years age-group, it is estimated that there are around 2.18 lakh cases of RHD in the country.

1.2 Natural History of Rheumatic Heart Disease

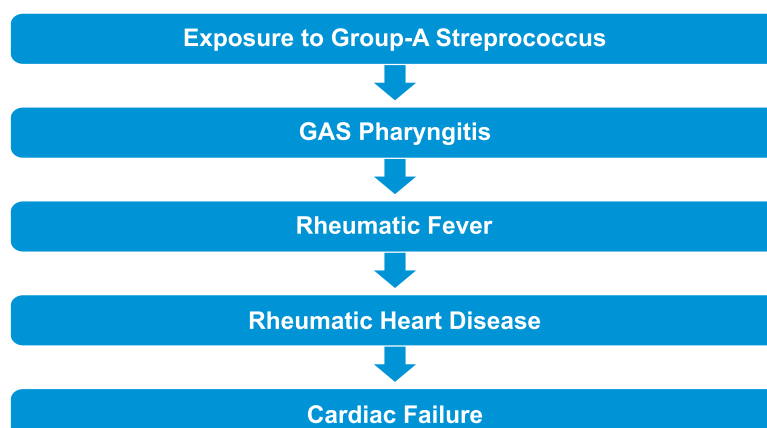
RHD is a non-communicable disease, yet the etiology of RHD is infectious in origin. RHD is caused due to heart valve being affected and permanently damaged because of repeated attacks of untreated RF.

Rheumatic Fever is an inflammatory connective tissue disorder caused by untreated throat infection with Group-A β -haemolytic Streptococci (GAS). The bacteria have a predilection for the heart (heart valves and heart muscles), joints and skin. Therefore, untreated and recurrent episodes of GAS infection may lead to Rheumatic Fever, which may ultimately result in RHD.



Thus, the etiology of RF/RHD is linked to sore throat caused by Group-A Streptococcus infection.

Natural History of Disease of RHD



Agent:

- Bacterial (Group-A Beta-hemolytic Streptococci) throat infections can easily spread from one person to another through contact or air. However, it is not clear from research studies as to which serotypes of the Streptococci have “rheumatogenic potential”.
- The abnormal immune response in GAS infection causes inflammation of the heart (carditis) and such repeated and untreated infections may cause permanent scarring/ damage of the heart valves.

Host:

- The commonest age-group involved is 5-15 years, with no sex predisposition.
- Younger the age, faster is the progression of the disease, if untreated.
- The progression of untreated RF to RHD depends upon the age of initial attack, the frequency of subsequent streptococcal pharyngitis and recurrent attacks of RF.

Environment:

- RHD and RF are diseases usually linked to poor living conditions, because GAS infection can spread easily from one person to another in conditions like overcrowding, poor ventilation, unhygienic conditions, etc.
- Poverty, malnutrition, and inadequate access to medical care further worsen the problem. Prevalence of RF/RHD usually decline when the standard of living improves.

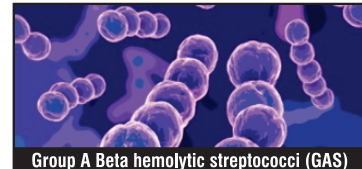
1.3 Management and Prevention of RF/RHD

- The most important activity for RHD prevention is screening and diagnosis of GAS infection and RF with these treatment and follow-up.
- The doctors (Medical/AYUSH) at the PHC level and the Pediatricians/Physicians at the CHC level need to be trained to clinically diagnose bacterial pharyngitis and Rheumatic fever, to be able to collect sample for testing of suspected cases, and wherever feasible, to be able to treat GAS infections and Rheumatic Fever. They should be able to identify cardiac murmur and refer suspected RF and RHD case for cardiac evaluation to designated referral hospital.
- At the Tertiary care Hospitals (District Hospitals/Medical Colleges/other higher centres), the laboratories need to be strengthened for performing culture/sensitivity for diagnosis of GAS infection, the echocardiography facility for diagnosis of RF/RHD need to be in place and there should be scope for surgical intervention, in addition to other RF/RHD diagnosis and treatment activities.
- The screening for symptoms and signs of bacterial pharyngitis, RF or RHD are to be done by trained health care providers. Screening is proposed to be done through the Mobile Health Team of RBSK in Anganwadi Centres and in Government Schools or Govt.-aided Schools.
- It is essential to impart health education to the community about the importance of treating sore throat as preventive measure for RF/RHD, and about the importance of accessing health facility for sore throat, adhering to long-term treatment of RF, etc.
- The health promotion activities encouraged to be taken up by all includes improving socioeconomic condition, nutrition, hygiene, etc.

2 Bacterial Sore Throat

2.1 What is Bacterial Sore Throat?

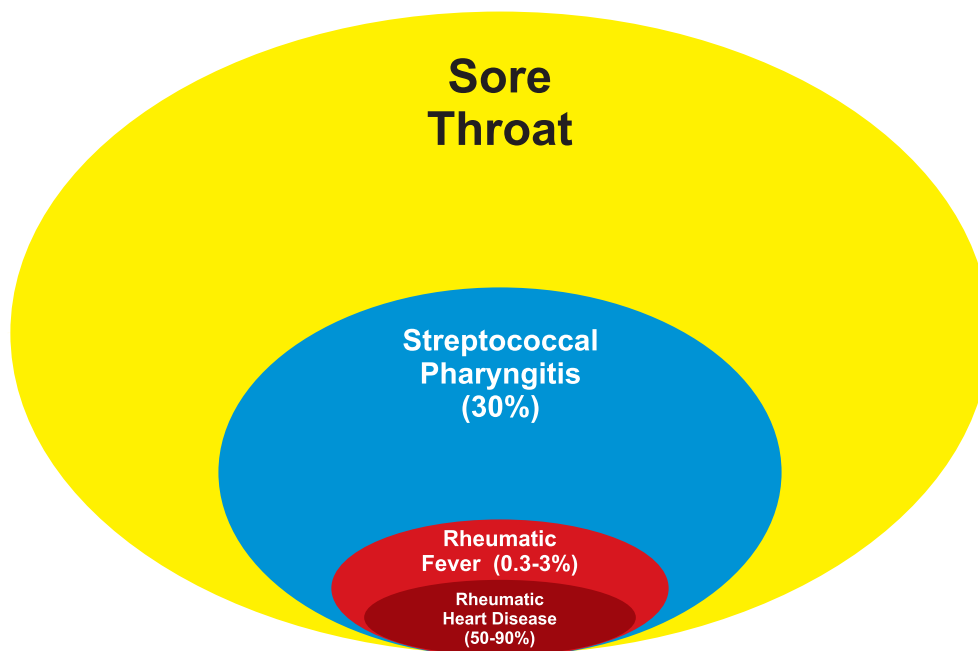
- Sore throat is usually caused by a virus or bacteria. Bacterial sore throat in children and young adults may be caused by Group-A Beta-hemolytic Streptococcus (GAS).
- Bacterial sore throat is typically associated with fever, cervical lymph node enlargement and absence of cold/running nose or cough.
- Bacterial sore throat spreads from person to person through air droplets.
- Overcrowding, poor ventilation conditions such as poor housing contribute to its easy spread.



2.2 What is the significance of Bacterial sore throat in RF and RHD?

- Around 30% of the sore throats in children 5-15 years of age are caused by Group-A β -haemolytic Streptococcus infection.
- About 0.3 - 3 percent of untreated GAS infection results in Rheumatic Fever, and around 50-90% of those with RF eventually end up in cardiac complications like heart valve damage, cardiac failure, etc.

Burden of RF/RHD



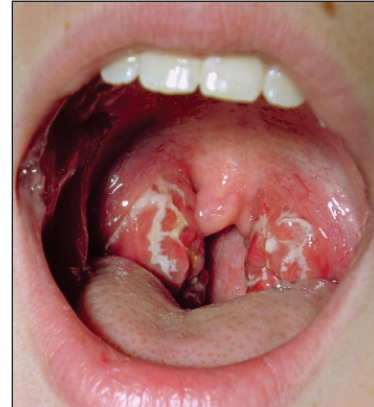
2.3 How is Streptococcal sore throat distinguished from other causes of sore throat?

Sore throat is caused by a variety of bacteria and viruses. It affects all age groups. The criteria given below are helpful to suspect a streptococcal cause for sore throat:

- High Temperature
- Tender cervical lymph nodes
- Redness of pharynx
- Pus like exudates on pharynx and throat
- Bleeding spots in the throat
- Pain while swallowing

Signs of common cold, conjunctivitis, running nose, hoarseness of voice are NOT suggestive of bacterial sore throat.

However, culture of the throat swab is required for laboratory confirmation.



2.4 How to confirm the diagnosis of bacterial sore throat?

GAS infection can be confirmed through the following laboratory investigations:

- Throat swab culture
- Anti-Streptolysin O titers or anti DNASE B
- Positive rapid GAS carbohydrate antigen test in a child has high probability of Group-A β -haemolytic Streptococcus infection



2.5 Does Bacterial sore throat spread from one child to another?

Yes, it spreads from one child to another. Overcrowding, poor ventilation conditions such as poor housing contribute to its easy spread. Health education among community and schools helps in early identification of sore throat cases and thus in preventing spread of infection from one child to another.

2.6 What is the management of Bacterial sore throat?

All bacterial sore throats should be treated appropriately with antibiotics.

The drug of choice is Penicillin. If there is sensitivity to Penicillin, then other alternative drugs may be given.

The dosage and duration of treatment with Penicillin or other alternate drugs are mentioned in the table below:

Drug	Dose	Frequency and duration
Penicillin V (oral) - Contraindicated if Penicillin allergy present	Children : 250 mg	QID for 10 days
	Adult: 500 mg	QID for 10 days
Benzathine Penicillin G (deep IM injection) - To be given after sensitivity test. - Contraindicated if Penicillin allergy present	For those ≥ 27 kg: 1.2 million unit	Single dose
	For those < 27 kg: 0.6 million unit	Single dose
Erythromycin (oral) - Contraindicated in liver disease	20 mg/kg/dose (Maximum of 500 mg)	BID for 10 days
Amoxicillin - Contraindicated if Penicillin allergy present	Children : 10-15 mg/kg/dose	TID for 10 days
	Adult: 500 mg	TID for 10 days

2.7 Which drug should not be given to treat bacterial sore throat ?

Tetracycline, sulfonamide and chloramphenicol should not to be used to treat GAS pharyngitis because of widespread prevalence of drug resistance.

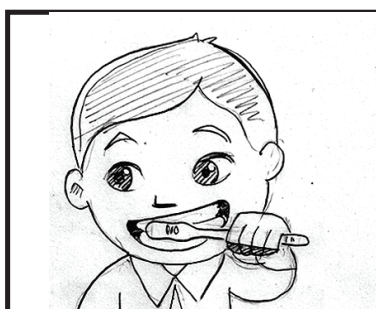
2.8 How to prevent bacterial sore throat among children?

The bacteria causing sore throat are highly contagious and can spread from one child to another by

- coughing and sneezing
- not washing hands
- sharing food and drinks

Proper cough hygiene and oral hygiene are important to prevent spread of infection

- Wash hands frequently
- Keep teeth clean, brush twice daily
- Cover mouth while coughing and sneezing



Child suffering from sore throat should reduce exposure to other children.

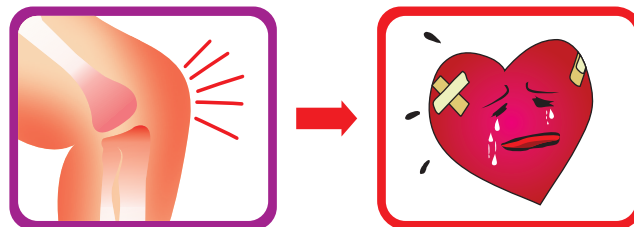
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Rheumatic Fever

3.1 What is Rheumatic Fever?

Rheumatic Fever is a multisystem disease. It occurs following sore throat caused by a bacterium called Group-A Beta hemolytic Streptococcus (GAS). Though the exact pathogenesis remains unknown, it is believed that an autoimmune reaction to GAS infection causes pathological changes in various organs of the body, like joints, heart, skin, etc.

About 1-5 weeks after GAS infection in throat, the child may develop painful or swollen joints (knees, elbows, ankles and wrists) with or without fever. Children in 5-15 years age-group are the most commonly affected. The risk of Rheumatic Fever following untreated GAS sore throat is less than 3 percent. However if RF progresses to RHD, then the damage to heart is irreversible.



Poor socioeconomic conditions, overcrowding and living in poor hygienic conditions usually promote the development and propagation of GAS infections, and thereby Rheumatic Fever.

3.2 How to diagnose Rheumatic Fever?

In Rheumatic Fever, a child typically complains of fever accompanied by pain and swelling in more than one joint (particularly the large joints). Pain may shift from one joint to another. In addition, some patients may present with involuntary movements of the limbs called as 'Chorea'.

Diagnosis of Rheumatic Fever is based on Revised Jones Criteria 2015

Major Criteria

- Carditis (Clinical and/or subclinical)
- Monoarthritis or Migratory Polyarthritis
- Polyarthralgia (only after excluding other causes)
- Chorea (Jerky Movements)
- Erythema Marginatum (Skin rash)
- Subcutaneous Nodules

Minor Criteria

- Monoarthralgia
- Fever ($\geq 38^{\circ}\text{C}$)
- ESR ≥ 30 mm/h and/or CRP ≥ 3.0 mg/dL
- Prolonged PR interval, after accounting for age variability (unless carditis is a major criterion)

- **Diagnosis of first attack of Rheumatic Fever: 2 major or 1 major plus 2 minor criteria**
- **Diagnosis of recurrent Rheumatic Fever: 2 major or 1 major and 2 minor or 3 minor criteria**

3.3 Will the symptoms of Rheumatic Fever go away?

Most of the acute symptoms such as painful or swollen joints (knees, elbows, ankles and wrists), skin rash, fever, and jerky movements usually disappear with time or symptomatic treatment.

However, in cases where the heart also becomes involved, the scarring and damage to heart valves becomes permanent, resulting in Rheumatic Heart Disease. The cardiac valvular damage persists even after the other features have disappeared.

3.4 Does Rheumatic Fever run in the family?

There is no evidence that Rheumatic Fever runs in the family. However some children of one family may get Rheumatic Fever more than other families.

A child cannot get Rheumatic Fever from another child in a family, but GAS throat infections can be transmitted from one person to another through contact or air droplets.

Members of the families where repeated sore throat or signs of RF prevail among children should make sure that the affected child is taken to the doctor for checkup, when the following symptoms develop:

1. Bacterial Sore throat (Pain in the throat with fever, but without cough/cold)
2. Joint pain/swelling with or without fever (with history of sore throat)

3.5 What investigations are needed to diagnose Rheumatic Fever?

The following tests are required for diagnosis of Rheumatic fever:

- C-Reactive Protein (CRP)
- Erythrocyte Sedimentation Rate (ESR)
- Anti-Streptolysin O titers (Confirm presence of past GAS throat infection)
- Electrocardiogram and Echocardiography (if cardiac involvement)

3.6 How to prevent Rheumatic Fever?

The diagnosis and treatment of Streptococcal sore throat can help to minimize the chances of suffering from Rheumatic Fever. The different levels of prevention include the following:

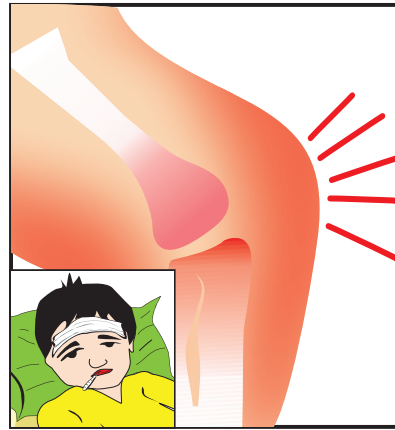
- Minimizing the exposure to GAS infection (Primordial prevention)
 - Health awareness about GAS infection as the condition predisposing to RHD, and steps to be taken for its prevention such as overcrowding, poor sanitation etc.
 - Health awareness can be done through various existing platforms such as school health programme, Immunization Sessions, Visit of health care workers in community, during outreach camps, Village Health and Sanitation Committee meetings, Mahila Mandals meetings etc.
- Detection of Streptococcal pharyngitis (Primary prevention)
 - Identification of GAS infection among children in age group 5- 15 years followed by adequate treatment with appropriate antibiotics.

- Prevent recurrence of GAS infection.

If a child presents with...



Sore throat with fever but no running nose



Joint pain or swelling with or without fever

Refer to a health facility

3.7 How to manage Rheumatic Fever?

Once RF is diagnosed, the child should be treated with Benzathine Penicillin injection (or Erythromycin, if sensitive to Penicillin). Penicillin injection is given deep intramuscular (thigh or gluteal region), once every three weeks, as per advice of the treating physician. The treatment may be done for a longer duration if there is cardiac involvement.

Details about the Penicillin injection are dealt with in subsequent sections.

Recommended dose of Penicillin G:		
Drug	Dose	Frequency of doses
Benzathine Penicillin G (deep IM injection) - To be given after sensitivity test - Contraindicated if Penicillin allergy present	If body weight ≥ 27 Kg	Every 21 days
	If body weight < 27 Kg	Every 14 days
Penicillin V (oral) - Contraindicated if Penicillin allergy present	Children: 250 mg	Daily, twice a day
	Adults: 500 mg	Daily, twice a day
Erythromycin (oral) - Contraindicated in liver disease	20 mg/kg/dose (Maximum of 500 mg)	Daily, twice a day

Duration of Secondary prophylaxis:	
Categories	Duration of Secondary Prophylaxis
Rheumatic Fever with no proven carditis	Minimum of 5 years after last RF episode or Until age 18 years (whichever is longer)
Mild carditis (or healed carditis)	Minimum 10 years after last RF or Until age 25 years (whichever is longer)
Moderate or severe RHD and following Cardiac Surgery	Lifelong (or up to 40 years of age)

This duration of treatment may seem like a long time for parents but health care staff has to convince the parents about the importance of the injections in order to avoid recurrence of episodes of Rheumatic Fever.

Other symptomatic treatments may include:

- Bed rest and anti-inflammatory drugs for arthritis and arthralgia
- Carbamazepine/ Sodium Valproate for severe chorea

3.8 How can another attack of Rheumatic Fever be stopped?

- Treatment with injectable Penicillin can reduce the attack of RF following GAS infection by about 80 percent.
- The best way to stop a child from having another attack of Rheumatic Fever is to make sure that he/she takes regular Penicillin injections on time and till the duration advised by the treating doctor.

3.9 What if a child misses or forgets an injection?

- It is very important that a child under treatment does not miss an injection. Medical officer should inform the patient or his/her caretaker about the next visit.
- If a child has missed a dose, then the next injection should be taken as soon as possible.
- Medical Officer should notify the RBSK team/ANM to inform parents about the missed dose and their immediate visit to health facility.

3.10 What are the steps to administer Penicillin injection at primary health care setting?

The process of Penicillin injection has to be followed very carefully, because if improperly prepared or administered, it can harm the patients. It is very important to do a Penicillin sensitivity test routinely, prior to administering the injection of Penicillin, to avoid anaphylaxis and its consequences.

The steps of administering Penicillin injection are as follow:

A. Preparation of the Injection Solution

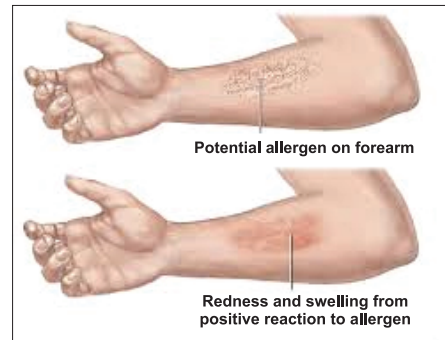
1. Remove the tin foil covering Penicillin vial. Don't touch or remove rubber stopper.
2. Unwrap the syringe.
3. Fit the needle to the syringes without touching the needle with your fingers.
4. Draw 3 ml of distilled water into the syringe.
5. Inject the distilled water into the Penicillin vial through rubber stopper.
6. Shake the bottle vigorously to dilute the Penicillin. Make sure it is well diluted and no solid particles remain undissolved before administering it.

REMEMBER!

Before administration of Penicillin injection, it is mandatory to do 'Penicillin – Sensitivity' Test every time.

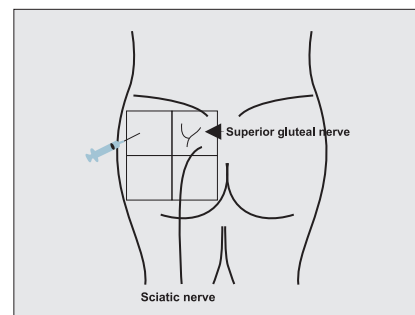
B. Skin testing for Penicillin sensitivity

1. Draw out 0.1 ml of this solution diluting this further with 1 ml distilled water.
2. In the left forearm introduce 0.1 ml injection subcutaneously (to be demonstrated in the training) as to raise a wheal.
3. Circle this area and enote the time on the forearm.
4. Wait for 10 to 15 minutes and if there is no feeling of fainting/dizziness, itching at site of the test, sweating, feeling of apprehension or any other unusual symptoms, the person is not sensitive to Penicillin and can be given the injection.
5. In case of doubt repeat on the other arm with double strength test dose.



C. Administering the Penicillin injection

1. Draw the diluted Penicillin into the syringe and withdraw the syringe from the vial
2. Point the syringe upwards and expel air bubbles that may be present over the drug column.
3. Clean the gluteal region (upper outer quadrant) or thigh (anterolateral) with spirit swab.
4. Introduce the needle into this clean area by stab technique (holding the syringe like a pen and introducing the needle with one quick movement/jab)
5. Draw the piston of syringe slightly to ensure that the needle has not entered a blood vessel.
6. If no blood has been drawn, gently inject the drug over half a minute.
7. Withdraw the needle and clean the area again with a spirit swab.



3.11 How to manage reactions due to Penicillin injection?

Reactions following administration of injection Benzathine Penicillin are very rare, particularly in children in the age group of 5-15 years. However, to be on the safer side, the Penicillin Sensitivity Test should be routinely done prior to injection of Penicillin.

Reactions are very rare. Some children may present with certain symptoms arising due to the fear of injection; and some symptoms due to a true reaction are very rare.

A. Reactions arising out of fright or nervousness: This is not a true reaction but a nervous reaction arising out of fright. It is characterized by feeling of fainting, face turning pale, sweating and weak or rapid pulse.

Management of patients with reactions due to fright or nervousness:

Ask the patient to lie down, loosen the cloths and reassure him/her. Talk to the patients and allay his/her fears, by explaining that the condition is transient and he/she would be alright in 10-15 minutes. In case the condition does not improve, seek help.

B. True Reactions: True reactions are of two types: immediate or delayed.

- Immediate Reactions occur within 30 seconds to two hours after the administration of injection Penicillin. Immediate reactions are characterized by:
 1. Feeling of fainting
 2. Itching all over body or at site of injection
 3. Rashes all over body
 4. Sudden pain/swelling of any part of the body (particularly on face or below eyes)
 5. Difficulty in breathing
- Delayed or late Reactions: Occur 5-15 days after the administration of injection Benzathine Penicillin. The features are:
 1. Generalized or localized rash on the body
 2. Fever
 3. Pain in joints
 4. Difficulty in breathing

Management of Penicillin Reaction:

1. Give your total attention to every case of suspected or frank reaction arising due to injection Benzathine Penicillin and seek help immediately.
2. Reassure the patient, ask him/her to lie down and loosen the cloths.
3. Administer 2 ml of injection Hydrocortisone intra muscularly (IM)
4. Feel the pulse of the patient. If the volume is low, raise the foot end.
5. If itching, rash, or difficulty in breathing, are dominant features, give 2 ml of injection Avil I. M. (1 ml in children 5-10 years).
6. Injection adrenaline should be given only if the Health Worker thinks the patient's conditions are deteriorating. The dose is 0.5 ml given subcutaneously. In case of sudden stoppage of breathing or beating of heart, resort to external cardio thoracic resuscitation (thumping on chest with mouth to mouth respiration).

Anaphylactic Shock Treatment Kit

For patient's safety, injection room must have the following to deal with severe reaction to penicillin injection:

- Oxygen
- Injection adrenalin (1:1000) solution: 2 ampoules
- Injection hydrocortisone 100 mg: one vial
- Disposable syringe (insulin type) having 0.01 ml graduation
- Disposable syringe (5 ml): 2 sets
- 24 and 26 G IM needles: 2 sets
- IV fluids (ringer lactate or normal saline): one unit
- IV fluids (5% dextrose): one unit
- IV drip set: one
- IV stand
- Patient trolley
- Suction machine
- Endotracheal intubation set and ambu bag
- Cotton wool and adhesive tape
- Adverse reaction reporting form

3.12 What steps should the medical officer/ health staffs take when RF is diagnosed in a child?

- Inform the parents about the disease and its complications.
- Inform parents about the long nature of treatment and about the consequences if a child misses the doses.
- Educate the parents about GAS infection and its treatment to prevent the disease in siblings and close associates.
- Arrange necessary follow-up facility and mechanism for long-term Penicillin injection.
- Arrange for necessary referral, wherever required.

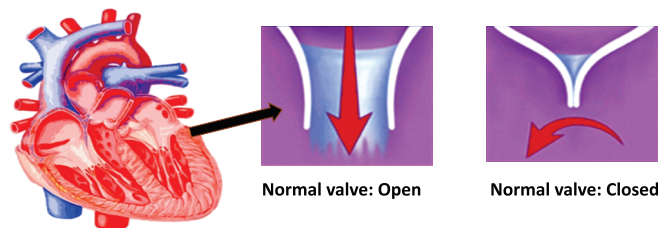


It is very **important** that the child with Rheumatic Fever **does not miss** any dose of Penicillin injection.

4 Rheumatic Heart Disease

4.1 What are the symptoms and complications associated with Rheumatic Heart Disease?

The heart valve acts like a one-way door and ensure that the blood pumped flows in one direction only. However, in RHD when the heart valve is progressively scarred and damaged over time, (mitral valve in 90% of cases) it causes the heart chamber pressures to rise and the heart fails to function as a pump. This condition is called Congestive Cardiac Failure (CCF) or Congestive Heart Failure (CHF). The major cause of death and disability from RHD is heart failure.



The symptoms of Heart Failure include the following:

- Breathlessness (Dyspnoea)
- Tiredness & Weakness
- Feeling of increased heart beat (Palpitation & Tachycardia)
- Swelling of feet (Bilateral Pedal Oedema)
- Enlargement of liver (Hepatomegaly), etc.

Pregnant women diagnosed with RHD: Women with RHD are at risk of significant illness or death during pregnancy and labour. The physiological changes of pregnancy (increase blood volume, increased risk of blood clots, increased blood pressure and heart rate, etc.) need the heart to work harder. Hearts that have already been damaged by RHD may not be able to adjust to these changes and therefore may result in heart failure. Many a times RHD is detected during pregnancy.

4.2 How to diagnose Rheumatic Heart Disease?

Reliable auscultation is sufficient for screening of RHD in most cases; however, cases require confirmation by Echocardiography.

Some of the investigations that may be required to confirm RHD are as follow:

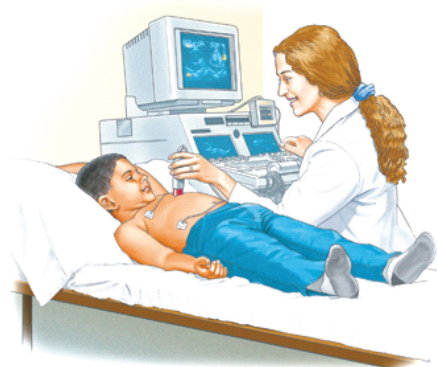
- Echocardiography
- Laboratory tests: ASO titre, CRP, ESR, etc.
- X-Ray Chest
- Electrocardiogram (ECG)

Diagnosis of RHD: Either Mitral Stenosis (MS) or Mitral Regurgitation (MR) or both, with documented history of Rheumatic Fever.

4.3 How to manage Rheumatic Heart Disease?

The management of RHD diagnosed in a person includes the following:

- Access to Echocardiography
- Access to a specialist physician, pediatrician and/or cardiologist, preferably the same specialist, for regular follow up visits, i.e. 3-weekly Penicillin prophylaxis (secondary prevention)
- Access to cardiothoracic and interventional cardiology services. Specific valvular lesions in chronic RHD need specific cardiac interventions.
- Adequate monitoring of anticoagulation therapy in patients with atrial fibrillation and/or mechanical prosthetic valves
- Access to oral healthcare facility



The main strategy of long-term management of RHD is to prevent recurrence of Rheumatic Fever, and thus prevent its progression to RHD.

4.4 How to prevent Rheumatic Heart Disease?

The diagnosis and treatment of Streptococcal sore throat can help to minimize the chances of suffering from Rheumatic Fever, which in turn can decrease the probability of having RHD.

The different levels of prevention and the activities under them include the following:

- Minimizing the exposure to GAS infection (**Primordial prevention**)
 - Health awareness about the condition predisposing to RHD and steps to be taken for its prevention such as overcrowding, poor sanitation etc.
 - Health awareness can be done through various existing platforms such as school health programme, Immunization Sessions, Visit of health care workers in community, during outreach camps, Village Health and Sanitation Committee meetings, Mahila Mandals meetings etc.
- Detection of Streptococcal pharyngitis (**Primary prevention**)
 - Identification of GAS infection among children in age group 5- 15 years followed by adequate treatment with appropriate antibiotics.
- Early diagnosis and management of RHD (**Secondary prevention**)
 - Regular administration of Penicillin injection to the child who is at risk of RF recurrence.

4.5 How to prevent and manage Rheumatic Heart Disease at Government Health-care settings?

The different activities that can be taken up at different levels of health care facilities are detailed as below:

Community

- **Health promotion activities** including improvement in socio-economic condition, nutrition and hygiene
- **Health education** about RHD prevention in school curriculum
- **IEC** on causation of RF/RHD and link with Sore throat
- **Training** of School Teachers & Frontline Workers: To identify and refer Sore throat cases to health facilities
- **Surveillance for Case finding:** Periodic School Health survey

First Referral Unit - PHC/CHC

- **Diagnostic facility:** Lab strengthening, etc.
- **Counselling and Follow-up mechanism:** for long duration treatment compliance
- **Training of MO:** Follow algorithm
 - Differentiate bacterial & viral sore throat
 - Test suspected bacterial pharyngitis
 - Treat all GAS pharyngitis
 - Refer suspected RF/RHD cases to designated health facility
- **Training of Health Workers:** Develop guidelines
- **Supply chain management of** consumables & drugs
- **Recording & Reporting System**
- **Surveillance for Case finding:** OPD / Lab registers

District Hospital/ CCU/Tertiary care Hospital

- **Diagnostic Facilities:** Lab strengthening and Echocardiography
- **Counselling and Follow-up mechanism:** for long duration treatment compliance
- **Supply chain management** of consumables & drugs
- **Advise consultation by Cardiologist** for RF cases
- **Facility for Cardiac surgery** for RHD cases in tertiary care hospitals
- **Training of Health Staff:** To test, treat, counsel, refer and follow-up cases
- **Supply chain management** of consumables & drugs
- **Recording & Reporting System**
- **Surveillance for Case finding:** OPD / Lab/ Echo registers

In the existing health care delivery system, it is envisaged to implement the RF/RHD intervention through the existing health programmes, i.e. RBSK and NPCDCS

I. Role of Rashtriya Bal Swasthya Karyakram (RBSK)

1. RBSK would help in the dissemination of IEC material in Govt./Govt-aided Schools & Anganwadi Centres
2. Screening suspected, bacterial sore throat, RF and RHD cases (cardiac murmur) and referral to designated PHC/NCD Clinic by Mobile Health Team using a simple Referral Card
3. Counseling of suspected cases, by the Mobile Health Team, to consult doctors for sore-throat, regarding importance of general hygiene, nutritious food, and regular check-up at local health facility, emphasizing the significance of long-term Penicillin treatment
4. To share data on RHD cases registered under RBSK.
5. At District Early Intervention Centres under RBSK
 - a. Availability of echocardiography facility
 - b. Linkage with empanelled tertiary care hospitals for Surgical intervention, if required
6. Establishing linkage with NPCDCS clinics

II. Role of National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke (NPCDCS)

1. Strengthening diagnostic facilities at NCD clinics and Cardiac Care Unit
 - At the NCD Clinics at District Hospitals and CHC, the logistic support for Bacterial Sore throat/ RF diagnosis would be provided through NPCDCS.
 - Availability of Echocardiography facility in the designated referral hospitals and CCU at the district levels and the availability of skilled manpower would be ensured.
2. Strengthening treatment facilities, the following is envisaged:
 - Ensure adequate supply of Oral and Injectable Penicillin, alternate Antibiotics, Anaphylaxis Kit for Injectable Penicillin and other essential drugs for treatment.
 - Guidelines for Safe injection practices.
 - Referral mechanism for surgical management of RHD cases
3. To put in place a mechanism for RF/RHD registration at District/CHC NCD Clinics, to ensure treatment compliance for secondary prophylaxis.
4. Establish a linkage with RBSK reporting system for RF/RHD monthly reporting.

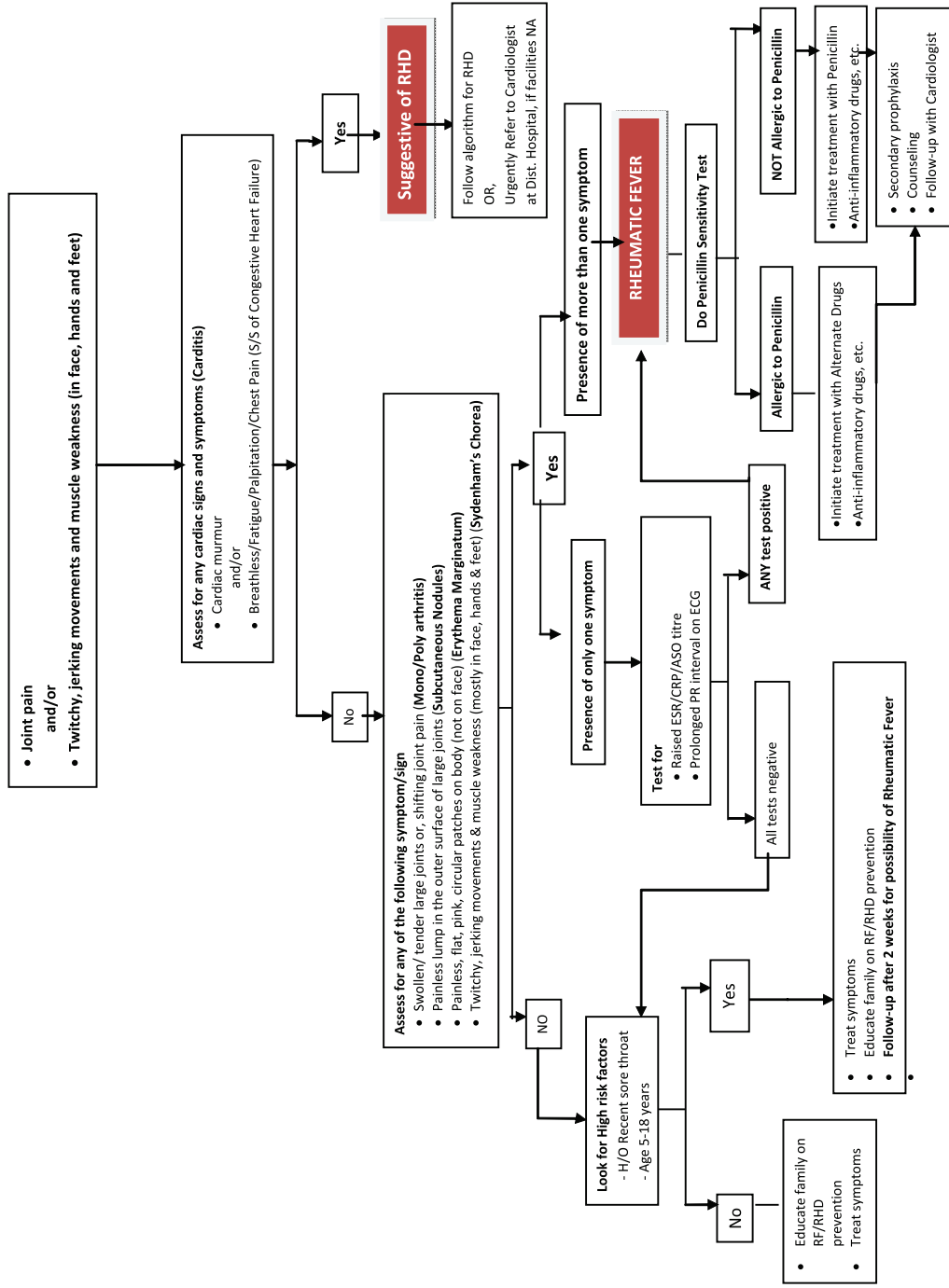
Annexure 1

Differentiation of bacterial sore throat from viral sore throat

Symptom/ Sign	Bacterial sore throat (e.g. GAS)	Viral sore throat
Pain in throat	Severe	Mild or absent
Fever	Always present High grade ($> 38^{\circ}\text{C}$ or $>100^{\circ}\text{F}$)	Absent or mild ($<38^{\circ}\text{C}$ or $< 100^{\circ}\text{F}$)
Difficulty in swallowing	Very prominent	Mild
Pus / white patches on back of throat / tonsils	Present	Absent
Enlarged neck lymph nodes	Present	Rarely seen
Duration of illness	$>5-7$ days	$<4-5$ days
Hoarseness of voice lasting >2 weeks	May be present	Absent
Common cold symptoms like running nose, sinus congestion, conjunctivitis, etc.	Absent	Very prominent

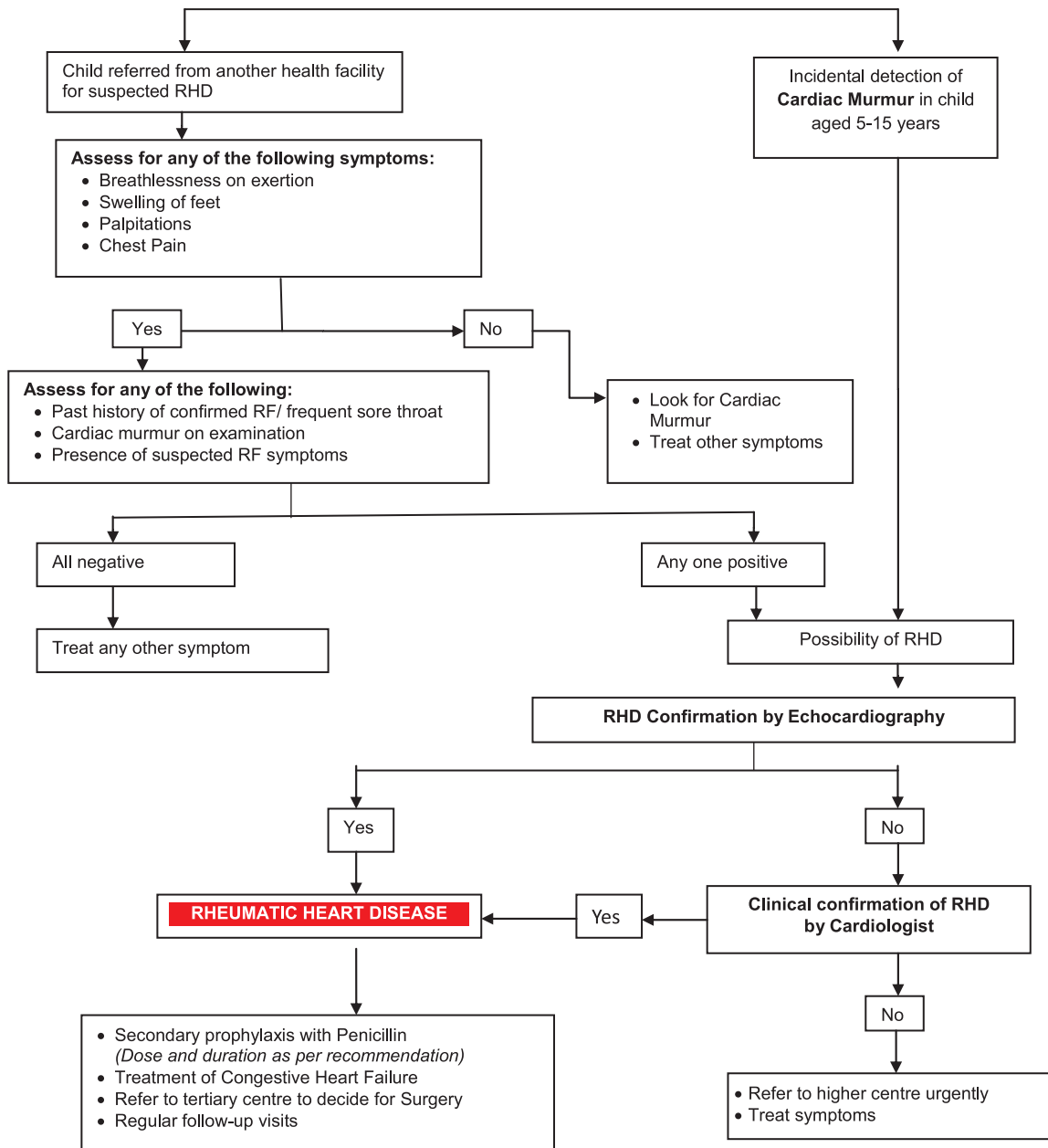
Annexure 2

Algorithm for 'Suspected RF cases' Patients presenting with Joint Pain or Chorea



Annexure 3

Algorithm for 'Suspected RHD cases'



Annexure 4

I. IEC Material: Leaflets

RHEUMATIC HEART DISEASE

Rheumatic Heart Disease is a common heart disease among children

Headache, chest pain, breathlessness, increase in heartbeat, tiredness, swelling of feet are common symptoms of Rheumatic Heart Disease

Entirely preventable

Untreated Sore Throat can lead to Rheumatic Heart Disease

Rheumatic Heart Disease can be prevented through simple measures

IS YOUR CHILD SUFFERING FROM

SORE THROAT WITH FEVER BUT NO RUNNING NOSE

JOINT PAIN OR SWELLING WITH OR WITHOUT FEVER

If your child is suffering from the above symptoms, it could be Rheumatic Fever and can lead to Rheumatic Heart Disease.

PREVENT RHEUMATIC HEART DISEASE, PROTECT LIVES

Untreated Sore throat / Joint pain may damage the heart

Visit health facility immediately. Take medicines regularly as prescribed.

Jointly developed by Ministry of Health and Family Welfare and World Health Organization

Do not ignore Sore throat / Joint pain

- In India, one out of 1000 children in 5-15 years age group have Rheumatic Heart Disease
- Rheumatic Heart Disease is prevalent in families living in poor hygienic conditions
- Rheumatic Heart Disease does not spread from one to another. However, the prime cause, a bacterial sore throat, spreads from one child to another
- The following conditions, not given attention to, can lead to Rheumatic Heart Disease:
 - Bacterial sore throat**
Sore throat with fever without running nose
 - Rheumatic Fever**
Joint pain or swelling with or without fever

These symptoms can cause permanent damage to the heart valve resulting in Rheumatic Heart Disease

If a child has the above symptoms, visit a health facility immediately and follow the advice of the doctor

Bacterial sore throat

- Symptoms are fever without running nose
- Overcrowding, poor ventilation, etc. contribute to easy spread of sore throat
- Consult health staff immediately
- Take medicines as prescribed
- Wash your hands frequently
- Avoid contact with other children

Rheumatic Fever

- Pain or swelling of joints (knee, elbow, ankle, wrist etc.) with or without fever
- Symptoms within 2-4 weeks of sore throat
- Visit a health facility immediately
- Injections of Penicillin to be taken once every 3 weeks under medical supervision
- Ensure that the child does not miss an injection to avoid recurrence

Rheumatic Heart Disease

- If damage to the heart is mild in Rheumatic Heart Disease, it may not show any symptoms.
- Permanent damage to heart valves can occur in severe cases.
- Significant involvement of heart leads to breathlessness, increase in heartbeat, tiredness, swelling of feet etc.
- Consult a doctor immediately
- Heart surgery may be required

Management of Rheumatic Heart Disease

- Laboratory tests i.e. Anti Streptolysin-O titre and C Reactive Protein etc.
- Echocardiography test, if necessary
- Heart surgery may be required if the valve is severely damaged

Prevention of Rheumatic Heart Disease

- Educate friends and community about the signs and symptoms
- Do not ignore sore throat associated with fever but without cold; get it checked by health staff
- Take antibiotics to treat bacterial sore throat and to prevent Rheumatic Heart Disease, but only under medical supervision
- Improve sanitation
- Practice proper hygiene
 - Wash hands frequently
 - Reduce exposure to other children if you have a sore throat
 - Keep your teeth clean, brush twice daily
 - Cover your mouth during coughing and sneezing
- Proper care and regular Penicillin injections are necessary to prevent recurrence of Rheumatic Fever and Rheumatic Heart Disease

Wash hands frequently

Maintain proper hygiene

Take medicines regularly as prescribed

II. IEC Material: Posters / Pamphlets

Ministry of Health & Family Welfare
Government of India

NATIONAL HEALTH BUREAU

PREVENT RHEUMATIC HEART DISEASE PROTECT LIVES

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