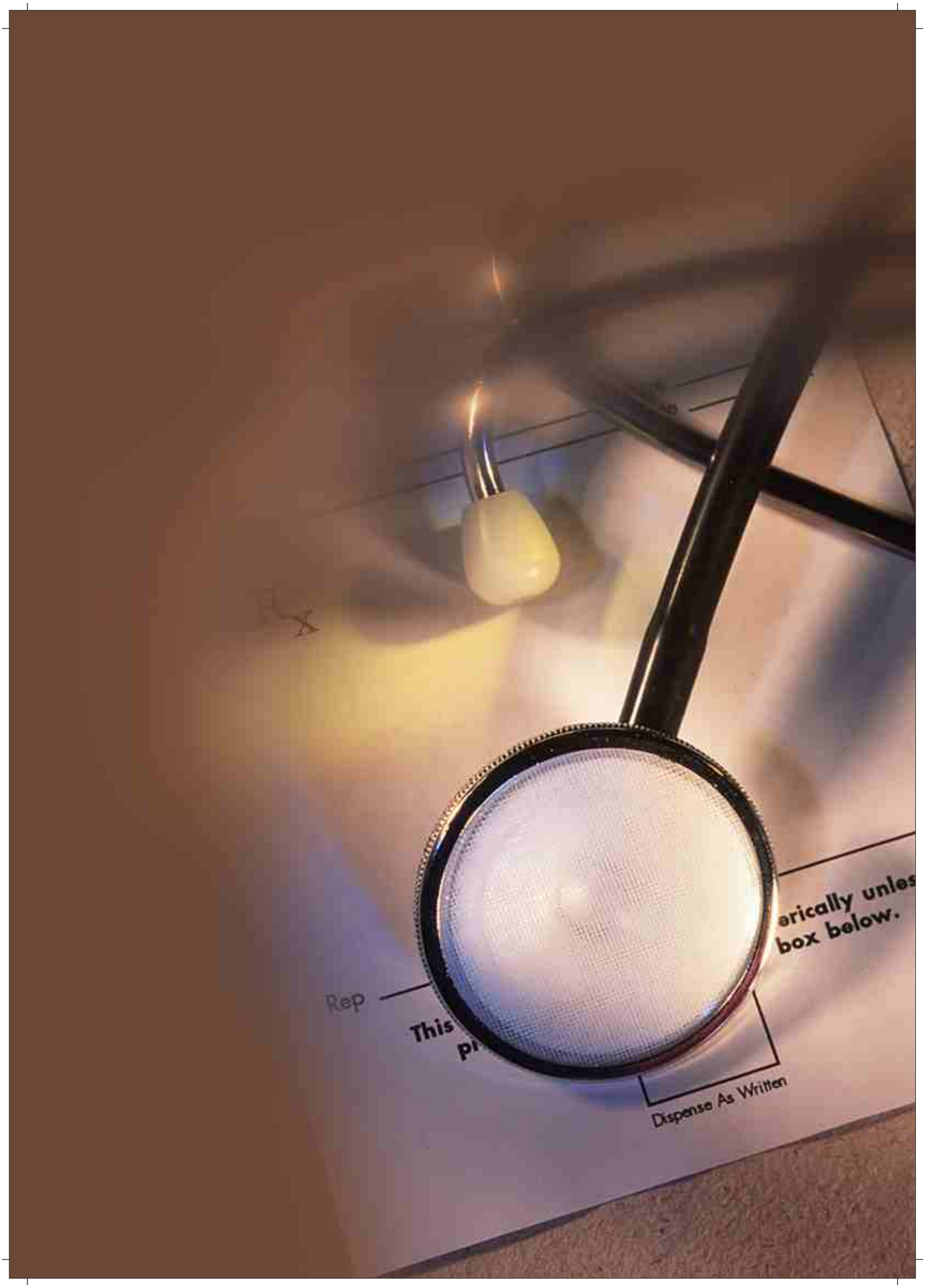
FICCI

STANDARDISATION INITIATIVES BY THE FICCI HEALTH INSURANCE GROUP

- A REPORT, July 2009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Foreword

Chairman-IRDA

जे. हरि नारायण
अध्यक्ष

J. Hari Narayan
Chairman

बीमा विनियामक और विकास प्राधिकरण
INSURANCE REGULATORY AND DEVELOPMENT AUTHORITY

Health insurance continues to be one of the most dynamic and fast evolving sectors in the Indian Insurance Industry. During 2008-09, the general insurance industry has earned a health premium of Rs 6625 crores, which is a 30% improvement over the previous year, and more than twice the level seen just 2 years ago. However, the growth in numbers is also fraught with numerous challenges of ensuring accessibility, affordability and efficiency in the health insurance system of the country, which requires sustained and focused efforts on the part of all stakeholders.

Recognizing the need for engagement with multiple stakeholders in finding solutions to these challenges, IRDA has been associated with FICCI and other industry chambers in several such working groups comprising of representatives from insurers, TPA, hospitals and other stakeholders, as also through Committees constituted by IRDA, on various current issues pertinent to the development of the health insurance industry. In my view, each of these working groups addresses a critical piece of the overall approach required to ensure the orderly and steady development of the health insurance sector in the country. IRDA is also the common thread across these working groups in ensuring smooth co-ordination among the activities of the groups and ensuring that there is no duplication of efforts across the industry's various initiatives. A testimony to the sustained and dedicated efforts of these working groups is this document on Standard Treatment Guidelines, Standard Definitions of Critical Illnesses and Listing of Standard Non-Medical Expenses for the Indian Insurance Industry, which certainly reflects the resolve of the industry to arrive at solutions for the challenges facing us.

I am sure that this creation of Standard Treatment Guidelines for 20 common causes of hospitalization by the FICCI working group on health insurance will spearhead many more efforts in this direction, so that we have comprehensive Indian standards of care for most health conditions very soon. Similarly, the standard definitions of critical illnesses will not only enhance the customer's understanding of these terms but also ensure easier comparison of the product offerings in the market. The standard list of non-medical expenses will also smoothen the interaction between the patients, hospitals, TPAs and insurers by minimizing the ambiguities on what is payable under health insurance policies. The document, of course, should now be available for comments and feedback by all stakeholders in the health insurance eco-system, and will certainly stand enriched in its content and acceptability through such wider dissemination and consultation.

On our part, IRDA stands committed to undertake developmental initiatives for the health insurance sector of the country, and it is indeed heartening to see the fructification of our joint efforts undertaken with FICCI over the last 18 months in the form of this document being released at the time of the FICCI Health Insurance Conference, 2009. I compliment FICCI and all the contributors to this document for an excellent task achieved.

Hyderabad
23rd June 2009

(J HARI NARAYAN)
Chairman, IRDA

Foreword

Chairman, FICCI Health Services Committee

Dear All,

A strong healthcare delivery system providing access to quality healthcare to a vast majority of the population requires a healthy and vibrant healthcare insurance market. Less than 15% of population in India today has any kind of healthcare cover be it community insurance, employers' expenditure, social insurance (ESIS) etc. Lack of proper understanding between the health care providers and health insurance companies, the two significant stakeholders of health insurance business, is considered to be a prime reason for slow spread of health insurance.

To resolve this issue, FICCI took the initiative of constituting a Joint Health Insurance Group comprising of senior representatives of the healthcare providers and the health insurance companies to help identify the key issues concerning the two key stakeholders. The group engages itself in creating appropriate level of consumer awareness in order to build consumer capacity to make informed choice.

This initiative is meant to help drive deeper penetration of health insurance by encouraging greater innovation in product design, incentives for consumers to invest in health insurance products and enhancing quality deliverance for both healthcare providers and insurers.

According to FICCI Group, the critical area that needs immediate attention in order to bring about effective change is seamless management between both stakeholders to enable quality & hassle free success.

The Health insurance market is becoming significant for the Indian insurance sector as it already contributes a sizeable chunk of the premium generated. The high claim ratio however makes the health Insurance business unviable for insurers. Hence, there is a need to develop products which create a win win situation for insurance companies, healthcare providers and consumers.

The key challenge, however, is to create products that can reach the bottom half of the population which enables greater access to quality healthcare. Putting money and access in the hands of those who cannot afford will create an inclusive health system in the country.

Taking the issue to much larger audience for discussion and debate, FICCI's Group on health insurance has identified this critical area amongst others that need urgent attention. I am sure post the deliberations in The Health Insurance Conference, we will be able to come out with concrete recommendations that will bring about a more inclusive health system.

Shivinder Mohan Singh
Managing Director
Fortis Healthcare Limited

Foreword

Chairman, FICCI Committee on Insurance

You might find it hard to digest that the average lifespan in India at Independence was 37. In less than sixty years this has increased to 63. Yet the average lifespan in India is much below developed countries' average of 78-80. India also lags behind considerably in other healthcare parameters.

If you are wondering whether the quadrupling of per capita over the next few decades will automatically solve the problem, you're asking the right questions. As you will see, we don't have to wait that long. A key contributor to lifespan and quality of living for any population is the quality of healthcare. But financing of the healthcare is as critical an element in the chain. Globally, sustainable financing of healthcare has to come from health insurance; not plain financing in its traditional sense. Right now, most people in India are either not insured, or are underinsured; so financing the healthcare is a real issue.

The cause of the problem is easy to describe. But the cure is more elusive. A deeper dive shows that insurance companies do not yet have a stable ecosystem. How can such an ecosystem be created? Basically the need is for a set of standards that is agreed upon by all participants in the ecosystem. When customers insure themselves, they need to know what the standard definitions of an ailment are, and what the standard exclusions are. A hospital or a doctor wouldn't want a dispute with an insurance company on what they believe was an appropriate treatment, and hence billing for an ailment. The need is for having standard definitions for ailments, investigations, treatment practices and disallowances. Just like GAAP, generally accepted accounting practices, there needs to be Generally Accepted Norms (GANs) in Healthcare, which are broadly agreed upon by all participants of the ecosystem, namely customers, insurers and healthcare providers.

FICCI has done pioneering work in creating the standards for the key areas in the health insurance ecosystem. FICCI is now putting out three significant reports:

a) Standardisation of acceptable treatment guidelines for common hospitalizations

b) Standardization of definitions of Critical Illnesses for the health insurance industry

c) Standardization of “Exclusions” in Hospital Indemnity plans for non medical items.

The process of creating such standards was by consensus and included a wide participation from various stakeholders in the ecosystem. The report provides valuable inputs which will help create a sustainable health insurance model for India. This will help India have a productive workforce and take us closer to global standards in longevity and

quality of life.

I would like to thank the entire team which has contributed to report.

V Vaidyanathan,
Chairman FICCI Committee on Insurance, and
MD & CEO, ICICI Prudential Life Insurance Co Ltd.

Acknowledgements

It gives us immense pleasure to bring out the **" Standardisation Initiatives by the FICCI Health Insurance Committee - A Report "** during the Health Insurance Conference on 10th July 2009 on the theme **" Health Insurance : Social and Economic Imperative".**

We sincerely appreciate and acknowledge the direction and content provided by the key drivers of this FICCI activities; **IRDA, Fortis Healthcare Limited and ICICI Prudential Life Insurance Co Ltd.** in enabling us accomplish this task successfully.

We take this opportunity to convey our sincere appreciation to all renowned clinical experts involved in framing the guidelines, numerous hospitals and healthcare organisations involved in the exercise, General Insurance Council, Life Insurance Council, Insurance Companies, TPAs, Re-Insurance Companies to make this initiative meaningful and useful for the industry.

Our special thanks to Milliman India which is an international provider of evidence based clinical content for providing technical assistance to the FICCI Health Insurance Committee in editing and formatting the content of the standard treatment guidelines.

Our special thanks to Mr. Shivinder Mohan Singh, Chairman, FICCI Heath Services Committee & Managing Director, Fortis Healthcare Limited, Ms. Shikha Sharma, Former Managing Director and CEO, ICICI Prudential Life Insurance Co Ltd., Mr. V Vaidyanathan, Chairman FICCI Committee on Insurance & MD & CEO, ICICI Prudential Life Insurance Co Ltd., Dr Narrotam Puri, President- Medical Strategy & Quality, Fortis Healthcare Ltd, New Delhi , Mr. S.L. Mohan, Secretary General, General Insurance Council, Mr. S.B. Mathur, Secretary General, Life Insurance Council, Dr Somil Nagpal, Special Officer-Health Insurance, IRDA, who have been an integral part of these groups and have continuously guided & supported us in this endeavor.

Organisers

Preface

Secretary General, FICCI

Health Insurance is of great importance to make quality healthcare affordable to masses at large. However, health insurance industry in India is at a nascent stage as compared to developed countries like USA, UK, France, Germany etc. Around 70% of India's healthcare expenditure is financed out-of-pocket with only 15% of Indian population covered by health related insurance schemes. This limits the capacity of Indians to spend on healthcare particularly in lower and middle income groups which comprises around 95% of the population.

In the FICCI Health Insurance Conference held in November 2007, Chairman IRDA emphasized the significance of collaborative effort of Health Services & Insurance Committees of FICCI towards development of Health Insurance in India to help increase affordable quality healthcare to the common masses. Accordingly FICCI's Committee's on Health Services and Insurance came together under the leadership of Mr Shivinder Mohan Singh, Managing Director, Fortis Healthcare Limited, New Delhi and Ms Shikha Sharma, former Managing Director & CEO, ICICI Prudential Life Insurance Co Ltd, Mumbai in their capacity as Chairperson of the respective Committee's, to identify the core issues and arriving at solutions to remove the bottlenecks without hindering the growth of Health Insurance market in India. Mr V Vaidyanathan, Managing Director & CEO, ICICI Prudential Life Insurance Co Ltd, Mumbai carried forward the good work initiated by Ms Shikha Sharma on behalf of FICCI Insurance Committee.

The Joint Health Insurance Group created a short-term action plan to address the immediate operational issues and build trust between the healthcare providers, insurers and the consumers. The long-term objective of the Group is to find ways to encourage greater innovation in developing insurance products catering to all segments of the society and enhance quality deliverance of healthcare and insurance that will ultimately help in deepening the health insurance market.

With this mandate, three Working Groups were created:

- **Standard Treatment Guidelines (STGs)** for common reasons for hospitalization -21 STGs developed and peer reviewed
- **Standard Definitions of Critical Illnesses** for Indian Insurance Industry – Definition of 11 Critical Illnesses standardized
- **Standardization of List of Excluded ("Non-Medical")Expenses** in Hospital Indemnity Policy – 203 items categorized under Non-Medical Expenses

The terms of reference and members of each of the Working Groups were identified in consultation with Insurance Regulatory and Development Authority (IRDA). This document presents the work carried out so far by the respective Working Groups and includes the feedback received from leading Hospitals, Medical institutions, Insurance companies/TPA's, Reinsurers etc. The aim of the conference is to share the findings, disseminate the work done by the FICCI's Group on Health Insurance to a larger audience and seek their response.

Dr Amit Mitra
Secretary General
FICCI

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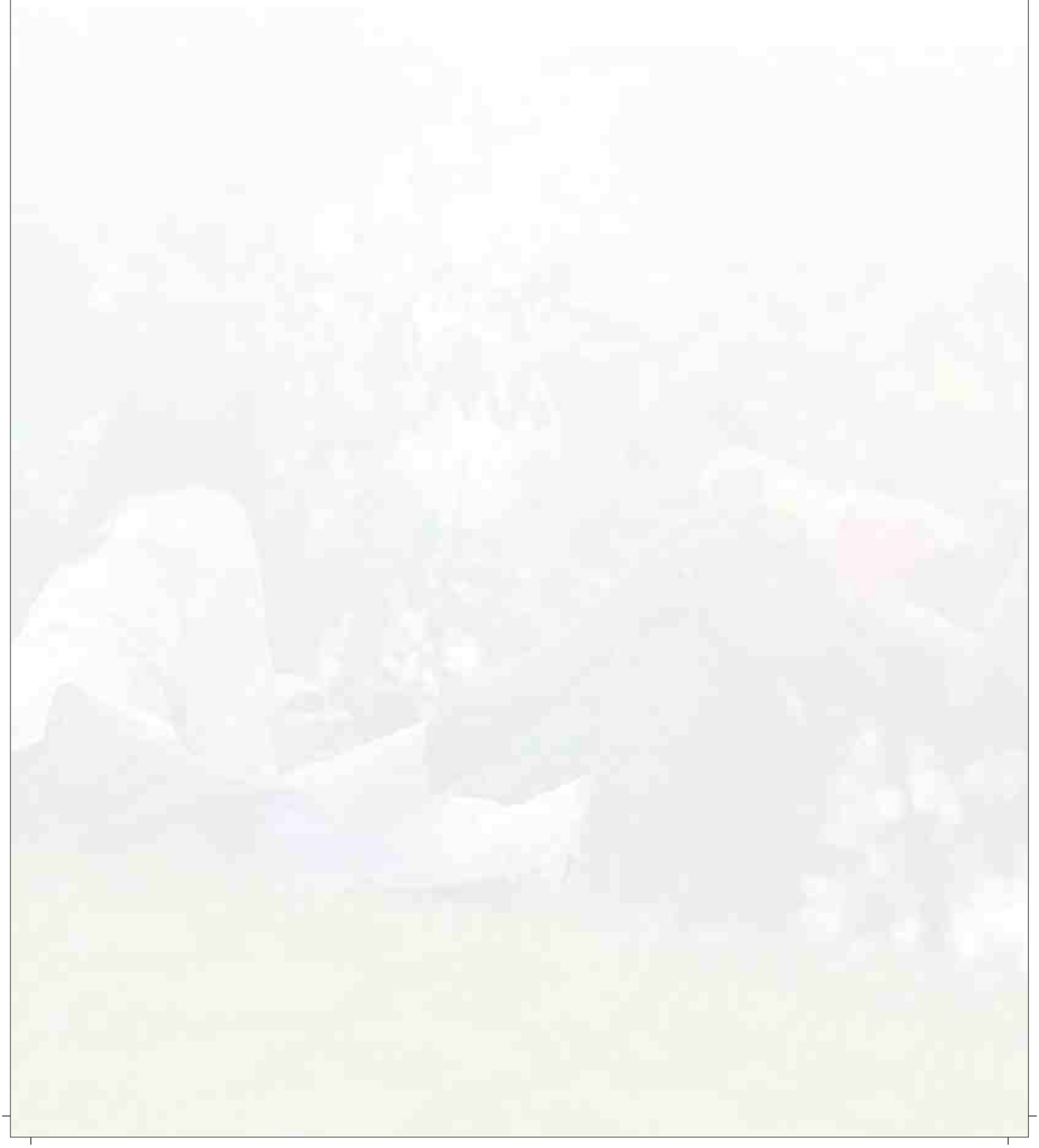
STANDARD TREATMENT GUIDELINES



Standard Treatment Guidelines for Common Reasons of Hospitalisation

BACKGROUND

The Standard Treatment Guidelines for common causes of hospitalization are expected to be a useful reference tool for the insurance industry when settling claims pertaining to these conditions. Also, by following a rigorous, consensus and peer-review based approach, the STGs help in providing essential standards to both hospitals and insurance companies that can further help in bringing understanding of the insurance products and transparency in the health eco-system. At the time of claim settlement also, there would be standard parameters available which can be used for cross checking the claims and thus reducing disputes at the time of settlement. STGs can also enable better assessment of the insurance sub-limits to be incorporated in policies and also provide a framework for mutual negotiation on package costs between the payors and the providers.

INTRODUCTION

FICCI created a Working Group under its Health Insurance Group to **identify Standard Treatment Guidelines For Common Reasons of Hospitalization, which would be acceptable to both the healthcare providers and the insurers, and will also promote the concept of quality standards at reasonable costs.** The group has been working under the Chairmanship of **Dr. Narottam Puri, President-Medical Strategy & Quality, Fortis Health Care Ltd. & Escorts Heart Institute & Research Centre Ltd** and with members of the group being leading clinical experts in their respective fields, as also representatives of the insurance industry- life and non-life, and the General Insurance Council.

It is only after this intensive endeavor of the clinical experts, insurers, representatives from IRDA and FICCI secretariat to make this initiative meaningful and useful for the industry.

The aim of these treatment guidelines are to

- Reduce claim disputes substantially by providing a reference framework for payors to process medical claims for these conditions and thus reducing the needs for queries moving back and forth between payors and providers
- Enable increased automation of claims handling resulting in faster claim processing and reduction of TATs(turn around time) for a significant proportion of claims
- Help in setting appropriate grades/levels of payout for different types of surgeries in fixed benefit plans and setting scientific and reasonable sub-limits for different procedures in reimbursement plans
- Provide a framework for development of appropriate price range for these conditions in different situations

Standard Treatment Guidelines

The guidelines also provide the essential investigations which need to be carried out in case of a particular condition, as also any specific additional ones, which may be opted for in case of specified circumstances. The guidelines also include a detailed discussion on implants or other surgical consumables, including specific recommendations which meet quality expectations at a reasonable cost to the system.

METHODOLOGY

- The commonest causes of Hospitalization based on insurance claim data were selected under the broad categories of surgical conditions and medical conditions requiring hospitalization, and across various specialties, to develop the standards. In the present phase, STGs for over 20 conditions have been developed by the group, and more conditions are expected to be taken up in due course based on the industry's feedback to the same.
- The presentations on the recommended treatment guidelines were developed by identified Clinical Experts based on a standard protocol (Annexure).
- The group analyzed and undertook detailed discussions on each of the presentations and their feedback was included by the lead content developer in the revised presentation which was again presented and discussed in the group.
- The finalized guidelines developed by the lead content developer were then edited by a professional team for uniform and consistent style of presenting these standards and the documents of STGs were created.
- Peer review of the guidelines created by the clinical experts was carried out by a cross section of other experts from the same domain, across hospitals and medical colleges located in various parts of the country, in order to secure a professional consensus on the guidelines and wider acceptance.
- The peer review comments were incorporated in the STGs by the lead content developer, and this document along with peer reviews received thereupon was also vetted by an independent Technical Board constituted by FICCI.

List of Standard Treatment Guidelines

Sl. No	Conditions Covered/Clinical Experts
1	**Diarrhoeal Diseases** Dr Arvind Kumar Consultant Gastroenterology, Max and Columbia Asia Hospital Gurgaon & Dr S. K Mittal Chairman Department of Pediatrics Pushpanjali Crosslay Hospital Ghaziabad
2	**Appendicitis** Dr Dinesh Singhal Senior Consultant Department of Surgical Gastroenterology Pushpawati Singhania Research Institute New Delhi
3	**Asthma** Dr R. K Mani Director, Critical Care, Pulmonology & Sleep Medicine Artemis Health Institute Gurgaon & Dr B V Muralimohan Head of Pulmonology Narayana Hrudalaya Bangalore
4	**Benign Prostatic Hyperplasia (BPH)** Dr Anshuman Agarwal Senior Consultant Urologist R. G Stone Urology & Laparoscopy Hospital New Delhi
5	**Cataract Surgery** Dr Ritu Aurora Max Healthcare Ltd New Delhi

Standard Treatment Guidelines

Sl. No	Conditions Covered/Clinical Experts
6	**Cholecystectomy** Dr Dinesh Singhal Senior Consultant Department of Surgical Gastroenterology Pushpawati Singhania Research Institute New Delhi
7	**Chronic Otitis Media** Dr Anil Monga Senior ENT Surgeon & Vice Chairman Department of Otorhinolaryngology Sir Ganga Ram Hospital New Delhi
8	**Fissure in Ano** Dr V Baskaran Dr B L Kapur Memorial Hospital New Delhi
9	**Fistulae in Ano** Dr V Baskaran Dr B L Kapur Memorial Hospital New Delhi
10	**Gastric Esophageal Reflux Disorder (GERD)** Dr Arvind Kumar Consultant Gastroenterology, Max and Columbia Asia Hospital Gurgaon
11	**Heart Failure** Dr A. K. Sood Rockland Hospital New Delhi
12	**Inguinal Hernia** Dr Sudhir Kalhan Dr B L Kapur Memorial Hospital New Delhi
13	**Total Joint Replacement** Prof Surya Bhan Director of Orthopaedics & Chief Joint Replacement Surgeon Primus Superspeciality Hospital New Delhi
14	**Fixation of Long Bone Fractures** Dr Sourav Shukla Senior Consultant Primus Super Speciality Hospital New Delhi

Sl. No	Conditions Covered/Clinical Experts
15	**Malignant Neoplasm - Breast Cancer** Dr Loraine Kalra Oncologist Columbia Asia Hospital Gurgaon
16	**Lung Cancer** Dr Anshuman Kumar Consultant Oncosurgeon Dharamshila Hospital and Research Centre New Delhi
17	**Peptic Ulcer** Dr V Baskaran Dr B L Kapur Memorial Hospital New Delhi
18	**Renal Stones Management** Dr Atul Goswami Senior Consultant Urologist & Andrologist Sunder Lal Jain Hospital Delhi
19	**Tonsillectomy** Dr Rajeev Puri Senior Consultant ORL&HNS Indraprastha Apollo Hospitals New Delhi
20	**Typhoid & Paratyphoid Fevers** Dr Seema Dhir Senior Consultant Holy Family Hospital New Delhi
21	**CVA/Stroke** Dr Praveen Gupta Consultant Neurologist Artemis Health Institute Gurgaon
22	**Angioplasty*(Content development initiated)*** Dr Praphul Mishra Consultant Cardiologist Dr B L Kapur Hospital New Delhi

Standard Treatment Guidelines

Standard Treatment Guidelines for Appendicitis requiring hospitalisation

1. Introduction/ Definition/ Description

Appendectomy is a surgical procedure in which appendix is removed. Procedure may be open or laparoscopic.

2. Incidence of the condition

Individuals have approximately a 7% risk of developing appendicitis during their lifetime. The peak incidence of appendicitis is in children aged 10-12 years; thereafter, the incidence continues to decline, although appendicitis occurs in adulthood and into old age. The lowest incidence of appendicitis is in infancy.

3. Causes/ risk factors

- Appendicitis is most often due to luminal obstruction followed by presumed bacterial invasion. Most surgeries are performed in children although may also be conducted in adults.
- Potential risk factors include a diet low in fiber and high in sugar, family history, and infection. The incidence of appendectomy is decreasing due to better medical management and stringent criteria developed for surgical intervention.

4. Differential diagnosis

- **In children**
  - Gastroenteritis, mesenteric adenitis, Meckel's diverticulitis, intussusception, Henoch-Schönlein purpura, lobar pneumonia
  - Regional enteritis,ureteric, renal colic, perforated peptic ulcer, testicular torsion, pancreatitis, rectus sheath hematoma, pelvic inflammatory disease, ectopic pregnancy, endometriosis, torsion/rupture of ovarian cyst, cholecystitis
- **In elderly**
  - Diverticulitis, intestinal obstruction, colonic carcinoma, mesenteric ischemia.

5. Clinical Diagnosis

- Pain
  - Central abdomen
  - Shifts to R iliac fossa

In children the site of pain or tenderness may vary

- Anorexia
- Fever
- Rebound tenderness in R iliac fossa
- Elevated TLC

None of these signs / symptoms alone or in combination can reliably diagnose acute appendicitis. Clinical diagnosis reliable in approx 50% patients. (NEJM 1998)

- Grey area: Female patients in child bearing group
  - Infections eg amoebic typhlitis
  - Mesenteric adenitis in children

Typically, symptoms begin as periumbilical or epigastric pain migrating to the right lower quadrant (RLQ) of the abdomen. Later, a worsening progressive pain along with vomiting, nausea, and anorexia are described by the patient. Usually, a fever is not present at this stage. Tenderness on palpation in the RLQ over the McBurney point is the most important sign in these patients.

6. Indications for surgery

- History of persistent abdominal pain, fever, and
- Clinical signs of localized or diffuse peritonitis, especially if leukocytosis is present.

Note: CRP (C-reactive protein) is a helpful marker in the management of patients with right iliac fossa pain; the predictive value improves when combined with leukocyte count. A patient with normal C-reactive protein and leukocytes has a very low probability of appendicitis

7. Management

Note: There is no need for differential pricing for different procedures in appendectomy. Surgical and anesthetic facilities with appropriate surgical experience are a prerequisite to surgical intervention.

7.1. Situation 1:

7.1.1. Investigations

- Hb
- TLC
- DLC
- ESR
- Urine-R/M
- Sonography: Sonography should be the first imaging technique for the diagnosis of acute appendicitis and triage of acute abdominal pain 2,3
- When ultrasound is equivocal but the symptoms and signs are suggestive CT scan is the investigation of choice and the diagnostic accuracy can be upto 90%.

7.1.2. Treatment:

- Treatment: Medical treatment
  - Appendicular lump
  - Patient unfit for surgery because of medical reasons.
  - Analgesics, anti-inflammatory and antipyretics
  - Antibiotics
  - Referral for surgery (if surgical resources not available)

Surgery is the main stay in the treatment of acute appendicitis. A diagnosed case of acute appendicitis requires surgery as soon as possible.

7.1.3. Referral criteria to a specialist centre for immediate appendectomy:

- A rising pulse rate
- Vomiting or increase in gastric aspiration
- Increase in abdominal pain
- Increase in the size of lump

7.2. Situation 2

7.2.1. Investigations:

- Minimum
  - o Hemogram
  - o Coagulation profile
  - o Urine- Routine (incl alb & sugar) + Microscopic
  - o USG – abdomen + pelvis (for all)
  - o Others – CxR, ECG
  - o CRP 1
- Acceptable for select patients
  - o KFT, ECG, CT scan abdomen (if any associated co-morbidity)
- IPre anesthetic checks

7.2.2. Additional investigations (with specific indications)

- ICT/ MRI (in pregnancy and complicated cases and If the diagnosis is equivocal) 4

  (USG –10% in 1997 to 60% in 2007, CT scan – 0% in 1997 to 35% in 2007)

7.2.3. Treatment:

Surgical Treatment is the removal of appendix.

7.2.3.1. Procedures for Appendectomy:

- Conventional appendectomy: Immediate appendectomy should be performed to obviate possibility of rupture of appendix and spreading peritonitis.
- Laparoscopic appendectomy: The advantage of laparoscopic appendectomy over conventional appendectomy is that it can be used to confirm the diagnosis before appendectomy. Diagnostic laparoscopy is useful in evaluating patients with right lower abdominal pain, especially in those with equivocal signs of acute appendicitis. It also has the additional benefit of being therapeutic. Premenopausal women benefit the most from this procedure 5, 6, 7
- Laparoscopic appendectomy has a shorter median Length of Stay (LOS), a trend toward less postoperative infectious complications, and fewer clinic visits than Open Appendicectomy, which makes it a safe and effective procedure for patients with perforated appendicitis 8

- Sample should be taken for Histo Pathological Examination and report attached with the file- this is to be statistically monitored.

7.2.3. Admission criteria:

- Acute appendicitis
- Interval appendectomy six weeks after treatment of appendicular mass
- Recurrent appendicitis

8. Post Operative Care

Pain management, infection control and gradual return to normal activity

9. Complications

Appendicular rupture, Appendicular mass, Appendicular abscess, Suppurative pylephlebitis

10. References

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Important Information on this Procedure

- It was suggested that there could be no single modality for the surgery and it could either be classic open procedure or laparoscopic depending on

surgeon's choice and the circumstances. However, this may have cost implications for the Insurance industry, as laparoscopic is more expensive but can be compensated by a swifter discharge. More details on this will be incorporated by the expert concerned.

- High incidence of negative appendicectomies globally resulting in unnecessary costs and hospital admissions.

Patient care issues

- Negative appendicectomy (NA) rate of 20 – 40%

Health care issues

- Un-necessary hospital admissions
- Costs

  Note: 300,000 appendectomies in the US annually. If NA rate is 15%, 45,000 procedures are un- necessary!!
- Introduction of cross sectional imaging

  USG -10% in 1997 to 60% in 2007

  CT scan - 0% in 1997 to 35% in 2007
- NEJM 1998 - the landmark study - 100 patients

  Avoid 13 NA (cost saving of $ 47,281)

  Avoid un-necessary admissions (saving of $20,250)

  Cost of 100 appendiceal CT ($ 22800)

  Net saving of $ 447 per patient ($44700)
- Negative Appendicectomy (3540 patients, 2006-7)

  No imaging 9.8%

  US - 8.1%

  CT - 6%

- Negative Appendecectomy is closely linked to US/ CT accuracy.
- Imaging accuracy for Acute Appendecitis is a measure of quality (Ann Surg 2008).
- Negative Appendecectomy rate is a measure of quality of health services.

Content developed by

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Dr Singhal is a MBBS and MS (Surgery) from GR Medical College, Gwalior and has a specialized training in surgical gastroenterology and liver transplantation with Prof Samiran Nundy. He is currently working as a Senior Consultant, Department of Surgical Gastroenterology, Pushpawati Singhania Institute for liver, kidney and Digestive Diseases, Delhi. Prior to this he was working as a Consultant with the Department of surgical gastroenterology and liver transplantation, Sir Ganga Ram Hospital, New Delhi

He has been honoured with a Fellowship in hepatobiliary and pancreatic surgery from the Academic Medical Center, University of Amsterdam, one of the finest hospitals in the World.

His field of interest lies in Hepatobiliary and Pancreatic Surgery and GI Cancers. To his credit he has large number of publications in high quality international journals and book chapters.

Peer reviewed by

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Dr. Kenneth Bijoy D'Cruz is working as Consultant- MAS at Wockhardt Hospital, Bangalore since April 2008. He has some 19 years of experience in hospitals like Manipal, St. Philomena Hospital, Suguna Hospital, St. Johns Medical College, Bangalore. He has also published papers in some of the Indian journals as well.

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With over 15 years experience in General, Gastrointestinal & Laparoscopic surgical activities Dr. Dilip Kothari is presently associated with Bombay Hospital, Indore as a Gastrointestinal and Laparoscopic Surgeon. Expertise in handling various aspects of Gastrointestinal and Laparoscopic surgeries. With special interest in Hepatobiliary disorders

Dr U Vasudeva Rao
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Manipal Hospital
Bangalore

Dr Rao has around three decades of experience in general & laparoscopic surgery and his special interest lie in vascular surgery. He has fair amount of administrative experience and was in charge of one of the units of Manipal Health Systems (North side Hospital) for a brief period. He is also a member of various committees in the hospital and functioned as secretary of the Academic Society during the initial period. He has conducted more than 3000 operations during his professional career at Manipal Hospital with good results. To his credit he has published many articles in journals and has delivered quite a number of guest lectures at various places within the country and abroad.

Dr B S S Sainadh
MBBS, DNB (Surgery)
Consultant Surgeon
Apollo Hospital
Hyderabad

Dr B S S Sainadh is Consultant Surgeon in Apollo Hospital, Hyderabad. He is also teaching faculty for surgical DNB at the hospital. His area of interest includes Laparoscopic Surgery.

Dr Randeep Wadhawan
MS, FIAGES, FMAS, FAIS
Senior Consultant and Incharge Department of Minimal Access Surgery and Bariatric Surgery
Fortis Hospital
New Delhi

He is an acclaimed surgeon with vast experience in the field of laparoscopic Gastrointestinal surgery. He has several academic achievements including international presentations to his credit. His area of interest is Bariatric (Weight loss) surgery.

Standard Treatment Guidelines for Asthma requiring hospitalisation

1. Introduction/ Definition/ Description [3,4]

Asthma is a chronic inflammatory disorder of the airways. In susceptible individuals, this inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in the early morning.

2. Prevalence of the condition [5]

Asthma prevalence varies from region to region, but worldwide probably is about 8-12%. It is commoner in boys than girls, before the age of 14, after which the gender gap narrows, and among adults, the prevalence among women may actually be higher.

3. Differential Diagnosis [3,4]

- chronic obstructive pulmonary disease (COPD) (chronic bronchitis and emphysema),
- congestive heart failure
- gastroesophageal reflux disease
- mechanical obstruction of the airways
- tumor/neoplasm and
- vocal cord dysfunction

4. Clinical Diagnosis [3,4,5,6]

A clinical diagnosis of asthma is based mainly on symptoms (recurrent eoisodes of cough, wheeze, chest tightness and breathlessness, often worse at night and in the early morning), supported by physical examination (bilateral polyphonic wheezes), and confirmed by laboratory examination (eosinophilia and reversible airflow obstruction on spirometry).

5. Causes [3,6]

- Genetic factors, including genes for atopy and bronchial hyperresponsiveness
- Environmental factors, including specific allergens (indoor and outdoor), non-specific irritants including cold air, pollution and tobacco smoke, and occupational sensitizers/agents. These environmental factors may often act as triggers of an asthma attack.
- Others
  - o Viral respiratory infections
  - o Aspirin or nonsteroidal anti-inflammatory drug hypersensitivity

- o Use of beta-adrenergic receptor blockers
- o Occupational exposure
- o Irritants such as household sprays and paint fumes
- o Emotional factors or stress
- o Obesity

6. Management

6.1. Situation 1: At secondary hospital/non metro situation

6.1.1. Investigations:

All management must include some mandatory investigations to confirm the diagnosis and to exclude other conditions that may mimic asthma. These include:

- Hb, TLC, DLC
- Blood Sugar, Urea, Creatinine, Electrolytes
- Pulse Oximetry
- Arterial Blood Gases, If Available
- Chest X ray, PFT, Peak flow – PEFR (if PFT is not available)

Additional investigations (with specific indicators)

- ECG, Echocardiogram *(Indications: when cardiac/hemodynamic instability is suspected)*
- Blood And Sputum Culture *(Indications: to identify accompanying Infections)*

6.1.2. Treatment

- Oxygen Supplementation
- Nebulized Bronchodilators (Salbutamol/ Terbutaline/ Beclomethasone)
- Injectable Corticosteroids (Hydrocortisone/Methylprednisolone)
- Theophylline group (Deriphyllin/Etophylline)
- Injectible Magnesium, Inhaled SABA ipratropium with where indicated
- Antibiotics- To be used to treat respiratory infections.

Only those not on the “restricted antibiotics” list. *Note: If drugs on the list are prescribed, justification required*

- Common antibiotics used: amoxycillin, ofloxacin, azithromycin, augmentin

Referral criteria for a specialist center if:

- Mechanical ventilation indicated
- Presence of co-morbid conditions or associated complications where closer monitoring or greater expertise/ facilities are required
- For optimal investigations and treatment

6.2. Situation 2: At Super Specialty Facility in Metro location where higher end technology is available

6.2.1. Investigation: All investigations of situation 1 and:

- Arterial Blood Gases analysis
- Spirometry: FEV1 or PEF 60-80% or <60% predicted, PEF or FEV1 variability > 30% where patient is able to perform spirometry, and it can be done in the intensive care unit without delay

6.2.2. Treatment: All treatment of situation 1 and:

- Hospitalization
- Non invasive ventilation , if available , else Consider Endotracheal intubation and mechanical ventilation

6.2.2.1. Indications of Hospitalization:

- Marked increase in intensity of symptoms
- Failure of exacerbations to respond to initial medical management (3 nebulisations at 20 minute intervals)
- Frequent exacerbations, exhaustion or confusion
- Presence of co-morbid conditions known to exacerbate asthama.

6.2.2.2. Indications for Mechanical Ventilation / intubation in Asthma: Very few admitted patients with asthma require mechanical ventilation (about 2% of Hospitalizations) as compared with patients with COPD exacerbations.

- Signs of respiratory muscle fatigue
- Rising PCO2; paradoxic respiration; sense of exhaustion
- Respiratory rate >40/min
- Fall in Ph<7.25
- Altered mental status
- Persistent hypoxia
- Presence of serious comorbid conditions

6.2.3 Standard requirements for mechanical ventilation

Under these circumstances patient may need to be monitored closely. The standard requirements for mechanical ventilation support management would include:

- Mechanical ventilator
- Central venous/pulmonary arterial catheter placement for hemodynamic monitoring
- Arterial line for blood pressure monitoring
- Indwelling catheter for urine output monitoring
- Echocardiogram for Hemodynamic assessment
- IV fluids, vasopressors (in case of shock)
- IV sedation (in selective cases only) and paralytic agents

7. Complications [8]

- Pneumothorax
- Cor pulmonale
- Respiratory failure
- Infection and Sepsis
- Multi organ Failure

8. Rehabilitation measures

- Chest physiotherapy and mobilization (Advice for postural drainage, breathing exercises and activity maintenance)
- Inspiratory muscle training with spirometric devices (where facilities and resources available)

Pre-discharge assessment:

Checklist:

Has the patient been off nebulised medication and on inhaled medication for at least 24 hours pre-discharge (unless he/she has a home nebuliser)?

Is the peak flow > 75 % predicted/ previous best?

Is the daily variation of peak flow < 25%?

Has an inhaler assessment been carried out to assess inhaler preference and correctness of use?

Has the patient received a written self management plan?

Does the patient have an written contact number for medical emergencies?

Has the patient been considered for vaccinations (Influenza/ pneumococcal)?

Has an assessment of smoking status been done, and if a smoker, has smoking cessation advice been given/ arranged?

Has a follow-up date/time been arranged?

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Standard Treatment Guidelines

Standard Treatment Guidelines for Benign Prostatic Hyperplasia (BPH) requiring hospitalisation

1. Introduction

The prostate gland is part of the male reproductive system. It is about the same size and shape as a walnut and weighs about an ounce. The prostate is located below the bladder and in front of the rectum. The prostate surrounds a tube called the urethra that carries urine from the bladder out through the penis. The main function of the prostate is to produce fluid for semen.

Benign Prostatic hyperplasia (BPH) refers to the increase in size of the prostate in middle-aged and elderly men. When sufficiently large, the nodules compress the urethral canal to cause partial, or sometimes complete, obstruction of the urethra which interrupts the normal flow of urine. It leads to symptoms of urinary hesitancy, slow stream, frequent urination especially at night, increased risk of urinary tract infections, blood in urine and urinary retention.

2. Incidence

It is found in 60% of men over 60 years of age, and in up to 80% of men over 80 years of age. At present, BPH cannot be prevented. BPH is not cancer, nor does it lead to cancer.

3. Diagnosis

Clinically it is diagnosed during routine physical examination and evaluation of symptoms.

4. Clinical features/Symptoms

Frequency	:	Increase in the number of voids
Urgency	:	inability to hold the desire to urinate
Nocturia	:	getting up from sleep to pass urine
Poor stream	:	poor flow
Intermittency	:	interruption of urinary stream
Straining to void	:	Sense of incomplete voiding

5. Examination

Examination of external genitalia

Digital rectal examination

6. Differential Diagnosis

- Stricture urethra
- Bladder weakness

- Overactive bladder
- Nocturnal polyuria
- Bladder tumor
- Bladder Stone
- Urinary tract infection

7. Investigations

Specific investigations include:

- Symptom scoring(IPSS)
- Uroflowmetry: Electronic recording of flow rate during micturition, Parameters include
  - Voided Volume
  - Peak flow rate (Qmax)
  - Avg. flow rate (Qavg)
- Ultrasound KUB, Trans rectal ultrasound (on selected cases) with Post-void residual (PVR)
- Prostate-specific antigen (PSA)
- Kidney function test
- Urine Routine / Microscopy & Culture
- Cystometry and pressure flow study (selected cases)

8. Treatment options

Medical

Alfa blockers

5 alpha reductase inhibitors

Lifestyle alteration

Surgical

Indications for surgery

- Acute urinary retention, recurrent urinary retention
- Persistent or recurrent urinary tract infections
- Significant or recurrent Hematuria
- Bladder calculi secondary to bladder outlet obstruction
- Significant symptoms from bladder outlet obstruction not responsive to medical management (bothersome symptoms)
- Renal insufficiency secondary to chronic bladder outlet obstruction

Surgical options

- **TURP -** Cost effective and so far the gold standard treatment for BPH. Has

limitations in case of large glands i.e. > 100 gms, high risk patients esp. cardiac risk, patients on pacemakers, anticoagulants, renal failure, obstructive airway disease.

- **Holep(Holmium laser enucleation of prostate).** The most eligible competitor of TURP. Can be used to treat large prostates of all sizes.It is the endoscopic equivalent of open prostatectomy and can be safely performed in high risk patients especially patients on cardiac pacemaker as there is no electrical interference. As the medium used during the surgery is normal saline there is no risk of electrolyte imbalance (TUR Syndrome).
- **Photoselective vaporization (KTP laser)/ Green light laser:** Costly, suitable for smaller glands especially in high risk patients, and patients on anticoagulants. This laser evaporates the prostatic tissue and thus larger glands are difficult to deal with. Each use requires a new laser fiber which adds to the cost. In glands > 50 gms two fibers may be consumed.
- **Open prostatectomy:** still a valid option in India. Especially indicated for very large glands with large bladder stones where the expertise of HOLEP is not available. Economical in terms of cost but the hospital stay is longer than HOLEP/TURP. Not readily accepted in metro cities.
- **Other lasers:** Thullium, Diode laser are new in the Indian market and their long term results and efficacy are yet to be proven.
- **Transurethral vapor resection of prostate, Bipolar TURP:** are variations in the standard TURP in order to make it safer for the patient.
- **Transurethral needle ablation of prostate (TUNA) :** minimally invasive treatment , has limited role after the introduction of lasers.
- **Prostatic stents:** rarely used due to irritative side effects. Can be considered in patients who are extremely high risk, not suitable for anaesthesia.

Post operative care

- Closed catheter irrigation, antibiotics and pain management.
- Hospital stay usually of 2-3 days with the endoscopic techniques and 5-7 days for the open technique.

Complications

- Excessive bleeding (Common with TURP esp in large glands)
- Urinary infection
- TURP Syndrome (peculiar to TURP done in presence of glycine, distilled water)
- Bladder neck contracture
- Injury to the Urethra
- Urinary incontinence
- Retrograde ejaculation (dry orgasm)
- Prostate gland re-enlargement (common with ablative lasers, TURP)
- Deep Vein Thrombosis (DVT)
- Myocardial Infarction

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FICCI

Notes

FICCI Working Group Report

Standard Treatment Guidelines for Cataract Surgery

Standard Treatment Guidelines

Congenital cataracts and childhood cataracts are uncommon and form a separate entity and managed somewhat differently and hence best discussed separately or to be avoided in the context of Insurance. The majority of the cataracts are age related (senile cataracts) and is described below. These treatment guidelines exclude congenital cataracts and childhood cataracts.

1. Introduction/ Definition/ Description

- Cataract is defined as any opacity of the lens that may or may not be associated with visual problems & manifest as an obstruction on red reflex on fundoscopy
- Usual symptoms are blurred vision, glare, and frequent change of glasses.

2. Incidence of the condition

- WHO/NPCB survey – backlog of 22 million blind eyes (12 million blind)
- More than a quarter of all Indians aged 65 and older have cataract. It is more prevalent and appears earlier in those with family history of cataract. Senile cataract constitutes about 80% of the preventable blindness in India
- 80.1% blind are due to cataract
- Annual incidence is 3.8 million
- Presently 1.6-1.9 million cataracts operated annually

3. Differential Diagnosis

Other causes of decreased vision to be ruled out such as retinopathy, refractive errors, corneal opacity, macular degeneration

4. Causes/risk factors [4, 5, 10, 13]

- Advancing age – most common
- Environmental factors: UV light exposure, radiation
- Complicated cataracts (due to ocular condtions)—chronic uveitits, lond standing retinal detachment. Acute angle closure glaucoma
- Previous eye surgery: trabeculactomy, vitrectomy
- Systemic condition: diabetes mellitus
- Drug: cortioco steroids, phenothiazines, chlorpromazine, nifedipine etc.
- Ocular trauma

5. Clinical diagnosis

Clinical diagnosis is made by complete evaluation of affected eye when patient presents with symptoms of Blurred, distorted, dim, or glare, polyopia

6. Indications

Note: *Presence of cataract alone does not indicate need for surgery. Surgery is indicated when the cataract reduces visual function to a level that interferes with everyday activities of the patient*

6.1. General indications for cataract surgery [11]

- Significant decrease in vision up to a level that affects activities of daily living
- Visual distortions such as glare, monocular diplopia, ghost images or fluctuating vision in dim or bright illumination that are subjectively disturbing to the patient
- Inability to match the visual acuity to the patient's visual requirements despite adequate optical or environmental measures
- Significant disparity of visual function between the two eyes affecting binocular vision
- Presence of lens-induced diseases (phacomorphic glaucoma, phagolytic glaucoma, etc.)
- Need to visualize the fundus for diagnosis, treatment or monitoring of other conditions such as diabetic retinopathy

7. Management

7.1. Situation 1: At secondary hospital/non metro situation:

- Optimal Treatment is appropriate diagnosis and rule out of other causes of visual impairment e.g. Refractive errors, retinopathy, age related macular degeneration, glaucoma, corneal diseases
- Nonsurgical-change in spectacle lens prescription
- Surgical intervention if resources and skills available
- Referral for surgery if resources / skills not available

7.1.1. Routine Investigations

Ophthalmological examination includes: (8)

- visual acuity on snellen chart
- slit lamp exam
- tonometry
- dilated fundus exam

Investigations:

- Keratometry
- Biometry
- Syringing where constant watering of the eye or chronic discharge
- Blood sugar
- CBC

- Urine RE/ME

Additional Investigations

- For example ECG in cases of cardio vascular conditions, X-ray, Chest X-ray for lung conditions.

7.1.2. Treatment

Small incision cataract surgery (SICS) is a safe, cost effective, widely available procedure. It is the preferred method where requisite facility and skills for suture-less surgery with Phacoemulsification is not available. The results are comparable to phacoemulsification. The cost and results are better than the conventional extra capsular method and as compared to Phacoemulsification, the cost is significantly cheaper, method widely available and results are comparable. \

- Phacoemulsification, if available

  Alternative surgery methodology and specific indications

  - Phaco emulsification with foldable IOL implant is the treatment of choice where trained faculty & equipment is available.

- Extracapsular extraction (ECCE) through a larger incision with sutured closure of the wound is not a recommended as a routine .Indication for this procedure would be if a preoperative or intraoperative complication requires a wider field of exposure and black or a very brown cataract where phaco or SICS is expected to be complicated
- Intracapsular cataract extraction (ICCE) is not recommended as a planned surgery. Specific indication may be cases of extensive subluxation or dislocation of lens.

7.1.3. Referral criteria:

- Complicated cases associated with uveitis, glaucoma, retinal detachment, subluxated that require greater expertise/ facilities
- For optimal investigations and treatment

7.2. Situation 2: At Super Specialty Facility in Metro location where higher end technology is available

7.2.1. Investigations: [14]

Ophthalmological examination

- Indirect ophthalmoscopy
- Potential acuity testing
- Potential acuity testing -Optional
- contrast glare sensitivity in addition to above-Optional

Additional Investigations where specifically indicated:

- B scan
- Fluorescein angiography
- gonioscopy where indicated in addition to the baseline

7.2.2. Treatment:

- Phacoemulsification with Foldable IOL implantation is the preferred technique where requisite technology and skills are available. Small incision cataract surgery (SICS) is a safe, cost effective, widely available alternative.
- IOL description: Foldable acrylic IOL are recommended

7.2.3. Referral criteria to a specialist center if:

Retinal disease (eg diabetic retinopathy, ARMD) that needs primary intervention (laser/surgery)

- Glaucoma needing laser/surgery
- Systemic diseases – uncontrolled diabetes, hypertension, asthma, COPD, cardiac problem etc

7.2.4 Post operative care [9, 14]

- Medication for pain / increased IOP / nausea, if required.
- Patching of eye until ocular and lid motility is restored.
- antibiotics/ steroid eye drops, optional medication- oral antibiotics,mydriatic drops, lubricating eye drops, nsaid eye drops

8. Complications [7, 8]

1. Intra operative complication

- Posterior Capsule tear with nucleus drop. This may need additional surgical intervention, preferably by a vitreo-retinal surgeon.

2. Early Post Op Complications:

- Corneal oedema
- Would leak and shallow anterior chamber
- Toxic anterior segment syndrome(TASS)
- Endophthalmitis
- Transient glaucoma

3. Late complications

- Posterior capsular opacification
- Bullous keratopathy
- Displaced IOL
- Retinal detachment

4. Optical complications

- Wound related large astigmatism
- Unexpected refractive surprise needing IOL exchange/ LASIK etc
- Positive or negative dysphotopsia

Standard Treatment Guidelines

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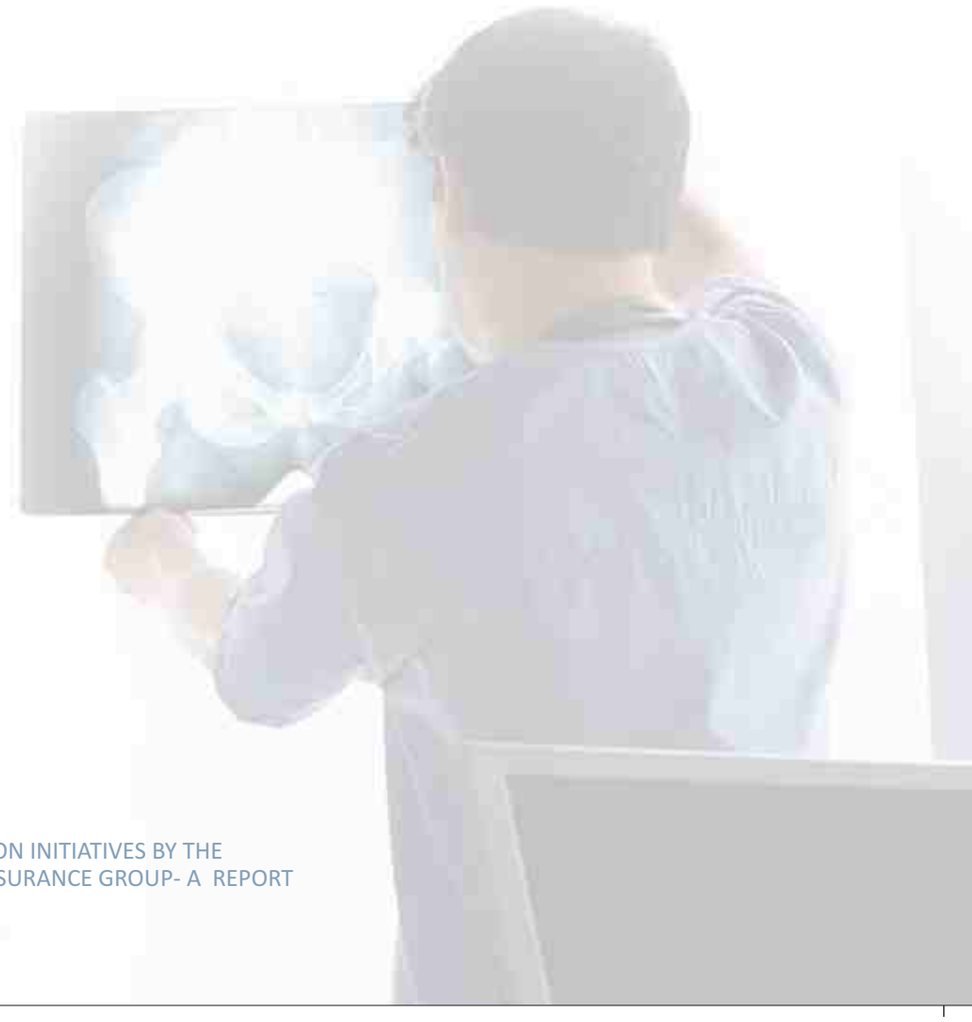

Standard Treatment Guidelines for Cholecystectomy

1. Introduction/ Definition/ Description

Cholecystectomy is a surgical procedure in which gallbladder is removed. Procedure may be open or laparoscopic.

2. Incidence of the condition [1,2]

Gallstones are uncommon in children. At puberty, the concentration of cholesterol in bile increases. After age 15 years, the prevalence of gallstones in women increases by about 1% per year; in men, the rate is less, about 0.5% per year. Incidence in women falls with menopause, but new stone formation in men and women continues at a rate of about 0.4% per year until late in life.

3. Causes/ risk factors

- The prevalence rate of cholelithiasis is higher in women of all age groups.
- High-fat diet is associated with the formation of gallstones and symptoms associated with gallstones.
- Estrogen therapy: is associated with higher risk of cholelithiasis.
- Genetics have a significant role in development of gallstones.
- Dietary considerations: Obesity, high-fat diet, and hypertriglyceridemia are strongly associated with the formation of gallstones and arising complications. Additional dietary risk factors include decreased oral intake, rapid weight loss, and use of parenteral nutrition

4. Differential diagnosis [1, 2]

- Appendicitis, Acute
- Cholangitis
- Hyperosmolar Hyperglycemic Nonketotic Coma
- Cholecystitis and Biliary Colic
- Inflammatory Bowel Disease
- Diabetic Ketoacidosis
- Myocardial Infarction
- Diverticular Disease
- Pancreatitis
- Peptic Ulcer Disease
- Pneumonia
- Gastroenteritis
- Hepatitis

5. Clinical Diagnosis

- Patients with the lithogenic state or asymptomatic gallstones have no abnormal findings on physical examination and confirmed diagnosis is based on sonographic findings.
- During attacks of biliary colic, and especially in acute cholecystitis, patients may experience tenderness to palpation over the gallbladder.
- Patients with acute cholecystitis, ascending cholangitis, or acute pancreatitis, in addition to abdominal pain, may exhibit fever and may be tachycardia and hypotensive. In severe cases, bowel sounds are often absent or hypoactive.
- The Charcot triad of severe right upper quadrant tenderness with jaundice and fever is characteristic of ascending cholangitis.

6. Indications for surgery [1, 2, 3, 4, 5]

In Symptomatic gall bladder diseases:

- Biliary colic (steady right upper quadrant or epigastric pain following meals that may last for 30 minutes to 24 hours)
- Acute cholecystitis presenting within 48-72 hours of onset of symptoms
- Chronic cholecystitis
- Biliary dyskinesia or non- functional gall bladder
- Cholelithiasis and/ or Choledocholithiasis after ERCP or PCTH removal of the CBD stone(s)
- Gall stone pancreatitis and cholangitis after initial emergency management
- Symptomatic gall bladder polyps or increasing size of GB polyps
- Gall bladder carcinoma (confirmed) or suspected or polyps > or = 8 mm in size
- Acute and chronic calculus cholecystitis
- Mucocele gall bladder

In **Asymptomatic gall bladder diseases:** All asymptomatic gall bladder diseases do not warrant surgery but the following conditions require special consideration:

- Gallstones with high risk of cancer
- Hemolytic diseases with gallstones
- Gallbladder polyps
- Large gallstone (>2cm) with increased life expectancy (>20 years)
- Gall stones with anatomic variations of biliary system
- Gall stones with Diabetes Mellitus.

7. Management [1, 2]

7.1. Situation 1:

7.1.1. Investigations

- Hemogram

- Coagulation profile
- KFT
- LFT
- Others: CxR, ECG
- Imaging – USG upper abdomen

7.1.2. Treatment:

Medical treatment

- Analgesics, anti inflammatory and antipyretics
- Antibiotics

Referral for surgery (if surgical resources not available)

7.1.3. Referral criteria to a specialist centre for immediate Cholecystectomy:

- Vomiting or increase in gastric aspiration
- Increase in abdominal pain
- Increase in icterus (jaundice)

7.2. Situation 2:

7.2.1. Investigations: 1, 2, 3, 4, 5

- Abdominal Ultrasonography
- Abdominal Radiography
- Full blood count.
- LFT
- Serum amylase
- Serum electrolytes
- Blood sugar- Fasting and post prandial
- Coagulation profile
- Blood Urea, creatinine and Urine R/M
- ECG and Chest X ray

Special Investigation:

- HIDA (hepatoimminodiacetic acid) scan (90-100% sensitive, 80-100% specific)
- should be considered if ultrasound is negative in the presence of symptoms- if available.
- Abdominal CT scan - should be considered if either ultrasound scan orHIDA scan are inconclusive as it confirms acute cholecystitis and its complications.
- If liver function test or USG is abnormal then MRCP or EUS with or without ERCP may be required before Lap-chole.

7.2.2. Treatment:

- Surgical removal.

7.2.2.1. Procedures for Cholecystectomy

- Laparoscopic Cholecystectomy is considered the gold standard for treatment of gall bladder disease it has a shorter median LOS, a trend toward less postoperative infectious complications and fewer clinic visits than open cholecystectomy
- Open cholecystectomy is considered in presence of co-morbid conditions like COPD or CHF, history of coagulopathies, preoperative diagnosis of gall bladder cancer, peritonitis, severe acute pancreatitis, advanced liver cirrhosis and advanced pregnancy.
- Laparoscopic conversion to open surgery may be required in cases of difficulty in identifying anatomy.

7.3. Admission criteria

- Acute cholelithiasis or if surgical indications met

8. Post Operative Care [4, 5]

Pain management, infection control and gradual return to normal activity

9. Complications [1, 2, 3, 4]

- Fever and chills.
- Swelling, bleeding, redness or increased drainage from the incision site.
- Wound dehiscence, granuloma or infection
- Jaundice
- Choleperitoneum / Biliary peritonitis.
- Cystic duct leak or CBD injury
- Subcutaneous emphysema
- Hepatic artery injury
- Hemorhage from liver bed or cystic artery.
- Major bile duct injury
- Hemobilia (due to right hepatic artery aneurysm)

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Standard Treatment Guidelines for Surgical Management of Chronic Otitis Media

1. Introduction/ Definition/ Description

It is the chronic inflammation of the middle ear and mastoid cavity, which presents with recurrent ear discharges or otorrhoea, through a tympanic perforation. The disease usually begins in childhood as a spontaneous tympanic perforation due to an acute infection of the middle ear, known as acute otitis media (AOM), or as a sequel of less severe forms of otitis media (e.g. secretory OM)

1.1 CSOM has traditionally been classified into safe ear disease and unsafe ear disease

- Safe ear disease, sometimes called tubotympanic disease, is characterized as a central perforation of the pars tensa with the inflammatory process affecting the mucosa of the middle ear cleft.
- Unsafe ear disease, sometimes called atticoantral disease, is typified by a marginal perforation of the posterosuperior pars tensa or pars flaccida. Cholesteatoma is frequently present in CSOM with postero superior and attic perforations with foul smelling discharge.
- Tympanoplasty is indicated for chronic inflammation of safe and unsafe ear disease.

2. Incidence of the condition

Population suffering from CSOM is more than 8%. 50% need surgery, of which 10% need urgent surgery for intra /extra cranial complications.

3. Differential diagnosis [1,3]

- Foreign body
- Wegener's Granulomatosis
- TB Otitis media
- Malignant Otitis Externa
- Malignancy

4. Clinical Diagnosis

Clinical Diagnosis of chronic supurative otitis media is made by evaluating symptoms signs of middle ear effusion, middle ear inflammation and sign of tympanic membrane perforation.

5. Causes [1]

- Sequele of acute otitis media
- Ascending infections of the Eustachian tubes
- Persistent mucoid otorrhoea as a result of allergy

- complication of traumatic perforation
- Blood borne infection - septicemia

6. Management

- Conservative treatment:
  - Aural – suction cleaning
  - Antibiotics – Systemic
- Topical treatment
- Supportive treatment
  - Analgesic
  - Antiallergic
- Surgical treatment

Indications for surgery:

- Surgery should be considered for failure to respond to a combination of topical and systemic therapy in 3 wks.
- All cases of unsafe ear (operation is a must at any age 1year to 90 years old)
- Otorrhea (wet ear) that is persisting for longer than 6 weeks despite antibiotic use
- Cholesteatoma formation
- Radiographic evidence of chronic mastoiditis, such as
  - coalescent mastoiditis
  - radio lucency in a sclerotic mastoid indicating a cholesteatoma
- Any perforation (including traumatic perforation that persists beyond 6 weeks); central, small or large & marginal
- Discharge: mucoid, thick , purulent & foul smelling
- Presence of hearing loss: conductive or mixed type
- Persistent conductive deafness with intact TM in an already operated ear.
- Any signs of associated complications like recurrent/ persistent headaches, blood stained discharge, vertigo, facial palsy, mastoid abscess or intracranial extension, urgent operative management is warranted.
- Referral to neurosurgeon for brain abscess.
- Referral to physician for associated medical illness like diabetes, hypertension, renal failure, hepatitis etc.

6.1.1. Investigations

- CBC
- Biochemistry
- Urine R/E - M/E

Additional Investigations (with specific indications)

- Ear pus for C & S in wet ears
- Diabetic profile: If a patient is known case of diabetes or at potential risk
- Renal profile: Indicated in patients with pre existing renal disorder
- Lipid profile: Indicated if patient is a known case of CAD
- LFT: Indicated in patients with liver dysfunction

6.1.2. Treatment: [1,2,3]

- Aural toilet
- Antibiotics (penicillin, amoxicillin, erythromycin)
- Surgery (if indicated and resources/ skills available)

6.1.3. Referral criteria to a specialist centre if: [1,3]

- Surgical intervention
- Optimal investigations and treatment
- Investigations for medical illness, if associated.

6.2 Situation 2: At Super Specialty Facility in Metro location where higher end technology is available

6.2.1 Investigations: All investigations of situation1 and:

- Audiological : pure tone audiometry
- Impedance- in selected cases
- BERA(optional in suspected sensory neural deafness)

6.2.2 Additional investigations (with specific indications)

- Radiological: X-ray mastoids(not required in every case, only in suspected cases of acute mastoiditis /cholesteatoma
- CT scan (in suspected cases o f intracranial invasion, vertigo)
- MRI scan (in suspected cases of dura & temporal bone invasion)
- Electrophysiological: EKG , Echo, stress Echo (usually done in patients with cardiac condition)

Admission criteria:

- Most procedures of Tympanoplasty can be done as day- care admissions and discharged
- Overnight admission and observation required in the remaining patients
- Some patients may need prolonged admission and treatments for longer duration if accompanied by other complications. For example: diabetes, nephropathy, facial- nerve paralysis, intra- cranial complications etc.

6.2.3 Treatment:

Situation 1 + surgical treatment

Indications for safe ear:

- Safe dry ear for 3wks or more

- Hearing loss –conductive
- Patient wishes to swim etc
- Note - wet ears should be treated for at least 2-3 weeks and made dry. If it still stays wet then operate with guarded success (20% lesser chance of success)

Indications for unsafe ear:

- Operation is a must at any age(1yr-90yrs)
- Can be planned & done
- Emergency operation indicated if- any sign of a complication like bleeding ertigo, facial palsy, mastoid abscess or intracranial extension.
- If a patient has come from out of station

6.2.3.1 Procedures for CSOM:

- Cautery patching usually done as an Outpatient based procedure
- Myringoplasty involves repair of the drum. This can be done under local or general anesthesia
- Tympanoplasty involves the repair of the drum and reconstruction of the hearing mechanism
- Mastoidectomy involves drilling of mastoid bone to clear all disease
- Radical Mastoidectomy is performed in extensive disease and involves wide disease clearing surgery with exteriorization but not reconstruction.
- Modified Radical Mastoidectomy (MRM) involves wide mastoidectomy with exteriorization and reconstruction of drum
- MRM +Tympanoplasty
- Staged Tympanoplasty – when reconstruction is planned for 2nd stage after 6 9 months

These procedures have specific indicators and reconstruction may require use of implants. These may have additional costs.

7. Post Operative Care

- Discharge from hospital-same day in most cases, few may need over night stay (20%)
- Antibiotics 5-10 days (oral amoxycilin / cephalosporins)
- Analgesics
- Wound healing -10 days
- Graft take up by 6-8 wks
- Post op audiogram after 3 months

8. Complications

- Wound Infection
- Hemorrhage

- Graft Failure <5%-may Need Rev. Surgery After 3months
- Facial Palsy –If Immediate (same day)-needs urgent decompression. Conservative Treatment if facial palsy has delayed onset.
- Brain Abscess-refer for a neuro-surgical consultation

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Standard Treatment Guidelines for Diarrhoeal Diseases (Primarily Catering to Adult Diarrhoea)

1. Introduction/ Definition/ Description

Diarrhoea is defined as Increase in frequency(>3), fluidity and volume of stools compared to normal / It is classified as

- Acute < 14 days
- Persistent- 14 days-1 month
- Chronic > 1 month

2. Incidence of the condition

Burden of Problem

- Universal human experience
- 1.5% of adult hospitalisation in USA
- 250 cases per year/100 children< 5 years(Relevant to South East Asia)
- W.H.O estimates 1.87 million deaths - 19% of deaths in children<5 years age.
- Chronic diarrhoea - 5% of population/yr

3. Differential Diagnosis

Usually 90% diarrhea is infection of GI tract and little investigation is required. Most investigations are usually centered around renal functions and serum electrolyte assessments and stool tests.

Differential diagnosis should be considered in identifying any acute systemic cause (suspicion based on clinical assessment) in a sick patient . (Falciparum malaria(5-38% of cases)

- Dengue fever – upto 35% cases
- Age < 6 months- Meningitis, Septicaemia, UTI
- Other hemorrhagic fevers -Ebola, Hantavirus
- Viral hepatitis
- Brucellosis- 6-16% cases
- Human Plague- 51% cases
- Legionella(pneumonic illness)
- Toxic shock syndrome
- Measles associated diarrhoea
- Listeriosis
- Ricketsial diseases
- Chlymadia (Psittacosis)

4. Clinical Diagnosis

Diagnosis is based on clinical history and stool tests to identify the causative organism.

4.1 Clinical features

The Clinical features include:

- Increased frequency of loose stools
- Blood and mucus in stools
- Nausea, Vomiting
- Fever
- Abdominal pain (usually cramps),
- Abdominal distension, tenderness

4.2 Asessment of Dehydration

This is an important task to inform treatment priorities. It is a key indicator for the need of admssion.

- In adults, tachycardia, dry tongue, dry skin with loss of skin turgor, increased thirst, decreased urine output and hypotension all are markers of dehydration.

More Objective Assessment is defined for children

4.2.1 Mild Dehydration

- Loss of 3-5% of body weight
- Dry mucous membrane
- Thirst, oliguria
- Normal capillary filling
- Normal BP, pulse rate and heart rate.

4.2.2 Moderate Dehydration

- Loss of 6-9% of body weight
- Loss in tissue turgor and tone.
- Delayed capillary refill
- Dry mucus membrane and sunken eyes
- Marked thirst and oliguria (<1 ml/kg/hr)
- Often restlessness and Apathy
- Normal B.P. but pulse volume decreased
- Heart rate increased

4.2.3 Severe Dehydration

- Loss of 10% of body weight or more
- All features of moderate dehydration and in addition
    - Peripheral vasoconstriction, Cyanosis

- Thready pulse, Hypotension
- Hyperpyrexia
- Extremely thirsty
- Anuria, acidotic breathing

- Reduced conscious level or comatose

4.3 Susceptible to risk of death - High Risk individuals

- Very young(<5 years)
- Elderly(>60 years)
- Already ill (measles, pneumonia, Hemoglobinopathies like sickle cell disease, valvular heart disease, severe atherosclerosis, cancer, transplant recipients, vascular grafts, prosthesis, on steroids, other immunocompromised, organ failures -renal, hepatic)
- Malnourished (<60% of expected weight)

5. Causes

5.1 Usual causes

- Infective(90% of all causes)
  - Viral mostly
  - Bacterial
  - Protozoal
- Ingested drugs and toxins (food poisoning)
- Cl. Difficile diarrhoea
- Fecal impaction (pseudo-diarrhoea)

5.2 Rarer Causes

- Post Chemotherapy
- First presentation of Inflammatory Bowel Disease
- Ischemic , vasculitic
- Acute Diverticulitis, acute appendicitis.

5.3 Causative pathogens

5.3.1 Common pathogens

- Rotavirus (a very common agent in children < 20 months)

  Other viruses are Norovirus, calcivirus, adenovirus etc.
- Salmonella
- Shigella
- E.coli {STEC (0157:H7),EI,EA,EP,ET}
- E. Histolytica, Giardia

5.3.2 Uncommon pathogens

- Campylobacter, Vibrio,Yersinia
- Cryptosporidium, cyclospora, isospora, microsporidium
- Clostridium Difficile
- Bacillus cereus, Staph.aureus, Clostridium perfringens- Food poisoning agents. (Preformed toxins)

6. Management

Typical management of mild and moderate dehydration is rehydration and outpatient medication.

Hospitalization may be indicated in these criteria:

- Profuse Diarrhoea with moderate to severe dehydration
- Grossly bloody stools
- High Fever
- Severe vomiting - Inability to retain oral feeding even in absence of dehydration
- Severe abdominal pain or tenderness
- Diarrhoea in high risk individuals (refer to 4.3)
- Duration> 48 hours without improvement (failed OPD treatment)
- Age < 6 months- systemic diagnosis suspected
- Meningitis, Septicemia, UTI
- Previous severe diarrhea, celiac crisis.

6.1. Situation 1

Primary goal of treatment is rehydration and maintain adequate nutrition.

6.1.1. Investigations:

6.1.1.1 Usual investigations for outpatients will include:

Stool Sample

- Stool R/E*
- Stool C/S (yeild < 6%)
- Stool for Occult blood *

  *(results may suggest inflammatory diarrhoea)
- Stool for Cl. Difficile toxin

Less frequently the following tests may be prescribed

- Stool lactoferrin assay*

  *(suggests inflammatory diarrhoea)
- Stool for Shiga toxin
- EIA (enzyme immunoassay) of stool

Rotavirus

Giardia, cryptosporidium

- Acid fast Staining of stool samples

cyclospora, isospora

6.1.1.2 Other Routine Investigations conducted for an inpatient will usually include:

- Complete blood count
- Urea, creatinine,
- Na+, K+
- R/E urine
- Sometimes LFT

6.1.1.3 Additional investigations for an inpatient in specific cases may include

- Blood film for Malarial parasite.
- Blood cultures
- Urine culture.
- Lumbar puncture
- Flexible Sigmoidoscopy, Colonoscopy
- UGIE and biopsy
- MAI diarrhoea (HIV +ve),
- X ray chest and abdomen
- CECT Abdomen- diverticulitis, appendicitis
- Triple Phase CECT-ischemic bowel

6.1.2. Inpatient Treatment

- Single room isolation
- Oral Rehydration(ORS), fluids, soups mainstay
- I/V fluids essential in severe dehydration
- Maintainence of nutrition (Banana, rice, khichri,)
- Symptomatic management for vomiting

  Ondansetron(0.1-0.2mg/kg/dose) or 2-8 mg TDS.
- Probiotics
- Zinc Supplementation x 10-14 days in children reduces severity and duration of diarrhoea.

  10 mg/day below 6 months

  20 mg/day> 6 months
- Antisecretory Agents (for watery diarrhoea)

  Racecadrotil 1.5 mg/kg/dose every 8th hourly (Children and adults).

Loperamide may be used in adults with watery diarrhoea

- Antispasmodics (dicyclomine, drotaverine ,Hyoscine) are usually avoided
- Antibiotics - discussed below

6.1.3 Recommendations for Antibiotics in acute diarrhoea

Indications

- Reduced gastric acid (eg. Patient on PPI)
- Immunocompromised
- Malnourishment (Grade III, IV)
- Significant co-morbidity (other illnesses)
- Elevated white cell count , Fever
- Bloody diarrhoea or fecal wbc>10/HPF
- Clostridium difficile diarrhoea

Recommended antibiotics in Acute Diarrhoea

6.1.3.1 Recommendations for Community Acquired Diarrhoea (Adults)

- Oral Antibiotics
  - Ciprofloxacin + Metronidazole/ Tinidazole X 3-5 days
- Parenteral Antibiotics
  - Ciprofloxacin(200 mg) OR Ceftriaxzone 1 gm BID
  - Metronidazole(500 mg) TID

6.1.3.2 Community Acquired Diarrhoea (Children)-**discussed in Annexure**

6.1.4 Management of Clostridium Difficile diarrhoea

- Stop previous antibiotics
- Metronidazole 250-400 mg orally TID
- Vancomycin 125 mg orally QID.

6.1.5 Surgery in Acute Diarrhoea may be required in

- Toxic megacolon
- Ischemic Bowel

6.1.6. Referral criteria for a specialist center: Rarely Required, may be required in cases of:

Patient not responding to initial treatment or for further investigations.

Or

Infrastructure facilities limited for testing or management.

6.2. Situation 2:

Most acute cases can be managed in situation 1, Patients at risk of death, high intensity ICU services or surgical intervention can be referred to situation 2.

6.2.3. Complications

- Complications
- Hypotension, shock.
- Renal failure, acidosis.
- Dyselectrolytemia
- Sepsis
- Metastatic infections
- Altered sensorium
- GI bleed
- Perforation
- Toxic Megacolon
- Immune complications
  - Hemolytic Uremic Syndrome
  - Reiter's syndrome
  - Thyroiditis
  - Pericarditis
  - Glomerulonephritis

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Annexure

Standard Treatment Guidelines for Diarrhoeal Diseases
(In Infants & Children)

1. Introduction/ Definition/ Description

Acute diarrhea is one of the commonest morbidity in childhood particularly in developing countries like India. It is estimated that on an average a child in India suffers from 2-3 episodes of diarrhea per year especially in the first five years of life. Majority of these episodes are benign and self limiting but upto 10% of these may require hospitalization. Despite advances in management, the disease continues to be the second most common cause of death among children under 5 years of age.

Acute diarrhea is defined as passage of 3 or more abnormally loose stools per day

2. Differential Diagnosis

- Chronic diarrhea due to malabsorption, endocrinopathies, inflammatory bowel disease
- Diarrhea due to Neoplasm
- Diarrhea due to food poisoning
- Diarrhea due to anatomical defects such as Intussusception, malrotation, intestinal duplication, Hirschprung disease, short bowel syndromes etc.
- Diarrhea in Hemolytic-uremic syndrome
- Antibiotic associated diarrhea
- Diarrhea due to food allergy / intolerance
- Diarrhea in immune deficiency disease, protein losing enteropathy, laxative abuse, and motility disorders etc.

Note Hemolytic Uremic syndrome is a complication of Diarrheal enteropahogen (E col i0157 and not a cause of diarrhea as such

3. Clinical Diagnosis

The diagnosis is based on clinical examination. It is important to know whether the child has watery diarrhea or an invasive diarrhea as this would affect the treatment. Young infants and severely malnourished children would require careful clinical examination to detect associated systemic infection.

On the other hand watery diarrhea need no further diagnostic workup, as the management would be the same irrespective of the causative agent.

Similarly those with invasive diarrhea may not need any investigative workup as all of them would need to be treated on the lines of presumptive infection with Shigella.

Clinically acute diarrhea episodes can present in 3 distinct ways:

- Watery diarrhea - It is the most frequent type of diarrhea, accounting for more than 90% of episodes. It is characterized by passage of loose frequent watery

stools with or without mucus. The child may also have fever and vomiting and develop features of dehydration which include increased thirst, decreased urine output etc.

- Invasive diarrhea (bacillary dysentery) - It is characterized by passage of loose frequent stools with blood and mucus. Tenesmus is frequent and is a sign of systemic toxemia.
- Acute diarrhea with systemic infection (parenteral diarrhea) - This is largely seen among young infants or in severly malnourished children. A child usually passes frequent small green stools with some mucus (Pea soup stools). He may also have fever and vomiting together with s/s of associated systemic infection (e.g. acute ear pain /discharging ear in otitis media). However sometimes, the s/s of associated infections may not be apparent and careful clinical and laboratory tests may be required to come to a diagnosis of parenteral diarrhea.

4. Causative Factors

Acute diarrhea can be caused by a variety of infective and non infective causes. The major cause of diarrhea in children is rotavirus. Other causes include virus (calcivirus, adeno virus etc), bacteria (Esch coli, vibrio cholerae, shigella, salmonella etc) and protozoas (giardia, entamoeba etc). In young infants and in malnourished children, systemic infections like otitis media, meningitis, pneumonia, UTI, septicemia etc can also present as acute diarrhea. Food intolerances such as lactose intolerance and intolerance to cow's milk protein are more often responsible for persistent (>14 days) diarrhea.

5. Management

5.1. Situation 1: At secondary hospital/non metro situation

5.1.1. Investigations:

In most cases investigations are not required. However, the following investigations may be done in some selected cases:

- Routine stool exam for pus cells, motile vibrio, ova &cysts, pH and reducing substances.
- Urine routine and culture (if UTI suspected)
- Blood counts, CRP and blood culture for suspected systemic infections
- Serum electrolytes, BUN, creatinine for children admitted for moderate / severe dehydration requiring intravenous fluids.

5.1.2. Assessment of Hydration status:

Treatment for diarrhea in children depends on their hydration status which can be assessed by any one of the following methods:

- Assessment of Hydration status

Assessment of Hydration status			
Physical Examination	**No Dehydration**	**Some Dehydration** (2 or more signs)	**Severe Dehydration** (2 or more signs)
General condition	Well, alert	Restless, irritable	Lethargic or unconscious
Eyes	Normal	Sunken	Sunken
Thirst	Drinks normally, not thirsty	Drinks eagerly, thirsty	Drinks poorly, not able to drink
Skin pinch slowly (abdomen)	Goes back quickly (< 1sec)	Goes back quickly (1 to 2 sec)	Goes back very (>2 sec)

- Assessment of Weight loss (Normal weight minus weight after diarrhea)
- Weight loss < 3% indicates no dehydration.
- 3 to 8% weight loss indicates some dehydration
- ≥ 9% weight loss indicates severe dehydration

5.1.3. Treatment

Most cases can be managed as outpatients. Most important aspect of management is prevention and treatment of dehydration. It can be achieved by using low osmolarity ORS (Sodium 75, Glucose 75 and osmolarity 245) given orally in sufficient amounts. 100ml and 200 ml per loose stool should be replaced for infants below 1 year and above 1 yr of age respectively.

- Mild to moderate dehydration can be corrected by giving 75ml/Kg of the same over 4 hours under close supervision. Apart from ORS, home available fluids like coconut water, chach, salty lassi, weak tea, or specially prepared sugar salt solution (1 tsf sugar and pinch of salt to a glass of water) can also be used.
- Antiemetics like domperidone, Metochlopropamide or ondansetron may be occasionally required to stop vomiting and to ensure adequate intake of ORS.
- Apart from fluid replacement it is important to maintain nutrition intake for which the child may be given whatever food he has already being given in a somewhat semi liquid preparation. Undiluted Milk feeds should be continued.
- Zinc 10-20mg/day given for 14 days has been shown to be beneficial in decreasing the diarrheal duration and in preventing further episodes of diarrhea.
- Antimicrobials are not required in watery diarrhea cases and may be counter productive. However they must be given for children with invasive diarrhea. Selection of antimicrobial for invasive diarrhea cases is determined by the prevailing sensitivity of Shigella in the community. Currently nalidixic acid (55mg/Kg /day; ofloxacin (10-15mg/Kg/day, cefixime 15mg/kg/day or trimithoprim sulfa (5-10mg/kg/day of trimethoprim0 are recommended.

5.1.4 Indications of Hospitalization:

Following are the indications for admitting children with acute diarrhea:

- Moderate to severe dehydration present
- Persistent vomiting
- High purge rate or failure to maintain hydration despite adequate ORS
- Severe oliguria/ anuria (Failure to pass urine for more than 6-8 hrs)
- Acute diarrhea in a severely malnourished (Body wt less than 60% of expected)
- Presence of any complication like abdominal distension, renal failure, convulsions, toxemia, HUS, dyselectrolytemia, etc, Hypovolemic Shock , Acidosis, Severe electrolyte imbalance etc

5.2 Situation 2: At Super Specialty Facility in Metro location where higher end technology is available

5.2.1 Investigation: All investigations of situation 1 and:

- Arterial Blood Gases analysis
- BUN, Creatinine, Serum Electrolytes
- Blood counts, CRP, Blood culture if infection suspected
- Other investigations like X-ray Chest, Urine Culture/ CSF examination may be required occasionally
- Rarely CSF examination and culture when meningitis is suspected

Note: The above tests should be obtained before starting intravenous hydration.

5.2.2 Treatment: All treatment of situation 1 and:

- Hospitalization
- As dehydration is the most common indication for admission, the same needs to be corrected promptly. It is best done by using Ringer's Lactate or Isotonic saline (100ml / Kg / 8hours) Children with severe dehydration would require to be given 30-50 ml / kg of IV fluids over fist two hours and the remaining over the next 6 hours. IV fluids may be required to be repeated if the purge rate continues to be high and the child's dehydration is not corrected by fluids given over 8 hrs. After dehydration is corrected age appropriate fluids (One fifth Isotonic saline for more than one year and one sixth isotonic saline for infants less than one year) in properly calculated maintenance requirements should be given. Potassium should be added (20mEq/L) to IV fluids after the child has started passing urine. Attempt should be made to shift to oral rehydration at the earliest.
- **Drugs -** Antiemetics may be required as above. Appropriate antimicrobials may be required for associated infection (e.g. Cefotaxim and amikacin for septicemia). Zinc should be given as above.
- **Nutrition -** It is important to maintain adequate nutrition with age appropriate food intake. Breast feeding must be continued and other milk feed can also be given undiluted after the dehydration has been corrected.

- For invasive diarrhea cases apart from fluids appropriate antibiotics (see above) must be given orally or intravenously.

6. Complications

- Dehydration is the most frequent complication and cause of death in acute diarrhea.
- Oliguria
- Acute renal failure
- Peripheral circulatory failure

6.1 Management of complications

- Acute renal failure may occur occasionally. Mostly it is prerenal and can be reversed by prompt infusion (20-30ml / Kg over one hour, repeated if required) of rehydrating fluid (Ringer's Lactate). If the child fails to pass urine despite correction of dehydration, he may be given an injection of Furesemide (1-2mg/Kg),. If urine is not passed even after that then the child would need to be managed on lines of acute parenchymal renal failure with fluid restriction etc. Peritoneal dialysis may be required occasionally.
- Dyselectrolytemias (Hyponatremia, hypokalemia, hypernatremia, metabolic acidosis are frequent in children with diarrhea and would need appropriate management
- Convulsions can occur because of a variety of reasons but most often are due to dyselelectrolytemia like hypo or hypernatremia or hypocalcemia etc. They need to be managed appropriately. Short term anticonvulsants may be required.

7. Pre-discharge assessment Checklist

- Has the child been able to maintain oral hydration for 6 hours before discharge?
- Has the Frequency of stools reduced and consistency improved?
- Has the fever resolved if present earlier?
- Has the complication been resolved if present?
- Has the caregiver been advised on continued home treatment?
- Is the child's immunization complete and caregiver informed about future immunizations?
- Has the growth chart been updated?
- Has the caregiver been advised on when to return to the hospital?
- Has the caregiver been educated about prevention of diarrhea?

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Standard Treatment Guidelines

Notes

Standard Treatment Guidelines for Fissure in Ano (Anal Fissure)

1. Introduction/ Definition/ Description

Anal fissure is a linear tear in the muco-cutaneous portion of anal canal, which is usually in the posterior aspect in men, whereas it can be both posterior and anterior in women. This is a common perianal condition which presents with pain in the anal region during and immediately after defecation. Anal fissures can sometimes cause bleeding per rectum. An anal fissure can be acute, subacute or chronic.

2. Incidence of the condition

The exact incidence of this condition is not known in India.

3. Differential diagnosis:

A fissure in ano may be confused with a perianal abscess or sepsis in acute setting. Or it may be confused with a thrombosed external hemorrhoidal mass when pain is the only presentation. When bleeding per rectum is significant, it may be mistaken for internal hemorrhoids.

4. Clinical diagnosis

The diagnosis is made on clinical history and local examination of the perianal region. Digital rectal examination may or may not be possible, depending upon the anal sphincteric spasm.

The clinical features include:

- Pain in the anal region at and immediately after defecation
- At times with bleeding per rectum. The bleeding is usually in the form of a streak of blood on the stools.

5. Causes

The lesion occurs secondary to passage of hard stools which cause mechanical injury. Current evidence points to an ischemic etiology as well caused by sphincteric spasm. In children, anal fissures may occur following diarrhea.

6. Management

Hospitalization is indicated in the following situations:

- For surgery
- For severe pain

6.1 Conservative management

The treatment of anal fissure is initially conservative. This may involve:

- Stool softeners and bulk purgatives with or without local analgesic gel

- Antibiotics may be required if the fissure is infected
- Warm water baths (Sitz bath) can provide significant symptomatic relief
- Oral anti spasmodic and analgesic drugs are needed for pain relief.

When relief of symptoms does not occur with conservative therapy, local application of NTG (nitroglycerine) cream or local application / oral calcium channel blockers are tried.

6.2 Surgical management

Surgery is indicated when conservative therapy fails or there is recurrence or chronicity with symptoms. The surgery gives immediate relief with low incidence of fissure recurrence. The surgical options are:

- open or internal sphincterotomy
- closed internal sphincterotomy
- Along with lateral internal sphincterotomy, the patient may be offered excision of a sentinel tag or pile, or an incision along the fissure distally to avoid a key hole defect and secondary infection

Anal dilatation is not recommended in view of the risk of uncontrolled tear of anal sphincter and the attendant incontinence.

Fissurectomy offers no advantage and causes delayed healing and prolonged hospitalization.

Surgery may also be considered at an early stage to offer early relief rather than wait through conservative therapy. At the time of surgery, any skin tag (sentinel tag) or fibroma that coexists with fissure may be excised.

7. Situation 1

Basic surgical set up, which is available in most surgical centers in non-metro locations, is adequate to manage anal fissure. The procedure of lateral internal sphincterotomy can also be performed as day care.

7.1 Investigations:

- No investigations are required for diagnosis
- Investigations may be required for planning therapy, especially surgery.
- No special investigations, except those required for pre anesthetic check up will be needed.

7.1.1 Admitted with acute perianal pain

- CBC
- Urine RE & Micro
- Blood sugar F &PP
- Kidney function tests

7.1.2 Admitted for planned surgery

- CBC
- Urine RE & Micro

- Blood sugar F &PP
- Kidney function tests
- Bleeding and coagulation times
- Prothrombin time

It is recommended that day care admission may be permitted for patients undergoing lateral internal sphincterotomy who do not have co morbid conditions and who undergo this procedure under short GA.

7.2 Treatment

- Initial conservative therapy offers approximately 50% response rate. The treatment involves stool softeners, bulk purgatives, Sitz bath and administration of local anesthetics.
- Local application of NTG cream or local application / oral administration of calcium channel blockers have been found to offer faster relief of pain and healing of fissure.
- Surgery, if indications met.

7.3 Referral criteria

As anal fissure can be managed in any place where there is a surgeon, there is no need for referral. However, while evaluating a patient if it is found that the fissure coexists with a suspected anal canal/ rectal cancer or a stricture, such patients may be referred to a higher centre.

Situation II: At a superspeciality facility in a metro where higher-end technology and resources are available

Same as in Situation I.

8. Complications

Spontaneous infection of the anal fissure, especially because of the 'key hole' deformity (not necessarily due to surgery)

- Recurrence of fissure, mainly due to intrinsic pathology, and not a surgical failure

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Standard Treatment Guidelines for Fistulae in Ano (Anal Fistula)

1. Introduction/ Definition/ Description

This is a common perianal condition which presents with discharging openings in the perianal region. A fistula is an abnormal communication between two epithelial lined surfaces and thus an anal fistula usually means an abnormal tract between anal canal and the perineal skin. Occasionally the fistula may extend far away from the anal region and lead to diagnostic confusions. A fistula usually discharges pus, fecal matter and serosanguinous fluid. However, it may also discharge blood and flatus.

2. Incidence of the condition

The exact incidence of this condition is not known in India.

3. Differential Diagnosis

A fistula in ano may present as a perianal abscess or sepsis in acute setting. Or it may be confused with haemorrhoids when non-purulent discharge is the only presentation. When bleeding is present, it may be mistaken for internal haemorrhoids. A fissure may simulate a fistula when there is pus discharge.

4. Clinical Diagnosis

- The diagnosis is made on clinical history and local examination of the perianal region.
- The presentation may be acute or chronic with periodic exacerbations. Patients present with pain, anal swelling, redness and fever when there is acute perianal sepsis. In other instances, they present with skin irritation around the anus and pus discharging opening/ openings around the anus.
- Local examination, digital rectal examination and proctoscopy would guide in the diagnosis and exclude other anal conditions. Injection of H2O2 or methylene blue into the tract through the external opening will identify internal opening in most patients. No investigations are required for diagnosis, but a fistulogram or MRI fistulogram may be asked for identifying the type of fistula and the complexity involved to plan surgery.
- Investigations required for PA check up may be advised for planning therapy, especially surgery.
- A fistula may be classified in many different ways. The common denominator determining the nature of surgical intervention is whether the fistula traverses the entire sphincter complex or the pelvic diaphragm (high or low).

5. Causes

Very often fistula may result from delayed treatment of abscesses in the Ischiorectal fossae

- Usually the fistula is secondary to infection of the anal glands which are at the muco-cutaneous junction, but at times it may be due to infections not in the anal glands.
- Some fistulae are due to serious systemic illnesses such as tuberculosis, Crohn's disease or due to regional malignancy.

6. Management

- Conservative management for acute pain due to fistula would include analgesia and antibiotics and drainage of pus.
- Surgery is indicated when the patient is troubled by his symptoms. The surgical options are many and are dictated by the type of fistula. The surgical options are fistulotomy, fistulectomy, coring out of the fistula, set on suturing and any combination of these. Fistulectomy, however, offers no advantage over fistulotomy and causes delayed healing and prolonged hospitalisation.

  Anal dilatation as an additional procedure is not recommended in view of the risk of uncontrolled tear of anal sphincter and the attendant incontinence.

  - Indications for hospital admission:
  - For surgery
  - For drainage of pus when presenting with perianal abscess or for control of sepsis

7. Situation 1

7.1 Investigations

7.1.1 Admitted with acute perianal sepsis

- CBC
- Urine RE & Micro
- Blood sugar F &PP
- Kidney function tests
- X-ray chest

7.1.2 Admitted for planned surgery

- CBC
- Urine RE & Micro
- Blood sugar F &PP
- Kidney function tests
- X-ray chest
- Prothrombin time

7.2 Treatment

7.2.1. Conservative management

- When admitted with acute pain due to perianal sepsis, the treatment would include pain killers, antibiotics and drainage of pus under analgesia/anesthesia.

- Such patients may need a definitive surgery for fistula later at a second setting.

7.2.2. Surgical management

- The surgical options are many and are dictated by the type of fistula. The common surgical options are fistulotomy, coring out of the fistula, set on suturing and any combination of these.
- The aim of the operation is to drain the septic focus of the fistula or remove it with minimal injury to the sphincter complex.
- Fistulectomy offers no advantage over fistulotomy and causes delayed healing and prolonged hospitalization.
- In very high and complex fistulae, a diverting colostomy may be advised as a temporary measure to heal the fistula.
- Anal fistula plug insertion is a newer modality in the treatment of anal fistula with low recurrence rates.

7.3 Referral criteria

As most anal fistulae can be managed in any place where there is a surgeon, only the complex anal fistulae need to be referred to a higher centre. However, while evaluating a patient if it is found that the fistula coexists with a suspected anal canal/ rectal cancer or a stricture or associated with Crohn's disease, such patients may be referred to a higher centre. Patients needing surgery for a high or complex fistula often require colostomy and hence may be referred.

7.4 Situation II: At a superspeciality facility in a metro where higher-end technology and resources are available

Same as in Situation I.

8. Complications are not common.

A fistula may recur or the surgery may damage the sphincter in rare cases. Recurrence of a fistula may at times be due to non identifiable fistula tract or inability of the surgeon at the initial surgery to identify and excise or lay open the tract. More often, it may be due to inherent tendency on the part of the patient to develop a fresh perianal sepsis and go on to develop a new fistula. Delayed wound healing, anal stenosis and mucosal prolapse are other complications of surgery.

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Standard Treatment Guidelines for Gastric Esophageal Reflux Disorder (GERD) requiring hospitalisation

1. Introduction/ Definition/ Description[1]

Gastroesophageal reflux disease (GERD) results from reflux of gastric contents into esophagus. Frequent and persistent occurrence of the reflux can result in symptoms and esophageal and extra-oesophageal damage.

Fundoplication is the most frequent surgery done in patients with GERD. It involves wrapping the gastric fundus around the esophagus to restore the physiology of gastroesophageal junction and provide control of acid and bile reflux.

2. Incidence of the condition

GERD is a chronically relapsing problem. In patients with severe esophagitis, symptoms recur within 1 year in 80% patients; breakthrough esophagitis occurs while on medication in 10% of patients and 50% of patients may need lifelong medication.

GER is fairly frequent in infants. Almost 40% infants regurgitate feeds at 4 months of age. However it is mostly benign and self limiting with symptoms persisting only in 2% by 18 months of age. Most infants improve spontaneously or with minimum life style changes like advice on posture, thickening of feeds etc. Some infants who develop symptoms like failure to thrive, anemia, recurrent respiratory symptoms or even neurological symptoms may require complete diagnostic workup and management on the lines given below. Infants and children with neurological handicaps (like cerebral palsy) tend to have more severe and resistant GER.

3. Differential Diagnosis [1]

Myocardial infarction, Peptic ulcer disease, Cholelithiasis, Infectious esophagitis

4. Clinical Diagnosis [2]

Typical (esophageal) presentation:

a. Heartburn: Acid regurgitation of into the esophagus

b. Regurgitation of food and gastric acid into pharynx and mouth

c. Dysphagia: reported as a sensation that food is stuck, particularly in the retrosternal area, which usually suggests stricture, a known and frequent complication

Atypical (extraesophageal) presentation:

- Coughing and/or wheezing or exacerbation of asthma, due to reflux of acid into the airway

- Hoarseness is often experienced by patients in the morning due to acid induced injury to larynx
- Chest pain resembling a myocardial infarction

5. Causes [1]

The basic cause for the reflux is the absence of the one way valve like effect of the GE junction. This is usually due to a lax sphincter or abnormal position of the GE junction as it happens in hiatus hernia. At times Connective tissue disorders like Scleroderma may make the GE junction inelastic and predispose to reflux. Reflux may be aggravated by certain risk factors like smoking, fatty foods, alcohol, tea/ coffee, obesity, work or hobbies that require stooping or lying down, drugs as NSAIDs, cardiac medication (e.g. calcium channel blockers, nitrates, beta-blockers), and certain hormones which cause smooth muscle relaxation(e.g. progesterone).

6. Management

Management must include some mandatory investigations to confirm the diagnosis and to exclude other conditions that may mimic GERD. The requisite investigations in the diagnosis and assessment of GERD include the following:

- X-ray chest
- ECG
- UGI endoscopy
- Ba swallow
- Radionuclide scintigraphy for assessment of gastro-esophageal reflux and measurement of gastric emptying
- 24h ambulatory pHmetry and
- At times 24h Holter monitoring and oesophageal pressure monitoring.

The need and the type of therapy are based on the symptoms and complications.

Conservative management with life style modification and medical therapy for acid suppression is rewarded with relief of symptoms in the vast majority of patients. However, there exists a subgroup of patients who need medication life long. Current data suggest that the quality of life for patients with GERD is significantly lower due to heartburn, regurgitation and the need to have prolonged medication [4]. It is also well recognized that a number of patients with GERD have severe symptoms without endoscopic evidence of reflux esophagitis and that these patients also have a poor quality of life [4].

6.1.1 Life style changes

Reflux is common after heavy meals and fatty meals and hence patients should be advised not to take very heavy or fatty meals. They benefit with multiple smaller meals rather than three large meals. Also reflux is common in lying position and on forward bending. Hence these patients should be advised not to go to sleep or lie down immediately after food and also should avoid forward bending in the postprandial period. These patients should sleep with the head end elevated by 15 degrees.

It should be mentioned here that a hiatus hernia without reflux needs no surgical intervention.

6.1.2 Medical treatment

- Initial management will include Proton Pump Inhibitor (PPI) therapy for 8 weeks. PPI are the first line of therapy.
- H2 receptor antagonists sucralfate, antacids and prokinetic agents have much less efficacy as compared to PPIs
- After the 8 weeks trial, a step down of PPI therapy should be initiated
- 74 – 96% healing in 8 weeks of therapy with PPIs. 50% may need lifelong medication
- Endoscopy should be considered if symptoms persist after initial therapy.
- Regular endoscopic surveillance including biopsy is indicated for moderate GERD.

6.1.3 Surgical treatment

When GERD symptoms are uncontrolled by non-surgical methods or when complications occur due to reflux, surgery is indicated. Indications for GERD surgery are given in 6.1.3. Antireflux surgery, both open and laparoscopic, has been demonstrated to be superior to medical therapy in the control of symptoms of GERD [4-6].

Endoscopic mucosal resection (EMR) is the procedure of choice in patients with Barrett's esophagus with high grade dysplasia or carcinoma [14].

Photodynamic therapy has been added as an adjunct to EMR to reduce chances of local recurrence [14].

Comparison of medical and surgical options is shown below:

Medical Management	Surgical Management
o Life long management	o One time treatment
o Can be Costly	o Relatively Lower total cost
o Controls only acid reflux	o Controls alkaline reflux as well
o Risk of progression to dysplasia & Ca higher	o Risk of progression to dysplasia & Ca lower
o Long term effects of drugs?	o Complications manageable
o No mortality	o 1% mortality,15% fail

Choice of surgical repair

Conventional Fundoplication	Laparoscopic Fundoplication
o Technically easier	o High technical expertise
o Low costs (E 6900)	o High costs (E 9100)
o Complications (%)	o Complications
▪ Recurrence 3.7	▪ Recurrence 2.1
▪ Dysphagia 15	▪ Dysphagia 19
▪ Reoperations 0.6	▪ Reoperations 2.5
o Stay 5 days	o Stay 3 days

The choice of surgical repair is left to the surgeon, though evidence suggests that the short and long term results including Quality of Life issues of laparoscopic fundoplication are better than those of open procedures.

The classical 360 degree floppy fundoplication can be performed through laparoscopic approach, provided there is an expert surgeon in charge of the operation

6.1.3 Indications for Fundoplication:

- Patients with symptoms that are not completely controlled by PPI therapy can be considered for surgery. For example:
  - Patients who have respiratory symptoms such as cough or exacerbation of bronchial asthma due to reflux
  - Recurrent spontaneous vomiting or regurgitation into the mouth especially while in lying postures or when bending forwards
- Presence of Barrett esophagus, particularly patients with persistent inadequate LES pressure but normal peristaltic contractions in the esophagus body
- Poor patient compliance to medications or relapses on maintenance therapy
- Young patients with GERD can be considered for early surgery
- Paraesophageal hernia (usually always require surgery)
- Extraoesophageal manifestations such as pharyngo laryngeal reflux, reflux induced epiglottisitis, erosion of inner aspect of teeth especially the incisors
- When there is peptic stricture, surgery is indicated after dilatation

6.2. Situation 1

6.2.1. Investigations:

- Lab Studies – for diff diagnosis, H Pylori test,
- Imaging Studies: Barium esophagogram not very useful for diagnosis of GERD, but for complications such as stricture, associated sliding and paraoesophageal hernias. Nucleotide scans are preferable for diagnosis and semiquantification of GERD and also for exclusion of gastric stasis
- 24 hour ambulatory pHmetry is the investigation of choice, if available.
- Endoscopy and Biopsy

6.2.2. Treatment

6.2.2.1 Medical treatment

- PPI is the mainstay of therapy
- Long term behavior modification through lifestyle changes
- Regular endoscopic surveillance including biopsy is indicated for moderate GERD.

6.2.2.2 Surgical treatment

Facilities and surgical expertise for laparoscopic fundoplication may not be available at situation 1, and conventional fundoplication may be done where surgery is indicated.

6.2.3 Referral criteria for a specialist centre:

- Referral to Gastroenterologist/ surgical gastroenterologist if symptoms persist after 6 months of medical treatment or when there is evidence of a complication such as stricture

6.3 Situation 2:

6.3.1 Investigation

As in situation 1 and additional Investigations

- Esophageal manometry,
- Ambulatory 24-hour pH monitoring
- Radionuclide assessment of gastro-esophageal reflux and measurement of gastric emptying

6.3.2 Treatment

6.3.2.1 Indications of hospitalization

Hospitalization is indicated usually for surgical intervention. Medical management rarely requires hospital admission. However it may be required due to:

- Acute chest pain due to GERD for observation and for exclusion of cardiac cause of pain
- Acute severe esophagitis for diagnosis
- Severe complication e.g. asthma exacerbation, bleeding ulcer

6.3.3 Complications

- Esophagitis
- Strictures
- Barrett's esophagus
- Adenocarcinoma
- Increased risk of bleeding and perforation
- Asthma exacerbation due to aspiration of acid into bronchial tree is among the common complications of GERD.

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Standard Treatment Guidelines for Heart Failure requiring Hospitalisation

1. Introduction/ Definition/ Description:

- HF is a complex clinical syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the ventricle to fill with or eject blood.
- This includes patients of HF with preserved LV systolic function

2. Incidence of the condition

The Problem in the USA

- 5,000,000 patients
- 6,500,000 hospital days / year
- 300,000 deaths / year
- 6% - 10% of people > 65 years
- 5.4% of health care budget (38 billion)
- Incidence has doubled in last ten years

Problem in India (estimated)

Prevalence

- 18.8 million (1.76% of population)

Incidence

- 1.57 million per year (0.15% of population)

3 Causes

HF is the end result of any type of heart disease. It can result from following-

- Myocardial diseases
- Pericardial diseases
- Valvular diseases
- High output states
- Drugs
- Alcohol
- Connective tissue diseases

Precipitating factors: A number of factors can aggravate or precipitate the heart failure. Recognition of these is essential for the management of HF.

- Dietary factors
- Physical activity
- Pregnancy

- Hypo/hyperthyrodism
- Infections
- Arrthythmias
- Hypertension
- New heart disease
- Medications
- Thromboembolism
- Anaemia

4. Clinical Diagnosis

Clinical diagnosis of Heart failure includes:

- Assessment of severity of HF
- Assessment of cardiac structure & function
- Evaluation of CAD
- Evaluation of risk of arrhythmia
- Identification of precipitating factors, co morbid conditions and barrier to adherence & compliance to treatment

The clinical diagnosis is based on Framingham criteria.

Presence of two major or one major and two minor criteria are essential for diagnosis

Major Criteria	Minor Criteria
• Orthopnea/PND	• **Ankle edema**
• Venous distension	• Night cough
• Rales	• Exertional dyspnea
• Cardiomegaly	• Hepatomegaly
• Acute pulm edema	• Pleural effusion
• Elevated JVP	• Tachycardia (>120)
• HJR	• Decrease VC
• S3 gallop	• Weight loss with diuretics

Heart Failure may be classified into stages or functional class. A comparison of ACC/AHA and NYHA classification is given below

Classification of Heart Failure: A Comparison

ACC/AHA HF Stage		NYHA Functional Class	
A	At high risk for heart failure, but without structural heart disease or symptoms of heart failure (eg patients with HT or CAD)None		None
B	Structural heart disease but without symptoms of heart failureI Asymptomatic	I	Asymptomatic
C	Structural heart disease with prior or current symptoms of heart failureII Symptomatic with moderate exertion (mild HF)	II	Symptomatic with moderate exertion (mild HF)
		III	Symptomatic with minimum exertion (moderate HF)
D	Refractory heart failure requiring specialized interventionsIV Symptomatic at rest (severe HF)	IV	Symptomatic at rest (severe HF)

Ref: JAMA 2002; 287 (7): 890-897

5. Differential Diagnosis: [B1]

ISCHEMIC HEART DISEASE

Myocardial infarction, severe CAD, papillary muscle dysfunction or rupture: History of myocardial infarction, presence of infarction pattern on ECG, risk factors for coronary disease.

CARDIOMYOPATHIES

- Idiopathic dilated cardiomyopathy: Heart failure in a patient with no coronary disease risk factors or known coronary disease.
- Hypertrophic cardiomyopathy:
- Infiltrative cardiomyopathy: amyloidosis etc.

HYPERTENSIVE HEART DISEASE

- Hypertension: History of poorly controlled hypertension, presence of S4 on physical examination, left ventricular hypertrophy on echocardiogram or ECG.

VALVULAR HEART DISEASE

History of rheumatic heart disease. Mitral regurgitation, aortic insufficiency, aortic stenosis, mitral stenosis, tricuspid regurgitation, pulmonary insufficiency): Patient with mitral regurgitation has palpitation and dyspnea on exertion with pan-systolic murmur at apex on examination. Aortic stenosis has dyspnea with exertion, presyncope and syncope and angina on history and typical ejection murmur at base that radiates to carotid arteries.

MYOCARDITIS

- Bacterial myocarditis (Borrelia burgdorferi or Lyme disease, diphtheria, rickettsia, viral, streptococci, staphylococci): Fever, exposure to known agent, positive blood cultures.
- Parastic myocarditis (Trypanosome cruzi-Chagas disease, leishmaniasis, toxoplasmosis): Travel history to endemic areas, fever, peripheral stigmata of infection.
- Collagen vascular disease (SLE, polyarteritis nodosa, scleroderma, dermatomyositis): History of collagen vascular disease, positive serology results for a collagen vascular disease, other stigmata of collagen vascular disease.

PERICARDIAL DISEASES:

- Precordial chest pain and presence of rub suggests pericardial disease.
- Constrictive pericarditis and pericardial effusion etc.

DRUGS and TOXINS:

- Alcohol, adriamycin and many anti cancer drugs.

HIGH OUTPUT STATES:

History of anemia, thyroid disease and other high output states to be obtained.

6. Management

The objective of treatment is to:

- Increase Survival
- Reduce Morbidity
- Improve Exercise capacity
- Improve Quality of life
- Reduce Neurohormonal changes
- Reduce Progression of CHF
- Manage Symptoms

6.1. Situation 1:

The goal of treatment / management in a non metro clinic or small hospital is to evaluate HF and early stabilization. In mild and moderate HF – investigations and both pharmacological and non pharmacological treatment should be initiated. Depending upon available facilities and severity of presentation or need for surgical intervention, severe HF should be referred to higher centers.

6.1.1.1 Reasons for hospitalization:

- Symptomatic HF
  - Evaluation & therapy of new HF
  - Severity of congestion may warrant hospitalization
- Anasarca (collection of fluid)

- Class III - IV with no response to higher dose of diuretics
- Clinical cold & wet profile (hypotension and edema)

- Dysarrhythmia
  - Syncope
  - Sustained VT
  - New onset AF
- Other CV events
  - Unstable angina
- CVA
  - Embolic events
- Non-cardiac events
  - Severe anemia
  - COPD exacerbation
  - New onset renal failure in HF patient
  - Septicemia or severe infection

6.1.1.2 Criteria for Discharge

- Stable fluid balance/renal function
- More than 24 hours on oral regimen Off short acting i.v. agents >24 hours Off long acting i.v. agents >48 hours Stable BP >90 mmHg without postural fall
- Ambulation without dyspnea/dizziness
- Patient education & comprehension of Na & fluid intake, Weight monitoring and Symptoms of fluid overload

6.1.2. Investigations:

All management must include some mandatory investigations to confirm the diagnosis:

- CBC
- U routine
- Sugar
- KFT
- LFT
- Na/K
- Ca/Mg
- Lipids
- Thyroid tests
- ECG
- X-ray Chest
- Echo-doppler

6.1.3. Treatment

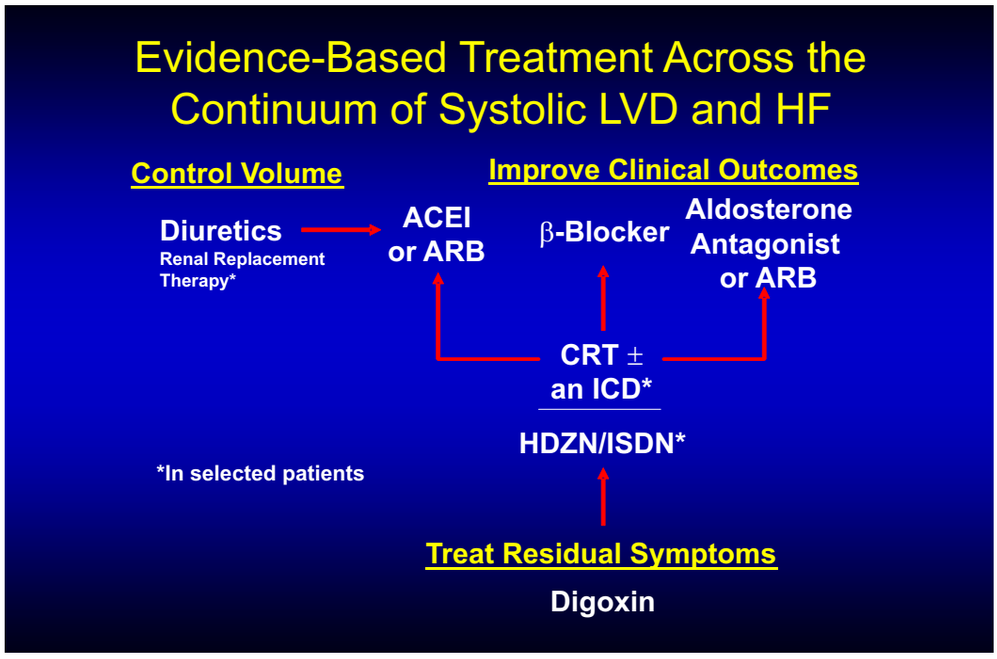
Patient education, non pharmacological management and pharmacological treatment should be initiated.

6.1.3.1 Non pharmacological management:

- Dietary sodium 2-3 gms/day
- Fluids <2 lts/day
- Multivitamins recommended
- Calcium supplements recommended
- Protein supplements recommended
- Oxygen supplementation not as a routine
- Alcohol intake to be restricted
- Pneumonia vaccine recommended
- Annual influenza vaccine recommended
- Smoking cessation advice

6.1.3.2 Pharmacotherapy

- Beta-blockers
- Angiotensin Converting enzyme inhibitors (ACEI)
- Angiotensin Receptor Blockers (ARB)
- Diuretics
- Digitalis
- Vasodilators (Nitrates and Hydralazine)
- Intravenous Inotropes in Acute Decompensated HF
- Anticoagulants: Low Molecular Weight Heparin and oral drugs



6.1.3.3 Specific indications for pharmacotherapy

Beta blockers indications

- Symptomatic heart failure
- Asymptomatic ventricular dysfunction LVEF < 35 - 40 %
- After AMI

Commonly used drugs- Carvedilol, metaprolol or bisoprodolol

- *BB are recommended in all pts with HF even if concomitant diseases like DM, COPD and PVD are present.*
- *Use with caution in unstable DM and asthma. Use extreme caution if HR <55 and SBP <80 mmHg.*
- *Not recommended in acute asthma and limb ischemia*

(HFSA 2006 Practice Guidelines BB Recommendations)

Angiotensin Converting Enzyme Inhibitors indications

- ACEI are recommended for all symptomatic patients and asymptomatic patients with LVEF of <40

(HFSA 2006 Practice Guidelines)

Angiotensin Receptor Blockers (ARB) indications

- ARB are recommended for routine use in symptomatic and asymptomatic patients of HF with EF of <40 if they are intolerant to ACEI or reasons other than hyperkalemia and renal insufficiency

(HFSA 2006 Practice Guidelines ARB Recommendations)

Diuretics indications

- Diuretic therapy is recommended to restore and maintain volume status in patients with volume overload
- Loop diuretics rather than thiazide diuretics are generally needed to restore volume control

(HFSA 2006 Practice Guidelines Diuretic Therapy Recommendations)

Aldosterone antagonists indications

- Aldosterone antagonists are recommended for patients on standard therapy who have Class III or Class IV symptoms
- Considered in post MI with clinical HF or diabetic and an EF <40% and who are on standard therapy

(HFSA 2006 Practice Guidelines Aldosterone Antagonist Recommendations)

Digoxin indications

- When no adequate response to ACEI + diuretics + beta-blockers (AHA / ACC Guidelines 2001)
- In combination with ACEI + diuretics if persisting symptoms and in patients with AF- to slow AV conduction

(ESC Guidelines 2001)

Nitrates indications

- CHF with myocardial ischemia

- Orthopnea and paroxysmal nocturnal dyspnea
- In acute CHF and pulmonary edema: nitroglycerine iv
- Oral Nitrates + Hydralazine in patients with intolerance to ACE-I (hypotension, renal insufficiency)

(HFSA 2006 Practice Guidelines)

Hydralazine and ISDN indications

- Combination of nitrates and hydralazine is recommended in addition to ACEI and BB in patients with LV systolic dysfunction in Class III & Class IV.

LMWH indications:

- As a therapeutic agent in patients with poor LV systolic dysfunction with atrial fibrillation & in presence of documented LV thrombus.
- As a prophylactic agent in hospitalized patients, since patients with heart failure are at high risk of venous thromboembolism.

Oral Anticoagulant (warfarin, acitrome) Indications:

- Long term oral anticoagulants in patients with LV dysfunction & atrial fibrillation.

Drugs to Avoid in patients of HF

- Inotropes, long term / intermittent
- Antiarrhythmics (except amiodarone)
- Calcium antagonists (except amlodipine)
- Non-steroidal antiinflammatory drugs (NSAIDS)
- Tricyclic antidepressants
- Corticosteroids
- Lithium

(ESC HF guidelines 2001, HFSA 2006 Practice Guidelines)

6.1.4. Referral criteria for a specialist center if:

- Worsening symptoms, acute decompensating HF
- Severe HF
- Cardiac vascularization indicated
- Need for CRT/ventricular assist devices/implantable cardiac devices

6.2. Situation 2:

- The goal of treatment in a metro specialized setup may include further evaluation, medical management or cardiac vascularization e.g. Implantable Cardiovertor Defibrillators (ICD) or biventricular pacing, if indications are met. Alternatively, medical management may include all treatment principles of situation 1 and additional investigations and drug therapy may be indicated.

6.2.1. Investigation:

All investigations of situation 1 and preanesthetic / preoperative investigations:

BNP (B type natriuretic peptide)

6.2.2. Special Investigation Special Investigations required in some persons with co-morbidities.

- Holter test if arrhythmia
- Stress tests (stress ECG, stress Echo, stress Thallium) in suspected CAD
- Electrophysiological studies to evaluate arrhythmia
- Endo myocardial biopsy in infiltrative cardiomyopathies
- Coronary angiography if suspected CAD

6.2.2. Treatment: All treatment of situation 1 and:

Overview of Treatment

6.2.2.1 Coronary Revascularization

- Implantable Cardiovertor Defibrillators (ICD)
- Bi Ventricular Pacing
- Ventricular Assist Devices
- Cardiac transplantation

80% of patients with heart failure have coronary disease. Patients should be evaluated for the presence of myocardial ischemia and the potential benefit of revascularization.

Survival was improved by revascularization compared with medical therapy, even in the absence of angina pectoris (Duke database)

- Implantable Cardiovertor Defibrillators (ICD) indications
  - An ICD is recommended as secondary prevention to prolong survival in patients with current or prior symptoms of HF and reduced LVEF who have a history of cardiac arrest, ventricular fibrillation, or hemodynamically destabilizing ventricular tachycardia.
  - ICD therapy is recommended for primary prevention to reduce total mortality by a reduction in sudden cardiac death in patients with ischemic heart disease who are at least 40 days post-MI, have an LVEF less than or equal to 30%, with NYHA functional class II or III symptoms while undergoing chronic optimal medical therapy, and have reasonable expectation of survival with a good functional status for more than 1 year.

  (HFSA 2006 Practice Guidelines)
- **Bi-ventricular pacing(Cardiac Resynchronization Therapy) indications**

  Consider Bi-ventricular pacing for patients with
  - Sinus rhythm
  - Wide QRR complex (>120 ms)
  - LVEF <35%
  - Persistent NYHA Class III despite optimal treatment
- **Cardiac Transplantation Indications**

  Consider cardiac transplant for patients

- Less than 65 years
- Class III-IV HF
- Lack of other medical or surgical options
- Limited comorbidities
- Expected survival less than 12 months

7. Acute Decompensated HF

- Fluid and salt restriction
- Diuretics- loop diuretics
- Ultrafiltration in some patients
- Parenteral vasodilators- nitroglycerine, nitroprusside, nesiritide
- Inotropes- dobutamine,milrinone

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Standard Treatment Guidelines for Inguinal Hernia

1. Introduction/ Definition/ Description:

An inguinal hernia is a protrusion of a sac of peritoneum (often containing intestine or other abdominal contents) through a weakness in the abdominal wall in the groin area. It usually presents as a lump, with or without some discomfort that may limit daily activities and the ability to work. Inguinal hernias can occasionally be life-threatening if the bowel within the peritoneal sac strangulates and/or becomes obstructed.

2. Incidence of the condition

- In India Inguinal hernia occurs in 3.8% of population and accounts for approximately 12.5% of all surgical admission [Source: DGAFMS Medical memorandum on Inguinal hernia and their disposal]. According to the American Academy of Pediatrics, about 5 out of 100 children have inguinal hernias.
- Around 98% of inguinal hernias are found in men because of the vulnerability of the male anatomy to the formation of hernias in this region.
- An inguinal hernia may be indirect or direct. An indirect inguinal hernia, which is more common, may develop at any age, is more common in males, and is especially prevalent in infants younger than age 1.
- Globally, about 10% of people develop some type of hernia during their lifetime, and more than 500,000 hernia operations are performed in the United States each year. Hernias are seven times more common in males than in females.
- Most hernia repairs are undertaken as elective procedures. However, 4.8% of primary repairs and 8.6% of recurrent hernias present as an emergency with a complication. Some individuals present with bilateral hernias, which may be repaired during the same operation or at a later date, and up to 30% of people with a primary unilateral hernia subsequently develop a hernia on the opposite side.

3. Differential Diagnosis

3.1 Classification

Irrespective of the site a hernia can be classified into five different types.

- Reducible- contents can be returned to the abdomen
- Irreducible- contents cannot be returned but there are no other complications,
- Obstructed – bowel in the hernia has good blood supply but bowel is obstructed.
- Strangulated- blood supply of the bowel is obstructed.
- Inflamed – contents of the sac are inflamed

3.2 Differential Diagnosis in the male

In males the differential diagnosis includes the following:

- Vaginal Hydrocele
- Encysted Hydrocele of the cord.
- Spermatocele
- Femoral hernia
- Incompletely descended testes in the inguinal canal- an inguinal hernia are often associated with the condition.
- Lipoma of the cord- this is often a difficult diagnosis and it is usually not settled until the parts are displayed in operation.

3.3 Differential Diagnosis in the female

In females the differential diagnosis includes the following:

- Hydrocele of the canal of Nuck-this is the most common differential diagnostic problem.
- Femoral hernia

4. Clinical Diagnosis:

Classical historical aspects, presenting complaints and careful clinical examination are all that are required in the diagnosis of an inguinal hernia.

5. Causes

- An indirect inguinal hernia, the more common form, results from weakness in the fascial margin of the internal inguinal ring. In an indirect hernia, abdominal viscera leave the abdomen through the inguinal ring and follow the spermatic cord (in males) or round ligament (in females); they emerge at the external ring and extend down into the scrotum or labia.
- A direct inguinal hernia results from a weakness in the fascial floor of the inguinal canal. Instead of entering the canal through the internal ring, the hernia passes through the posterior inguinal wall, protrudes directly through the transverse fascia of the canal (in an area known as Hesselbach's triangle), and comes out at the external ring.

6. Management

Inguinal Hernia would require surgical management at some stage.

Situation I: At a secondary hospital/ Non-metro situation where technology and resources may be limited

6.1 Investigations

- Routine Pre-anesthetic Investigations
- Some cases require a USG Abdomen or an X-ray Abdomen Erect.

6.2 Treatment

- Recommendations for Type of mesh for Inguinal Hernia repair

- Current Evidence suggests that a good quality prolene mesh is the ideal cost effective choice for use in the repair of inguinal hernia. A light weight prolene mesh may be justified in select cases especially younger adults as they produce only desired fibrosis, but an additional cost is involved.

- Recommendations for Prolene Hernia System
  - The Prolene hernia system (PHS) is a three-dimensional mesh device that combines three approaches to hernia repair, but its high cost precludes its widespread use in developing countries.
  - The Authors believe that hernia repair with the P.H.S. is a valid choice comparable to the other common techniques but they recommend its use particularly in primary hernias with major relaxation of the posterior inguinal wall of the inguinal canal or of the entire myopectineal orifice.
  - PMID: 15038658 [PubMed - indexed for MEDLINE]
- Recommendations for Contralateral Hernia Repair for Occult hernia
  - The endoscopic approach to inguinal hernia repair is an excellent tool to detect and treat occult contralateral hernias. The incidence of hernia occurring at the contralateral side after a previous bilateral exploration is low, hence a prophylactic repair on the contralateral side is not recommended on a routine basis.
  - PMID: 17006623 [PubMed - indexed for MEDLINE]
- Recommendations for Laparoscopic hernia Repair
  - As per the NICE guidelines for the comparison of laparoscopic hernia vs. open mesh repair for inguinal hernia the current consensus is that the choice of laparoscopic hernia repair is non controversial in:
    - patients requiring a bilateral hernia repair and
    - those with recurrence following previous open repair.

    (www.nice.org.uk/TA083guidance).

6.3 Referral criteria

Most Hernias can be managed at the first situation wherever the services of a general surgeon are available. Laparoscopic surgery is to be tried by surgeons trained to practice it at centers equipped with good quality laparoscopic equipment. In addition, some of these patients with very high risk factors may be referred to a tertiary centre, as adequate ICU care or capability to manage complicated cases may not be available in non-metro situations.

6.4 Situation II: At a superspeciality facility in a metro where higher-end technology and resources are available

Exactly as shown for Situation I. These centers are better suited to manage patients with complicated hernias, especially those with high risk factors.

Standard Treatment Guidelines

7. Complications

The possible complications include:

- Intestinal Obstruction
- Strangulation of hernia
- Testicular dysfunction etc.

8. Admitted with Strangulated Hernia

* Additional cost of Intestinal Resection and Anastamosis, if gut non viable.

9. References

Technology Appraisal Guidance 83. Laparoscopic surgery for inguinal hernia repair. Issue date: September 2004Review date: September 2007

(www.nice.org.uk/TA083guidance). An abridged version of this guidance (a 'quick reference guide') is also available from the NICE website (www.nice.org.uk/TA083quickrefguide).

10. Additional Information

*Additional Cost of Disposables:

Tacker = upto Rs 15,000 ,

Mesh- Prolene = 15cmx15cm = upto Rs 4500

*Additional cost of Comorbities, ICU Care if required.

In males, during the seventh month of gestation, the testicle normally descends into the scrotum, preceded by the peritoneal sac. If the sac closes improperly, it leaves an opening through which the intestine can slip. In either sex, a hernia can result from weak abdominal muscles (caused by congenital malformation, trauma, or aging) which may be exaggerated by increased intra-abdominal pressure (due to heavy lifting, pregnancy, obesity, or straining).

In England, there were approximately 70,000 surgical repairs of inguinal hernia in 2001/02, affecting 0.14% of the population and utilizing over 100,000NHS bed-days of hospital resources. Of these procedures, 62,969 were for the repair of primary hernias and 4939 for the repair of recurrent hernias.

Inguinal hernia usually causes a lump to appear over the herniated area when the patient stands or strains. The lump disappears when the patient is supine. Tension on the herniated contents may cause a sharp, steady pain in the groin, which fades when the hernia is reduced. Strangulation produces severe pain and may lead to partial or complete bowel obstruction and even intestinal necrosis. Partial bowel obstruction may cause anorexia, vomiting, pain and tenderness in the groin, an irreducible mass, and diminished bowel sounds. Complete obstruction may cause shock, high fever, absent bowel sounds, and bloody stools. In an infant, an inguinal hernia commonly coexists with an undescended testicle or may manifest only as congenital hydrocele.

In a patient with a large hernia, physical examination reveals an obvious swelling or lump in the inguinal area. In a patient with a small hernia, the affected area may

simply appear full. Palpation of the inguinal area while the patient is performing Valsalva's maneuver confirms the diagnosis. To detect a hernia in a male patient, the patient is asked to stand with his ipsilateral leg slightly flexed and his weight resting on the other leg. The examiner inserts an index finger into the lower part of the scrotum and invaginates the scrotal skin so the finger advances through the external inguinal ring to the internal ring (about 1 ½" to 2" [4 cm to 5 cm] through the inguinal canal). The patient is then told to cough. If the examiner feels pressure against the fingertip, an indirect hernia exists; if pressure is felt against the side of the finger, a direct hernia exists.

A patient history of sharp or “catching” pain when lifting or straining may help confirm the diagnosis. Suspected bowel obstruction requires X-rays and a white blood cell count (may be elevated).

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Standard Treatment Guidelines for Total Joint Replacement

1. Introduction/ Definition/ Description [1,2]

Joint replacement is a common orthopedic procedure, originally used to relieve severe pain and disability due to degenerative hip disease (Rheumatoid and Osteoarthritis) where non operative treatment was unsuccessful. However over the years, with improved technology, improved prosthetic design and metallurgy, and considerable reduction in mortality and morbidity, its indications have broadened.

2. Incidence of the condition

- Arthritis is the leading cause of disability in people older than 55 yrs
- Osteoarthritis of the knee and hip is one of the five leading causes of disability among elderly men and women. The disability from Osteoarthritis is as great as that from cardiovascular disease.
- It is estimated that osteoarthritis of hip and knee would outnumber cases of HTN / CAD / DM

3. Differential Diagnosis of Arthritis causing Joint Pain

Articular causes:

- Bursitis
- Faciitis
- Tendonitis
- Ligament Injury
- Synovitis
- Myofacial Pain / Fibromyalgia

Nonarticular causes of joint pain

- Tumors of Bone
- Radiculopathy
- Osteomyelitis
- Neuroma
- Nerve Entrapment
- Vasculopathy
- Referred pain

4. Clinical Diagnosis

History taking, clinical examination and radiology are usual modalities for diagnosis. For rheumatoid or other inflammatory arthritis additional blood tests (ESR, Rh factor and culture) may be required. Common presentation of a worsening arthritis is:

- Joint pain limits everyday activities even walking
- Stiffness in joint limits ability to move
- Impaired mobility and balance which increases the risk of falling and suffering a serious injury such as a hip fracture

5. Causes

Degenerative condition frequently associated with age, obesity, previous injury, family history and occupational stress etc.

6. Management

6.1 Situation 1

The goal of treatment / management in a non metro clinic or small hospital is pain control, maintenance of joint structures and activity.

6.1.1 Investigations:

All management must include some mandatory investigations to confirm the diagnosis:

- X-ray (as applicable)
- Both knees AP and lateral
- Pelvis with Both Hips AP
- Lumbo-sacral spine- AP/ lateral

Depending upon the underlying arthritis additional blood tests may be needed.

Blood Investigations

- ESR
- CRP
- R.A factor
- URIC ACID
- ASLo
- T3, T4, TSH

6.1.2 Treatment

Patient education, pain management through analgesia, anti-inflammatory medication, posture/ weight management and physiotherapy may be used as needed.

6.1.3 Referral criteria for a specialist center if:

- Worsening arthritis or pain/ inflammation unresponsive to medication and physiotherapy
- Surgical indications met

6.2 Situation 2

The goal of treatment in a metro specialized setup may include further medical management or surgical intervention e.g. joint replacement if indications for surgery are met. Alternatively, medical management may include all treatment

principles of situation 1 and additional investigations and drug therapy (Disease modification drugs for rheumatoid arthritis). In worsening arthritis joint replacement may be indicated.

Indications of Total Joint Replacement:

Total Joint replacement is indicated in

- Pain not responding to medical treatment or analgesic requirement is high
- Severe restriction of daily activities
- Progressive & severe deformity

Hip Joint replacement may also be conducted in other conditions e.g. [1,2,3]

- Idiopathic avascular necrosis
- Failed osteosynthesis
- Fracture neck of femur (#NOF)
- Failed hemiarthroplasty

6.2.1 Investigation

All investigations of situation 1 and preanesthetic / preoperative investigations:

- ECG
- Blood Investigations
  - Complete Blood count
  - Liver and renal function tests
  - Blood sugar fasting and post-prandial
  - Coagulation profile
  - Blood Group and cross matching
  - Viral Markers
- Urine routine and microscopic

6.2.2 Special Investigation Special Investigations required in some persons with co-morbidities.

- ECHO including stress ECHO / CT Angio / Angiogram

Indications: Previous IHD, Valvular disease, long standing hypertension or diabetes

- MRI lower spine

Indications: Co-existing spinal stenosis

- Scanogram or CT scan

Indications: for limb length discrepancy

Monitoring tests for blood sugar, lipids and other parameters may be needed to manage co-morbidities.

6.2.3 Treatment: All treatment of situation 1 and

- Severe knee arthritis is treated with Total Knee Replacement
- Severe hip arthritis is treated with Total hip Replacement

6.2.3.1 Type of knee prostheses to be implanted may be guided by Surgeon Preference and Patient needs after Surgery

For example:

- Age > 70 years- All polyethylene Tibia
- Age 60-70 years- Fixed bearing modular knee prosthesis
- Age < 60 years- Rotating platform
- Use of rotating platform in rheumatoid patients needs caution.
- Unicondylar prosthesis can be used at any age if only one half of the joint is destroyed.

6.2.3.2 Indications for Preferred Hip Replacement prosthesis for different ages

Preferred Hip Replacement prosthesis for different ages

- For all age groups: Uncommented Total hip replacement
- For weak osteoporotic bones- Cemented Total Hip Replacement
- For <60 years of age- Metal-on-metal, Ceramic-on-ceramic and surface resurfacing prosthesis

6.2.3.3 Indications for special prosthesis for Hip Replacement

Special prosthesis with longer stems and more constraint are required in cases of associated fractures with joint degeneration, revision of previously replaced joints that have failed as a result of normal wear, malposition, subsequent fractures and infection

6.2.4 Complications

Possible Complications after Joint Replacement

- Infection
- Accepted incidence less than 2%
- Persistent hemorrhage
- Blood Clots (DVT and PE) 3% after hip replacements and 2% after knee replacements
- Loosening
- Dislocation Primarily in Total Hip replacements (Incidence of 2 to 3%": Early dislocation if happens <3 months, Late dislocation if happens >3 months)
- Nerve Injury (Incidence is between 0.3% and 4% in primary procedures)

7. Rehabilitation measures

Length of Hospital Stay

- 10 days for bilateral THR and TKR
- 5-7 days stay for unilateral THR, TKR and Uni-condylar knee replacement
- Post-operative Regime consists of -
- Pain control
- Antibiotics- IV and oral

- LMWH and aspirin for 6 weeks
- Stitch removal after 14 days
- Physiotherapy

8. Balancing Costs and Infrastructure

Where appropriate, the following can be considered for substitution for cost-reduction

1. Space suits
2. Prolonged stay of more than 7 days after surgery (unless complications compel further stay)

However, no compromise should be made in following to get best results from joint replacement

1. Pulsatile Lavage
2. Antibiotic cement for a certain group of patients
3. Dedicated orthopedic OT for clean cases
4. Proper Disposable gowns and drapes, preferably disposables
5. Laminar air flow
6. Implants of proven clinical record and standard instrumentation set
7. Use of costly implants like TC-3, LCCK, if indicated

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Annexure (Additional Information)

Knee Arthritis

- Severe knee arthritis is treated with Total Knee Replacement
- The operation of joint replacement consists of shaving the destroyed articular ends of femur and tibia, which are then capped with suitably sized metallic implants. The metal components are glued to bone surface with special glue like material called methyl methacrylate which hardens in about 10 minutes and this fixation can last for 10-15 years.
- To achieve most effective and long lasting bond between bone suface, cement and metal implant it is necessary to clean, wash and dry the cut bone surface

using high pressure saline lavage system which costs about Rs 3500 and is a disposable item so that a new device is to be used for each case.

Types of Knee joints

The femoral component of all knee prostheses is made of specialized, highly polished cobalt chrome material and the differences in the design of the tibial component are incorporated into the femoral component. According to the design variations of tibial component different make of knee prostheses are available.

- The commonest prosthesis is in which the tibial component is metallic on to which ultra high molecular weight polyethylene (type of plastic) insert is fixed by locking mechanism.
- The next variation is in which the tibial component is made completely of plastic and this is called all poly ethylene tibia.
- Another variation is in which the plastic and metallic parts of tibial component can have mobility between them and this is called rotating platform prosthesis. This is supposed to reduce long term wear of plastic component. A variety of this rotating platform is known as High Flex Knee.
- Least commonly used prosthesis is to replace one side of the knee joint in special situations and this is called Uni-condylar replacement

Hip Arthritis

- Severe hip arthritis is treated with Total hip Replacement
- The operation of joint replacement consists of shaving the destroyed articular ends of femur and acetabulum, which are then capped with suitably sized metallic implants. The metal components are glued to bone surface with special glue like material called methyl methacrylate which hardens in about 10 minutes and this fixation can last for 10-15 years. The recent and most common method of fixation of hip prosthesis to bone is coating of a material into which the bone trabeculae can grow. This does not need the use of bone cement, gives equally good fixation and revision is also easy.

Types of Hip Prostheses

Most commonly used prosthesis is non-cemented prosthesis and the inner surface of acetabular component is fitted with a special plastic material (Ultra high molecular weight polyethylene).

- Next common prosthesis is in which acetabular component is made entirely of plastic and this along with femoral component is fixed to bone using special glue as in knee prosthesis. Here again cleaning of bone surfaces by high pressure lavage system is a must to obtain long lasting bond between prosthesis and bone.
- The least commonly used prosthesis is in which the acetabular component has a lining of metal instead to plastic or lining of ceramic. These are respectively called metal-on-metal and ceramic-on-ceramic bearing hips
- In certain situations the femoral prosthesis can be of a rounded bulb like structure of metal that fits onto the head of femur. This is named surface hip replacement

Wear of Artificial Joints

- In artificial joints two moving surfaces wear out with time and this wear mainly affects the plastic interposed between two metallic components both in the hip and knee. Now a days, an improved version of plastic material has become available which is supposed to last longer and it also costs slightly more. This specialized plastic is called cross-linked polyethylene.

Complications in Joint replacement:

- Infection: Infection is the most serious complication of joint replacement and revision surgery with eradication of infection is a tedious, long drawn procedure involving multiple operations. Therefore thorough preoperative investigations to detect infection, usually urine infection are necessary. After joint replacement if any invasive procedure is done like TURP etc. the antibiotic cover is essential. Quite often infection occurs due to bad OT environment and imperfect sterilization of equipment. Therefore it must be ensured that joint replacement is performed in a well equipped facility

Performance Indicators which should be monitored in relation to joint replacement to give best results

- Operating room & Equipment sterilization method and record
- Perioperative antibiotic protocol & administration
- Deep Venous Thrombosis prophylaxis
- What is the short & medium term complication rate

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He introduced modern techniques of fracture fixation and arthroplasty and has also developed teaching modules and has been forerunner in teaching and propagating science and technique of arthropalsty. He established India's first “Bone Bank” at AIIMS with facilities for allograft from living and nonliving donors. He has large series of successful allograft reconstruction in arthroplasty, tumours and varied bone defects.

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Standard Treatment Guidelines for Fixation of Long Bone Fractures

1. Introduction/ Definition/ Description

Fracture is a break in the continuity of the bone. Common Bones to Fractures are femur, tibia, humerus, forearm bones and hip

2. Incidence of the condition

Fractures are fairly common in both children and adults. Trauma is the usual cause, however morbidities like malignancy, osteoporosis can lead to pathological fractures.

3. Differential Diagnosis

Fracture is usually apparent by clinical presentation and confirmed by an X-ray. Differential diagnosis may be pertinent for pathological fractures to identify and treat the underlying condition.

4. Clinical Diagnosis

Pain, swelling and deformity are typical signs of a fracture. Radiology confirms the type, location, stability and displacement of a fracture.

Fractures are classified on the basis of 5 Part Code 'Bone':

- Location: Proximal (upper), Diaphyseal (middle), Distal (lower) name of bone
- Type A=simple fracture, B=wedge fracture, C=complex fracture
- Closed or Open
- Line of Split Transverse, oblique, spiral, or segmental
- Displacement: Displacement, Angulation and Shortening

5. Causes

Leading Causes of Fractures are high force impact or stress, osteoporosis, malignancy

6. Management

Aim

To ensure the best possible function of the injured part after healing

Typical principles of fracture management are:

Stable fracture

- Likely to stay in a good (functional) position while it heals
- These can be treated in plaster
- Treatment of long bone fracture in plaster is disabling

Unstable fracture

- Likely to shorten, angulate or rotate before healing and lead to poor function in the long term -these fractures must be fixed

Management Options

- Closed reduction and external stabilization/ fixation
- Closed Reduction & Internal Fixation,
- Open Reduction and Internal Fixation

6.1. Situation 1:

- Usually in situation 1 stable fractures can be managed conservatively by closed reduction and external stabilization and pain management.
- Unstable fractures or multiple fractures which require fixation should be referred to higher care centers.

6.1.1. Investigations

- Radiographs of the affected limb should be obtained in at least 2 planes
- Additional views of the affected limb are occasionally needed to determine the extent of the comminution and the fracture anatomy.
- Additional radiographs may be needed to assess for other injuries.

6.1.2. Treatment

Stable fractures which can be managed conservatively are managed by closed reduction and external stabilization (plaster or external fixation devices), pain management and careful mobilization.

6.1.3. Referral criteria for a specialist center if:

- Unstable fractures
- Multiple injuries
- Fractures requiring internal fixation
- Patients with multiple medical complications

6.2. Situation 2:

Internal fixation, open reduction or multiple fractures may require higher level of care and services.

6.2.1. Investigation:

- Radiographs as indicated in situation 1
- Lab studies may be indicated in cases of co morbidities or advanced age

6.2.2. Special Investigation

- Computed tomography (CT) scanning
- Additional radiological investigations have role if articular extension is present

6.2.3. Treatment

- Treatment as in situation 1 and

- Prophylactic immunization against tetanus and gas gangrene
- Internal fixation with closed reduction (Dynamic hip screws) or open reduction

6.2.3.1. Indications for closed reduction and external stabilization (plaster or external fixation devices)

- Distal Radius fractures
- Most Pediatric fractures

Indications for closed reduction internal fixation

- Dynamic hip screw for trochanteric fractures
- Intramedullary nailing for fracture shaft of femur & Tibia

6.2.3.2. Indications for Open Reduction Internal Fixation (ORIF):

Open reduction refers to open surgery to set bone which has fractured, while internal fixation refers to fixation of nails, screws and plates to maintain alignment & length & facilitate healing in anatomical or near anatomical position to restore full function of injured limb. Indications for

ORIF include:

- Conservative treatment has failed or is very likely to fail
- Unstable fractures
- Intra-articular fractures

Advantages

- Anatomical reduction: especially intra-articular fracture
- Stable internal fixation: to fulfill the local biomechanical requirements
- Early active pain-free mobilization
- Prevents & Minimizes Complications like Malunion, Delayed union, Non-union, Deep Vein Thrombosis

6.2.3.3. Indications for Dynamic Compression Plates (DCP)

- Require compression of the plate to the bone and rely on friction at the bone-plate interface
- 3.5 mm or 4.5 mm thick depending on bone.
- Commonly Stainless Steel plates are used
- Titanium plates are better but expensive.
- Better modulus of elasticity & MRI compatible

6.2.3.4 Indications for Anatomically Pre-Shaped Plates

- fracture at proximal and distal parts of the femur
- fracture at proximal and distal parts of the tibia
- fracture at proximal and distal parts of the humerus
- fracture Calcaneus

6.2.3.5 Indications for LCP

- Particular fractures
- Communited fractures
- Fractures extending into or near the joint

Compound fracture: Aims of treatment

- Soft tissue management
- External fixation/ Internal fixation
- Flap cover when required
- Free microsurgical flaps

Fractures needing partial or total joint replacements

- Fracture neck femur in elderly with physiological age above 60 years
- 4 part fracture of proximal humerus in elderly

6.2.4. Complications

- Nerve Injury
- Compartment syndrome
- Infection
- Implant failure- If non-union occurs

7. Rehabilitation measures

Post surgery advice, physiotherapy as necessary, and careful mobilization is indicated.

8. Additional Information

Implant Costs:

Implant costs depending upon the length of plate	Stainless Steel DCP	Titanium Locking plates	Anatomically Pre-Shaped Plates

DCP plates are most cost-effective.

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- Outcome of traumatic subtrochanteric femoral fractures fixed using cephalo medullary nails. Injury 2007
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Standard Treatment Guidelines for Breast Cancer

1. Introduction/ Definition/ Description

Breast cancer has a major impact on the health of women. It is the leading cause of mortality in women aged 40-55 years.

2. Incidence of the condition

- ICMR data- in metropolitan cities of Mumbai/Chennai/Delhi-1 in 22 females is likely to develop breast cancer in India.
- It varies between 8-27% between urban and rural areas. Rare before 20 years of age and increases with the increase of age.
- Incidence in males is less than 5%

3. Differential Diagnosis

- Fibroadenoma
- ANDI (aberrations of normal development and involution)
- Hematoma
- Traumatic fat necrosis
- Chronic intramammary abscess
- Cysto sarcoma phylloides
- Tuberculosis
- Phylloides tumor

(Inflammatory carcinoma may be confused with acute mastitis)

4. Clinical Diagnosis

Clinical diagnosis is based on history, clinical examinations and investigations.

History taking includes identification of risk factors / family history

4.1 A history of (painless) breast lump, heaviness ,distortion of breast, eczema like allergy seen in Paget's disease, nipple discharge, recent retraction of nipple are the common reported complaints.

4.2 Clinical examination will include physical examination, inspection and palpation of skin, breast and lymph nodes particularly axillary and supraclavicular nodes. Clinical examination will include careful examination of lump size, consistency, shape, fixity, tenderness and quadrant.

4.3 Pathological examination establishes the diagnosis and imaging is a useful adjunct.

Histopathology is usually needed for confirmation – Fine Needle Aspiration Cytology (FNAC), Core Biopsy, and Excision Biopsy.

4.4 Radiological Investigations - Mammography, USG, MRI, PET SCAN

Primary tumor is usually identified through mammogram or ultrasound.

4.4.1 Specific indications of Ultrasonography (USG)

- To differentiate solid from cystic
- Early invasive Ca-pretreatment axillary USG is advisable

4.4.2 Specific indications of MRI

- In breast conservative surgery to assess tumor size in invasive lobular carcinoma.
- If clinical examination and mammography and USG falls short of defining the extent of disease.
- Density of breast affects accurate assessment
- Scar tissue.

4.4.3 Specific indications for PET Scan are

- Response to neo adjuvant therapy
- Follow up for recurrence/Metastasis
- Staging in advanced Cancers

5. Causes

Causation is linked to many risk factors including:

- Family history
- Age
- Exposure to female reproductive hormones(endogenous and exogenous),
- Past history of breast cancer or ovarian cancer in the same patient, which has been cured
- Proliferate benign breast disorders like atypical hyperplasia of breast

6. Management

Breast Conservation Surgery is the gold standard for early breast cancer. Modified radical mastectomy remains the standard of treatment when disease is multi-centric or compliance to postoperative radiotherapy is doubtful.

Indications of hospitalization:

- For surgical intervention
- For chemotherapy and its complications

6.1 Situation I: At a secondary hospital/ Non-metro situation where technology and resources may be limited

6.1.1 Investigations:

6.1.1.1 Diagnostic investigations

As described in 4.3 and 4.4

6.1.1.2 Excisional biopsy

- At times an FNAC may be negative but due to strong clinical suspicion or radiological proof, an excision biopsy is done.
- Specific indication if Core Needle biopsy is non confirmatory or prior to neoadjuvant chemotherapy in conservative breast surgery.

6.1.1.3 In case of early cancer breast

- CBC
- X-ray chest
- KFT
- LFT
- HbsAg
- ECG
- Blood Sugar
- receptor status

6.1.1.4 In case of advanced cancer

- CBC
- X-ray chest
- KFT
- LFT
- HbsAg
- ECG
- Blood Sugar
- USG abdomen
- Bone scan
- DEXA scan
- Tumor markers
- Receptor status

6.1.2 Treatment

Surgery:

6.1.2.1 Excision biopsy, Needle Localization and biopsy.

6.1.2.2 Wide Excision with Axillary / Sentinel Lymph Node Biopsy (SLNB)/ lymph node dissection

6.1.2.3 Breast conservation Surgery (BCS) with Axillary Lymph Node Dissection (ALND)

6.1.2.4 Simple Mastectomy

6.1.2.5 Modified Radical Mastectomy (MRM) with reconstruction

6.1.2.6 Modified Radical mastectomy

6.1.2.7 Radical mastectomy

Chemotherapy

- ADJUVANT CHEMOTHERAPY

Indications: Post MRM and BCS (Estimated total Cost: Rs. 12000-15000)

(Cost of drug + admission)

adjuvant chemotherapy now a days also includes herceptin that costs much higher

- NEO-ADJUVANT CHEMOTHERAPY
  Indications: locally advanced, stage 111B
- PALLIATIVE CHEMOTHERAPY
  Indications: Metastatic (Estimated costs for first line Rs.17000-20000, second line Rs.1 lakh and above)

Radiotherapy

- After Breast conservative surgery
- Locally advanced tumors.
- Metastatic lesions.

6.1.3 Referral criteria

Ideally all Cancer Breast Proved cases should be referred to a specialist for initial proper treatment

6.2 Situation II: At a super specialty facility in a metro where higher-end technology and resources are available

As in situation I (6.1) and in addition,

6.2.1 Needle localization and excision biopsy

6.2.2 BCS with SLNB, 4 node biopsy

6.2.3 Modified radical mastectomy with primary reconstruction

6.2.4 Secondary reconstruction

7. Complications

- Cachexia
- Metastasis to Brain, Lung, Liver, Kidney, Bones and other organs/tissues
- Neuropathy
- Mastalgia
- Pleural effusion etc.

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Standard Treatment Guidelines for Lung Cancer

1. Introduction/ Definition/ Description

Lung cancer is one of the commonest malignant neoplasms all over the world. It accounts for more cancer deaths than any other cancer. It is increasingly being recognized in India.

Four major cell types make up 88% of all primary lung cancers

1. Squamous cell = 20-30%
2. Adenocarcinoma = 30-40%
3. Large cell = 10%
4 Small cell = 20%

Remainder include undifferentiated, carcinoids, bronchial gland tumors.

Each different type has different natural histories and responses to therapy.

2. Incidence of the condition

The most common cancer among men is lung & bronchus in Mumbai, Delhi & Bhopal (14.4); stomach cancer in Bangalore & Chennai & hypopharygeal cancer in Barshi. (Indian cancer registry)

3. Differential Diagnosis

- Tuberculosis of lung
- Fungal Infection (Aspergillosis)
- Various causes of pleural effusion

4. Clinical Diagnosis

Majority are symptomatic at presentation (> 85%)

4.1. Symptoms related to lung lesion

4.2. Symptoms from intrathoracic spread

4.3. Symptoms from distant mets

4.4. Symptoms from paraneoplastic syndrome

4.1 Symptoms of lung lesion

- Cough with or without sputum
- Dyspnea
- Hemoptysis
- Chest pain

- Wheezing
- Weight loss

4.2. Symptoms from intrathoracic spread

- Dysphagia
- Pancoast's syndrome
- Hoarseness

4.3 Symptoms of distant mets (may occur in almost every organ system)

- Bone mets (vertebrae, ribs, pelvis most popular)
- Hepatic mets (usually indicate poor prognosis)
- Brain mets (can have Headache, nausea/vomiting, seizures, confusion, personality changes)

4.4 Symptoms of paraneoplastic syndromes

- Production of parathyroid hormone-related peptide (squamous cell)
- SIADH (small cell)
- Ectopic ACTH production (small cell)
- Peripheral neuropathy, cortical cerebellar degeneration, Eaton-Lambert syndrome (small cell)
- Migratory venous thrombophlebitis
- Digital clubbing (non-small cell)
- Hypertrophic palm osteoarthopathy (adenocarcinoma)

4.5 Classification of Lung Carcinoma

4.5.1 TNM Classification in Non small cell lung carcinoma (LSCLC)

T1: < 3cm, surr by lung

T2: > 3cm / main bronchus /visceral pleura

T3: any size / invades chest wall / diaph / mediast pleura / parietal pericard

T4: any size / invades mediastinum /malignant effusion

N1: intrapulm / peribronch / hilar

N2: ipsilateral mediastinal / subcarinal

N3: ipsilateral or contralateral scalene / supraclavic / contralateral / mediastinal / contralateral

M0: No distant mets

M1: Distant mets

4.5.2 Staging in small cell lung cancer

- Limited stage: Disease limited to single hemithorax / encompassable by single radiation port
- Extensive stage: Extrathoracic disease

5. Causes

Causation is linked to many risk factors.

- Cigarette smoking
- Second hand smoke (passive smoking)
- Asbestos
- Radon
- Arsenic
- Ionizing radiation
- Haloethers
- Polycyclic aromatic
- hydrocarbons
- Nickel

6. Management

Treatment options for Lung cancer are dependent on stage of cancer. The treatment options are surgery, chemotherapy (CT), radiotherapy (RT), usually in combination.

- Surgery: Basic principle of surgical management are Lobectomy, pneumonectomy, segmentectomy with a goal to resect all disease and preserve maximum normal lung function
- Palliative interventions: thoracoscopy and pleurodesis; chest tube insertion and pleurodesis; stenting or endobrachial laser
- Treatment goals in unresectable disease are usually palliation/symptom control.
- The other intervention options used may be:
  - Adjuvant treatment with chemotherapy or radiotherapy or both after surgery
  - Neoadjuvant chemotherapy followed by surgery
  - Sequential/ concomitant chemo / radiotherapy combinations
  - Palliative chemotherapy and palliative radiation therapy

Indications of hospitalization:

- For surgical intervention
- For chemotherapy and its complications

6.1 Situation I: At a secondary hospital/ Non-metro situation where technology and resources may be limited

6.1.1 Investigations:

General investigations:

- Hemogram

- Biochemistry
- ECG
- ECHO
- Pulmonary function test
- X rays of suspicious bony lesions
- X-ray chest PA view
- Barium swallow if dysphagia history
- Advanced cardiopulmonary workup before surgery

Pathological diagnosis

- Sputum cytology
- Bronchoscopy with biopsy/ brush cytology
- Bronchoscopy with transbronchial/ transtracheal aspiration
- CT guided FNAC or biopsy
- Mediastonoscopy and biopsy
- Thoracoscopy and biopsy
- Lymph node biopsy from neck or axilla
- Diagnostic thoracoscopy may also be useful for some patients

For staging

- CECT scan thorax/ abdomen
- MRI brain
- Bone scan
- Whole body PET scan is also a very useful investigation.

6.1.2 Treatment

6.1.2.1 Treatment principles NSCLC (Non small cell lung carcinoma)

- **Stage I A & IB**
- Surgery- Thoracotomy, resection, mediastinal lymph node sampling/ dissection
- Post surgery

  +ve margin resection- Concurrent CT+RT

  -ve margin resection- Observe Or Chemotherapy (Category 2b)
- **Stage IIA, IIB (T1-2, N1) or Stage IIIA (T1-2, N2)**
- Surgery- Thoracotomy, resection, mediastinal lymph node sampling/ dissection
- Post surgery

  +ve margin resection- Concurrent CT+RT

  -ve margin resection- Chemotherapy

- **Stage IIB (T3 N0), IIIA, IIIB (T3-4, N1)**
  - Superior Sulcus Tumour-
    - Resectable- Preop Concurrent CT+RT followed by surgery -> Chemotherapy
    - Marginally resectable- preop Concurrent CT+RT-> Reevaluation for surgery
    - Unresectable- Definitive concurrent chemoradiation
  - Chest wall invasion-
    - Surgery (Preferred)-> Chemotherapy
    - Chemoradiation
  - Resectable satellite lesion (Stage IIIB- T4, No-1)
    - Surgery-> Chemotherapy
  - Unresectable IIIB- Chemoradiation
  - Unresectable IIIB- Chemoradiation / Chemotherapy (Pleural effusion)
  - **Stage IV disease**
    - Performance Status 0-2- Chemotherapy/ Immunotherapy
    - Performance status 3-4- Best supportive care
    - palliative RT – selected sites

Unresectable stage III disease: radiation therapy alone or concurrent chemoradiation therapy

Stage IV disease: palliative chemotherapy alone +/- radiation to palliate select sites (i.e. bone, brain)

6.1.2.2 Treatment Principles SCLC (small cell lung carcinoma)

- Extensive stage (extrathoracic / not encompassable by single radiation port): palliative chemotherapy alone with palliative radiation to selected sites.
- Limited stage: Chemoradiation

New : Disease progressed to Ist line treatment: Second line chemo if PS ≤ 2 / Target therapy (Erlotinib)

Prognosis:

NSCLC:

1. Stage at presentation
2. Performance score
3. Weight loss

SCLC:

1. Stage at presentation
2. Performance score
3. Weight loss

4. Elevated LDH
5. Male sex
6. Hyponatremia
7. Elevated alkaline phosphatase

Estimated 5-year survival rates are as follows:

- Stage IA - 75%
- Stage IB - 55%
- Stage IIA - 50%
- Stage IIB - 40%
- Stage IIIA - 10-35%
- Stage IIIB - Less than 5%
- Stage IV - Less than 5%

6.1.3 Referral criteria

Ideally all Cancer Lung established cases should be referred for appropriate treatment to a specialty facility.

6.2 Situation II: At a super specialty facility in a metro where higher-end technology and resources are available

As in situation I (6.1)

7. Complications

- Pleural effusion
- Hemoptysis
- Pneumothorax
- Bronchial obstruction
- Pneumonia
- Pericardial effusion
- Metastasis

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Notes

Standard Treatment Guidelines for Peptic Ulcer requiring hospitalisation

1. Introduction/ Definition/ Description

The term peptic ulcer disease relates to ulcers which develop in the stomach or duodenal mucosa and other ectopic areas vulnerable for acid-peptic digestion. It is secondary to mucosal cell injury resulting from high hydrochloric acid secretion and/or decreased mucosal defence mechanism. Peptic ulcers are of two types, gastric ulcers (GU) and duodenal ulcers (DU).

2. Incidence of the condition

The ratio duodenal ulcer: gastric ulcer was estimated to vary from 0.8:1 in Japan to 19:1 in Africa and as high as 32:1 in India [1]. The male to female ratio also varies geographically, for example from 1:1 in USA to 18:1 in India [2].

There appears to be a change in the prevalence of peptic ulcer now in India, especially in the urban areas. In Chandigarh, the point prevalence of active peptic ulcer was reported to be 3.4% and the life time prevalence 8.8%. The duodenal-to-gastric ulcer ratio is 12:1[3]. As per study by Khuroo et al the point prevalence of peptic ulcer in Srinagar was 4.72% and the lifetime prevalence was 11.22%. The duodenal to gastric ulcer ratio was 17.1:1 [4]. Duodenal and gastric ulcer were common in men. The prevalence of peptic ulcer increased with age, with a peak prevalence of 28.8% in the 5th decade of life [4].

3. Differential Diagnosis

- For both the duodenal and gastric ulcers when present with recurrent episodes of abdominal pain:
- Biliary colic, chronic pancreatitis, subacute intestinal obstruction
- When presenting only with acute abdominal pain
- Billiary colic, acute pancreatitis, hollow viscus perforation, mesenteric ischaemia
- When presenting with haemetemesis
- Portal hypertension with gastro-esophageal variceal bleeding, Mallory-Weiss syndrome, bleeding from benign and malignant tumours of stomach
- When presenting with repeated minor GI bleeding or occult bleeding
- All causes of recurrent GI bleeding

4. Clinical Diagnosis

The most common symptom is abdominal pain which is mainly described as burning though it may be perceived as cutting, lancinating, scalding or dull aching. The pain usually appears on empty stomach, often waking the patient in the early hours of the day and characteristically relieved by ingestion of food in the majority. In patients with severe acute duodenal ulcers and prepyloric ulcers, pylorospasm

may result in vomiting immediately after food. Gastric ulcers tend to occur in relatively older patients and generally above the age of 40 years with equal distribution in both genders. Abdominal pain is the common symptom and unlike the duodenal ulcer it does not have diagnostic characteristics.

Classical historical aspects, presenting complaints and clinical examination are very useful in the diagnosis of peptic ulcer, especially when complications supervene.

5. Causes

- H pylori infection
- Nonsteroidal anti-inflammatory drugs or those using corticosteroids with NSAIDs
- Severe physiologic stress
- Diseases associated with an increased risk of PUD include cirrhosis, chronic obstructive pulmonary disease, Chronic renal failure, and organ transplantation
- It is necessary for either H pylori infection or usage of nonsteroidal anti-inflammatory or both be present to produce duodenal ulcer. In other words, in an endoscopy proved duodenal ulcer, in the absence of NSAID usage, it is safe to assume that the patient has H pylori infection.
- However, no such precondition is applicable for gastric ulcer

6. Management

Indications for Hospitalization

- Acute exacerbation of pain in a known case- for observation and management
- Acute abdominal pain in a patient not previously known to have peptic ulcer – for diagnosis and appropriate therapy
- Upper GI bleeding
- Perforation of peptic ulcer
- Features of gastric outlet obstruction

6.1. Situation 1:

Peptic ulcer and its complications can be managed in most non-metro situations where infrastructure facilities exist.

6.1.1. Investigations: (Based on Clinical Presentation)

- Acute exacerbation of pain in a known case
  - CBC, X-ray chest + abdomen
- Acute abdominal pain in a patient not previously known to have peptic ulcer
  - CBC, X-ray chest + abdomen, USG abdomen, Serum amylase, Upper GI endoscopy with H pylori detection
- Upper GI bleeding
- CBC, Coagulation profile, Upper GI endoscopy with H pylori detection, U/S Abdomen

- Perforation of peptic ulcer
  - CBC, serum electrolytes, Blood urea, creatinine, blood culture, X-ray chest + abdomen, USG abdomen
- Features of gastric outlet obstruction
  - CBC, serum electrolytes, Blood urea, creatinine, USG abdomen, Upper GI endoscopy, barium meal studies

6.1.2. Treatment (Based on Clinical Presentation)

- Acute exacerbation of pain in a known case
  - Observation and management with administration of proton Pump Inhibitors (PPIs)- both oral & parenteral preparations, sucralfate suspension orally, parenteral analgesics if required, IV fluids if oral intake is not permitted or accepted
- Acute abdominal pain in a patient not previously known to have peptic ulcer
  - Once diagnosis of peptic ulcer is made, therapy as shown under 6.2.1.
- Upper GI bleeding
  - Stabilization with IV fluids and blood/ packed cells/ FFP etc
  - Stoppage of aspirins and other anti-platelet agents
  - Detection and correction of coagulopathies, if any
  - Parenteral high dose administration of PPIs
  - Endoscopic diagnosis and control of bleeding with Injection of adrenaline to reduce bleeding from the ulcers, application of thermal probes, clips etc for continued control of bleeding
    - Anti H pylori therapy, if H pylori was tested and found positive in gastric mucosal biopsy
  - In case the bleeding is not controlled by endoscopic methods, or the bleeding site is not seen or there has been a need for > 6 units of blood to maintain homeostasis, or there has been re-bleeding while in hospital, such patients may need surgery as a method to control bleeding. The operative procedure in such case would be duodenotomy/ pylorotomy with under running of the bleeding vessel.
  - Perforation of peptic ulcer
    - Resuscitation, antibiotics, analgesics and preparation for surgery
    - Laparotomy with closure of perforation with or without biopsy with Graham's omental patch
    - Definitive surgery for duodenal ulcer not recommended, but acceptable for gastric ulcer
    - Laparoscopic management of perforation is a viable alternative, if facilities and skill levels exist
    - Institution of anti H pylori therapy in post op period, if H pylori was tested and found positive in gastric mucosal biopsy

- Gastric outlet obstruction
  - Correction of fluid and electrolyte imbalance
  - Ryle's tube aspiration and preparation for surgery
  - Recommended surgery is truncal vagotomy with a drainage procedure- Heinecke- Mickulicz or Finney pyloroplasty or alternatively a gastrojejunostomy
  - Antrectomy not recommended as a definitive surgical procedure for duodenal ulcer, but permissible for gastric ulcer
  - Anti H pylori therapy, if H pylori was tested and found positive in gastric mucosal biopsy
  - Currently there is no definite evidence that endoscopic balloon dilatation has success rates equivalent to surgery, and hence cannot be recommended

6.1.3. Referral criteria for a specialist center if

As peptic ulcer and its complications are manageable in most non-metro situations, the need for referral arises only when the facilities are not available or when endoscopic attempts at control of bleeding have been unsuccessful. In addition, some of these patients with very high risk factor may be referred to a tertiary centre, as adequate ICU care or capability to manage complicated cases may not be available in non-metro situations.

6.2. Situation 2:

Exactly as shown for Situation I. These centers are better suited to manage patients with peptic ulcer especially those with high risk factors or requiring critical care.

6.2.3. Complications

Complications of peptic ulcers may be acute or chronic. The common complication is bleeding from the ulcer which may present as life threatening exsanguinating hemetemesis or as slow bleeding or as recurrent bleeding manifest only as intermittent malena. It is not uncommon for some of these patients to present as GI bleeding without any pain and some ulcers are detected only when a patient is investigated for anemia due to chronic blood loss.

The other acute complication is perforation and such a patient may present with severe excruciating upper abdominal pain. Secondary to perforation of the ulcer there is efflux of gastric and duodenal contents into the free peritoneal cavity causing peritonitis. Such patients exhibit signs of hypovolemia and abdominal signs such as distension, tenderness, guarding and rigidity. A characteristic finding of hollow viscus perforation is the absence of liver dullness on percussion.

Such patients would need immediate admission, resuscitation, correction of fluid and electrolyte disturbances and surgery. Untreated peritonitis may be fatal and in some the infection may be contained by the peritoneal defences as intra-abdominal abscesses.

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Standard Treatment Guidelines for Management of Renal Stones

1. Introduction/ Definition/ Description

A kidney stone is a hard mass developed from crystals that separate from the urine within the urinary tract. Kidney stones may contain various combinations of chemicals. The most common type of stone contains calcium in combination with either oxalate or phosphate. These chemicals are part of a person's normal diet and make up important parts of the body, such as bones and muscles.

Renal stones are commonly found in three different sites

- Kidney
- Bladder
- Ureter

Stones in urinary system almost always develop first in kidney but stones can go and grow in ureter and urinary bladder.

2. Incidence of the condition

- Prevalence 2-3%
- Two to three times more common in males
- More common in adults than in elderly pts and lesser in children
- Climatic factors: Hot , Arid areas and in temperate regions

3. Causes/ risk factors

3.1. Kidney stone:

- Genetic predisposition, underlying metabolic diseases like renal tubular acidosis or hyperparathyroidism and some dietary factors (water fluoridation) have been associated with development of renal stones.
- Hypercalciuria is inherited, and it may be the cause of stones in more than half of patients. Calcium is absorbed from food in excess and is lost into the urine. This high level of calcium in the urine causes crystals of calcium oxalate or calcium phosphate to form in the kidneys or elsewhere in the urinary tract.
- Other causes of kidney stones are hyperuricosuria, which is a disorder of uric acid metabolism; gout; excess intake of vitamin D; urinary tract infections; and blockage of the urinary tract. Certain diuretics, commonly called water pills and calcium-based antacids may increase the risk of forming kidney stones by increasing the amount of calcium in the urine.
- Calcium oxalate stones may also form in people who have chronic inflammation of the bowel or who have had an intestinal bypass operation, or ostomy surgery. As mentioned earlier, struvite stones can form in people who have had a urinary tract infection. People who take the protease inhibitor

indinavir, a medicine used to treat HIV infection, may also be at increased risk of developing kidney stones.

3.2. Ureter stone:

- Majority of Ureteric stones are formed in the kidney and migrate into the ureter
- Ureteric stones may be formed in the ureter secondary to the following:
  - Ureterocele
  - Neoplasms
  - Ureter with blind endings
  - Dilated segments of ureter proximal to stricture

3.3. Bladder stones:

- Primary bladder stones were seen in children. However with the improvement in nutritional status the incidence has decreased
- Secondary bladder stones
  - BPH
  - Bladder neck obstruction
  - Stricture urethra
  - Neurogenic bladder
  - Posterior urethral valves
  - Ureteric stones

4. Differential diagnosis

Symptoms similar to renal colic may be elicited due to non calculus conditions or other causes of abdominal pain, such as appendicitis, cholecystitis, diverticulitis, colitis, constipation, hernias or severe constipation. These conditions should be ruled out.

Uretero or ureteropelvic obstruction may present as renal calculus as well.

In women, ovarian torsion, cyst or ectopic pregnancy should be ruled out. In men testicular inflammation (prostatitis or epididymitis) may mimic the presentation of ureteral stone.

5. Symptoms of urinary stones

Kidney stones often do not cause any symptoms. Usually, the first symptom of a kidney stone is extreme pain, which begins suddenly when a stone moves in the urinary tract and blocks the flow of urine. Typically, a person feels a sharp, cramping pain in the back and side in the area of the kidney or in the lower abdomen. Sometimes nausea and vomiting occur. Later, pain may spread to the groin.

If the stone is too large to pass easily, pain continues as the muscles in the wall of the narrow ureter try to squeeze the stone into the bladder. As the stone moves and the body try to push it out, blood may appear in the urine, making the urine

pink. As the stone moves down the ureter, closer to the bladder, a person may feel the need to urinate more often or feel a burning sensation during urination.

If fever and chills accompany any of these symptoms, an infection may be present, requiring urgent medical attention.

6. Clinical Diagnosis

- Renal Colic
- Hematuria
- Recurrent UTI
- Fever and Sepsis
- Chronic renal failure
- Gastro-intestinal symptoms
- Back ache
- Lower urinary tract symptoms

7. Management / Modalities of treatment

Surgery may not be necessary and most kidney stones can pass through the urinary system with plenty of water.

A simple and most important lifestyle change to prevent stones is to drink more liquids—water being the best. Someone who tends to form stones should try to drink enough liquids throughout the day to produce at least 2 liters of urine in every 24-hour period.

Patients may be told to avoid food with added vitamin D and certain types of antacids that have a calcium base. Someone who has highly acidic urine may need to eat less meat, fish, and poultry. These foods increase the amount of acid in the urine.

To prevent cystine stones, a person should drink enough water each day to dilute the concentration of cystine that escapes into the urine, which may be difficult. More than a gallon of water may be needed every 24 hours, and a third of that must be drunk during the night.

Medical Management

A doctor may prescribe certain medications to help prevent calcium and uric acid stones. These medicines control the amount of acid or alkali in the urine, key factors in crystal formation. The medicine allopurinol may also be useful in some cases of hyperuricosuria.

Doctors usually try to control hypercalciuria, and thus prevent calcium stones, by prescribing certain diuretics, such as hydrochlorothiazide. These medicines decrease the amount of calcium released by the kidneys into the urine by favoring calcium retention in bone. They work best when sodium intake is low.

Rarely, patients with hypercalciuria are given the medicine sodium cellulose phosphate, which binds calcium in the intestines and prevents it from leaking into the urine.

If cystine stones cannot be controlled by drinking more fluids, a doctor may prescribe medicines such as Thiola and Cuprimine, which help reduce the amount of cystine in the urine.

For struvite stones that have been totally removed, the first line of prevention is to keep the urine free of bacteria that can cause infection. A patient's urine will be tested regularly to ensure no bacteria are present.

If struvite stones cannot be removed, a doctor may prescribe a medicine called acetohydroxamic acid (AHA). AHA is used with long-term antibiotic medicines to prevent the infection that leads to stone growth.

People with hyperparathyroidism sometimes develop calcium stones. Treatment in these cases is usually surgery to remove the parathyroid glands, which are located in the neck. In most cases, only one of the glands is enlarged. Removing the glands cures the patient's problem with hyperparathyroidism and kidney stones.

Surgical Management

Surgery may be needed to remove a kidney stone if it

- does not pass after a reasonable period of time and causes constant pain
- is too large to pass on its own or is caught in a difficult place
- blocks the flow of urine
- causes an ongoing urinary tract infection
- damages kidney tissue or causes constant bleeding
- has grown larger, as seen on follow-up x rays

Surgical removal of Stone

- Open Pyelolithotomy involves surgical removal of stones from the renal pelvis via an abdominal incision.
- Percutaneous nephrolithotomy (PCNL) is a surgical procedure by which stones in the kidney or the upper ureter are removed by making a small incision in the flank.
- Extracorporeal shock wave lithotripsy (ESWL) is a non-invasive technique used for the treatment of kidney stones by generation of acoustic shock waves produced outside the body that are focused on the stone via a coupling medium to shatter it to pieces. The pieces are then allowed to pass out naturally through the urinary tract.
- Retrograde intra- renal surgery: involves use of flexible ureteroscope to locate the stone in the kidney, and use of lasers to break stones and baskets and forceps are used to remove the stones
- Laparoscopic surgery: has limited benefit over PCNL. However the role is coming up in many new situations. In carefully selected patients, laparoscopic and endourological techniques can be successfully combined in a one procedure solution that deals with complex stone disease and repairs underlying urinary anomalies.
- Laser lithotripsy: It breaks the stones into smaller pieces and can break all type of stones. It has a low retropulsion risk

8. Indications for surgery

8.1 Indications ESWL

- Kidney are functioning well
- Absence of obstruction
- Stone burden< than 2 cm
- Superior and middle calyceal stones
- or Mixed uric acid stones
- Favorable anatomy allowing easy passage of stone particles

Note: *Stones in upper ureter may be pushed back into the kidney by a ureteroscope and subjected to ESWL. Repeated ESWL interventions may be indicated for larger stones.* [2]

Failure of ESWL may require alternative treatment SOS, like PCNL

8.2 Indications PCNL

- Large stones (bigger than 2 cm)
- Staghorn calculus or Anatomic abnormalities like horse shoe kidney, calyceal diverticulum, scoliosis etc.
- Stones unresponsive to ESWL
- More radio-opaque(hard) stones
- Coexisting obstructive uropathy

8.3 Indications Open pyelolithotomy

- Large stones that are inaccessible to ESWL or PCNL or failed ESWL or PCN leading to conversion to open pyelolithotomy
- Obstruction with impending parenchymal renal loss

· In presence of morbid obesity

9.1 Situation 1:

9.1.1 Investigations

- Urine analysis and urine culture
- Plain X ray KUB
- Abdominal ultrasonography

9.1.2 Treatment:

Diagnosis

- Conservative management
- Referral
- Surgical intervention (if skills/ resources available)

9.1.3 Referral criteria to a specialist centre if:

- Surgical indications met for PCNL or ESWL surgical intervention
- For optimal investigation and management

9.2 Situation 2:

9.2.1 Investigations:

9.2.1.1 Routine Investigations:

- Urine analysis and urine culture
- Abdominal ultrasonography:

Note: *accessible, sensitive investigation (detects renal calculi and hydronephrosis) although limited application for ureteral stone.*

- Plain X–ray abdomen KUB: Detects the size and location of calcium containing stones but may not show pure uric acid, cystine magnesium ammonium phosphate stones or stones over bones

9.2.1.2 **Additional investigations** (with specific indications)

- Intra-venous pyelogram
- Retrograde Ureterography (if ureter can not be seen on IVP)
- Helical CT scan (Sensitivity 95-100%, Specificity 94-96%)
- DTPA Scan
- DMSA Scan
- MRI Scan

9.2.1.3 Pre Operative-Investigations:

- Hemogram
- Blood Sugar
- Blood Urea
- Serum Creatinine
- Sodium & Potassium
- ECG
- CXR
- BT-CT
- Platelet count

A physician consultation for older patients, patients with history of diabetes, hypertension, asthma, IHD or other medical co-morbidity for fitness to a procedure/surgery is recommended.

9.3 Admission criteria:

Surgical intervention confirmed and indicated

Pre-operative care

Urine C/S and Antibiotics especially for Staghorn Renal Stones

10. Post Operative Care

Antibiotics, pain management and drainage monitoring.

Prevention of renal stones: A person who has had more than one kidney stone may be likely to form another; so, if possible, prevention is important. To help determine their cause, the doctor will order laboratory tests, including urine and blood tests. The doctor will also ask about the patient's medical history, occupation, and eating habits. If a stone has been removed, or if the patient has passed a stone and saved it, a stone analysis by the laboratory may help the doctor in planning treatment.

The doctor may ask the patient to collect urine for 24 hours after a stone has passed or been removed. The collection is used to measure urine volume and levels of acidity, calcium, sodium, uric acid, oxalate, citrate, and creatinine - a product of muscle metabolism. The doctor will use this information to determine the cause of the stone. A second 24-hour urine collection may be needed to determine whether the prescribed treatment is working.

11. Complications

11.1 Complications of ESWL

- Renal / ureteric colic due to passage of stone fragments or Steinstrasse (column of stone fragments in the ureter)
- Urinary tract infection or Hematuria
- Renal parenchymal damage or Obstructive uropathy
- Surrounding organ injury such as lung contusion, pancreatitis, splenic hematoma, intestinal injury etc.

11.2 Complications of retrograde intra renal surgery

Reported complications are minor.

- Postoperative colic rates are reported in 3.5-9%. Postoperative pyelonephritis and gross hematuria, occur in less than 3% of the cases.
- Major complications are extremely rare. Major perforation is reported in approximately 1% of the cases. The risk of postoperative stricture of the ureter is under 1%

11.3 Complications of open surgery

- Superficial wound infection
- Urinary tract infection or Pyelonephritis
- Retained stone fragments or obstruction
- Ureteral / renal pelvic scarring
- Urine leak or urinary fistula (to skin or bowel)
- Bleeding or Arteriovenous malformations
- Injury to pleura or lung with pneumothorax

11.4 Complications of PCNL

- Septicemia
- Hemorrhage which may require blood transfusion(s)

- Retained Stone Fragments
- Hemopneumothorax

11.5 Complications of laparoscopic surgery

Similar to any other laparoscopic surgery

11.6 Complications of laser lithotripsy

- Bleeding (1-10%).AV fistula or pseudo-aneurysm requires emergency embolization <0.5%
- Pneumothorax or pleural effusion (4-12%)
- Injury to colon or spleen
- Fluid absorption
- Infection and septicemia

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13. Additional Information

Significant costs for high end equipment and its maintenance required for Laser surgeries

- Cost of laser machine is approximate Rs 30 lacs
- Laser fiber Rs 25000 to 35000/
- Life of laser fiber 10 - 15 cases
- AMC 1.5 TO 2.0 LAC Rupees

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Standard Treatment Guidelines for Tonsillectomy

1. Introduction/ Definition/ Description [1]

Tonsillectomy is a surgical procedure in which the tonsils are removed. Sometimes the adenoids are removed at the same time (adenoidectomy). If adenoids are enlarged or become a source of infection or for the treatment of secretary otitis media.

2. Incidence of the condition

Tonsillectomy used to be the most commonly performed surgical procedure in the world, however today its incidence has fallen drastically. Its incidence in tier 1 & 2 cities is, however, different from its incidence in metro cities. Tonsillectomy may or may not be combined with adenoidectomy.

3. Causes/ risk factors [1,2,3]

Usually results from Streptococcus ("strep throat"), but some may be due to other bacteria, such as Staphylococcus, or viruses. Recurrent infection may cause enlargement and hypertrophy of tonsil glands and persistent lymphadinopathy.

Most surgeries are performed in children although they may also be conducted in adults .

The incidence of tonsillectomy is reducing both due to better medical management and stringent criteria developed for surgical intervention.

4. Differential diagnosis [1,2,3]

Differential Diagnosis of tonsillitis would involve eliminating other causes of sore throat or recurrent infections:

- Lymphomas of the Head and Neck
- Malignant Tumors of the Tonsil
- Other reasons of chronic or recurrent throat infections:
- Pharyngitis
- Gastroesophageal reflux disease (GERD)
- Obstructive sleep apnea
- Leukemia
- Fungal infections

5. Clinical Diagnosis [1]

Clinical examination will include examination of signs of infection, abcess and airway compromise. Detailed history taking of recurrent attacks of Acute Tonsillitis and treatment response. The symptoms of acute tonsillitis include sore throat, fever and painful swallowing. In cases of chronic tonsillitis, cardinal signs of the same viz. pus in the crypts, flushing of pillars, enlarged tonsillar lymph nodes. In cases of OSA gross hypertrophy is seen.

6. Indications for surgery

- Recurrent attacks of acute tonsillitis, this is a cause for a lot of subjectivity.
- Gross enlargement causing symptoms
- As part of another procedure such as UPP for snoring / obstructive sleep apnoea.
- Secretory Otitis Media
- Attack of Acute tonsillitis with acute otitis media
- Suspected growth/Unilateral Enlargement of Tonsils
- Cysts
- Tonsillolith
- Quinsy

The indications have certain element of subjectivity. The most common indication is chronic and recurring attacks (more than 3 episodes in a year, presence of sleep apnea 4)

7. Management

As of now enough reports do not exist so as to indicate the superiority of one technique over another.

In view of this there is no need for differential pricing for different techniques in tonsillectomy. Surgical and anesthetic facilities with appropriate surgical experience are prerequisite to surgical intervention.

7.1. Situation 1

7.1.1. Investigations [1,2]

CBC, Urine, PT,PTT, Blood Sugar, Blood Urea, ECG, X-Ray Chest or further investigations as per the institutional protocols/requirement in a particular patient.

7.1.2. Treatment: [1,2]

1 Diagnosis

2 Medical treatment

3 Analgesics/ Antipyretics/ Antiinflammatories

4 Antibiotics

5 Referral for surgery (if surgical facilities not available)

7.1.3. Referral criteria to a specialist centre if: [4]

1 High risk patients (low body weight, failure to thrive and severe obstructive sleep apnea)

2 Very young patients with obstructive sleep apnoea, who may require post operative intensive care.

3 Clinical suspicion of neoplasm

4 Poor response to medical treatment

7.2. Situation 2:

7.2.1. Investigations:

Clearance to undergo surgery from physician/paediatrician

Standard Treatment Guidelines

Pre anesthetic checks

7.2.2. Additional investigations (with specific indications) [1,4]

- Coagulation profile *(if bleeding disorder suspected)*
- CT/ MRI *(if cancer is suspected)*
- Blood urea, Urine R&M, Blood sugar, ECG *(if comorbidities/ risks suspected)*

Note: Biopsy is not essential except when suspecting a tumor

7.2.3. Treatment:

Surgical removal with or without adenoidectomy if indications met.

7.2.3.1. Procedures for Tonsillectomy: [4]

- Dissection - Removal of the tonsils by use of a scalpel or dissector is the most common method. The tonsils are completely removed under general anesthesia with minimal post-operative bleeding.
- LASER - Laser tonsil ablation (LTA) uses a hand-held CO2 or KTP laser to vaporize and remove tonsil tissue.
- Radio Frequency - Monopolar radiofrequency thermal ablation transfers radiofrequency energy to the tonsil tissue through probes inserted in the tonsil.
- Coblation - This mechanism can be used for removal of all or only part of the tonsil using ionic dissociation.
- Endoscope Assisted Adenoidectomy
- Microdebrider- removal of enlarged tissue using a powered rotary shaving device with continuous suction

7.3. Admission criteria: [1,4]

While some patients can be discharged as a day patient, an overnight admission is preferred in young patients. Two nights may be indicated for high risk patients, very young patients and in case of post operative complications.

8. Post Operative Care [1,4]

Pain management, infection control and gradual return to normal diet

9. Complications [1,2,3,4]

Hemorrhage, pain, respiratory distress or dysphagia

10. References

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Standard Treatment Guidelines for Typhoid and Parartyphoid Fevers requiring hospitalisation

1. Introduction/ Definition/ Description

Enteric fever or typhoid fever is a communicable disease, found only in humans and includes both typhoid fever caused by S.Typhi and paratyphoid fever caused by S.Paratyphi A, B and C . It is a bacteremic condition affecting the reticulo endothelial system, intestinal lymphoid tissue, and the gall bladder. It may also occasionally affect organs like heart, nervous system, kidney, eyes etc.

2. Incidence of the condition

- The incidence of this disease in UK is reported to be just one case per 1, 00,000 population.
- The mean incidence of typhoid fever in developing countries is estimated between 150 cases/million population/year in Latin America to 1000cases/million population/year in some Asian countries.
- This disease is endemic in India with a tendency for outbreaks. Studies in this millennium for all age groups indicate an incidence of between 136 to 241 per 100,000 population.
- Case fatality rate due to typhoid has been varying between 1.1% to 2.5 % in last few years.
- Recent studies suggest that the disease is not uncommon even in infants and toddlers. Among childhood typhoid cases upto 40% cases may be occurring in children below 5 year of age.

3. Differential Diagnosis

- Malaria
- Hepatitis
- Bacterial Enteritis
- Dengue
- Leptospirosis
- Ricketsial Infections
- Tuberculosis
- Fever Of Unknown Origin

4. Clinical Diagnosis

- Patient presents with high grade fever lasting more than 5-7 days with abdominal pain (20-40%) with or without diarrhea and /or constipation.
- Relative bradycardia, unexplained deterioration of consciousness, mild jaundice may also be present.

- Skin rash with fever may be presented in about 30% of Patients, sometimes lower gastrointestinal bleed may occur.

The pattern of fever is classic step ladder fashion as described below:

First week: The disease classically presents with step-ladder fashion rise in temperature (40 - 41°C) over 4 to 5 days, accompanied by headache, vague abdominal pain, and constipation.

Second week: Between the 7 th -10 th day of illness, mild hepato-splenomegally occurs in majority of patients. Relative bradycardia may occur and rose-spots may be seen.

Third week: The patient will appear in the "typhoid state" which is a state of prolonged apathy, toxaemia, delirium, disorientation and/or coma. (“enteric encephalopathy”) Diarrhoea will then become apparent. If left untreated by this time, there is a high risk (5-10%) of intestinal hemorrhage and perforation.

Typhoid fever may present as Clinical Syndromes

- Enteritis (acute gastroenteritis)
- Enteric fever (prototype is typhoid fever and less severe paratyphoid fever)
- Septicemia (particularly S. choleraesuis, S. typhi, and S. paratyphi)
- Asymptomatic carriage (gall bladder is the reservoir for Salmonella typhi)

Diagnostic criteria

- Clinician's analysis of interpretation and test results is the key
- Two strong indicators of Typhoid fever may be:
  - Leucopenia 15-25%
  - Elevated liver enzymes
- Serological tests like Widal. Results of Widal test needs to be carefully interpreted. Rsing titre in repeat Widal is the most reliable positive test. Widal test may be negative in 30% culture positive patients.

5. Causes

It is a disease of poor environmental sanitation and hence occurs in parts of the world where water supply is unsafe and sanitation is substandard. Contaminated food supplies like poultry etc may be major source of Salmonella outbreaks.

It is linked with various risk factors like work or travel to areas where typhoid fever is endemic, weakened immune system by systemic diseases (e.g. HIV/AIDS) or prolonged use of steroids.

6. Management

- Study from Safdarjung hospital, Delhi shows that 71% can be managed on OPD basis
- Most studies show that defervescence of fever can take 5-7 days after admission
- Can be managed where technology and resources are limited

Indications for hospital admission:

- Fever > 101 degree F for more than 5-7 days despite antibiotics on an OPD basis
- Marked toxemia
- If not responding to outpatient treatment
- Need for ICU management
- Evidence of Complication like GI perforation, GI hemorrhage, Myocarditis, encephalopathy etc.

6.1. Situation 1:

Typhoid and Paratyphoid fevers can be first managed on outpatient basis.

6.1.1. Investigations:

Routine investigations:

- All routine blood tests SGOT,SGPT
- Investigations to rule out malaria, dengue and hepatitis
- Serology and cultures to confirm diagnosis
  - Blood culture is the gold standard for diagnosis
  - Widal test and blood c/s for < 10 days of fever
  - Stool & Urine c/s for IIIrd – IVth wk of fever

Xray Chest and abdominal USG may be occasionally required to exclude other causes and to look for abdominal complications.

- A combination of investigations are important to identify the disease as different tests may have higher sensitivity / specificity at different stages of typhoid fever:
  - Blood culture-high yield in first week (70-80%)
  - Widal agglutination reaction of the serum raised in second week
  - Stool and urine culture-third week (45-75%)
- Rapid serological test for diagnosing Typhoid (comparatively less reliable)– options available -
  - **Typhidot** test that detects presence of IgM and IgG in one hour (sensitivity>95%, Specificity 75%)
  - **Typhidot**-M that detects IgM only (sensitivity 90% and specificity 93%)
  - **Typhidot** rapid (sensitivity 85% and Specificity 99%) is a rapid 15 minute immunochromatographic test to detect IgM.
  - **IgM dipstick test**

6.1.2. Treatment

- **General:** Supportive care includes
  - Maintenance of adequate hydration.
  - Antipyretics.

- Appropriate nutrition.

- **Specific:**
  - Antimicrobial therapy is the mainstay treatment. Selection of antibiotic should be based on its efficacy, availability and cost.
  - Chloramphenicol , Ampicillin , Amoxicillin , Trimethoprim & Sulphamethoxazole, **Fluroquinolones** (choice)
  - In case of quinolone resistance – **Azithromycin, 3rd generation cephalosporins (ceftriaxone)**

Antibiotic therapy for enteric fever in adults*

- Empirical treatment-
  - Ceftriaxone,2gm /day for 7-14 days
  - Azithromycin ,1gm/day for 5 days
- Fully susceptible-
  - Ciprofloxacin , 500 mg BD for 5-7 days or
  - Amoxicillin,1gm tid, orally or 2gm,6hrly for 14 days or
  - Chloramphenicol, 25mg/kg tds for 14 days or
  - Trimethoprim-sulfamethoxazole, 160-800 mg BD orally for 14 days
- Multidrug resistant-
  - Ciprofloxacin**, 500 mg BD for 5-7*** days or
  - Ceftriaxone, 2-4 gm/day for 7-14* days or
  - Azithromycin, 1 gm/day for 5 days may be added if not responding to first line(flouroquinolones)
- Nalidixic acid resistant-
  - Ceftriaxone ,1-2 gm/day for 7-14 days
  - Azithromycin, 1 gm/day for 5 days
  - High dose Ciprofloxacin, 750 mg BD/day for 10-14 days

*For Children, same antibiotics in appropriate doses may be used. Fluoroquinolones should be avoided as far as possible except in life threatening situation.

** Other fluoroquinolones like Ofloxacin, Peflox etc can also be used

***Duration of treatment may be longer if the patient takes longer to respond. Generally it may be wiser to give antimicrobial for 5-7 days after the patient becomes afebrile.

Outpatient treatment

- Ciprofloxacin 750 mg bd* 10 days,

- Cefixime/Cefuroxime 200 mg bd* 7-10 days

Inpatient management

Antibiotics on admission

- Ceftriaxone 2g I/u b.d * 5-7 days
- If no response in 72 hrs, Add
  - Amikacin
  - Chloramphenicol
  - Azithromycin
- May be guided by c/s reports
- Resistance to quinolones and even third generation cephalosporins is being increasingly recognized necessitating use of amikacin and chloramphenicol

6.1.3. Referral criteria for a specialist center if:

Referral criteria for tertiary centers

- Poor response to treatment
- For further investigations in case of complications
- Complications like pancreatitis, encephalopathy, perforation, renal failure and persistent fever may warrant the need of I.C.U setting
- To manage complications

6.2. Situation 2:

6.2.1. Investigations:

All investigations as highlighted in situation 1 and special investigations described below.

6.2.2. Special Investigation

- Bone marrow culture-highly sensitive despite antibiotics (85-95%)
- Polymerase chain reaction (PCR) can be performed on peripheral mononuclear cells. The test is more sensitive than blood culture alone (92% compared with 50-70%) but requires significant technical expertise

Additional investigations to monitor complications

- CT-Scan /MRI Brain and lumbar puncture may be required to rule out other causes of encephalopathy
- Colonoscopy may be required in Lower GI bleeding
- CT-scan Abdomen may be indicated for complications like Pancreatitis

6.2.3. Treatment:

- In addition to treatment described in situation 1
- Oxygen therapy, IV fluids and electrolyte replacement or blood transfusion as indicated
- Surgical review if complications
- Parenteral antibiotics Ceftriaxone 2g I/u b.d * 5-7 days

If no response in 72 hrs, add

- Amikacin
- Chloramphenicol
- Azithromycin
- High dose steroids (dexamethasone-3mg/kg single dose followed by 8 doses of 1mg/kg given every six hours) may be given in enteric encephalopathy
- Appropriate radiological and surgical intervention will be required in pancreatitis, perforation and osteomyelitis
- Additional CT / MRI investigations may be indicated in cases of pancreatitis/ encephalopathy
- Colonoscopy may be indicated for LGI Bleed
- Hepatic abscesses may need drainage
- Chronic carriers will require six weeks of quinolones or ampicillin/amoxycillin
- Cholecystectomy will be required in patients with gall stones

6.2.4. Complications

- Pancreatitis, encephalopathy, perforation, renal failure, hepatic abcess, LGI Bleed, cholecystitis and persistent fever
- Rare complications (30%): Typhoid hepatitis, Empyema, Osteomyelitis, pancreatitis, myocarditis, endocarditis, pericarditis, arthritis, orchitis, parotitis, splenic abscess and Psychosis.
- Relapse rate is 10% after 2 weeks of termination of fever
- 2-5% patients may become Gall-bladder carriers

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8. Additional Information

Emerging trends for Immunization against typhoid.

- Live oral attenuatedTy21a vaccine-given as a capsule on day 1,3 and 5 before meals
- Purified Vi polysaccharide vaccine as a single injection given at or after 2 years of age. To be repeated every three years.
- Both offer 65-75% immunity and require booster after 3 years
- Ty21a attenuated S.typhi vaccine has been found to decrease the incidence of typhoid fever by 493.5/1,00,000 person years in Calcutta

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Standard Treatment Guidelines for Ischemic Stroke

1. Introduction/ Definition/ Description:

- Ischemic stroke is defined as occurrence of focal neurological symptoms due to obstruction of blood supply to brain
- TIA (transient Ischemic attack) is defined occurrence of focal neurological signs and symptoms with symptom duration < 1 hour

2. Differential Diagnosis

- Craniocerebral / cervical trauma
- Meningitis/encephalitis
- Intracranial mass/ Space Occupying Lesion
- Seizure with persistent neurological signs
- Migraine with persistent neurological signs
- Metabolic disorders like
  - Hyperglycemia (nonketotic hyperosmolar coma)
  - Hypoglycemia
  - Drug/narcotic overdose

3. Management

Goals of therapy

- Observe changes in clinical status which may require urgent medical/surgical interventions
- Facilitate medical/surgical interventions to improve neurological outcome
- Begin measures to prevent complications
- Rehabilitation
- Secondary prevention of stroke

3.1. Situation 1:

Minimum requirement at admitting centre have been identified and described in point 8. Some patients may require specialist care, ICU or HDU.

3.1.1 Reasons for hospitalization

- Admission to Hospital
- 25% patients may worsen suddenly in first 48 hours
- Difficult to predict which patients will deteriorate
- So all patients should be admitted to the hospital

Admit Where

- Admit stroke patients to stroke unit where available, in absence of stroke unit admit HDU
- Admission to stroke units increases independent survivors (6%) and decreases mortality by 3% and nursing home care 3%
- Some patients with impaired sensorium/ large strokes/ accelerated hypertension may require admission to ICU

3.1.2. Investigations:

3.1.2.1 Brain Imaging

- Non contrast CT head is the first and foremost test required to establish the diagnosis of stroke if MRI imaging is not available / cannot be done rapidly and reliably
- MRI wherever available is better in stroke evaluation than CT and diffusion and gradient ECHO imaging should be apart of all stroke MRI protocols
- However it should not preclude emergent treatment

3.1.2.2 Ancillary tests (All patients)

- Duplex sonography/ MR angiography : MR angiography is better as it evaluates intracranial vessels and vertebrobasilar system
- ECG/ Trans thoracic ECHO
- Blood Glucose
- Serum electrolytes
- KFT
- CBC
- PT, APTT

3.1.2.3 Ancillary tests (Selected patients, where indicated)

- Pregnancy test
- LFT
- Toxicology
- Alcohol
- ABG
- Chest X ray
- LP if infection/SAH suspected
- EEG if seizures occur

3.1.3 Medical management

3.1.3.1 Management :Airway

- Intubation is required if airway threatened, diminished gag, raised ICT .
- Intubation means 50% 30 day mortality
- Oxygen inhalation; Only if hypoxia is documented, routine use not indicated

- Pulse oximetry maintain saturation > 95%
- Hyperbaric oxygen in air embolism , decompression sickness

3.1.3.2 Fever

- Treat Fever with antipyretics round the clock , cooling
- May be found in upto 25% patients
- Investigate the cause
- Hypothermia Benefit is questionable moderate hypothermia may be used in selected patients with raised intracranial pressure Routine use not recommended

3.1.3.3 Cardiac Monitoring

- Arrythmia and myocardial infarction can occur as complications of stroke
- Atrial Fibrillation and MI are also a cause of stroke
- Monitoring cardiac rhythm is useful

3.1.3.4 General Care

- Bed rest
- Check BP, vitals , neurological status
- Once stable Mobilisation
- Alimentation
- Maintaining nutrition improves outcome
- Many patients may not be able to swallow' due to large stroke, brainstem stroke
- Drowsiness, impaired orolabial closure, high stroke severity score , may require Ryle's tube medication/ feeding
- In long term PEG may be better than Ryle's tube.
- Parentral nutrition not routinely indicated

■ Arterial Hypertension

- BP Systolic < 220/ diastolic < 120 observe .Treat agitation , pain retention , hypoxia, raised ICT hypoglycemia
- If target organ damage , aortic dissection, MI, pulmonary odema, hypertensive encephalopathy treat .
- Sytolic >220/diastolic > 120 treat with labetalol/ nicardipine / nitroprusside
- Diastolic > 140 use nitroprusside

■ Arterial hypotension

- Causes : MI , arrythmia , decreased oral intake , drug induced , aortic dissection
- Correct cause , use i/v fluids
- Vasopressors
- Augmentation of BP as a routine in hypotensive patients does not show clear efficacy so not recommended routinely

- Hypoglycaemia
  - Avoid hypoglycaemia
  - Avoid only dextrose containing fluids
  - Use insulin to titrate blood sugars
- Rehabilitation
  - Physiotherapy, occupational therapy , mobilisation are important cornerstones of therapy
- Prevent DVT/Pulmonary Embolism
  - 10% deaths due to pulmonary thromboembolism. 1% patients may have PE
  - 1/3 patients may have some thrombosis in proximal veins
  - Anticoagulation with LMWH/unfractionated heparin at preventive doses is useful to prevent DVT in immobilized patients.
  - Aspirin and stockings may be useful
- Infection
  - Pneumonia; in all patients who develop fever CXr Pa view is to be done. Treat early with antibiotics
  - 5% patients specially ones catherized may develop UTI
  - Avoid catheterisation, anticholinrgics may be used, CIC may be used

3.1.3.5 Stroke specific interventions :

- Intravenous Thrombolysis
- Standard of care for acute ischemic stroke in eligible patients
- Thrombolysis with i/v TPA (0.9mg/kg over 1hour) (NINDS)
- 3-4.5 hours 50% increase in independent functioning (ECASS 3)
- Streptokinase contraindicated
- Other agents are under investigations
- All patients within time window of upto 4.5 hours should be proactively transferred to a centre where thrombolysis can be done
- Careful selection of patients according to NINDS protocol important
- Needs Experience, expertise imaging facilities and readily available TPA with predefined protocol

- Intrarterial Thrombolysis
  - Useful for selected patients with ICA/ MCA large artery stroke (prourokinase)
  - Time window upto 6hours with diffussion /perfusion mismatch on MRI
  - Limitations are small time window and logistics of organizing cath facility in the same
  - Intrarterial thrombolysis should not preclude I/v thrombolysis where indicated.

- Anticoagulation
  - Unfractionated Heparin did show benefit in reducing the severity but increased bleeding negated this benefit
  - Low molecular weight heparins are not found useful even in cardioembolic strokes
  - Urgent anti coagulation is not recommended
- Antiplatelet Medication
  - Aspirin is the only proven antiplatelet agent in acute stroke so should started within 24-48 hours of onset .
  - 4Clopidogrel, dypiridamole , ticlopidine abxicimab not proven to be efficacious
  - Volume expansion and haemodilution
  - Use of colloids / dextrans rheological agents currently not proven to be useful
- Neuroprotective agents
  - Most neuroprotective agents not found useful
  - Citicholine is the only neuroprotective agent that shows some benefit in poled data analysis
  - May be used but confirmatory robust data for efficacy lacking
- Prevent DVT/Pulmonary Embolism
  - 10% deaths due to pulmonary thromboembolism . 1% patients may have PE
  - 1/3 patients may have some thrombosis in proximal veins
  - Anticoagulation with LMWH/unfractionated heparin at preventive doses is useful to prevent DVT in immobilized patients.
  - Aspirin and stockings may be useful
- Infection
  - Pneumonia ; in all patients who develop fever CXr Pa view is to be done. Treat early with antibiotics
  - 5% patients specially ones catherized may develop UTI
  - Avoid catheterisation, anticholinrgics may be used, CIC may be used

3.1.3.6 Acute neurological complications

- Brain odema and raised ICT
  - Peaks at 3-5 days
  - Upto 20% patients may develop significant odema
  - Restrict fluids , avoid plain dextrose
  - Raise head end
  - Hyperventilation , osmotic diuresis with mannitol/glycerol may be used
  - Steroids not recommended
  - Barbiturates may be used

- Raised ICT
  - Extravenricular drainage if acute hydrocephalus
  - Hemicraniectomy for malignant MCA infarcts
  - Ventriculostomy and suboccipital craniectomy in cerebellar strokes
- Seizures
  - 4-43% patients
  - within 24 hours mostly
  - Intermittent seizures do not worsen prognosis
  - Status epilepticus may
  - Routine prophylaxis not recommended
  - Haemmorhagic transformation
  - May occur in 5% patients on CT
  - Treatment guided by size and location of hemorrhage

3.1.3.7 Secondary prevention

- Hypertension
  - Lowering of BP by 10/5 mm HG is useful in all patients
  - Target 120/80
  - Lifestyle modifications
  - Antihypertensives: mainly ACE inhibitors and diuretics
- Diabetes
  - Optimal control of blood sugar
  - Target HbAIC , 7%
  - Use ACE and diuretics for BP
- Cholesterol
  - Target LDL , 100mg/dl in most patients and 70mg/dl in high risk patients
  - Triglycerides maintain < 200mg/dl
  - Diet and statins
  - Low HDL cholesterol target >35 : Niacin , gemfibrozil
  - Triglycerides ; Fibrates, Ezetimibe
- Hyperhomocysteinemia
  - Supplementation with B vitamins folate, pyridoxine , B 12 may be used in view of their safety to lower homocysteine
- Lifestyle Modification
  - Physical exercise
  - Diet
  - Smoking cessation

- Alcohol
- Control of obesity

3.1.4 Surgical management

- **Carotid endartrectomy, angioplasty EC/IC bypass**
  - Not proven to be useful
- **Hemicraniectomy**
  - Hemicraniectomy is removal of bone flap to allow brain to expand
  - Found to be useful in large malignant MCA infarcts specially non dominant side.
  - May decrease mortality and morbidity
- **Endartrectomy and stenting in Internal carotid artery stenosis**
  - Symptomatic disease in ICA 70-99% stenosis (within 6 months) Carotid Endartrectomy/ stenting is recommended
  - Moderate stenosis (50-69%) it is recommended in certain patients
  - >50% stenosis surgical intervention is not recommended
  - Early intervention , less then 2weeks is better
  - Symptomatic vertebro basilar disease may be treated with endovascular treatment
  - Intracranial disease the benefit is questionable in general may be dependent on patient factors

3.1.5 Specific indications for pharmacotherapy

- Anticoagulation
- Atrial fibrilation
- Acute MI with LV thrombus
- Mitral stenosis
- Cardiomyopathy
- Prosthtic heart valves
- Antiplatelet with aspirin may be added if recurrent strokes

- **Antiplatelet Therapy**
  - Aspirin 50-325 mg/day is treatment of choice
  - Aspirin with sustained release dypiridamole may be more efficacious and equally safe
  - Clopidogrel is as safe as aspirin and slightly more efficacious
  - Combination of clopidogrel and aspirin is not recommended due to increased risk for hemorrhagic complications

3.2 Complications

- Brain edema

- Seizures
- Bed sores
- Deep venous thrombosis
- Clinical depression

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5. Key conclusions

- All patients should be admitted
- Urgent Brain imaging is corner stone of stroke evaluation .
- MRI brain better though non Contrast CT is useful
- Intravenous Thrombolysis is standard of care in acute stroke upto 4.5 hrs
- Intraarterial Thrombolysis is useful in selected large artery strokes in less than 6 hours
- Aspirin is drug of choice and only approved antiplatelet agent in acute stroke
- Routine use of anticoagulation with heparin/LMWX is not indicated
- Blood pressure control to very low levels is not required
- Supportive care like oxygenation , management sugars , temperature , nutrition cannot be overemphasized
- Urgent surgical therapies are not useful apart from hemicraniectomy , EVD for hydrocephalus
- Utility of rehabilitation and team work cannot be over emphasized

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Standard Treatment Guidelines

Annexure

Concept of Reserved Antibiotics/ Restricted Antibiotics

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Introduction

The FICCI STGs recommend a restricted antibiotic policy as an important strategy primarily aimed at reducing irrational or injudicious use of antibiotics and the consequent costs in terms of antibiotic resistance and higher cost of treatment. The group was concerned that antibiotic resistance and the cost of treatment has been growing recently because of: injudicious use of newer generations of antibiotics, which are also fairly expensive.

Description

- Restricted antibiotics are those antimicrobial agents, which should not be routinely used and which are restricted to be used in the empirical therapy of any infection.
- The purpose of enlisting such restricted antibiotic is to keep certain antibiotics in reserve only to be used in case of proven resistance to other available options, and where culture and cross sensitivity reports are positive for that specific antibiotic.
- These restricted antibiotics are mainly the newer molecules in the market and certain old molecules which have been specified for certain specific uses only.

Objectives

- Improve patient care by promoting the best practice in antibiotic prophylaxis and therapy
- Reduce the rise and spread of multiple antibiotic-resistant bacteria
- Optimize the use of resources
- Improve understanding of healthcare providers by providing guidelines for appropriate therapy.
- Prevent the use of unnecessary or ineffective antibiotics and restrict the use of expensive or unnecessarily powerful ones.

The list of 'Reserved Antibiotics' or 'Restricted Antibiotics' are enclosed in this document for reference in annexure 1.

Implementation: It is proposed to implement the Restricted Antibiotics concept on a self-certification basis. Thus, a physician will need to fill out a prescribed format and provide due justification for his decision of prescribing any of the antibiotics on this list by completing the request form attached in annexure 2 which will also be enclosed with the claim documents. While such a format will not specifically require prior approval of

the insurer or the TPA, the same is subject to review by medical audit and monitoring purposes. It is expected that the onus of providing a justification will itself minimize the injudicious use of these antibiotics.

We recommend that hospitals adopt the use of this format as a standard practice even for patients who are not paying through insurance.Annexure I A

Reserve antibiotics list

The following drugs are the recommended antibiotics listed as 'Restricted antibiotics'. The list can be updated from time to time based on industry inputs and newer antibiotics being launched.

The following drugs should not be used routinely and if any of these drugs are prescribed, a justification is required by using the request form in annexure 2.

1. Amphotericin-B
2. Artesunate
3. Aztreonam
4. Caspofungin
5. Colistin
6. Ertapenem
7. Fluconazole
8. Imipenum
9. Linezolid
10. Meropenum
11. Piperacillin + Tazobactam
12. Polymyxin B
13. Teicoplanin
14. Tigecycline
15. Vancomycin,
16. Voriconazole

Suggested Requisition Format

Hospital Name . . . . . .

Prescribing Doctor's Name . . . . . .

Prescribing Doctor's Registration Number: . . . . . .

Date:. . . . . .

Patient Name/ Patient ID: . . . . . .

1. **Probable Site of Infection**

☐ Blood Stream

☐ Respiratory

☐ Urinary

☐ Any other. . . . . .

2. Specific Indication:

☐ Prophylactic

☐ Empirical

☐ Culture based

☐ Other . . . . . .

3. Name of antibiotic prescribed, dosage and duration:

No.	Name of Antibiotic	Dosage	Duration

4. Clinical justification:

. . . . . .

. . . . . .

. . . . . .

Annexure :
TEMPLATE FOR DEVELOPMENT OF STGs

1. WHEN TO SUSPECT/ RECOGNIZE?

Introduction:

Case definition:

For both situations of care:

Situation 1 – Secondary / Non Metro

Situation 2 - Super Specialty / Metro

2. INCIDENCE OF THE CONDITION IN OUR COUNTRY

3. DIFFERENTIAL DIAGNOSIS

4. DIFFERENTIAL DIAGNOSIS

OPTIMAL DIAGNOSTIC CRITERIA, INVESTIGATIONS, TREATMENT & REFERRAL CRITERIA

Situation 1: Secondary Hospital/ Non-Metro situation: Optimal Standards of Treatment in Situations where technology and resources are limited

Clinical Diagnosis :

Investigations:

Treatment

Referral criteria

Situation 2: At Super Specialty Facility in Metro location where higher-end technology is available

Clinical Diagnosis :

Investigations:

Treatment:

Referral criteria :

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FICCI

STANDARD DEFINITIONS OF CRITICAL ILLNESSES FOR INDIAN INSURANCE INDUSTRY

FICCI Working Group Report

Notes

STANDARD DEFINITIONS OF CRITICAL ILLNESSES FOR INDIAN INSURANCE INDUSTRY

BACKGROUND

In addition to hospitalization indemnity products which constitute the predominant variants of health insurance products in our country, the health insurance market has also witnessed the introduction of various critical illness products, which cover a list of designated diseases. Critical Illness cover pays a Lump Sum amount, or benefit, if the Insured is diagnosed with a specified critical illness or undergoes a specified procedure. This sum is paid directly to the insured regardless of any other sources of indemnity (job-related and non-job-related) or the actual expenses incurred (medical and nonmedical).

However, there do exist differences in the definitions of Critical Illnesses adopted by the different insurers which can create confusion in the minds of consumers and the industry especially at the time when insurers and re-insurers have to arrive at a point where lump sum payment is made. Lack of standard definitions also means that products are difficult to compare, and the availability of standard definitions would then ensure better comparability and uniformity in the understanding of critical illness definitions.

INTRODUCTION

In view of the above problem identified by the health insurance committee, FICCI undertook an intense exercise on developing Standard Definitions of Critical Illnesses through its Sub-Group, Chaired by Mr. S.L. Mohan, Secretary General, General Insurance Council and Co-Chaired by Mr. S.B. Mathur, Secretary General, Life Insurance Council. This, we believe, will help resolve the confusion arising out of varying definitions adopted by different companies and will also help enhance consumer satisfaction significantly. The group had pro-active involvement of senior representatives from several leading Insurance companies, four large Re-Insurance Companies as well as representatives from the Health Sector. IRDA has also been an integral part of the Sub-Group and has continuously guided & supported us in this endeavor.

METHODOLOGY

- Critical Illness Definitions adopted by different insurers, re-insurers as also standard definitions adopted by bodies like the Association of British Insurers (ABI) were collated for 11 critical illnesses commonly offered for cover by insurers in their critical illness policies. The definitions adopted for each such critical illness were discussed during the interactive meetings in detail by experts in the field and also examined in detail by their respective organizations.
- The members of the Sub-group then attempted to standardize the Critical Illness definitions, for adoption by the industry.
- The final document was again reviewed and vetted by an independent Technical Board of eminent medical professionals which was constituted by FICCI.

- FICCI has submitted these definitions to IRDA for a wider dissemination to the Industry so that the feedback of the industry can further enhance the acceptability of the standard definitions.

RECOMMENDED STANDARD DEFINITIONS

1. CANCER OF SPECIFIED SEVERITY

A malignant tumour characterised by the uncontrolled growth & spread of malignant cells with invasion & destruction of normal tissues. This diagnosis must be supported by histological evidence of malignancy & confirmed by a pathologist. The term cancer includes leukemia, lymphoma and sarcoma. The following are excluded - (1) Tumours showing the malignant changes of carcinoma in situ & tumours which are histologically described as pre-malignant or non invasive, including but not limited to: Carcinoma in situ of breasts, Cervical dysplasia CIN-1, CIN -2 & CIN-3. (2) Any skin cancer other than invasive malignant melanoma (3) All tumours of the prostate unless histologically classified as having a Gleason score greater than 6 or having progressed to at least clinical TNM classification T2N0M0.....(4) Papillary micro - carcinoma of the thyroid less than 1 cm in diameter (5) Chronic lymphocyctic leukaemia less than RAI stage 3 (6) microcarcinoma of the bladder (7) All tumours in the presence of HIV infection.

2. FIRST HEART ATTACK – OF SPECIFIED SEVERITY

The first occurrence of myocardial infarction which means the death of a portion of the heart muscle as a result of inadequate blood supply to the relevant area. The diagnosis for this will be evidenced by all of the following criteria: a) a history of typical clinical symptoms consistent with the diagnosis of Acute Myocardial Infarction (for e.g. typical chest pain) b) new characteristic electrocardiogram changes c) elevation of infarction specific enzymes, Troponins or other specific biochemical markers. The following are excluded:

(1)Non-ST-segment elevation myocardial infarction (NSTEMI) with elevation of Troponin I or T; (2)Other acute Coronary Syndromes (3)Any type of angina pectoris

3. OPEN CHEST CABG

The actual undergoing of open chest surgery for the correction of one or more coronary arteries, which is/are narrowed or blocked, by coronary artery bypass graft (CABG). The diagnosis must be supported by a coronary angiography and the realization of surgery has to be confirmed by a specialist medical practitioner. Excluded are: (1) Angioplasty and/or any other intra-arterial procedures (2) any key-hole or laser surgery.

4. OPEN HEART REPLACEMENT OR REPAIR OF HEART VALVES

The actual undergoing of open-heart valve surgery to replace or repair one or more heart valves, as a consequence of defects in, abnormalities of, or disease-

affected cardiac valve(s). The diagnosis of the valve abnormality must be supported by an echocardiography and the realization of surgery has to be confirmed by a specialist medical practitioner.

Catheter based techniques including but not limited to, balloon valvotomy/valvuloplasty are excluded.

5. COMA OF SPECIFIED SEVERITY

A state of unconsciousness with no reaction or response to external stimuli or internal needs.
This diagnosis must be supported by evidence of all of the following:

- no response to external stimuli continuously for at least 96 hours;
- life support measures are necessary to sustain life; and
- permanent neurological deficit which must be assessed at least 30 days after the onset of the coma.

The condition has to be confirmed by a specialist medical practitioner.
Coma resulting directly from alcohol or drug abuse is excluded.

6. KIDNEY FAILURE REQUIRING REGULAR DIALYSIS

End stage renal disease presenting as chronic irreversible failure of both kidneys to function, as a result of which either regular renal dialysis (hemodialysis or peritoneal dialysis) is instituted or renal transplantation is carried out. Diagnosis has to be confirmed by a specialist medical practitioner.

7. STROKE RESULTING IN PERMANENT SYMPTOMS

Any cerebrovascular incident producing permanent neurological sequelae.This includes infarction of brain tissue, thrombosis in an intra-cranial vessel, haemorrhage and embolisation from an extracranial source. Diagnosis has to be confirmed by a specialist medical practitioner and evidenced by typical clinical symptoms as well as typical findings in CT Scan or MRI of the brain.

Evidence of permanent neurological deficit lasting for atleast 3 months has to be produced.

The following are excluded:

- Transient ischemic attacks (TIA)
- Traumatic injury of the brain
- Vascular disease affecting only the eye or optic nerve or vestibular functions.

8. MAJOR ORGAN /BONE MARROW TRANSPLANT

The actual undergoing of a transplant of:

- One of the following human organs: heart, lung, liver, kidney, pancreas, that resulted from irreversible end-stage failure of the relevant organ, or
- Human bone marrow using haematopoietic stem cells

The undergoing of a transplant has to be confirmed by a specialist medical practitioner.

The following are excluded:

- Other stem-cell transplants
- Where only islets of langerhans are transplanted

9. PERMANENT PARALYSIS OF LIMBS

Total and irreversible loss of use of two or more limbs as a result of injury or disease of the brain or spinal cord. A specialist medical practitioner must be of the opinion that the paralysis will be permanent with no hope of recovery and must be present for more than 3 months.

10. MOTOR NEURONE DISEASE WITH PERMANENT SYMPTOMS

Motor neurone disease diagnosed by a specialist medical practitioner as spinal muscular atrophy, progressive bulbar palsy, amyotrophic lateral sclerosis or primary lateral sclerosis. There must be progressive degeneration of corticospinal tracts and anterior horn cells or bulbar efferent neurons. There must be current significant and permanent functional neurological impairment with objective evidence of motor dysfunction that has persisted for a continuous period of at least 3 months.

11. MULTIPLE SCLEROSIS WITH PERSISTING SYMPTOMS

The definite occurrence of multiple sclerosis. The diagnosis must be supported by all of the following:

- investigations including typical MRI and CSF findings, which unequivocally confirm the diagnosis to be multiple sclerosis;
- there must be current clinical impairment of motor or sensory function, which must have persisted for a continuous period of at least 6 months, and
- well documented clinical history of exacerbations and remissions of said symptoms or neurological deficits with atleast two clinically documented episodes atleast one month apart.
  Other causes of neurological damage such as SLE and HIV are excluded.

Chairpersons

S. L. Mohan
Secretary General
General Insurance Council

Mr. Mohan is the Secretary General of General Insurance Council since November 2008. In addition to this he is also serving as an Associate of Insurance Institute of India.

Prior to this, he was the Chairman cum Managing Director, The Oriental Insurance Co. Ltd. (2002-2005), General Manager, United India Insurance Co. Ltd., Chennai (2001-2002), General Manager, National Insurance Co. Ltd., Kolkata (2000) and Regional Manager / Asst. General Manager, United India Ins. Co. Ltd., Chennai (1989-2000).

He has also served as a director at Kenindia Assurance Co. Ltd., Nairobi, GIC Housing Finance Limited, Mumbai, Loss Prevention Association of India Ltd., Mumbai, Member – Tariff Advisory Committee, Mumbai, Madhura Coats Ltd. to name a few.

He holds a B.Sc. in Mechanical Engineering.

S. B. Mathur
Secretary General
Life Insurance Council

Mr. Mathur is the Secretary General of Life Insurance Council. In addition to this Mr. Mathur is the Chairman of National Stock Exchange, an Advisor to National Investment Fund set up by Government of India and also on Board of some leading Corporates.

He was the Chairman of the Life Insurance Corporation of India (LIC), the largest life insurance company in India from August 2002 to October 2004. His tenure coincided the opening of the Insurance sector, which resulted into the entry of 12 domestic players with strong brands tying up with leading international insurance companies.

Post retirement from LIC, The Government of India appointed him as Administrator of the Specified Undertaking of the Unit Trust of India (SUUTI), the successor of the erstwhile Unit Trust of India in December 2004, wherein Government had provided financial support to meet the liabilities under some of the guaranteed high returns schemes.

List of members of working group on Standard Definitions of Critical Illnesses for Indian Insurance Industry

SNO	NAME	DESIG	ORGN	CITY
1	Mr. S.L. Mohan	Secretary General	General Insurance Council	Mumbai
2	Mr. S.B. Mathur	Secretary General	Life Insurance council	Mumbai
3	Mr. Binay Agarwala	Senior Vice President & Head-Health Business and Corporate Strategy	ICICI Prudential Life Insurance Company Ltd	Mumbai
4	Dr. Himanshu Bhatia	Vice President, Life & Health Products	Swiss Re Service India Pvt Ltd	Mumbai
5	Mr. Indraneel Chatterjee	GM - Products	Metlife India Insurance Co. Ltd.	Gurgaon
6	Dr. Saswat Das	CMO - Underwriting Services	RGA RE - RGA Services India Pvt. Ltd.	Mumbai
7	Dr. Anurag Gupta	Head - Business & Channel Dev. (Health & Retirement)	Max New York Life Insurance Co. Ltd.	Gurgaon
8	Mr. Manish Jain	Health Policy Development Manager - India	Johnson & Johnson Medical	New Delhi
9	Ms. M Malti Jaswal	CEO	E-Meditek (TPA) Services Ltd	Gurgaon
10	Mr. Gourahari Jena	Regional Underwriting Manager	Reliance General Insuarance	New Delhi
11	Dr. Ashish Kanakia	Chief Underwriter	Tata AIG Life Insurance	Mumbai
12	Dr. Ramesh Karmegum	National Manager	MediAssist India TPA Ltd.	Bangalore
13	Mr. Virender Kumar	DGM	Oriental Insurance	New Delhi
14	Mr. Kamlesh Manuja	Vice President - Health Underwriting and Claims	ICICI Prudential Life Insurance Co. Ltd.	Mumbai
15	Dr. Bhabotosh Mishra	General Manager- Underwriting	Apollo DKVHealth Insurance Company Limited	Gurgaon
16	Dr. Somil Nagpal	Special Officer- Health Insurance	Insurance Regulatory Development Authority	Hyderabad
17	Dr. Lloyd Nazareth	COO	Wockhardt Group of Hospitals	Bangalore
18	Ms. Subha Neelakantan	Senior Market Consultant	Cologne Reinsurance Company plc (GEN Re Life Health)	Mumbai
19	Mr. J Parmar	Chief Acturial Officer	Munich Re	Mumbai
20	Mr. M Rama Prasad	General Manager	GIC Re	Mumbai
21	Mr. Krishnan Ramachandran	Chief Operating Officer	Apollo DKV Insurance Company Ltd.	Gurgaon
22	Dr. Anupama Raina	Chief Medical Officer CMO & Sr Manager (Health insurance)	Bajaj Allianz General Insuranc Company Ltd.	Pune
23	Dr. Detloff Rump	Regional Chief Underwriter, Asia	Cologne Reinsurance Company plc (GEN Re Life Health)	Hongkong
24	Dr. Smitha Samdariya	Associate-Client Services	Swiss Re Services India Pvt Ltd	Mumbai
25	Ms. Sitalaxmi R Shrivas	Senior Manager & Head of Claims	Tata AIG Life Insurance Co. Ltd.	Mumbai

FICCI

STANDARD LIST OF EXPENSES GENERALLY EXCLUDED ("NON-MEDICAL EXPENSES") IN HOSPITALISATION INDEMNITY POLICIES

FICCI Working Group Report

Standard List of Excluded Expenses

Standard List of Expenses Generally Excluded (“non-medical expenses") in Hospitalisation Indemnity Policies

BACKGROUND

Insurance companies providing hospitalization indemnity covers generally exclude certain categories of expenses in their policy terms and conditions. However, as there is no detailed listing of such excluded expenses, and as the interpretation of these exclusions is highly varied across different payors in the industry, many a times various items under the claims filed by hospital providers or individual policyholders are repudiated by the insurers but are disputed by the claimants. This is, thus, one major cause of acrimony between Insurance Companies & Healthcare providers and also causes a lot of confusion in the minds of consumer.

There is, thus, a strong need to minimize the ambiguity on this count through a collaborative partnership between healthcare providers', health insurance companies and other important stakeholders. Availability and accessibility of quality healthcare through affordable and suitable health insurance products is need of the hour. A consensus between the all the stakeholders of the industry and a uniform understanding of such ‘exclusions’ would be the key for better understanding of policy conditions by the policyholders and hospitals, which would in turn facilitate speedier roll out of health insurance in the country.

INTRODUCTION

FICCI constituted a sub-Group aimed at creating a Standard List of Expenses Generally Excluded (“Non-Medical Expenses") in Hospitalization Indemnity Policies, as an initiative under its health insurance working group. The Sub-group is Chaired by Mr. S.L. Mohan, Secretary General, General Insurance Council and Co-Chaired by Mr. S.B. Mathur, Secretary General, Life Insurance Council and comprise senior level representatives from Regulator, TPA's, Healthcare Providers and Insurers.

The aim of the Sub-Group is to arrive at a Standard List of such excluded ('Non Medical') expenses in order to minimize the ambiguity and subjectivity in deductions from hospital bills, which will improve the understanding for such expenses amongst patients, providers and insurers/TPAs.

METHODOLOGY

- As a first step towards Standardization, various Lists of Excluded Expenses were collated from different Insurers, TPA's etc and compiled in one comprehensive list.
- The members of the sub-group then debated and discussed each of the items in these lists of excluded expenses, wherein certain items were recommended to be made admissible under specific situations, in the overall interest of the health insurance industry, while others which are inadmissible could be standardized to minimize any friction on this front. (The final list of discussed items with suggestions and explanations from the group is enclosed).
- The list of various non-medical items was then categorized as per the applicable exclusions in indemnity policies viz a) toiletries/ cosmetics/ personal comfort or

convenience items, b) items specifically excluded in the policies, c) items which are elements of Room Charge d) administrative or non-medical charges e) external durable devices f) items payable if supported by a prescription, and g) Other exclusions.

- Hospital Providers were also requested to provide the specific indications, reasonable quantity required and the specific list of certain surgeries where the use of certain items like Abdominal Binders, belts, braces etc. was warranted & important and hence could be considered worthy for making payable for the specific situations.
- The final document has been reviewed and vetted by an independent Technical Board of eminent medical professionals which was constituted by FICCI.
- FICCI would recommend the Standard List to IRDA and the two Councils for wider feedback and for a final adoption by the industry.

Recommendations on Commonly Excluded Items

S. No.	Items	Recommendations
	Toiletries/ Cosmetics/ Personal Comfort or Convenience Items	
1	Hair removing cream charges	Not Payable
2	Baby Charges (unless specified/indicated)	Not Payable
3	Baby Food	Not Payable
4	Baby Utilites Charges	Not Payable
5	Baby Set	Not Payable
6	Baby Bottles	Not Payable
7	Bottle	Not Payable
8	Brush	Not Payable
9	Cosy Towel	Not Payable
10	Hand Wash	Not Payable
11	Moisturiser Paste Brush	Not Payable
12	Powder	Not Payable
13	Razor	Payable
14	Towel	Not Payable
15	Shoe Cover	Not Payable
16	Beauty Services	Not Payable
17	Belts/ Braces	Essential and Should be Paid at least Specifically for Cases who have undergone surgery of Thoracic or Lumbar Spine.
18	Buds	Not Payable
19	Barber Charges	Not Payable
20	Caps	Not Payable
21	Cold Pack/hot Pack	Not Payable
22	Carry Bags	Not Payable
23	Cradle Charges	Not Payable
24	Comb	Not Payable
25	Disposable Razor Charges (For Site Preparations)	Payable
26	Eau-De-Cologne / Room Freshners	Not Payable
27	Eye Pad	Not Payable
28	Eye Sheild	Not Payable
29	Email / Internet Charges	Not Payable
30	Food Charges (other than Patient's Diet Provided by Hospital)	Not Payable
31	Foot Cover	Not Payable
32	Gown	Not Payable

Standard List of Excluded Expenses

S. No.	Items	Recommendations
33	Leggings	Essential in Bariatric and Varicose Vein Surgery and may be Considered for at least these Conditions where Surgery itself is Payable.
34	Laundry Charges	Not Payable
35	Mineral Water	Not Payable
36	Oil Charges	Not Payable
37	Sanitary Pad	Not Payable
38	Slippers	Not Payable
39	Telephone Charges	Not Payable
40	Tissue Paper	Not Payable
41	Tooth Paste	Not Payable
42	Tooth Brush	Not Payable
43	Guest Services	Not Payable
44	Bed Pan	Not Payable
45	Bed Under Pad Charges	Not Payable
46	Camera Cover	Not Payable
47	Care Free	Not Payable
48	Cliniplast	Not Payable
49	Crepe Bandage	Not Payable/ Payable by the Patient
50	Curapore	Not Payable
51	Diaper Of Any Type	Not Payable
52	DVD, CD Charges	Not Payable (However If CD Is Specifically Sought by Insurer/TPA then Payable)
53	Eyelet Collar	Not Payable
54	Face Mask	Not Payable
55	Flexi Mask	Not Payable
56	Gause Soft	Not Payable
57	Gauze	Not Payable
58	Hand Holder	Not Payable
59	Hansaplast/ Adhesive Bandages	Not Payable
60	Lactogen/ Infant Food	Not Payable
61	Slings	Reasonable costs for one sling in case of Upper Arm Fractures may be Considered
Items Specifically Excluded in Policies		
62	Weight Control Programs/ Supplies/ Services	Exclusion in Policy Unless Otherwise Specified
63	Cost Of Spectacles/ Contact Lenses/ Hearing Aids Etc.,	Exclusion in Policy Unless Otherwise Specified

S. No.	Items	Recommendations
64	Dental Treatment Expenses That Do Not Require Hospitalisation	Exclusion In Policy Unless Otherwise Specified
65	Hormone Replacement Therapy	Exclusion In Policy Unless Otherwise Specified
66	Home Visit Charges	Exclusion In Policy Unless Otherwise Specified
67	Infertility/ Subfertility/ Assisted Conception Procedure	Exclusion In Policy Unless Otherwise Specified
68	Obesity (including Morbid Obesity) Treatment	Exclusion In Policy Unless Otherwise Specified
69	Psychiatric & Psychosomatic Disorders	Exclusion In Policy Unless Otherwise Specified
70	Corrective Surgery For Refractive Error	Exclusion In Policy Unless Otherwise Specified
71	Treatment Of Sexually Transmitted Diseases	Exclusion In Policy Unless Otherwise Specified
72	Donor Screening Charges	Exclusion In Policy Unless Otherwise Specified
73	Admission/registration Charges	Exclusion In Policy Unless Otherwise Specified
74	Hospitalisation For Evaluation/ Diagnostic Purpose	Exclusion In Policy Unless Otherwise Specified
75	Expenses For Investigation/ Treatment Irrelevant To The Disease For Which Admitted Or Diagnosed	Exclusion In Policy Not Payable - Unless Otherwise Specified
76	Any Expenses When The Patient Is Diagnosed With Retro Virus + Or Suffering From /HIV/ Aids Etc Is Detected/ Directly Or Indirectly	Not Payable As Per HIV/aids Exclusion
77	Stem Cell Implantation/ Surgery	Not Payable Except Bone Marrow Transplantation Where Covered By Policy
Items Which form Part of Hospital Services where Separate Consumables are not Payable but the Service is		
78	Ward And Theatre Booking Charges	Payable Under OT Charges, Not Payable Separately
79	Arthroscopy & Endoscopy Instruments	Rental Charged By The Hospital Payable. Purchase of Instruments Not Payable.
80	Microscope Cover	Payable Under OT Charges, Not Separately

Standard List of Excluded Expenses

S. No.	Items	Recommendations
81	Surgical Blades,harmonic Scalpel,shaver	Payable Under OT Charges, Not Separately
82	Surgical Drill	Payable Under OT Charges, Not Separately
83	Eye Kit	Payable Under OT Charges, Not Separately
84	Eye Drape	Payable Under OT Charges, Not Separately
85	X-Ray Film	Payable Under Radiology Charges, Not As Consumable
86	Sputum Cup	Payable Under Investigation Charges, Not As Consumable
87	Boyles Apparatus Charges	Part Of Ot Charges, Not Seperately
88	Blood Grouping And Cross Matching Of Donors Samples	Part Of Cost Of Blood, Not Payable
89	Savlon	Not Payable-part Of Dressing Charges
90	Band Aids, Bandages, Sterile Injections, Needles, Syringes	Not Payable - Part Of Dressing Charges
91	Cotton	Not Payable-part Of Dressing Charges
92	Cotton Bandage	Not Payable- Part Of Dressing Charges
93	Micropore/ Surgical Tape	Not Payable-payable By The Patient When Prescribed, Otherwise Included As Dressing Charges
94	Blade	Not Payable
95	Apron	Not Payable -Part of Hospital Services/ Disposable Linen to Be Part of OT/ ICU Charges
96	Torniquet	Not Payable (service Is Charged by Hospitals, Consumables Cannot Be Separately Charged)
97	Orthobundle, Gynaec Bundle	Part of Dressing Charges
98	Urine Container	Not Payable
Elements Of Room Charge		
99	Luxury Tax	Actual Tax Levied By Government is Payable.part of Room Charge for Sub Limits
100	HVAC	Part of Room Charge Not Payable Separately

S. No.	Items	Recommendations
101	House Keeping Charges	Part Of Room Charge Not Payable Separately
102	Service Charges Where Nursing Charge Also Charged	Part Of Room Charge Not Payable Separately
103	Television & Air Conditioner Charges	Payable Under Room Charges Not If Separately Levied
104	Surcharges	Part Of Room Charge, Not Payable Separately
105	Attendant Charges	Not Payable - Part Of Room Charges
106	IM/ IV Injection Charges	Part Of Nursing Charges, Not Payable
107	Clean Sheet	Part of Laundry/ housekeeping Not Payable Separately
108	Extra Diet of Patient(other than that which Forms Part of Bed Charge)	Patient Diet Provided by Hospital is Payable
109	Blanket/warmer Blanket	Not Payable- Part of Room Charges
Administrative or Non-medical Charges		
110	Admission Kit	Not Payable
111	Birth Certificate	Not Payable
112	Blood Reservation Charges And Ante Natal Booking Charges	Not Payable
113	Certificate Charges	Not Payable
114	Courier Charges	Not Payable
115	Convenyance Charges	Not Payable
116	Diabetic Chart Charges	Not Payable
117	Documentation Charges / Administrative Expenses	Not Payable
118	Discharge Procedure Charges	Not Payable
119	Daily Chart Charges	Not Payable
120	Entrance Pass / Visitors Pass Charges	Not Payable
121	Expenses Related To Prescription On Discharge	To Be Claimed By Patient Under Post Hosp Where Admissible
122	File Opening Charges	Not Payable
123	Incidental Expenses / Misc. Charges (not Explained)	Not Payable
124	Medical Certificate	Not Payable
125	Maintainance Charges	Not Payable
126	Medical Records	Not Payable
127	Preparation Charges	Not Payable
128	Photocopies Charges	Not Payable
129	Patient Identification Band / Name Tag	Not Payable
130	Washing Charges	Not Payable
131	Medicine Box	Not Payable

Standard List of Excluded Expenses

S. No.	Items	Recommendations
132	Mortuary Charges	Payable Upto 24 Hrs, Shifting Charges Not Payable
133	Medico Legal Case Charges (MLC Charges)	Not Payable
External Durable Devices		
134	Walking Aids Charges	Not Payable
135	Bipap Machine	Not Payable
136	Commode	Not Payable
137	CPAP/ CPAD Equipments	Device Not Payable
138	Infusion Pump - Cost	Device Not Payable
139	Oxygen Cylinder (for Usage Outside The Hospital)	Not Payable
140	Pulseoxymeter Charges	Device Not Payable
141	Spacer	Not Payable
142	Spirometre	Device Not Payable
143	Spo2 Probe	Not Payable
144	Nebulizer Kit	Not Payable
145	Steam Inhaler	Not Payable
146	Armsling	Not Payable
147	Thermometer	Not Payable (paid By Patient)
148	Cervical Collar	Not Payable
149	Splint	Not Payable
150	Diabetic Foot Wear	Not Payable
151	Knee Braces (Long/ Short/ Hinged)	Not Payable
152	Knee Immobilizer/shoulder Immobilizer	Not Payable
153	Lumbo Sacral Belt	Essential And Should Be Paid At Least Specifically For Cases Who Have Undergone Surgery Of Lumbar Spine.
154	Nimbus Bed Or Water Or Air Bed Charges	"payable For Any ICU Patient Requiring More Than 3 Days In ICU, All Patients With Paraplegia quadriplegia For Any Reason And At Reasonable Cost Of Approximately Rs 200/ Day "
155	Ambulance Collar	Not Payable
156	Ambulance Equipment	Not Payable
157	Microsheild	Not Payable
158	Abdominal Binder	Essential and should be Paid at least in Post Surgery Patients of Major Abdominal Surgery Including TAH, LSCS, Incisional Hernia Repair, Exploratory Laparotomy for Intestinal Obstruction, Liver Transplant Etc.

S. No.	Items	Recommendations
Items Payable If Supported By A Prescription		
159	Betadine \ Hydrogen Peroxide\spirit\\dettol \Savlon\ Disinfectants Etc	May Be Payable When Prescribed For Patient, Not Payable For Hospital use In OT or Ward Or For Dressings in Hospital
160	Private Nurses Charges- Special Nursing Charges	Post Hospitalization Nursing Charges Not Payable
161	Nutrition Planning Charges - Dietician Charges- Diet Charges	Patient Diet Provided By Hospital Is Payable
162	Alex Sugar Free	Payable -Sugar Free Variants Of Admissable Medicines Are Not Excluded
163	Cream Powder Lotion (Toileteries are Not Payable, only Prescribed Medical Pharmaceuticals Payable)	Payable When Prescribed
164	Digene Gel/ Antacid Gel	Payable When Prescribed
165	ECG Electrodes	Upto 5 Electrodes Are Required For Every Case Visiting OT or ICU. For Longer Stay In ICU, May Require A Change And At Least One Set Every Second Day Must Be Payable.
166	Gloves	Sterilized Gloves Payable / Unsterilized Gloves Not Payable
167	HIV Kit	Payable - Pre Operative Screening
168	Listerine/ Antiseptic Mouthwash	Payable When Prescribed
169	Lozenges	Payable When Prescribed
170	Mouth Paint	Payable When Prescribed
171	Nebulisation Kit	If Used During Hospitalization is Payable Reasonably
172	Neosprin	Payable When Prescribed
173	Novarapid	Payable When Prescribed
174	Volini Gel/ Analgesic Gel	Payable When Prescribed
175	Zytee Gel	Payable When Prescribed
176	Vaccination Charges	Routine Vaccination Not Payable / Post Bite Vaccination Payable
Part of Hospital's own Costs and not Payable		
177	AHD	Not Payable - Part of Hospital's Internal Cost

S. No.	Items	Recommendations
178	Alcohol Swabes	Not Payable - Part Of Hospital's Internal Cost
179	Scrub Solution/sterillium	Not Payable - Part Of Hospital's Internal Cost
Others		
180	Vaccine Charges For Baby	Not Payable
181	Aesthetic Treatment / Surgery	Not Payable
182	TPA Charges	Not Payable
183	Visco Belt Charges	Not Payable
184	Any Kit With No Details Mentioned [delivery Kit, Orthokit, Recovery Kit, Etc]	Not Payable
185	Examination Gloves	Not Payable
186	Kidney Tray	Not Payable
187	Mask	Not Payable
188	Ounce Glass	Not Payable
189	Outstation Consultant's/ Surgeon's Fees	Not Payable, Except For Telemedicine Consultations Where Covered by Policy
190	Oxygen Mask	Not Payable
191	Paper Gloves	Not Payable
192	Pelvic Traction Belt	Should Be Payable In Case Of PIVD Requiring Traction As This Is Generally Not Reused
193	Referal Doctor's Fees	Not Payable
194	Accu Check (Glucometery/ Strips)	Not Payable Pre Hospitilasation Or Post Hospitalisation / Reports And Charts Required/ Device Not Payable
195	Pan Can	Not Payable
196	Sofnet	Not Payable
197	Trolly Cover	Not Payable
198	Urometer, Urine Jug	Not Payable
199	Ambulance	Payable-ambulance From Home To Hospital Or Interhospital Shifts Is Payable/ RTA As Specific Requirement Is Payable
200	Tegaderm / Vasofix Safety	Payable - Maximum Of 3 In 48 Hrs And Then 1 In 24 Hrs
201	Urine Bag	Payable Where Medicaly Necessary Till A Reasonable Cost Maximum 1 Per 24 Hrs
202	Softovac	Not Payable
203	Stockings	Essential For Case Like Cabg Etc. Where It Should Be Paid.

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S. L. Mohan
Secretary General
General Insurance Council

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He holds a B.Sc. in Mechanical Engineering.

S. B. Mathur
Secretary General
Life Insurance Council

Mr. Mathur is the Secretary General of Life Insurance Council. In addition to this Mr. Mathur is the Chairman of National Stock Exchange, an Advisor to National Investment Fund set up by Government of India and also on Board of some leading Corporates.
He was the Chairman of the Life Insurance Corporation of India (LIC), the largest life insurance company in India from August 2002 to October 2004. His tenure coincided the opening of the Insurance sector, which resulted into the entry of 12 domestic players with strong brands tying up with leading international insurance companies.
Post retirement from LIC, The Government of India appointed him as Administrator of the Specified Undertaking of the Unit Trust of India (SUUTI), the successor of the erstwhile Unit Trust of India in December 2004, wherein Government had provided financial support to meet the liabilities under some of the guaranteed high returns schemes.

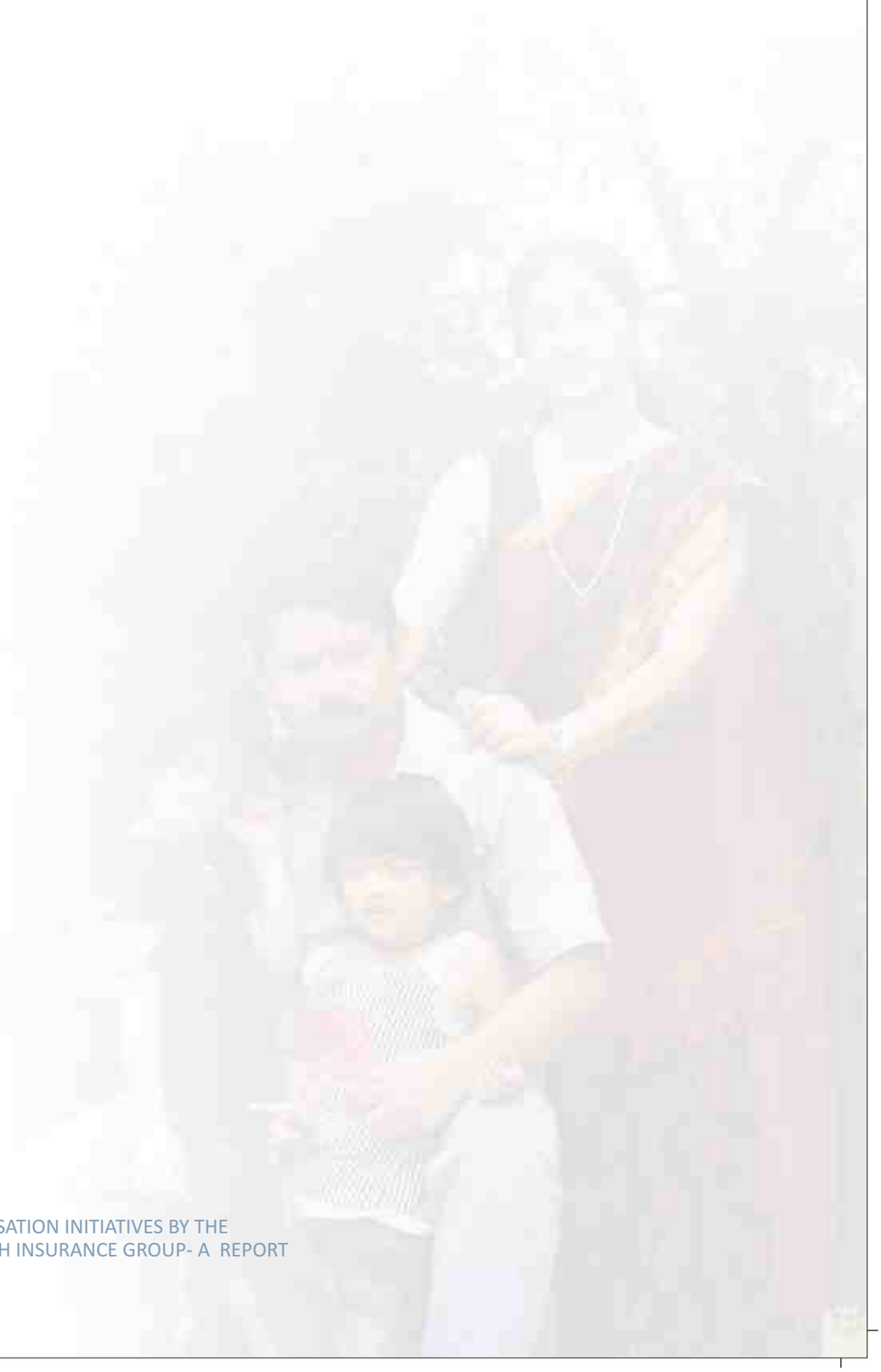
Standard List of Excluded Expenses

List of members of working group on Standardizing List of Expenses Generally Excluded (" Non-Medical Expenses") in Hospital Indemnity Policy

SNO	NAME	DESIG	ORGN	CITY
1	Mr. S.L. Mohan	Secretary General	General Insurance Council	Mumbai
2	Mr. S.B. Mathur	Secretary General	Life Insurance council	Mumbai
3	Mr Binay Agarwala	Senior Vice President & Head - Health Business & Corporate Strategy	ICICI Prudential Life Insurance Company Limited	Mumbai
4	Dr Vijay Agarwal	Executive Director	Pushpanjali Crosslay Hospital	Ghaziabad
5	Dr Atul Arora	Consultant	Paramount Health Services Pvt Ltd.	Mumbai
6	Mr Deepak Bhalerao	Chief Manager	The Oriental Insurance Co. Ltd	New Delhi
7	Dr Neeraj Bishnoi	Medical Officer-Medical Service	TTK Healthcare TPA Pvt Ltd	New Delhi
8	Dr Hatim Companiwala	DGM-Claims	Apollo DKV Health Insurance Company Ltd	Gurgaon
9	Dr Deepak Gandhi	Head of Medical Underwriting	Max New York Life Insurance Company Ltd	Gurgaon
10	Dr. Vikram Grover	Manager-Networking	Raksha TPA Pvt. Ltd.	
11	Ms Poonam Ittan	Marketing Officer	Maharaja Agrasen Hospital	New Delhi
12	Dr Mamta Jain	Asst Medical Supritendant	Maharaja Agrasen Hospital	New Delhi
13 -	Mr Manish Jain	Health Policy Development Manager - India	Johnson & Johnson Medical	New Delhi
14	Dr Nandakumar Jairam	Chairman & Group Medical Director	Columbia Asia Hospital Pvt Ltd	Bangalore
15	Ms M Malti Jaswal	CEO	E-Meditek Solutions Ltd	Gurgaon
16	Dr Ravindra Karanjekar	Chairperson, QCI, Quality Promotion Committee on Healthcare and Associate Vice President and Head	Wockhardt	Mumbai
17	Dr Ramesh Karmegum	National Manager	Medi Assist India Pvt Ltd	Bangalore
18	Dr Sunil Kumar	Manager	Fortis Healthcare Ltd & Escorts Heart Instutute & Research Centre Ltd	New Delhi
19	Mr Samir Malhotra	Head - Hospital Promotion	Dharamshila Hospital & Research Centre	Delhi
20	Mr Kamlesh Manuja	Vice President - Health Underwriting and Claims	ICICI Prudential Life Insurance Co. Ltd.	Mumbai
21	Dr S.C. Marwah	CEO - Healthcare Venture	Panacea Biotec Ltd.	New Delhi
22	Mr Deepak Mendiratta	CEO	Health & Insurance Integrated	New Delhi
23	Dr Bhabotosh Mishra	General Manager-Underwriting	Apollo DKV Health Insurance Company Ltd.	Gurgaon
24	Ms Tajinder Mukherjee	Regional Manager	United Insurance Company Ltd	New Delhi

SNO	NAME	DESIG	ORGN	CITY
25	Dr Somil Nagpal	Special Officer- Health Insurance	Insurance Regulatory Developement Authority	Hyderabad
26	Dr Jitender Nagpal	Health Insurance Consultant	Indraprastha Apollo Hospital	New Delhi
27	Dr Surya Prakash	Senior Manager - Claim Operations	Apollo DKV Insurance Company Ltd	
28	Ms K. Anita Rajaram	Manager	United Insurance Company Ltd	Chennai
29	Mr Krishnan Ramachandran	Chief Operating Officer	Apollo DKV Insurance Company Ltd.	Gurgaon
30	Dr Parag Rindani	Senior Manager, Medical Services	Wockhardt Hospitals	Mumbai
31	Dr Amitoj Singh	COO	E-Meditek Solutions Ltd	Faridabad
32	Mr C S Tandon	DGM	The Oriental Insurance Co. Ltd	New Delhi
33	Dr Suman Singh Tilak	Assistant General Manager	Paramount Health Services Pvt. Ltd.	New Delhi
34	Dr. Anupama Verma	Manager	United Insurance Company Ltd	New Delhi
35	Mr Praveen Yadav	Chief Administrative Officer,	MD India Healthcare Services (TPA) Pvt Ltd	Pune

Standard List of Excluded Expenses



FICCI

FICCI
HEALTH INSURANCE GROUP

FICCI Working Group Report

List of members of the FICCI Health Insurance Group

SNO	NAME	DESIG	ORGN	CITY
1	Mr Shivinder Mohan Singh	Chairman, Health Services Committee & Managing Director	Fortis Healthcare Limited	New Delhl
2	Ms Shikha Sharma*	Former Managing Director	ICICI Prudential Life Insurance Co Ltd	Mumbai
3	Mr K. N Bhandari**	Former Secretary General	General Insurance Council	Mumbai
4	Dr Narottam Puri	President-Medical Strategy & Quality	Fortis Health Care Ltd. & Escorts Heart Institute & Research Centre Ltd.	New Delhi
5	Dr Somil Nagpal	Special Officer-Health Insurance	Insurance Regulatory Development Authority	Hyderabad
6	Mr Binay Agarwala	Senior Vice President & Head - Health Business & Corporate Strategy	ICICI Prudential Life Insurance Company Limited	Mumbai
7	Mr Aloke Gupta	Consultant		New Delhi
8	Mr Sunil Nandral	Cluster Head-Health Systems Development	World Health Organisation	New Delhi
9	Ms Jyoti Vij	Director- Financial Sector & Corporate Laws	FICCI	New Delhi
10	Ms Shobha Mishra	Joint Director- Education & HealthServices Division	FICCI	New Delhi

* Later replaced by Mr V Vaidyanathan, Chairman, FICCI Committee on Insurance & Managing Director and CEO, ICICI Prudential Life Insurance Co. Ltd. and

** Mr S L Mohan, Secretary General, General Insurance Council

Technical Board

Chairperson

Dr Narrotam Puri, President- Medical Strategy & Quality, Fortis Healthcare Limited & Escorts Heart Institute & Research Centre Limited

Members

- Dr Somil Nagpal, Special Officer, Health Insurance, IRDA, Hyderabad
- Dr Vijay Agarwal, Executive Director, Pushpanjali Crosslay Hospital, Ghaziabad
- Dr S. K Mittal, Chairman, Department of Pediatrics, Pushpanjali Crosslay Hospital, Ghaziabad
- Dr S. C Marwah, CEO- Health Care Venture, Panacea Biotech Ltd, New Delhi
- Dr Praneet Kumar, COO, Fortis Healthcare Ltd, Shalimar Bagh, New Delhi
- Dr Loraine Kalra, Oncologist, Columbia Asia Hospital, New Delhi
- Dr P. N Kakar, HOD Anaesthesia, Fortis Hospital, New Delhi

Key Support Persons

Dr. Narottam Puri
MBBS, MS (ENT), FICS, FIAMS, ADHA
President – Medical Strategy & Quality
Fortis Healthcare Limited

Dr. Puri is the President, Medical Strategy & Quality at Fortis Healthcare Limited.

Mr. Puri has over 40 years of experience in Indian Healthcare first as a Government servant, then a teacher followed by a successful stint as a practicing clinician, a medical entrepreneur, a management role in a “not for profit” hospital and a top management role in corporate healthcare has given him a 360 degree view of healthcare.

In his illustrious career he held key positions at various organizations. He was Senior Honorary Consultant, Asst. Professor in Maulana Azad Medical College, Head, Department of ENT & Director ENT, Max Healthcare, Moolchand Hospital, Head of Department of ENT, Sant Parmanand Hospital, Executive Director – Medical, Max Healthcare Delhi & Board Member , Max Healthcare, Board Member, Fortis Emergency Services Ltd. to name a few. He was the Member, FICCI, National Healthcare Committee and Organizing Chairman, FICCI Heal, 2009 The International Healthcare Conference.

He holds a MBBS & MS from Delhi University.

Dr. Somil Nagpal
Special officer - Health Insurance
IRDA

Dr. Nagpal is presently on deputation from the Government of India to the Insurance Regulatory and Development Authority, India, as Special Officer- Health Insurance, and involved in the regulatory and developmental initiatives for the health insurance sector of the country.

He has also served the Ministry of Health and Family Welfare, Government of India, the National Commission on Macroeconomics and Health, India, and the World Health

Organization. He has been involved as a resource person/ expert for the World Health Organization and for the Indian and Maldivian Ministries of Health in the areas of Health Insurance, Health Costing and National Health Accounts. He has also been a resource person/ expert on health insurance, health financing and public finance for various Government, non-Government and International Organizations, and to management institutions, both within India and internationally, and has addressed several national and international conferences, workshops and summits on his areas of interest. He has been closely associated with the working of several government, regulatory and industry committees and working groups in the realm of Health Insurance.

He is a qualified as a medical doctor and has done his postgraduation in healthcare management. He is also a MBA in Financial Management and is a Fellow of the Insurance Institute of India.

About FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence and its subsequent emergence as one of the most rapidly growing economies globally. FICCI plays a leading role in policy debates that are at the forefront of social, economic and political change. Through its 400 professionals, FICCI is active in 38 sectors of the economy. FICCI's stand on policy issues is sought out by think tanks, governments and academia. Its publications are widely read for their in-depth research and policy prescriptions. FICCI has joint business councils with 79 countries around the world.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. FICCI has direct membership from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 83,000 companies from regional chambers of commerce.

FICCI works closely with the government on policy issues, enhancing efficiency, competitiveness and expanding business opportunities for industry through a range of specialised services and global linkages. It also provides a platform for sector specific consensus building and networking. Partnerships with countries across the world carry forward our initiatives in inclusive development, which encompass health, education, livelihood, governance, skill development, etc. FICCI serves as the first port of call for Indian industry and the international business community.

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