



REPUBLIC OF LEBANON  
MINISTRY OF PUBLIC HEALTH

# Basic clinical algorithms of care

For the most common conditions in adults,  
encountered at Primary Health Care setting,  
for physicians in the public health system

Ministry of Public Health - Lebanon  
2023





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# TABLE OF CONTENT

<b>Introduction</b> .....	1
<b>Methodology</b> .....	2
<b>Definitions</b> .....	4
<b>Section 1 - General health</b> .....	5
a. <i>General medical examination (preventive services) – Z00.0</i> .....	6
b. <i>Cardiovascular disease risk assessment – Z13.6</i> .....	13
c. <i>Geriatric assessment – Z01.89</i> .....	17
d. <i>Healthy lifestyle – Z71.3</i> .....	21
<b>Section 2 - Chronic conditions</b> .....	25
a. <i>Asthma – J45.0</i> .....	26
b. <i>Depression – F32.9</i> .....	30
c. <i>Diabetes Mellitus - Type 2 – E11</i> .....	37
d. <i>Dyslipidaemia – E78.5</i> .....	43
e. <i>Hypertension – I10</i> .....	46
f. <i>Coronary artery disease – I25</i> .....	51
g. <i>Obesity – E66</i> .....	53
h. <i>Hypothyroidism – E03.9</i> .....	56
i. <i>Hyperthyroidism – E05</i> .....	59
j. <i>Thyroid nodule – E04.1</i> .....	61
<b>Section 3 - Other common medical conditions</b> .....	65
a. <i>Anaemia – D64.9</i> .....	66
b. <i>Acute monoarthritis (Joint pain) – M13.10</i> .....	69
c. <i>Bronchitis – J20.9</i> .....	72
d. <i>Common skin infections – L08.9</i> .....	74
e. <i>Constipation – K59.0</i> .....	80
f. <i>Acute diarrhea – R19.7</i> .....	84
g. <i>Common cold – J00</i> .....	87
h. <i>Otitis media – H66.9</i> .....	90
i. <i>Community acquired pneumonia – J18</i> .....	93
j. <i>Sinusitis – J01.90</i> .....	97
k. <i>Uncomplicated lower urinary tract infection – N39.0</i> .....	101
<b>Section 4 - Symptoms</b> .....	105
a. <i>Abdominal pain – R10</i> .....	106
b. <i>Chronic cough – R05.3</i> .....	109
c. <i>Functional dyspepsia – K30</i> .....	112
d. <i>Headache – R51</i> .....	115
e. <i>Low back pain – M54.5</i> .....	118
f. <i>Palpitations – R00.2</i> .....	122
g. <i>Red eye – H10.31</i> .....	125
h. <i>Sore throat – R07.0</i> .....	128
i. <i>Vertigo – R42</i> .....	131
<b>References</b> .....	134

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# ABBREVIATIONS

<b>ACR</b>	Albumin to creatinine ratio	<b>HFpEF</b>	Heart failure with preserved ejection fraction
<b>AIDS</b>	Acquired immunodeficiency syndrome	<b>HFrEF</b>	Heart failure with reduced ejection fraction
<b>ASCVD</b>	Atherosclerotic cardiovascular disease	<b>HIV</b>	Human Immunodeficiency Virus
<b>BMI</b>	Body mass index	<b>HR</b>	Heart rate
<b>BP</b>	Blood Pressure	<b>ICS</b>	Inhaled corticosteroids
<b>CAD</b>	Coronary artery disease	<b>LABA</b>	Long acting Beta-agonist
<b>CBC</b>	Complete blood count	<b>LTRA</b>	Leukotriene Receptor antagonists
<b>CHF</b>	Congestive heart failure	<b>MDI</b>	Metered dose inhaler
<b>CKD</b>	Chronic kidney disease	<b>MI</b>	Myocardial infarction
<b>CPK</b>	Creatine phosphokinase	<b>MOPH</b>	Ministry of Public Health
<b>CVA</b>	Costo-vertebral angle	<b>MRI</b>	Magnetic resonance imaging
<b>CVD</b>	Cardio-vascular disease	<b>NASH</b>	Non alcoholic steatohepatitis
<b>CVR</b>	Cardio-vascular risk	<b>NSAIDS</b>	Non-steroidal anti-inflammatory drugs
<b>CXR</b>	Chest X-Ray	<b>OGTT</b>	Oral glucose tolerance test
<b>DKA</b>	Diabetic ketoacidosis	<b>PEF</b>	Peak expiratory flow
<b>DM</b>	Diabetes Mellitus	<b>PG</b>	Plasma glucose
<b>DPP4</b>	Dipeptidyl Peptidase IV	<b>PPI</b>	Proton pump inhibitor
<b>EDL</b>	Essential Drug List	<b>PPSV</b>	Pneumococcal polysaccharide vaccine
<b>EPHRP</b>	Emergency Primary Health care Restoration Project	<b>PHC</b>	Primary Health Care
<b>ESR</b>	Erythrocyte sedimentation rate	<b>PRN</b>	Pro re nata (as the situation demands)
<b>FBS</b>	Fasting blood sugar	<b>RADT</b>	Rapid antigen detection test
<b>FEV1</b>	Forced expiratory volume in one second	<b>RPG</b>	Random plasma glucose
<b>FIT</b>	Fecal immunochemical test	<b>RR</b>	Respiratory rate
<b>FPG</b>	Fasting plasma glucose	<b>SABA</b>	Short acting beta agonist
<b>FRAX</b>	Fracture Risk Assessment Tool	<b>SGLT2</b>	Sodium-glucose cotransporter-2
<b>FVC</b>	Forced vital capacity	<b>STI</b>	Sexually Transmitted Infections
<b>GLP1RA</b>	Glucagon-like Peptide-1 Receptor Agonists	<b>TPO</b>	Thyroid peroxidase antibodies
<b>GFR</b>	Glomerular filtration rate	<b>TSH</b>	Thyroid stimulating hormone
<b>GI</b>	Gastro-intestinal	<b>US</b>	Ultrasonography
		<b>USPSTF</b>	U.S. Preventive Services Task Force
		<b>WHO</b>	World Health Organization

# INTRODUCTION

Primary Health Care is “a whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people’s needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people’s everyday environment.”<sup>1</sup>

In its health strategy vision 2030<sup>2</sup>, the Ministry of Public Health identified Primary Health Care (PHC) as an essential entry point to health services. Strengthening PHC would ensure access to essential quality services to a large portion of the population, especially when coupled with cost-effective measures such as adopting the Essential Drug List and efficient algorithms of care.

The National Guidebook for Clinical Case management for the most common 30 health conditions at Primary Health Care (PHC) was developed in 2014 by WHO and the MOPH with support from the European Union, with the aim of improving quality of care in PHC centres. Following an assessment done by WHO in 2017, physicians reported the need for more simplified algorithms and decision-aid tools.

Simplified algorithms of care were thus developed based on the clinical guidebook, with updates on clinical management where relevant. These algorithms rely essentially on international guidelines (WHO, Centers for Disease Control and Prevention, etc.) and are adapted to the country realities in terms of prevalence of diseases, availability of medications in the recently updated Essential Drug List, and evidence of Anti-Microbial Resistance.

This document provides basic clinical algorithms for the most common adult conditions (chronic and acute) encountered at the PHC level, with focus on essential medications. The main aim is to standardize and improve the quality of care across the PHC network. These algorithms were reviewed with the national scientific committees through a collaborative and consultative process, with support from WHO, in close consultation with the MOPH team. The target audience is primarily the physicians.

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<sup>1</sup> A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization and the United Nations Children’s Fund (UNICEF); 2018 (WHO/HIS/SDS/2018.15). Licence: CC BY-NC-SA 3.0 IGO.

<sup>2</sup> <https://www.moph.gov.lb/en/Pages/0/67043/lebanon-national-health-strategy-vision-2030>

# METHODOLOGY

## IDENTIFICATION OF THE COMMON HEALTH CONDITIONS

A list of most common health conditions encountered at the PHC centres was developed. This list was based on statistical analysis conducted on the data provided by the MOPH and triangulated with findings of other international non-governmental organizations.

PHC consultations for adult beneficiaries enrolled under MOPH/EPHRP<sup>1</sup> from 2016 till 2018 were analysed using the first ICD code reported for the visit, excluding gynaecologic and pregnancy consultations. Most common reasons for consultation were: around 41% for general health, 26% for chronic conditions, 19% for acute conditions and 4% for symptoms, out of the total adult consultations. Table 1 below shows the final 34 conditions that reflect the most common adult conditions encountered at PHC level.

Table 1. Top 34 diagnoses at PHC level

General health	Chronic conditions	Other common medical conditions	Symptoms
1. General medical examination (preventive services)	5. Asthma	15. Anaemia	26. Abdominal pain
2. Cardiovascular disease risk assessment	6. Depression	16. Acute monoarthritis (Joint pain)	27. Chronic cough
3. Geriatric assessment	7. Diabetes Mellitus - Type 2	17. Bronchitis	28. Functional dyspepsia
4. Healthy lifestyle	8. Dyslipidaemia	18. Common skin infections	29. Headache
	9. Hypertension	19. Constipation	30. Low back pain
	10. Coronary artery disease	20. Acute diarrhea	31. Palpitations
	11. Obesity	21. Common cold	32. Red eye
	12. Hypothyroidism	22. Otitis media	33. Sore throat
	13. Hyperthyroidism	23. Community acquired pneumonia	34. Vertigo
	14. Thyroid nodule	24. Sinusitis	
		25. Uncomplicated lower urinary tract infection	

<sup>1</sup> EPHRP: Emergency Primary Health Care Restoration Project

## ALGORITHM DEVELOPMENT

Algorithms were developed based on the following criteria:

1. Clinically sound and evidence-based information, in line with national and WHO guidelines;
2. International scientific societies guidelines and recommendations in the absence of national and WHO guidelines;
3. Contextualized information (in line with national guidelines and subsidized essential medications, tests, etc.); and
4. In line with the person-centred primary care approach.

The algorithms draft was piloted with primary care physicians participating in the LPSP training in the North and the South.

An expert opinion meeting was held with representatives from MOPH, WHO EMRO and WHO country office and the relevant scientific societies.

The feedback was discussed in a technical WHO committee and adaptations were made following the below filters:

- Is the suggested edit in line with WHO and national guidelines?
- Is the suggested molecule added available on the EDL?
- Does the suggested format respect the standardized form?
- Is the suggested intervention feasible in the PHC by the frontline physicians?

## STRUCTURE AND KEY ELEMENTS

**The guide comprises four main sections:**

- General health: this section covers preventive services and risk assessment in special groups as well as counselling for lifestyle modifications.
- Chronic diseases: the most common chronic diseases are covered.
- Other common medical conditions: essentially covering the most common acute conditions.
- Symptoms: this set of algorithms covers the most common symptoms presenting to the PHC.

**Every algorithm is relevant to one condition and consists of mainly seven sections:**

- Definition
- History
- Physical examination
- Red flags
- Diagnostic and management tips
- Flowchart algorithm
- Patient education



# DEFINITIONS

**Essential Drug List**<sup>1</sup>: WHO introduced the concept of essential medicines in 1977.

Essential medicines are those that satisfy the priority health care needs of the population based on the following criteria:

- disease prevalence;
- public health relevance;
- evidence on efficacy and safety; and
- comparative cost-effectiveness.

Essential medicines are intended to be available at all times, in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford.

In Lebanon, the Ministry of Public Health adapted the essential drug list<sup>2</sup> following the above cited principles. Based on this list, the MOPH prioritized molecules for chronic and acute diseases, to be subsidized at PHC centres in Lebanon. The list is regularly updated and can be found on the MOPH website.

**Quality of care**: The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.<sup>3</sup>

**Person-Centred Primary Care**: According to the Geneva declaration on Person-Centred Primary Health Care (2015), person-centred health care aims to provide health care experiences and services that attain the health-related goals of the individual being served. Person-centeredness is an attitude, philosophy and approach that truly puts the person in the centre of the health care system. Person-centeredness starts with a relationship with a health care professional that becomes the person's usual source of care. From this relationship grows trust. From trust grows the ability to engage, educate, and empower people in their health care. This relationship of trust is based on continuity of care over time and being present for the person's health care needs. This continuous, comprehensive, and caring approach of primary care is the formula in which the person becomes empowered and engaged in their health. Primary care serves as the systems integrator. The absence of person-centred primary health care that ensure continuity and usual source of care results in wide fragmentation in health care with some receiving quality care, but many more without basic primary care services. This leads to wide disparities in health care outcomes and the social inequities of a have and have-not health care system.

This document upholds the general WHO principles for primary health care for an effective, safe, person-centred, timely, equitable, integrated and efficient care while emphasizing the country's ownership, harmonization of care and improvement in quality of care.

<sup>1</sup> <https://www.who.int/groups/expert-committee-on-selection-and-use-of-essential-medicines/essential-medicines-lists>

<sup>2</sup> Last adaptation in 2018: <https://www.moph.gov.lb/en/view/3123/%D9%84%D8%A7%D8%A6%D8%AD%D8%A9-%D8%A7%D9%84%D8%A3%D8%AF%D9%88%D9%8A%D8%A9->

<sup>3</sup> Institute of Medicine. Crossing the quality chasm: a new health system for the 21st century. Washington (DC): National Academies Press; 2001.



# SECTION 1

# GENERAL HEALTH

A. General medical examination (preventive services) – Z00.0 .....	6
B. Cardiovascular disease risk assessment – Z13.6 .....	13
C. Geriatric assessment – Z01.89 .....	17
D. Healthy lifestyle – Z71.3 .....	21

# GENERAL MEDICAL EXAMINATION (PREVENTIVE SERVICES)

## PERIODIC HEALTH EXAMINATION FOR ADULTS AND RECOMMENDATIONS



### DEFINITION

#### Types of prevention:

Population at Risk	Asymptomatic Patient	Symptomatic Patient
<b>Primary Prevention</b>	<b>Secondary Prevention</b>	<b>Tertiary Prevention</b>
<b>Goal:</b>		
Prevent development of disease (e.g. lifestyle counseling)	Identify and treat people with disease (e.g. screening)	Limit or prevent future complications (e.g. self-management)
<b>Action to be taken:</b>		
Avoid or remove the cause of a health problem (e.g. health promotion; specific protection such as immunization)	Detect a health problem at early stage facilitating cure, or reducing or preventing its spreading or its long-term effects (e.g. screening, case finding, early diagnosis)	Reduce the chronic effects of health problems by minimizing the functional impairment consequent to the acute or chronic health problem (e.g. prevention of diabetes complication) in addition to rehabilitation as needed

#### Components of a Health Maintenance Visit:

RISE	
<b>R</b> isk Factors	Identify the risk factors for serious medical conditions while taking the medical history and performing the physical exam.
<b>I</b> mmunizations	Provide recommended immunizations and Chemoprophylaxis as needed.
<b>S</b> creening Tests	Order the appropriate screening tests adequate to age and gender.
<b>E</b> ducation	Educate patients about healthy lifestyle behaviors.



### RECOMMENDATIONS BACKGROUND

#### 1. Ministry of Public Health

The Ministry of Public Health (MOPH) developed wellness packages used in the national primary healthcare centers for the persons registered. MOPH is updating the wellness packages periodically to provide a set of minimum preventive services, taking into consideration between others the national guidelines, WHO guidelines and USPSTF recommendations.



## RECOMMENDATIONS BACKGROUND (cont.)

### 2. WHO criteria for screening

- The condition being screened for is an important health problem
- The natural history of the condition is well understood
- There is a detectable early stage
- Treatment at an early stage is of more benefit than at a later stage
- A suitable test is available for the early stage
- The test is acceptable
- Intervals for repeating the test are determined
- Adequate health service provision is made for the extra clinical workload resulting from screening
- The risks, both physical and psychological, are less than the benefits
- The costs are balanced against the benefits

### 3. The U.S. Preventive Services Task Force (USPSTF)

USPSTF is an independent panel in the United States established with the purpose of providing evidence-based recommendations for the provision of preventive services to apparently healthy individuals in the primary care setting. Recommendations are periodically updated using the below grade definitions.

USPSTF Grade Definitions		
Grade	Definition	Suggestions for Practice
<b>A</b>	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
<b>B</b>	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
<b>C</b>	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is at least moderate certainty that the net benefit is small.	Offer or provide this service only if other considerations support the offering or providing the service in an individual patient.
<b>D</b>	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
<b>I</b>	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the clinical considerations section of USPSTF recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

## RECOMMENDATIONS

Factor or condition	Test	Target population	Intervention/ Comments
<b>Risk factors and screening tests</b>			
Tobacco	Ask about tobacco use	All adults	Provide 5 A counseling to tobacco users. <i>(Refer to counseling and healthy lifestyle algorithm)</i>
Alcohol	Ask about alcohol use	All adults	Provide brief behavioral counseling interventions to persons engaged in risky or hazardous drinking. <i>(Refer to lifestyle counseling algorithm)</i>
Depression	Simple screening questions (such as PHQ2)	All adults, including pregnant and post-partum women	<i>Refer to depression algorithm</i> <i>Consider PHQ2 positive if <math>\geq 3</math></i>
Intimate partner violence	Abuse assessment <i>(refer to annex 1)</i>	All asymptomatic women in child bearing age. Risk factors include young age, substance abuse, marital difficulties, and economic hardships.	Refer women who screen positive to protection services.
Obesity	BMI= weight (kg) / [height x height] (m <sup>2</sup> )	All adults	Offer or refer to intensive, multi-component behavioral interventions those patients with a BMI of 30 kg/m <sup>2</sup> or higher. <i>(Refer to obesity algorithm)</i>

Factor or condition	Test	Target population	Intervention/ Comments
Blood pressure	Measurement of blood pressure	All adults <ul style="list-style-type: none"> <li>Yearly for adults 40 years and older or those with risk factors for hypertension.</li> <li>Every 3 to 5 years for younger adults with no risk factors and previously normal BP.</li> </ul>	<i>Refer to Hypertension algorithm</i>
Dyslipidemia	Lipid panel (HDL, LDL, triglycerides, cholesterol)	<ul style="list-style-type: none"> <li>Screen all men age 35 years and older (Grade A) and men age 20-35 years who are at increased risk for Coronary Health Disease (CHD) (Grade B).</li> <li>Screen women age 45 years or older who are at increased risk for CHD (Grade A) and women age 20-45 years who are at increased risk for CHD (Grade B).</li> <li>Reasonable interval for screening is once every 5 years, decrease the interval for people who have lipid levels close to those warranting therapy.</li> </ul>	<i>Refer to dyslipidemia algorithm</i>
Diabetes Mellitus	fasting plasma glucose (FPG), or 2-hour post load plasma, or Hemoglobin A1C	Screen all adults for diabetes every three years beginning at 40 years of age; adults of any age who are overweight or obese (BMI 25 kg/m <sup>2</sup> ) and who have one or more additional risk factors for diabetes should also be screened.	<i>Refer to diabetes algorithm</i>
Osteoporosis		Use FRAX- Based Osteoporosis Screening in the following cases: <ul style="list-style-type: none"> <li>Age &gt; 65 years</li> <li>Presence of vertebral deformity or fragility fracture</li> <li>Radiologic evidence of low bone density</li> <li>Chronic glucocorticoid therapy (&gt; 3-6 months)</li> <li>Aromatase inhibitors or androgen deprivation therapy</li> <li>10-year Major Osteoporotic Fracture risk using FRAX with clinical risk factors ONLY is within few percent of 10% (6-14%)</li> </ul>	
HIV		Screen all adolescents and adults from age 15-65 who are at increased risk for HIV.  Risk factors include having unprotected vaginal or anal intercourse, having sexual partners who are HIV-infected, bisexual, or injection drug users, and exchanging sex for drugs or money.	
Sexually transmitted infection	Counseling	All sexually active adolescents and adults at high risk for STIs.  Adults are considered at high risk if they have recurrent STIs or have had an STI within the past year, or if they have multiple sexual partners.	High-intensity counseling to prevent Sexually Transmitted Infections

Factor or condition	Test	Target population	Intervention/ Comments
Colon cancer	FIT test, colonoscopy or rigid sigmoidoscopy	<ul style="list-style-type: none"> <li>All patients between 50-75 years: Screening intervals:               <ul style="list-style-type: none"> <li>» Annual screening with FIT test; or</li> <li>» Sigmoidoscopy every 5 years, with FIT test every 3 years; or</li> <li>» Screening colonoscopy every 10 years.</li> </ul> </li> <li>Patients who have family history of colorectal cancer before the age of 60 years are advised to start screening at age of 40, or 10 years before the youngest case in the immediate family; which one is earlier. Repeat colonoscopy every 5 years.</li> </ul>	If patient cannot afford doing colonoscopy, then do annual FIT test and if positive refer for colonoscopy.
Lung cancer	Low-dose computed tomography (if accessible)	<p>Asymptomatic adults aged 55 to 80 years who have a 30 pack-year smoking history and currently smoke or have quit smoking within the past 15 years</p> <p>Screen annually</p> <p>Discontinue screening when the patient has not smoked for the past 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.</p>	
Prostate cancer	Prostate Specific Antigen (PSA) screening	For men aged 55 to 69 years, the decision to undergo periodic prostate-specific antigen (PSA)-based screening for prostate cancer should be an individual one, based on a discussion with their physician of the potential benefits and harms of screening	
Breast cancer	Mammography	Screen annually starting age 40 and as long as a woman is in good health.	
Cervical cancer	Pap smear	<p>The USPSTF recommends screening for cervical cancer every 3 years with cervical cytology alone in women aged 21 to 29 years.</p> <p>For women aged 30 to 65 years, the USPSTF recommends screening every 3 years with cervical cytology alone, every 5 years with high-risk human papillomavirus (hrHPV) testing alone, or every 5 years with hrHPV testing in combination with cytology (co-testing).</p>	
<b>Chemoprophylaxis</b>			
Aspirin		As per WHO, adults aged 40-79 years who have a 10-year very high risk of major cardiovascular disease ( $CVR \geq 30$ ) need to take daily Aspirin if there is no contraindication.	Refer to cardiovascular risk assessment algorithm

Factor or condition	Test	Target population	Intervention/ Comments
Statin Use for the Primary Prevention of Cardiovascular Disease in Adults.		The USPSTF recommends that clinicians prescribe a statin for the primary prevention of CVD for adults aged 40 to 75 years who have 1 or more CVD risk factors (i.e. dyslipidemia, diabetes, hypertension, or smoking) and an estimated 10-year risk of a cardiovascular event of 10% or greater. (Grade B, Aug 2022)	At least Rosuvastatin 10mg, or Atorvastatin 20mg. <b>N.B.</b> Atorvastatin is preferable in case of kidney diseases.
Folic acid supplementation		All Women planning a pregnancy or capable of becoming pregnant  Prescribe a daily vitamin supplement containing 0.4 to 0.8 mg (400 to 800 µg) of folic acid. Start supplementation at least 1 month before conception.  Continue through first 2-3 months of pregnancy <ul style="list-style-type: none"> <li>• Women with risk factors are advised to take higher dose of folic acid.</li> <li>• These risk factors include personal or family history of a pregnancy affected by a neural tube defect, the use of certain anti-seizure medications, mutations in folate -related enzymes, maternal diabetes, and maternal obesity.</li> </ul>	
<b>Immunization</b>			
Flu vaccine (if accessible)		There are no national guidelines for adults' immunization.  For adults, WHO recommends vaccinating pregnant women, elderly persons ≥ 65 years of age, individuals with specific chronic medical conditions, and health-care workers.  Annual influenza vaccination	
Tetanus vaccine (if available)		Give adults who have never received Tdap a single dose of Tdap. This can be given at any time, regardless of when they last got Td. This should be followed by either a Td or Tdap booster every 10 years.	
Pneumococcal vaccine (if available)		CDC recommends PPSV23 for all adults 65 years or older, people 2 through 64 years old with certain medical conditions, and adults 19 through 64 years old who smoke cigarettes. Adults 65 years or older also can discuss and decide, with their clinician, to get PCV13 (there should be 1 year between the 2 vaccines).	



## ANNEX 1: ABUSE ASSESSMENT SCREENING

<https://www.cdc.gov/violenceprevention/pdf/ipv/ipvandsvscreening.pdf>

Instructions: Circle Yes or No for each question

1. Have you ever been emotionally or physically abused by your partner or someone important to you? YES NO

2. Within the last year, have you been hit, slapped, kicked or otherwise physically hurt by someone? YES NO

If YES, who? (Circle all that apply)

Husband Ex-Husband Boyfriend Stranger Other Multiple

Total no. of times \_\_\_\_\_

3. Since you've been pregnant, have you been slapped, kicked or otherwise physically hurt by someone? YES NO

If YES, who? (Circle all that apply)

Husband Ex-Husband Boyfriend Stranger Other Multiple

Total no. of times \_\_\_\_\_

Mark the area of injury on the body map. Score each incident according to the following scale:

### SCORE

1 = Threats of abuse including use of weapon \_\_\_\_\_

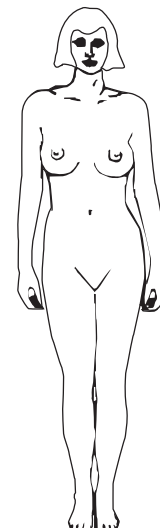
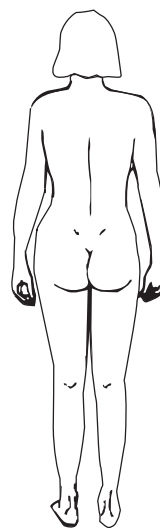
2 = Slapping, pushing; no injuries and/or lasting pain \_\_\_\_\_

3 = Punching, kicking, bruises, cuts, and/or continuing pain \_\_\_\_\_

4 = Beating up, severe contusions, burns, broken bones \_\_\_\_\_

5 = Head injury, internal injury, permanent injury \_\_\_\_\_

6 = Use of weapon; wound from weapon \_\_\_\_\_



4. Within the last year, has anyone forced you to have sexual activities? YES NO

If YES, who? (Circle all that apply)

Husband Ex-Husband Boyfriend Stranger Other Multiple

Total no. of times \_\_\_\_\_

5. Are you afraid of your partner or anyone you listed above? YES NO

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Journal of the American Medical Association, 1992, 267, 3176-78.

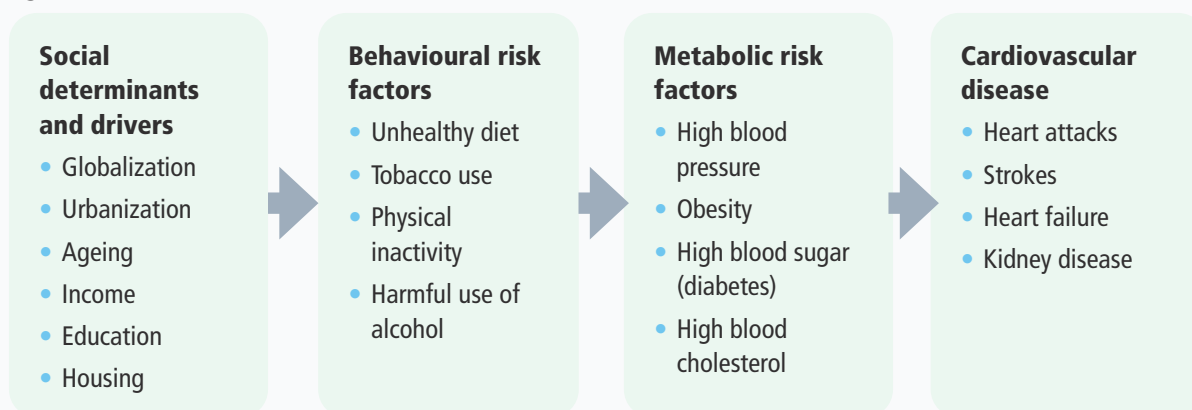
# CARDIOVASCULAR DISEASE RISK ASSESSMENT



## DEFINITION ●●

Several risk factors may contribute to the development of cardiovascular diseases and complications (figure 1). Behavioral and metabolic risk factors are considered as modifiable cardiovascular risk (CVR) factors.

Figure 1.



Source: WHO heart package 2018



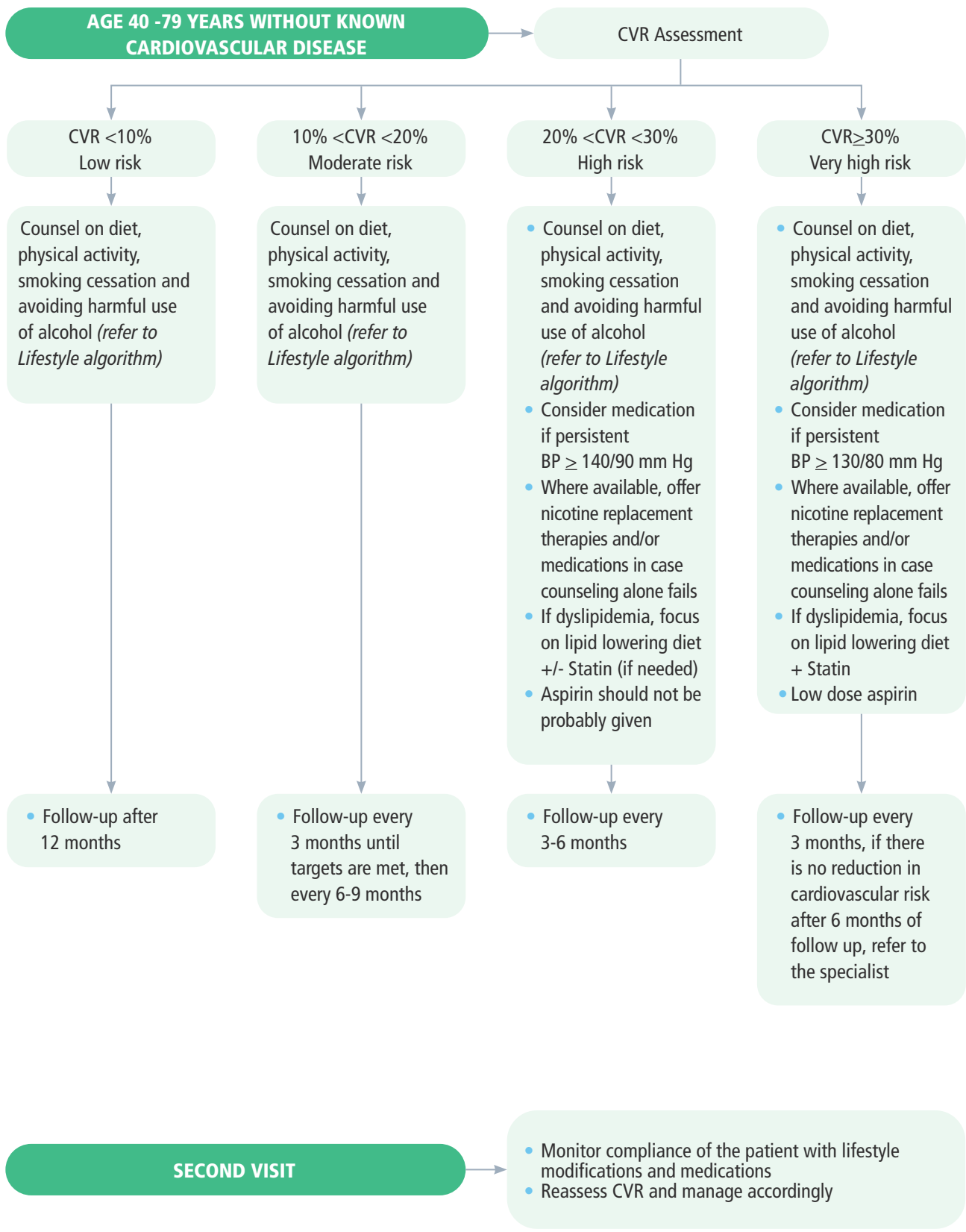
## WHO/ISH RISK PREDICTION CHARTS ●●

The World Health Organization (WHO) and International Society of Hypertension (ISH) developed the WHO/ ISH risk prediction charts\* to determine the 10-year risk of individuals aged 40 -74 years and free of clinical cardiovascular conditions to have a major cardiovascular event (such as myocardial infarction or stroke). The risk is measured based on several factors namely age, gender, blood pressure, smoking status, total blood cholesterol and presence or absence of diabetes mellitus (see annex 1). The level of the cardiovascular risk will help guide primary preventive measures.

### Caution:

Risk charts underestimate the risk in those with a family history of premature cardiovascular disease (<55 years men, <65 years women), raised triglyceride levels, chronic kidney disease, and generalised inflammatory conditions, e.g. rheumatoid arthritis.

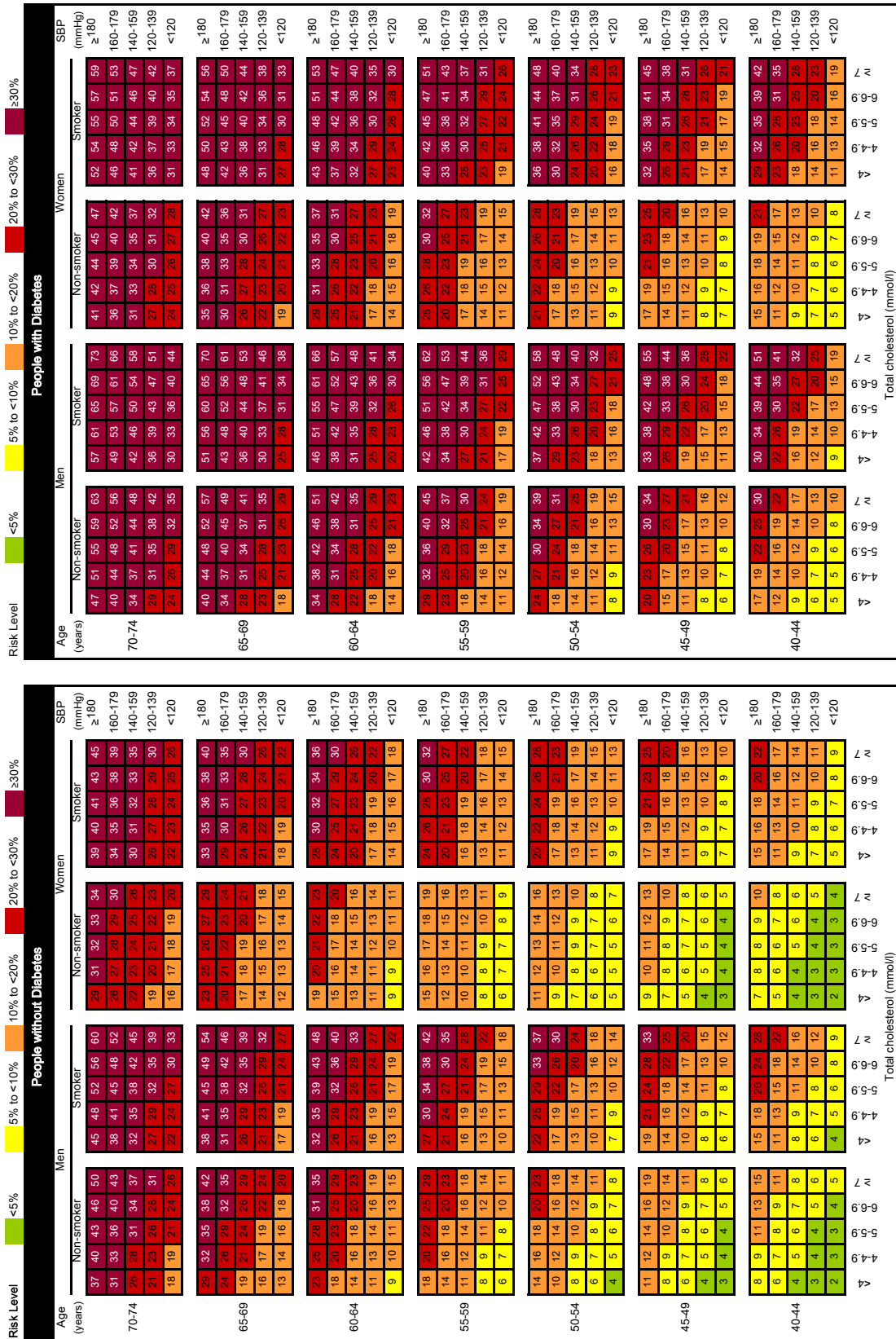
\* For easy use of the charts, you can download the WHOPEN application.



# Annex I: WHO cardiovascular disease risk non-laboratory-based charts\*

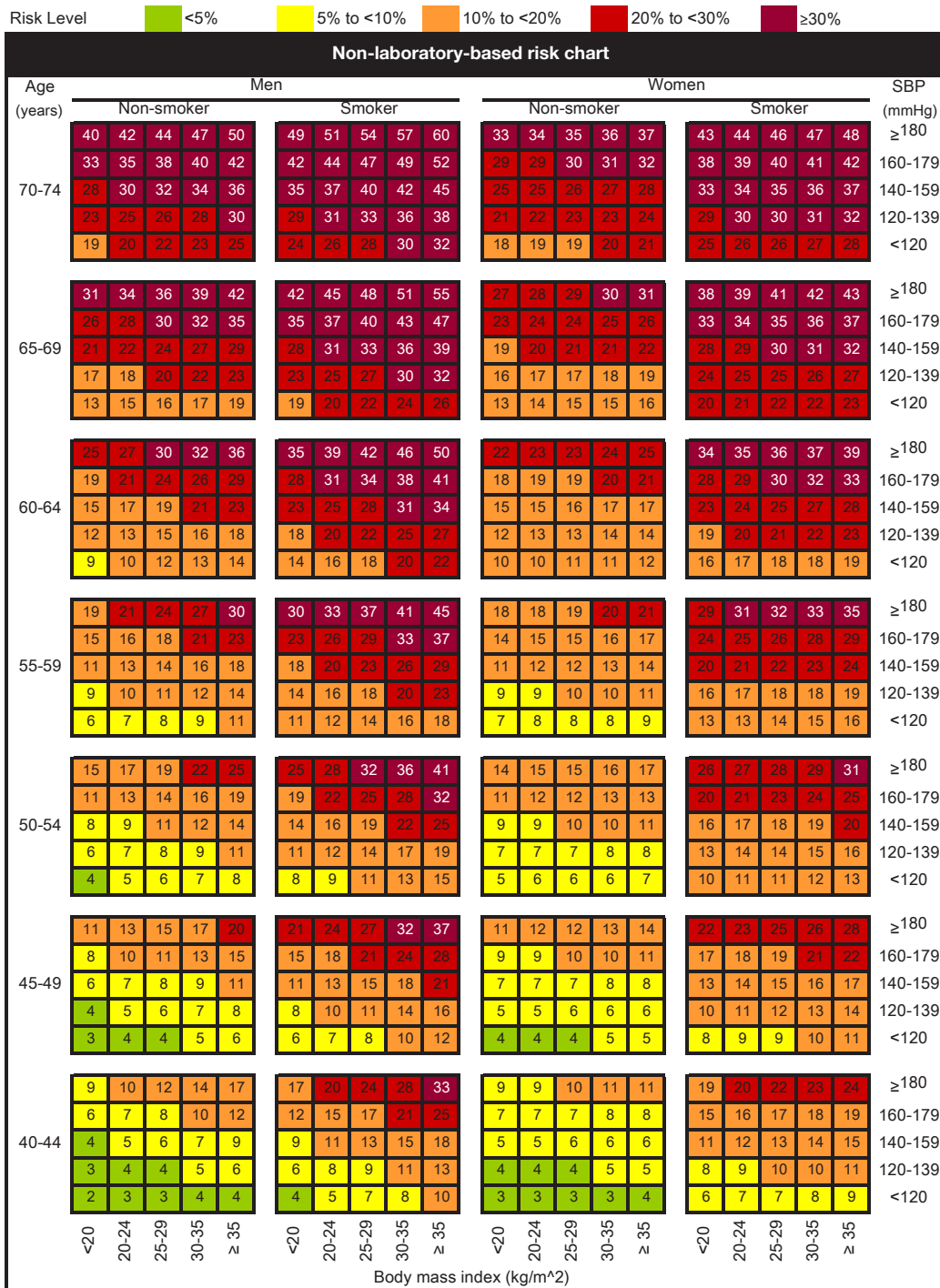
## North Africa and Middle East

Afghanistan, Algeria, Bahrain, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, occupied Palestinian territory, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, Turkey, United Arab Emirates, Yemen



## North Africa and Middle East

Afghanistan, Algeria, Bahrain, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, occupied Palestinian territory, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, Turkey, United Arab Emirates, Yemen



North Africa and Middle East

\* For easy use of the charts, you can download the WHOPEN application.

Geriatric assessment is a process that helps evaluate medical, psychosocial, environmental, and functional abilities of the older population (older adults aged 65 years and above). This can identify their needs, improve their well-being, manage identified conditions in a timely manner and prevent complications. After the assessment, a coordinated plan with well-identified goals should be developed to maximize overall health with aging. The assessment should be tailored to patient goals of care and life expectancy.

Advance care preferences (i.e., wishes for end-of-life treatment in case the older adult becomes unable to speak for himself/herself) can be discussed and documented.

The geriatric assessment is better spread across multiple visits and completed by a multidisciplinary team.

When communicating with elderly patients:

- Encourage their participation in decisions.
- Assess any barriers to the understanding of information.
- Provide them with health protection, health promotion and disease prevention information.
- Include family members and/or caregivers in teaching/learning activities (patient education).

Comprehensive geriatric assessment is a multidisciplinary task and it includes assessing 4 main components:

1. Physical assessment
2. Functional, social and environmental assessment
3. Psychological components
4. Medication review

Sub-component	Recommendations	Tool used	Comments	Key Recommendations
<b>Physical Assessment</b>				
Cognition/memory	Assessment to be done if symptomatic or in those with memory complaints, either self-expressed, or noted by a caregiver or healthcare provider	Mini-Cog, Mini Mental Status Examination OR Verbal fluency test (i.e., giving the elderly 60 seconds to verbally list as many things (at least 20) as possible in a category.		
Urinary incontinence	Assess presence of urinary incontinence annually	Direct question (interview)		

Sub-component	Recommendations	Tool used	Comments	Key Recommendations
Hearing	Assess hearing annually	Whisper test		<ul style="list-style-type: none"> <li>• Refer for audiometry</li> </ul>
Tobacco use	Check every visit	Direct question (interview)		
Sexual function	Assess annually	Direct question (interview)		
Gait, Balance, risk of Falls	Assess the gait and balance annually	Direct observation along with Timed Up and Go Test/ postural blood pressure. One question: have you fallen in the past year?	In-depth, multifactorial risk assessment for falls should be reserved for patients who respond affirmatively to the question or those who take longer than 12 seconds to perform a Timed Up and Go Test.	<ul style="list-style-type: none"> <li>• Exercise, particularly balance, strength, and gait training.</li> <li>• Vitamin D3 supplementation</li> <li>• Withdrawal or minimization of psychoactive and other medications.</li> <li>• Adaptation or modification of the home environment</li> <li>• Management of foot problems and footwear</li> <li>• Management of postural hypotension</li> </ul>
Visual	Assess vision annually	Snellen chart and near vision		<ul style="list-style-type: none"> <li>• Daily AREDS 2 vitamin supplementation delays vision loss in patients with age related macular degeneration.</li> <li>• Fenofibrate may slow the progression of diabetic retinopathy. It is not recommended in case of kidney disease.</li> <li>• Counseling to quit smoking.</li> </ul>

Sub-component	Recommendations	Tool used	Comments	Key Recommendations
Dentition	Assess annually mainly for oral disease, tooth loss, denture care and risk factors to oral disease (such as oral hygiene and dietary habits).	Direct question (interview) and oral exam		<ul style="list-style-type: none"> <li>• Refer to dentist</li> <li>• General oral health counseling.</li> </ul>
Nutrition/weight change	Assess any weight loss and presence of malnutrition on regular basis (at least once annually)	Questions about diet; measuring weight and height (body mass index).		Unintentional weight loss of more than 5% within 6 to 12 months: baseline evaluation (Physical exam, lab tests, CXR, FIT +/- Abdominal US).
<b>Functional, social and environmental assessment</b>				
Functional Status	Assess the functional status (ability to perform activities necessary or desirable in daily life) on regular basis (at least once annually)	<p>Activities of Daily Living (self-care tasks) and Instrumental Activities of Daily Living (independent household)</p> <p>Extended Activities of Daily Living Scale</p> <p>Nottingham Extended Activities of Daily Living Scale</p>	<ul style="list-style-type: none"> <li>• Bathing</li> <li>• Dressing</li> <li>• Toileting</li> <li>• Maintaining continence</li> <li>• Grooming</li> <li>• Feeding</li> <li>• Transferring</li> <li>• Shopping for groceries</li> <li>• Driving or using public transportation</li> <li>• Using the telephone</li> <li>• Performing housework</li> <li>• Doing home repair</li> <li>• Preparing meals</li> <li>• Doing laundry</li> <li>• Taking medications</li> <li>• Handling finances</li> </ul>	<ul style="list-style-type: none"> <li>• Aim for at least 150 minutes of moderate intensity aerobic activity (Walking, swimming, running, etc) or two days of resistance training per week (Squat, push up, plank, etc).</li> <li>• Flexibility exercises improve and maintain joint range of movement.</li> <li>• Balance exercises (Yoga) +++</li> </ul>
Exercise/physical activity	Assess annually	Direct question (interview)		



Sub-component	Recommendations	Tool used	Comments	Key Recommendations
Social and Financial Support	Determine who would be available to help if he/ she becomes ill – check for red flags: living alone, signs of abuse, disability, etc.	Take a social history and assess financial situation; observe and check for any possible abuse.		
Check safety at home	Assess any potential environmental risk at home (conducted usually by members of the multidisciplinary team)	Home visit with a checklist for home safety		
<b>Psychological components</b>				
Mood	Screen all older beneficiaries for depression annually	Use the PHQ2 followed by PHQ9 if needed		
<b>Medication review</b>				
Polypharmacy	Review and reconcile medications (up-to-date medication list, including over-the-counter and herbal) every visit (at least once annually).	Interview and chart review: Assess for duplication, drug-drug or drug-disease interactions, adherence, and affordability.		

### Recommendations for vaccination upon availability:

- Annual Influenza Vaccine
- The 13-valent pneumococcal conjugate vaccine at 65 years of age and the 23-valent pneumococcal polysaccharide vaccine one year later
- Two doses of recombinant herpes zoster vaccine dosed two to six months apart for immunocompetent adults 50 years or older
- Diphtheria toxoids (Td) booster vaccine every 10 years



## DEFINITION ●●

Healthy lifestyle helps prevent diseases namely chronic diseases such as hypertension, diabetes mellitus and cardiovascular diseases. Lifestyle modifications target behavioral risk factors such as unhealthy diet, tobacco use, physical inactivity and harmful use of alcohol. Counseling provides patients with the right knowledge and skills to make healthy lifestyle modifications.



## HEALTHY LIFESTYLE COMPONENTS ●●

### Healthy diet

- Principles of a healthy diet:
  - Balanced in energy intake: Energy needs differ depending on gender, age, weight, height, and activity level.
  - Adequate in nutrients including protein, carbohydrates, fats, vitamins, and minerals.
  - Diverse: diversity in a diet means a variety of foods from different food groups.
- Healthy diet includes a variety of whole fruits, vegetables, beans and legumes, nuts, and whole grains (such as whole grain oats, wheat and rice).



**Eat mainly whole fruits, vegetables, beans, whole grains, fish, and nuts** (avoid processed foods). Red meat can be eaten 1-2 times per week and poultry 2-3 times per week.



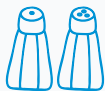
**Eat at least 5 servings of fruits and vegetables a day** (at least 400g)



**Limit total intake of added sugar** to a maximum of 12 teaspoons per day (50g)



**Unsaturated fats (fish, nuts, olive oil, avocados) are preferable to saturated fats (fatty meat, butter, palm oil, fatty cheeses...)**. Industrially produced fats (trans fats) found in fast food, fried food, ready-made cookies, and cakes should NOT be part of a healthy diet



**Limit salt to less than 5g per day (1 teaspoon) and use iodized salt**

- Consumption of at least **five portions** a day of a variety of **fruits** and **vegetables**. One portion is equivalent, for example, to one orange, apple, mango, banana, or 1 cup of raw vegetables or 1/2 cup of cooked vegetables.
- **Most dietary fat should be unsaturated**. Unsaturated fats/oils are generally found in plant foods such as seeds, nuts, vegetable oils, olive oil, and fish and seafood. Unsaturated fats can be either polyunsaturated (as in sunflower, soya, corn, and sesame oils), or monounsaturated (for example, olive oil). It is advised to consume up to 10% of calories from polyunsaturated fats and around 15% of calories from monounsaturated.
- **Reduction of total fat and saturated fat intake**. Saturated fats are found mainly in animal products such as meat, milk, butter, cream, cheese, ghee and lard.



## HEALTHY LIFESTYLE COMPONENTS (cont.) ●●

- **Limiting trans fats** that are found in processed food, fast food, snacks, fried food, frozen pizza, pies, cookies, margarine and spreads.
- **Reduction of overall daily salt intake** to < 5 g per day (equivalent to sodium intake of less than 2 g per day or approximately 1 teaspoon of salt). See examples of sources of salt in the table below.

Sources of salt in the diet	Common examples
<b>Processed-Ready to eat foods</b>	<ul style="list-style-type: none"> <li>• Ready-to-eat powdered soups, sauces and gravies</li> <li>• Stock cubes for cooking stews</li> <li>• Ready-to-eat snacks such as chips, some cereal bars, ready-made cookies, pretzels and crackers,</li> <li>• Processed cheeses and deli meats</li> <li>• Frozen ready to eat meals or prepacked processed mixes of ready to eat dishes</li> </ul>
<b>Canned Foods</b>	<ul style="list-style-type: none"> <li>• Canned Vegetables (like peas and corn and carrots)</li> <li>• Canned beans ("foul", "hummus", lentils and beans)</li> <li>• Canned tuna, sardines and other seafood</li> <li>• Canned processed meats</li> </ul>
<b>Pickled/Cured or Smoked foods</b>	<ul style="list-style-type: none"> <li>• Cucumber pickles, "Makdous", Olives</li> <li>• Any other pickled food</li> </ul>
<b>Breads</b>	<ul style="list-style-type: none"> <li>• White Arabic bread if consumed in large amounts can contribute to salt intake</li> <li>• Some traditional breads like Markouk may also contain considerable amounts of salt</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• Zaatar (traditionally made zaatar can be produced with lower amounts of salt)</li> <li>• Keshek</li> <li>• Salted nuts</li> </ul>

- **Minimizing added sugar to less than 5-10% of total energy intake added**, which is equivalent to 25-50 g (or about 6-12 leveled teaspoons).

### Physical activity

- **At least 150 minutes of moderate physical activity** (a mild increase in heart rate or breathing rate) spread throughout the week (30 minutes per day for at least 5 days per week), **or**
- **At least 75 minutes of vigorous physical activity** spread throughout the week (25 minutes per day for at least 3 days per week)
- **Muscle-strengthening** activities involving major muscle groups on two or more days a week.
- **Limit** the amount of time spent being sedentary

Moderate physical activity	Vigorous physical activity	Muscle-strengthening activities
<ul style="list-style-type: none"> <li>• Brisk walking</li> <li>• Climbing stairs</li> <li>• Dancing</li> <li>• Gardening</li> <li>• Household chores</li> </ul>	<ul style="list-style-type: none"> <li>• Vigorous gardening</li> <li>• Running</li> <li>• Fast cycling</li> <li>• Fast swimming</li> <li>• Playing football or basketball or other sport</li> </ul>	<ul style="list-style-type: none"> <li>• Lifting weights</li> <li>• Push-ups/sit-ups and squats</li> <li>• Climbing stairs</li> <li>• Walking uphill</li> </ul>



## HEALTHY LIFESTYLE COMPONENTS (cont.) ●●

### Weight control

- Individuals with elevated BMI suffer from overweight ( $25 \geq \text{BMI} < 30$ ) or obesity ( $\text{BMI} \geq 30 \text{ Kg/m}^2$ ) and should be encouraged to lose weight through a combination of a reduced-energy diet (dietary advice) and increased physical activity. When feasible such individuals should be referred to a dietitian.
- Refer persons with obesity to intensive, multi-component behavioral interventions. This includes:
  - Setting weight-loss goals or other behavioral management activities
  - Addressing barriers to change
  - Improving diet and increasing physical activity
  - Self-monitoring
  - Establishing strategies to maintain lifestyle changes

#### Weight Management Tips

- Aim for a weight loss of about 0.5Kg per week, up to 1kg/week
- Focus on portion control (decreasing portion sizes is among the most efficient strategies to support weight loss)
- Increase fiber-rich, nutrient-dense foods such as fruits, vegetables, legumes/beans, and whole grains
- Limit high-energy foods such as sweets and desserts, fried foods, and fatty foods (such as butter, ghee, fatty meats, and fast food)
- Limit added sugars such as sweetened beverages (soda and juices), sweets and desserts

### Alcohol use

- Harmful use of alcohol includes high-level drinking each day, as well as single or repeated episodes of drinking to intoxication. Screen using a single screening question: How many times in the past year have you had five (four for women) or more drinks in a day? If the patient's response is one or more, a more detailed instrument such as the AUDIT (10-question tool) is recommended (<http://auditscreen.org/>). Brief (5 to 10-minute) multicontact counseling interventions are effective. Counseling interventions include discussing the patient's alcohol use compared with national norms, patient-specific adverse alcohol effects, and mutual agreements to specific drinking amounts. This normative feedback can be used with motivational interviewing.
- Persons are generally considered to be at lower risk for negative consequences of alcohol use if they drink no more than two units of alcohol per day (one unit per day for non-pregnant women) and do not drink on at least two days of the week.

### Tobacco use

- All persons should be advised not to smoke or use any tobacco products and avoid second-hand tobacco smoke.
- All smokers should be counseled to consider smoking cessation, using the 5A's: Ask, Advice, Assess, Assist and Arrange.
- Nicotine replacement therapy and/or other medications for smoking cessation can be offered as needed (if available).

# **BASIC CLINICAL ALGORITHMS OF CARE**

**FOR THE MOST COMMON CONDITIONS IN ADULTS,  
ENCOUNTERED AT PRIMARY HEALTH CARE SETTING,  
FOR PHYSICIANS IN THE PUBLIC HEALTH SYSTEM**



**DEFINITION** ●○○○

A chronic inflammatory disease of the airways, characterized by recurrent attacks of cough, dyspnea and wheezing due to variable and reversible degrees of airway obstruction related to hypersensitivity.

**HISTORY** ○●○○

- Recurrent symptoms of airflow obstruction or airway hyperresponsiveness: dyspnea, cough, wheezing, chest tightness (worse at night or early morning).
- Severity, frequency, and duration of symptoms.
- Emergency Room visits and hospitalization.
- Triggers: viral infections, animals with fur or hair, allergens (pollen, dust mites, molds, cockroaches...), non-allergic (smoke, exercise, cold air, stress, heartburn, postnasal drip suggestive of sinusitis, drugs e.g. Aspirin, NSAIDs, beta-blockers).
- Asthma exacerbation at work and better when away from work (e.g. during weekends): suggestive of occupational or work-aggravated asthma.
- Confirm the diagnosis of asthma early on, since it is more difficult once treatment is initiated.

**PHYSICAL EXAMINATION** ○○○●○

- Often normal between exacerbations.
- Eye: conjunctival injection, ocular shiners.
- Nose: increased nasal secretion, mucosal swelling, nasal polyp, transverse crease on nose.
- Chest: prolonged expiration, wheezing (may be absent but if present, increases likelihood of asthma), check for wheezing on forced expiration, hyper expansion of the thorax, and signs of respiratory distress.
- Skin: appearance of allergic skin conditions, atopic dermatitis, eczema.



## DIAGNOSTIC AND MANAGEMENT TIPS ●●●●

- The diagnosis of asthma requires the presence of episodic respiratory symptoms with reversible airway obstruction and exclusion of other conditions that mimic asthma.
- Diagnosis is based on history, physical exam and spirometry results.
- Spirometry (FEV1, FVC, and FEV1/FVC) is recommended in every patient older than 5 years of age at the time of initial diagnosis. FEV1 should be measured also 3-6 months after starting treatment and then yearly.
- Controller treatment should be initiated as soon as possible after diagnosis of asthma is made.
  - Low dose ICS is recommended for all patients with diagnosis of asthma and one of the following: Asthma symptoms > twice per month; Night time awakenings > once per month; Risk factors for exacerbation: low FEV1, previous hospitalizations for asthma exacerbations
  - Medium/high dose ICS or ICS/LABA can be started if Asthma symptoms on most days, Night time awakenings > once per week.

The WHO Package of Essential Noncommunicable Disease Interventions (PEN) was developed to help improve NCD management in primary health care in low-resource settings. PEN includes protocols for the assessment, diagnosis and management of asthma, and modules on healthy lifestyle counselling, including tobacco cessation and self-care. Kindly download the WHOPEN application for more information.



## MANAGEMENT OF ASTHMA

Respiratory Symptoms Typical of Asthma

Detailed History/ Examination

Clinical urgency to treat

No Clinical urgency to treat

Empiric treatment with ICS and PRN SABA, Review response and diagnostic testing within 1-3 months

Perform Spirometry with reversibility test

Asthma confirmed

Asthma not confirmed- repeat on another occasion or do other tests

### Step 1

- Symptoms are rare, no night waking due to asthma, no exacerbations in the last year, and normal FEV1.
- **Regular low dose ICS plus as-needed SABA**

### Step 2

- Symptoms > 2 per week but not daily, 1-2 night waking per month, > 2 exacerbations in past 6 months necessitating oral steroids.
- **Regular low dose ICS plus as-needed SABA**
- Other options: Leukotriene receptor antagonists (LTRA) are less effective than ICS; ICS/LABA leads to faster improvement in symptoms and FEV1 than ICS alone.

### Step 3

- Symptoms daily, 3-4 night waking per month, > 2 exacerbations in past 6 months necessitating oral steroids.
- **Low dose ICS/LABA either as maintenance treatment plus as-needed SABA, or as ICS/formoterol maintenance and reliever therapy.**
- Other options: medium/high dose ICS OR low dose ICS+LTRA

### Step 4

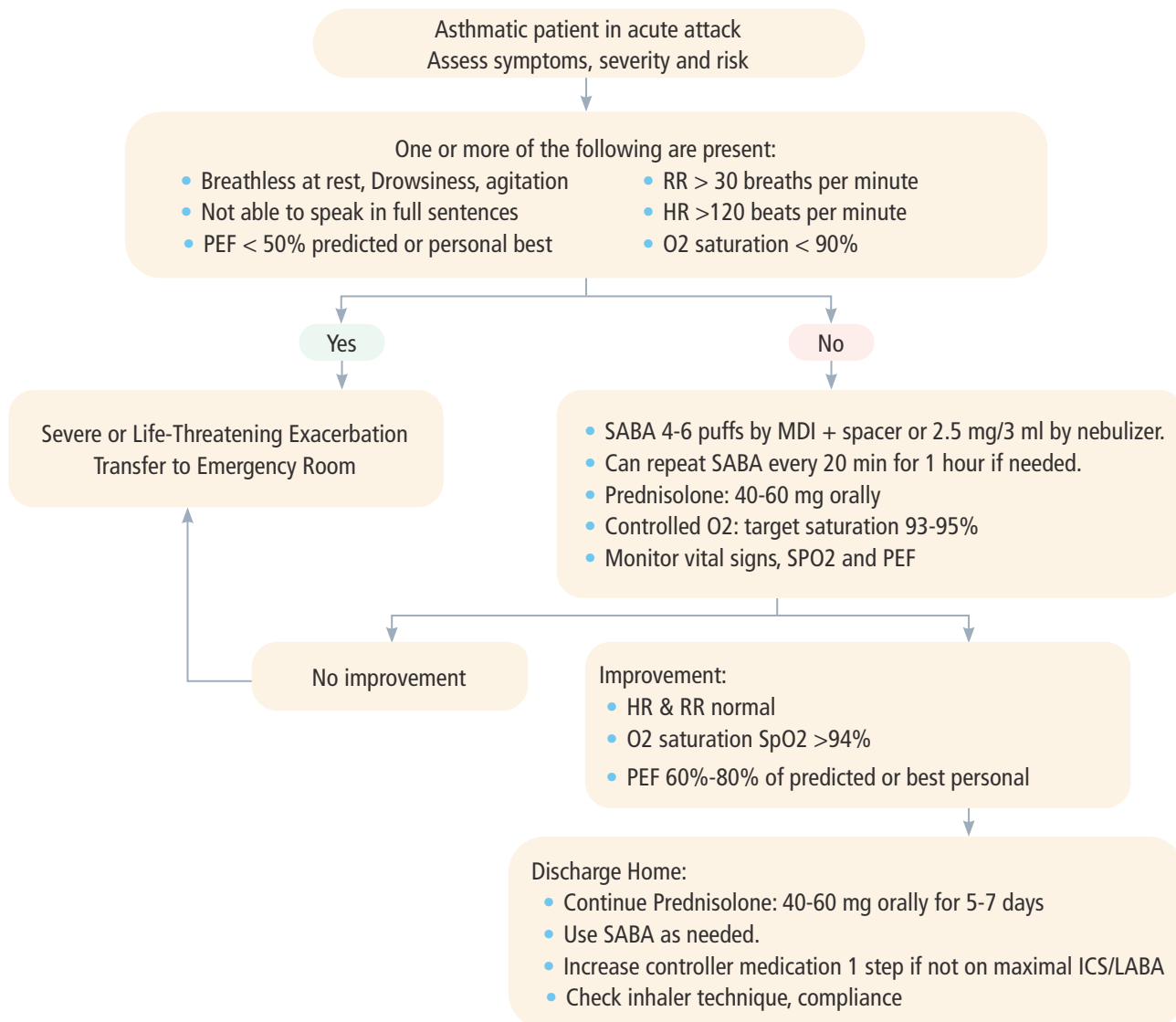
- Symptoms throughout the day, >1 night waking per week, > 2 exacerbations in past 6 months necessitating oral steroids.
- Low dose ICS/formoterol maintenance and reliever therapy, or medium dose ICS/LABA as maintenance plus as-needed SABA.
- Other options: Add-on tiotropium by mist inhaler for patients > 12 years with a history of exacerbations; high dose ICS/LABA, extra controller, e.g. add-on LTRA or slow-release theophylline (adults).

### Step 5

- Refer for expert investigation and add-on treatment.

Follow up every 1-3 months after starting treatment, then every 3-12 months. If well controlled for 3 months, consider step down: Reduce ICS by 25-30%

## MANAGEMENT OF ASTHMA EXACERBATION IN THE CLINIC



### Patient Education

- The importance of physical activity and regular exercise.
- Information on the reversible nature of the illness, and that asthma can be controlled but may need continuous therapy and regular follow-up.
- Rationale for inhaled drugs, different inhalers devices and inhalation techniques.
- Information that inhalers are not habit forming and are safe and better than tablets or syrup.
- Patients should carry their inhaler device at each follow up visit.
- The need for adherence to prescribed drugs to control the condition.
- Advice regarding dealing with triggers/precipitants:
  - Smoking cessation and avoid exposure to passive smoke.
  - Avoid dusty and smoke-filled rooms.
  - Avoid drugs like NSAIDs and beta blockers.

**DEFINITION** ●○○○○

Depression is a mood disorder that impairs a person's ability to function in daily life. It can also affect the management and/or control of physical diseases (i.e., it reduces adherence to treatment for chronic diseases), and it can occur after delivery (i.e., postpartum).

Depression is caused by an interaction between:

- Biological factors : medical condition, genetics, female sex, etc.
- Psychological factors: adverse experience in childhood, history of anxiety, etc.
- Social factors: poverty, disturbed family environment, history of divorce, etc.

Depression is classified as:

- Mild: if the person has the symptoms but still functioning.
- Moderate-severe: when the person is unable to continue with social, work, or domestic activities.

**HISTORY** ○●○○○

- Presence of symptoms that are common in depression: low mood or persisting sadness; low interest or pleasure in activities; disturbed sleep or sleeping too much; significant change in appetite or weight (decrease or increase); beliefs of worthlessness or excessive guilt; fatigue or loss of energy; reduced concentration and/or memory; indecisiveness; observable agitation or physical restlessness; talking or moving more slowly than usual; hopelessness and pessimism about the future; difficulty with daily functioning in personal, family, social, educational, occupational or other areas; or suicidal thoughts or acts.
- Presence of persistent physical symptoms with no clear cause such as aches and pains, palpitations, etc.
- Presence of symptoms that may suggest mania: feeling (or being told that) for at least one week of being extremely happy, elevated, expansive or irritable; having more activity/energy; sleeping less or not in need of sleep; extremely talkative; thoughts rushing through the head or having many ideas and plans; feeling very important; unable to concentrate; reckless behavior (spending more than usual, driving fast' arguing with people).
- Presence of psychotic symptoms (delusions or hallucinations).
- Presence of concurrent medical illness (persons with chronic diseases are at increased risk of depression): particularly hypothyroidism, anemia, and other chronic conditions such as hypertension, diabetes, HIV/AIDS.



## HISTORY (cont.) ●●●●●

- Substance use including alcohol and illicit drugs.
- Intake of medications: with main emphasis on medications that can induce depressive symptoms such as isotretinoin, levetiracetam, calcium-channel blockers, estrogens, interferon alpha, beta blockers, etc.
- Presence of a major loss or bereavement/grief.
- For females of child bearing age, check if she is breastfeeding or pregnant.



## PHYSICAL EXAMINATION ●●●●●

- Conduct a general physical examination



## RED FLAGS FOR REFERRAL ●●●●●

- Imminent risk of self-harm/suicide
- History of bipolar disorder and manic episode
- Psychotic depression
- Substance abuse
- Pregnant/postpartum/breastfeeding women
- Children and adolescents



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○○●

- Before making the diagnosis of depression:
    - Rule out the presence of other medical conditions, particularly hypothyroidism and anemia. If the latter are suspected, the following tests can be ordered: complete blood count (CBC, platelets) and thyroid stimulating hormone (TSH).
    - Rule out that depressive symptoms are not side effects of medications taken by the patient.
    - Always rule out the presence of mania, and major loss or bereavement.
  - Diagnosis of depression is made if the following criteria are present for at least 2 weeks:
    - In the last 2 weeks, presence of at least 1 of the following core depression symptoms:
      - » Depressed mood (most of the day, almost every day)
      - » Loss of interest or pleasure in activities that are normally pleasurable
    - In the last 2 weeks, presence of at least 3 other features of depression:
      - » Decreased energy or easily fatigued
      - » Reduced concentration and attention
      - » Reduced self-esteem and self-confidence
      - » Ideas of guilt and worthlessness
      - » Pessimistic view of the future
      - » **Ideas or acts of self-harm or suicide**
      - » Disturbed sleep
      - » Diminished appetite
  - Need to always check for criteria for imminent risk of suicide. *Refer to annex for a visual guide.* The person is considered at **imminent risk of self-harm/suicide** if he/she:
    - Is currently thinking about suicide

**OR**

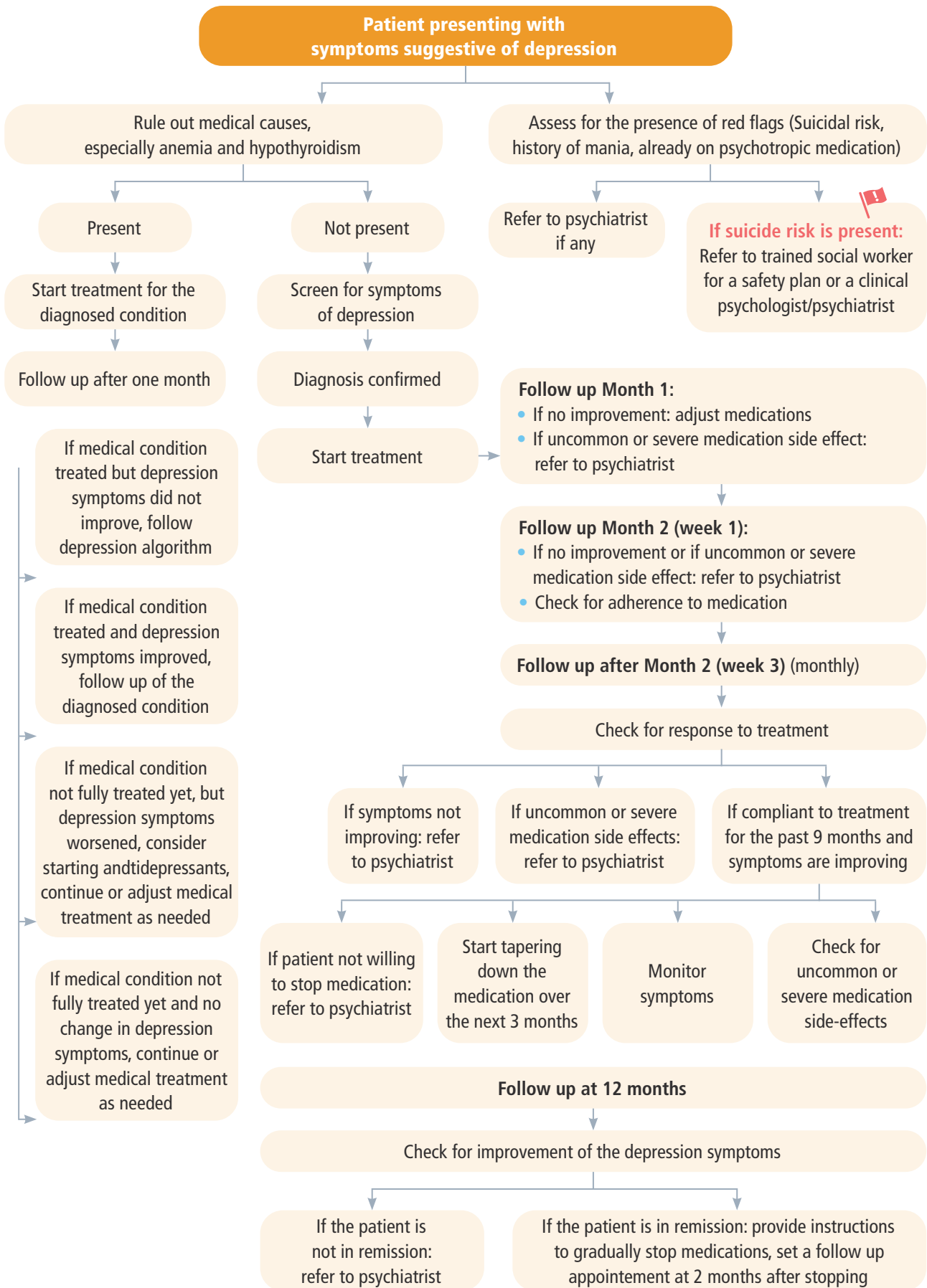
    - Thought about suicide in the past month or has attempted suicide in the past year and is:
      - » Agitated or
      - » Violent or
      - » Uncommunicative or
      - » Distressed
- Note:**
- If neither a clinical psychologist is present nor a psychiatrist, call the national hotline for emotional support and suicide prevention “the 1564 lifeline”.
  - Assess for suicidal risk at each visit and refer as needed.



## DIAGNOSTIC AND MANAGEMENT TIPS (cont.) ○○○○●

- Management of patients with depression
  - It is important to use shared decision in the management of patients with depression, applying the principles of person-centered care.
  - It includes non-pharmacologic (psychoeducation, psychotherapy) and/or pharmacologic treatment, depending on the severity of the condition.
  - Offer a regular follow up for patients with depression.
  - Pharmacotherapy includes any of the below:
    - » Selective serotonin reuptake inhibitors (SSRI)
      - Fluoxetine: start with 10 mg daily for one week then 20 mg daily. If no response in 6 weeks, increase to 20 mg per month (maximum 80 mg).
      - Sertraline: start with 25 mg once daily, increase by 25-50 mg per week (maximum dose 200 mg). Minimum effective dose in adults is 50 mg per day.
      - Other SSRI or serotonin-norepinephrine reuptake Inhibitor (SNRI) can be prescribed as well.
      - Side effects of SSRI include: Restlessness, nervousness, insomnia, anorexia, gastrointestinal disturbances, headache, sexual dysfunction.
    - » Tricyclic Antidepressants (TCA):
      - Amitriptyline: start with 25 mg at bedtime, and increase by 25-50 mg per week to 100-150 mg daily (maximum 300 mg). Minimum effective dose in adults is 75 mg. Better to avoid in older people. Avoid in persons with cardiac disease, history of seizure, hyperthyroidism, urinary retention, or narrow angle-closure glaucoma, and bipolar disorder. Avoid in persons with high risk of suicide.
      - Side effects of TCAs include: Orthostatic hypotension (falls risk), dry mouth, constipation, difficulty urinating, dizziness, blurred vision, sedation (even at low doses).
      - Other TCAs can be prescribed as well.
    - » It is always important to check for symptoms of mania in patients treated with pharmacotherapy.
    - » Duration of treatment is 9-12 months.
- Stopping antidepressants can be considered after 9-12 months of therapy if the patient reports both: No or minimal symptoms AND Adequate daily function. In this case, it is important to:
  - Discuss the plan with the patient before reducing the dose
  - Describe early symptoms of relapse
  - Plan routine and emergency follow up
  - Reduce doses gradually over at least 4 weeks

**Note: Depression in older adults may show dementia-like symptoms.**



### **Patient Education**

- Educate patient about his/her disease (Psychoeducation), highlighting the following:
  - » Depression is a common mental health condition, people can recover from it, effective treatment is possible.
  - » Medications are not addictive.
  - » Medications take 2-4 weeks to start showing effect.
  - » Medication should be taken regularly and only as prescribed.
  - » Continuing the activities that used to be interesting
  - » Maintaining a regular sleep cycle (i.e., trying to get up at the same time every day).
- Address current psychosocial stressors: identify supportive family members and involve them as much as possible and appropriate.
- Reactivate social networks.
- Advise patient to follow a structured physical activity program: for example walking for 45 minutes, three times per week.



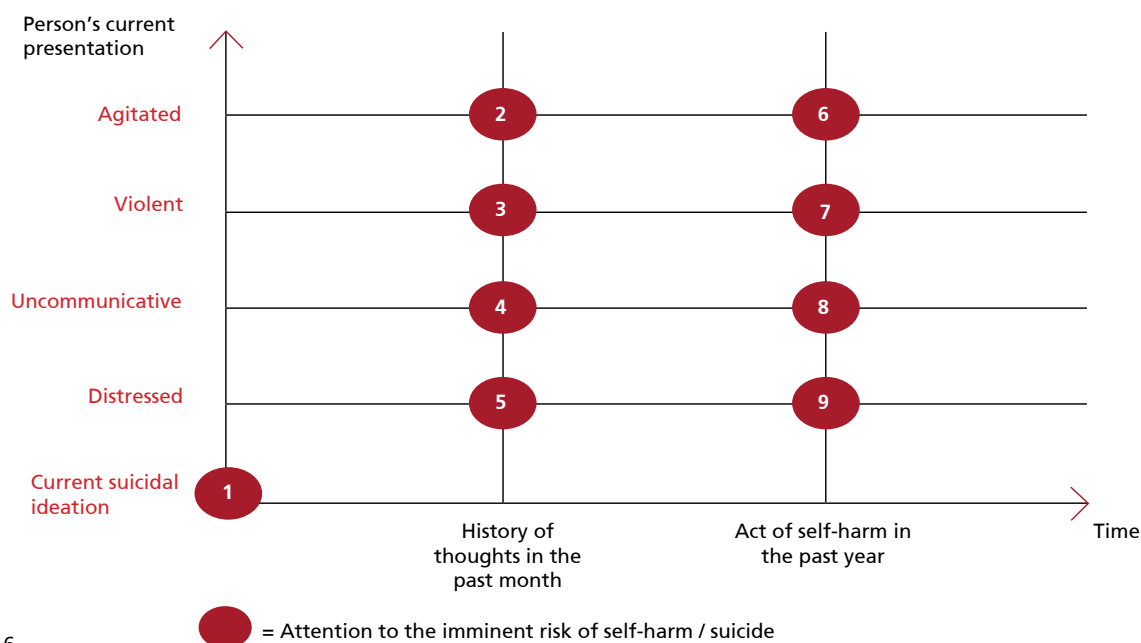
## ANNEX

### Assessment - Non EMERGENCY cases

### SELF-HARM / SUICIDE

#### I. Assess if the person is at imminent risk of self-harm / suicide

Graph clarifying the different scenarios that indicate that the person is at imminent risk of self-harm/suicide



16

### Assessment - Non EMERGENCY cases

### SELF-HARM / SUICIDE

Table explaining the different scenarios mentioned in the graph and how to ask about self-harm / suicide

Scenario	Explanation	Ask the person (or carer)
1	Currently thinking or planning self-harm / suicide	Are you having thoughts about hurting yourself or ending your life?
2	Currently agitated and has thought about or planned self-harm / suicide in the past month	Have you made any plans, during the past month, to harm yourself or end your life?
3	Currently aggressive and has thought about or planned self-harm / suicide in the past month	
4	Currently uncommunicative and has thought about or planned self-harm / suicide in the past month	
5	Currently distressed and has thought about or planned self-harm / suicide in the past month	
6	Currently agitated and actually harmed self in the past year	Have you tried, during the past year, to harm yourself or end your life?
7	Currently aggressive and actually harmed self in the past year	
8	Currently uncommunicative and actually harmed self in the past year	
9	Currently distressed and actually harmed self in the past year	

If **YES** to any of the abovementioned scenarios

The person has imminent risk of self-harm / suicide

**DEFINITION** ●○○○

Diabetes mellitus (DM) type 2 is a chronic metabolic disease characterized by insulin resistance and insufficient insulin production, resulting in elevated levels of blood glucose, which leads over time to serious complications including nephropathy, retinopathy, neuropathy, and accelerated atherosclerosis (coronary, cerebral and peripheral vascular diseases).

Diagnosis of DM is based on two abnormal readings of any of the following: fasting blood sugar (FBS), glycosylated hemoglobin (Hba1c), or oral glucose tolerance test (OGTT), either from the same sample or in two separate samples.

**No need for a second test in the case of a clear clinical diagnosis (hyperglycemic crisis or presence of classic symptoms with random plasma glucose [RPG]  $\geq$  200 mg/dl).**

	<b>Normal Blood Sugar Level</b>	<b>Pre-Diabetes</b>	<b>Diabetes Mellitus</b>
FBS (mg/dl)	FBS < 100	100 $\leq$ FBS <126	FBS $\geq$ 126
RPG with symptoms (mg/dl)	RPG < 200		RPG $\geq$ 200
Hba1c (%)	Hba1c < 5.7	5.7 $\leq$ Hba1c $\leq$ 6.4	Hba1c $\geq$ 6.5
2 hour – OGTT (mg/dl)	PG < 140	140 $\leq$ PG <200	PG $\geq$ 200

**HISTORY** ○●○○

- Presence of classic symptoms of DM, if any: polyuria, polydipsia, polyphagia and unexplained weight loss.
- Presence of risk factors: DM in first degree relatives, overweight, obesity or acanthosis nigricans (i.e., conditions associated with insulin resistance), physical inactivity, women with polycystic ovary syndrome and/or history of gestational diabetes, cardiovascular diseases and related risk factors (hypertension, low HDL<35 mg/dl and/or elevated Triglyceride>250mg/dl).
- Lifestyle factors: smoking, alcohol, substance use, diet, physical activity, and sleep behavior.
- Presence of diabetes-related complications and symptoms: blurred vision, chest pain, shortness of breath, edema, erectile dysfunction, fatty liver (non-alcoholic), peripheral numbness, etc.
- Psychosocial history: including education, job, financial security, housing, existing social support and screening for depression and/or anxiety.
- Medication intake especially those that increase risk for DM such as oral steroids, antipsychotics.
- Presence of dental diseases.
- Family history of DM type 2.



## PHYSICAL EXAMINATION ○○○●

- Check height and weight with calculation of BMI (kg/m<sup>2</sup>), and waist circumference.
- Check blood pressure (orthostatic measurements when indicated) and heart rate.
- Conduct a general physical examination including heart, lung, abdomen, and neurological exam with focus on the following:
  - Fundoscopic examination (better conducted by an ophthalmologist with a dilated retinal exam).
  - Palpation of thyroid.
  - Examination of the skin (for acanthosis nigricans).
  - Comprehensive foot examination:
    - » Inspect the skin for integrity especially between toes and under metatarsal heads. Look for areas of erythema, warmth or callus formation. Check for bony deformities, joint mobility, gait and balance.
    - » Palpate the dorsalis pedis and posterior tibialis pulses.
    - » Assess the presence or absence of patellar and Achilles reflexes.
    - » Assess proprioception, vibration (using a 128 Hz tuning fork), monofilament sensation, pinprick sensation, and ankle reflexes.



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○●

- **Screening Tips**
  - Screening for DM is recommended in all adults aged 40 years and above, and in adults at any age with overweight or obesity with one or more risk factors for DM.
  - Repeat screening every 3 years if results are normal, and yearly in case of pre-diabetes.
  - FBS means no caloric intake for at least 8 hours (overnight fast of 8-14 hours).
  - The fasting values of blood sugar apply both for venous and capillary blood samples.
  - Hba1c is a measure of average plasma glucose over the preceding 8 to 12 weeks. Hba1c results might be inaccurate in presence of certain conditions (hemolytic anemia and other anemias, G6PD deficiency, end-stage kidney disease, recent blood transfusion).
- **Evaluation of patients with DM**
  - Perform basic tests: Fasting lipid profile, FBS, Hba1c, liver function tests (SGPT, SGOT), serum creatinine, CBC, platelets, urine albumin excretion with spot urine albumin-to-creatinine ratio, and electrocardiogram (EKG).
  - Assess cardiovascular risk in all patients with DM at baseline and periodically.
- **Management of patients with DM**
  - It is important to use shared decision in the management of patients with DM, applying the principles of person-centered care. This is especially true when selecting the type of medications, where effects on cardiovascular and renal comorbidities, efficacy, hypoglycemia risk, impact on weight, cost, side effects and patient preferences should be taken into consideration.



## DIAGNOSTIC AND MANAGEMENT TIPS (cont.) ○○○●

- Non-pharmacologic management including lifestyle modifications is recommended for all patients diagnosed with DM type 2.
- Initial pharmacologic treatment
  - » Start with Metformin as first-line medication treatment, unless contraindicated.
    - Metformin does not cause weight gain or hypoglycemia.
    - Contraindications to use metformin: presence of chronic kidney disease (estimated glomerular filtration rate  $<30$  mL/minute/1.73m<sup>2</sup>), severe reduced liver function, acute cardiac insufficiency, respiratory insufficiency, alcohol abuse, or history of lactic acidosis.
  - » A second-generation sulfonylurea (preferably gliclazide) can be used as first-line treatment when metformin is contraindicated or not tolerated.
- Intensification of treatment is required in case of inadequately controlled glycemia
  - » Add a second-generation sulfonylurea (glimepiride, glyburide/ glibenclamide, glipizide or preferably gliclazide) to metformin.
    - Sulfonylureas may cause weight gain or hypoglycemia (more frequent with glibenclamide than with gliclazide).
    - Glibenclamide is not recommended in patients aged 60 years or older, those with severe liver disease, those for whom hypoglycemia is a concern, or those who drive or operate machinery as part of their job.
  - » Intensification of treatment with additional oral medications or insulin is required if the non-insulin monotherapy at maximal tolerated dose does not achieve or maintain the target Hba1c over 3-6 months. Patients may require two or three medications.
    - SGLT2 inhibitors, when available; recommended in patients with:
      - Cardiovascular disease (history of MI, stroke, revascularization procedure)- High risk for ASCVD (age  $>55$ + 2 more risk factors like obesity, HTN, DL smoking, albuminuria)
      - CHF (HFPEF/ HFREF)
      - CKD (GFR  $< 60$  or albuminuna ACR  $>30$ )
      - Intermediate efficacy
      - May increase risk of UTI and genital mycotic infections
      - Rarely, may increase risk of euglycemic DKA
      - Due to diuretic effect. need to watch volume status and BP
    - GLP1- RA, when available, recommended in patients with:
      - ASCVD
      - High risk for ASCVD (age  $>55$  +2 or more risk factors like obesity, HTN, DL smoking, albuminuria)
      - Obesity:
        - High efficacy
        - Safe in renal disease
      - Potential for GI side effects, typically temporary in nature
      - Risk of gallbladder disease, of pancreatitis (reported)



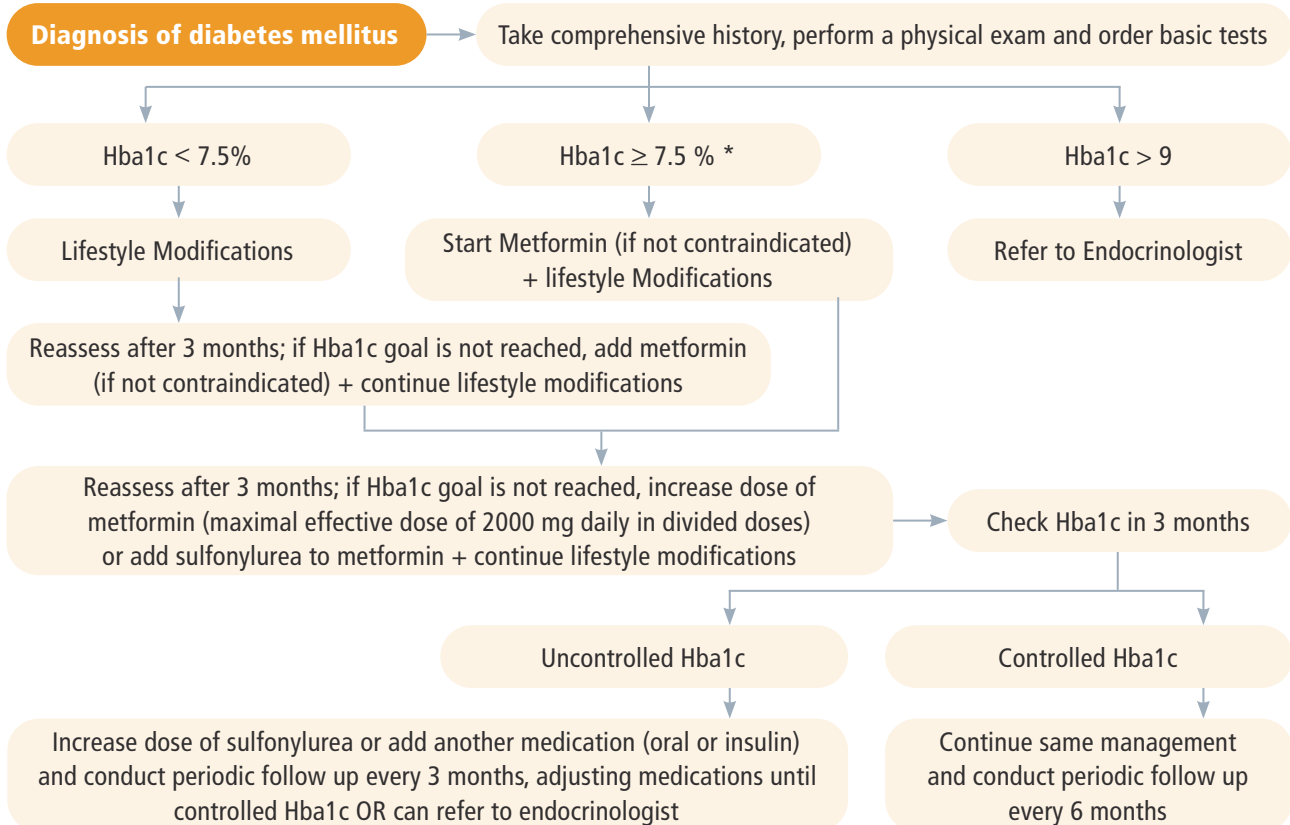
## DIAGNOSTIC AND MANAGEMENT TIPS (cont.) ○○○●

- DPP4 inhibitors:
  - Relatively safe, weight neutral, no risk of hypoglycemia
  - Intermediate efficacy
  - Renal dose adjustment required except for Linagliptin
  - Increased risk of joint pain
  - Reported cases of pancreatitis
- Pioglitazone
  - High efficacy
  - Benefit in NASH
  - Potential for weight gain and fluid retention
  - Not to be used in patients with heart failure
  - Risk for bone fractures
- Insulin
  - Basal insulin alone is the most convenient initial insulin regimen. Beginning at 10 units daily or 0.1-0.2 units/kg/day depending on the risk of hypoglycemia
- » Hypertension treatment is indicated in patients with DM when systolic blood pressure  $\geq 130$  mmHg or diastolic blood pressure  $\geq 80$  mmHg.
- » Statins are recommended for all patients with DM who are 40 years old or above.
  - High intensity statins are recommended in those known to have cardiovascular diseases or have very high cardiovascular risk.
  - Medium intensity statins are recommended in those without cardiovascular diseases.
- » Low dose Aspirin is indicated only for secondary prevention of atherosclerotic cardiovascular diseases (history of myocardial infarction, stroke, angina etc.).
- » Bariatric surgery is recommended in patients with DM type 2 who have  $BMI \geq 35$  Kg/m<sup>2</sup> or those with  $30 \leq BMI < 35$  Kg/m<sup>2</sup> and a poor metabolic response to pharmacologic and non-pharmacologic treatment.
- » Refer to ophthalmologist yearly for dilated eye exam; to clinical dietician for diet advice; to dentist for comprehensive periodontal examination; and to other specialties (endocrinologist, mental health specialist, vascular surgeon, etc.) as needed.
- » Provide Flu vaccine yearly, Pneumococcal 23 vaccine (one dose between 19-64 years and then once after 65 years of age), hepatitis B vaccine (age 19-59 years, if not taken before).
- Periodic Follow up
  - To be done every 3-6 months for monitoring glycemic control and screening for chronic complications.
  - Blood Pressure should be measured and BMI calculated every visit.
  - Perform foot exam annually (check for foot ulcers every visit).
  - Repeat above basic tests on yearly basis or as needed with Hba1c and FBS done every 3-6 months depending on the level of DM control.



## DIAGNOSTIC AND MANAGEMENT TIPS (cont.) ○○○●

- » If Hba1c is not available, FPG values can be used to assess glycemic control. Using a combination of FPG and postprandial plasma glucose (2 hours after breakfast) is more informative.
- » Measurement of vitamin B12 is indicated in patients on long term use of metformin especially those with anemia or peripheral neuropathy.
- Assess cardiovascular risk periodically.
- Treatment Target
  - Hba1c is used usually to determine glycemic control; if not possible, an FPG value of  $\leq 126$ mg/dL and a postprandial PG value of  $\leq 160$  mg/dL can serve as alternatives
  - Desired Hba1c target level in general is  $\leq 7\%$ 
    - » Patients treated with diet, physical activity and metformin (with very low risk of hypoglycemia) should be encouraged to achieve a lower Hba1c target  $< 6.5\%$ .
    - » A more relaxed Hba1c level  $< 8\%$  is recommended in patients with frequent severe hypoglycemia, advanced complications or low life-expectancy.
  - Blood pressure target is below 140/90 mmHg; lower values below 130/80 mmHg are required in diabetic patients with hypertension and who are at higher risk of cardiovascular disease.
  - LDL cholesterol  $< 100$  mg/dL (should be  $\leq 70$ mg/dl if the 10-year cardiovascular risk is very high).



*\*In presence of severe hyperglycemia (FBS  $\geq 270$ mg/dl with symptoms or RPG/FBS  $> 325$ mg/dl regardless of symptoms or Hba1c  $> 10\%$ ) and in absence of ketonuria (ketones  $< 2+$ ), start with metformin and gliclazide along with lifestyle modifications). If improvement in 3-5 days, continue same treatment and follow up in 2-3 months. In presence of severe hyperglycemia with ketonuria (ketones  $\geq 2+$ ), refer to emergency department and higher level of care.*

### Patient Education

- Educate patient about his/her disease: including nature of DM, risk of complications, diabetes self-management goals, importance of adherence to treatment, potential side effects of medications, periodic testing, screening for chronic complications, and monitoring of blood glucose as needed.
- Educate patient about non-pharmacologic management (lifestyle modifications):
  - Diet: a healthy diet with the right mix of carbohydrate, proteins and fat.
    - Diet high in fiber and low in sodium, fat and sugar is encouraged.
    - Get protein from lean meats, fish eggs, beans, soy, and nuts, and limit the amount of red meat.
    - Saturated fats (such as in meats, cheese, ice cream) can be replaced with monounsaturated and polyunsaturated fatty acids (such as in fish, olive oil, nuts). Trans fatty acid consumption should be kept as low as possible.
    - Select carbohydrates with low glycemic index and limit intake of those with high glycemic index. Carbohydrates from fruits, vegetables, whole grains, legumes, and low-fat milk are encouraged. People with diabetes are advised to avoid sugar-sweetened beverages (including fruit juice).
    - Advise patients about carbohydrate counting i.e., the number of carbohydrates needed each day based on patient's eating habits, weight, nutritional goals, and activity level.
    - Artificial sweeteners do not affect blood glucose levels and may be consumed in moderation.
  - Regular physical activity: Most adults should engage in at least 150 minutes of moderate or vigorous-intensity aerobic activity per week, spread over at least 5 days. Examples of aerobic exercise include walking, cycling, or swimming. A reasonable exercise session consists of 10 minutes of stretching and warm-up, followed by 20 minutes of gentle aerobic exercise. Duration of exercise can be increased gradually if patient wishes so.
  - Weight reduction: advise patients who are overweight to reduce weight (5-10% of body weight).
  - Avoid tobacco use.
  - Limit alcohol intake (up to one serving per day for women, up to two servings per day for men).

**DEFINITION** ●○○○

Dyslipidaemia is defined as elevated total cholesterol level, or elevated low-density lipoprotein (LDL) cholesterol levels, or low levels of high-density lipoprotein (HDL) cholesterol or elevated triglyceride levels. Dyslipidaemia is typically asymptomatic. It can be primary (familial) or secondary. Secondary causes include: Type 2 diabetes mellitus; excessive alcohol consumption; cholestatic liver diseases; chronic renal failure; nephrotic syndrome; hypothyroidism; smoking; obesity; drugs: thiazide diuretics, beta blockers, oral estrogens, antipsychotics (such as clozapine and olanzapine).

**HISTORY** ○●○○

- Assess for the presence of risk factors for atherosclerotic cardiovascular disease: smoking, hypertension, diabetes mellitus, obesity, family history of premature coronary heart disease, persistently elevated LDL-C levels  $\geq 160$  mg/dL, metabolic syndrome, chronic kidney disease, history of preeclampsia or premature menopause (younger than 40 years of age), chronic inflammatory disorders (such as rheumatoid arthritis, psoriasis, chronic HIV infection), persistent triglyceride levels  $\geq 175$  mg/dL, an ankle-brachial index less than 0.9.
- Personal history of thyroid or coronary heart disease.
- Previous levels of increased cholesterol.
- Assess for the presence of secondary causes for dyslipidaemia especially in individuals with LDL  $\geq 190$  mg/dl or Triglyceride  $\geq 500$  mg/dl.
- Assess dietary habits.
- Assess exercise habits.
- Ask for current medications.
- Check for family history.

**PHYSICAL EXAMINATION** ○○○●

- A general exam including cardiovascular examination should be conducted.
- Typical findings to look for include xanthomas (tendon or eruptive), xanthelasma (yellowish streaks on eyelids) and presence of corneal arcus (especially in young patients).

**DIAGNOSTIC TIPS** ○○○●

- The usual diagnostic test for dyslipidaemia is the lipid profile (total cholesterol, HDL cholesterol levels, LDL cholesterol levels and triglycerides).
- Abnormal screening test results should be confirmed by a repeated sample on a separate occasion.
- LDL is usually calculated by the laboratory. If triglyceride level is  $> 400$  mg/dl, LDL should be directly measured by the laboratory instead of being calculated.



**Education** (refer to related algorithm)

- Use PCPC approach
- Lifestyle (healthy diet, lose weight if overweight, physical activity, tobacco use, and addressing harmful use of alcohol). *Check healthy lifestyle algorithm.*

**Medical tests**

- Laboratory test, as needed, to rule out secondary causes of dyslipidaemia (such as Hba1c, TSH), before initiating lipid lowering drugs or to assess for conditions that may influence the safety of these drugs (such as CPK or SGPT).
  - Serum Glutamate Pyruvate Transaminase (SGPT). If liver transaminase levels are raised but less than 3 times the upper limit of normal, can start statin.
  - Creatine Kinase (CPK) in case of increased risk for adverse muscle events with statins therapy. If CPK levels are more than 5 times the upper limit of normal, re-measure CPK after 7 days. If levels are still 5 times the upper limit of normal, do not start statin treatment. If CPK is high but less than 5 times, start lower dose of statin.
  - Creatinine if treatment with fibrates is indicated.

**Drug monitoring**

- Fasting lipid panel, at 4–12 weeks after start or elevation in dose, then periodically every 3-6 months.
- Measure liver transaminase at 3 months, then at 12 months after starting statin. No need to measure afterwards unless clinically indicated. If the transaminases are increased, they should be followed until the abnormality resolves. If transaminases increase more than 3 times normal and persist, then stop medication.
- Check CPK if muscle symptoms develop.

**Medications** (in PHC setting, use preferably the chronic medication list subsidized by MOPH)

- Use a stepwise approach to manage high cholesterol, adding therapies as tolerated until the cholesterol levels are lowered adequately.
- Statins are the first line of treatment when drug therapy is considered. Refer to the table below.
- Fenofibrate may be added to low or moderate intensity statin only if the benefits of reducing triglyceride (triglyceride level > 500 mg/dl for example) outweigh the potential risk for adverse events.

**Referrals**

- Dietitian
- Endocrinologist
  - If unsure about diagnosis or treatment protocol or patient does not respond to initial drug therapy
  - If cases of familial hyperlipidemias

**High intensity statins**

Lowers LDL by  $\geq 50\%$

Atorvastatin 40-80 mg  
Rosuvastatin 20mg (40)

**Moderate intensity statins**

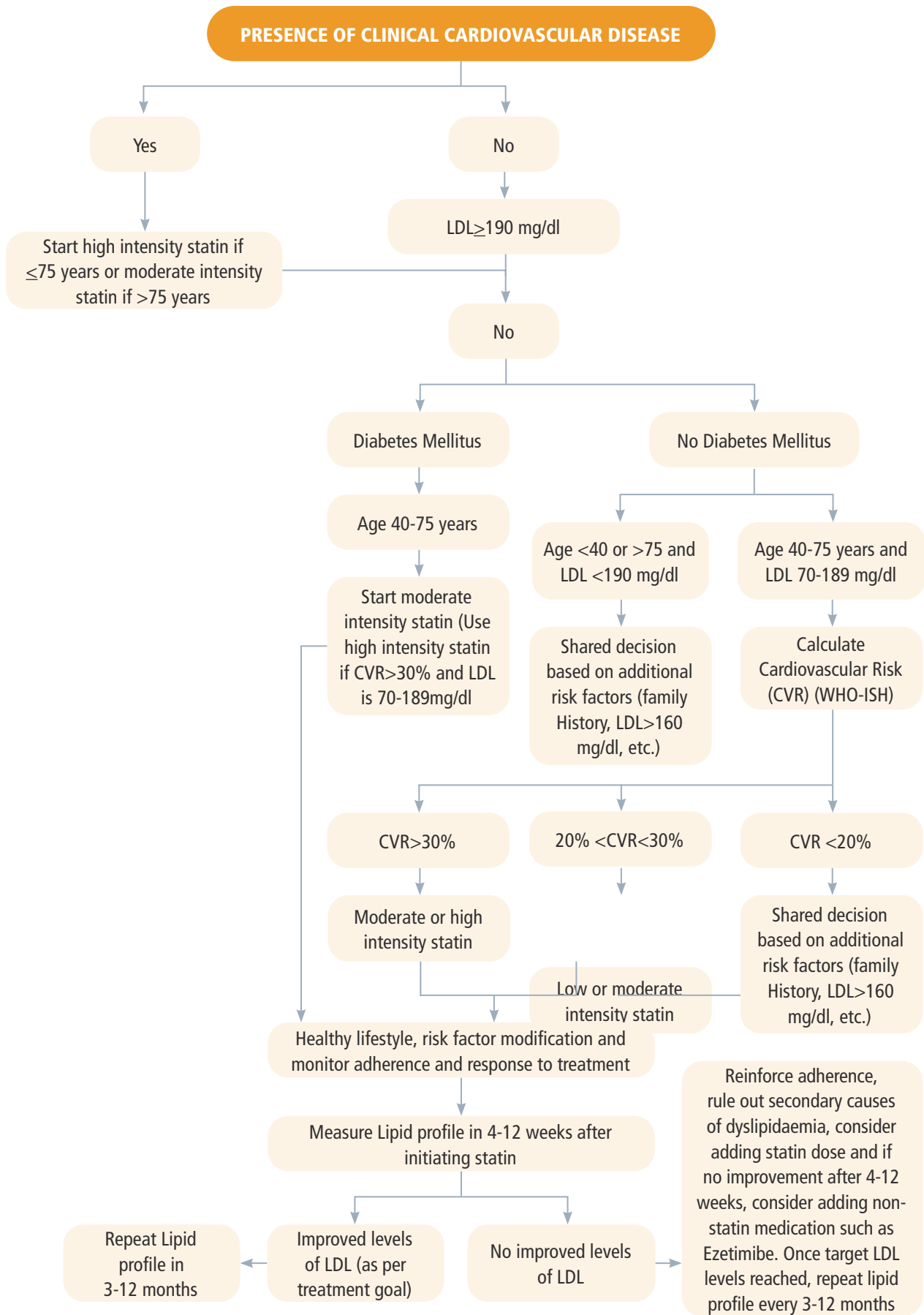
Lowers LDL by 30%-49%

Atorvastatin 10mg (20)  
Rosuvastatin 5 mg (10)  
Simvastatin 20-40 mg  
Pravastatin 40mg (80)  
Lovastatin 40mg  
Fluvastatin 40 mg (twice)

**Low intensity statins**

Lowers LDL by < 30%

Simvastatin 10mg  
Pravastatin 10-20 mg  
Lovastatin 20mg  
Fluvastatin 20-40mg



**DEFINITION** ●●●●

Hypertension is defined as systolic blood pressure (SBP) of 140mmHg or higher and/or diastolic blood pressure (DBP) of 90mmHg or higher, based on the average of two or more office-based readings on different days, spaced by 1 to 4 weeks. Hypertension can also be diagnosed based on home blood pressure monitoring (HBPM) with an average SBP of 135mmHg or higher and/or DBP of 85mmHg or higher. This definition does not apply to pregnant women.

Hypertension should only be diagnosed from a single BP reading if the measurement is 180/110 mm Hg or higher with evidence of cardiovascular disease requiring immediate treatment.

Individuals who are taking antihypertensive medications are considered to be hypertensive.

**Classification of office blood pressure and grading of hypertension**

Category	Systolic BP (mmHg)		Diastolic BP (mmHg)
Optimal	<120	and	<80
Normal	120-129	and/or	80-84
High normal	130-139	and/or	85-89
Grade 1 Hypertension	140-159	and/or	90-99
Grade 2 Hypertension	160-179	and/or	100-109
Grade 3 Hypertension	≥180	and/or	≥110

**Important Definitions of Hypertension**

- Essential hypertension is hypertension without known secondary causes.
- Secondary hypertension (5 to 10% of cases) is hypertension with presence of a secondary cause [over-the-counter medications, renal diseases, illicit drug use, primary aldosteronism, renovascular hypertension, obstructive sleep apnea, pheochromocytoma, Cushing's syndrome, other endocrine disorders (hypothyroidism, hyperthyroidism, and hyperparathyroidism), and coarctation of the aorta].
- Uncontrolled or resistant hypertension is BP that remains above target in spite of concurrent use of three antihypertensive medications of different classes including a diuretic.
- Malignant hypertension: is severe BP elevation (>180/120mmHg, commonly >200/120 mm Hg) that develops rapidly with signs of retinal hemorrhage and/or papilledema, and usually associated with end organ damage (it is a medical emergency).
- White coat hypertension is defined as BP that is consistently elevated by office readings but does not meet diagnostic criteria for hypertension based on out-of-office readings.
- Masked hypertension: is defined as BP that is consistently elevated by out-of-office measurements but does not meet the criteria for hypertension based upon office readings.



Hypertension is associated with end-organ damage including ischemic heart disease, left ventricular hypertrophy, heart failure, cerebrovascular disease, hypertensive retinopathy, and chronic kidney disease.



## HISTORY ●●●●

- Duration of hypertension and age of onset.
- Previous attempts of treatment for high blood pressure.
- Risk factors for hypertension:
  - Personal history of cardiovascular diseases (CVD), diabetes mellitus (DM), dyslipidemia, or chronic kidney disease.
  - Lifestyle: smoking status, alcohol intake, physical activity, diet (sodium [salt], saturated fats)
  - Psychosocial factors: family structure, work status, educational level, stress, history of depression.
  - Family history of: hypertension, premature cardiovascular disease or death, familial diseases (renal disease, pheochromocytoma, diabetes mellitus, gout).
- Presence of aggravating factors such as medications (Non-Steroidal Anti-Inflammatory Drugs [NSAID], corticosteroids, oral contraceptives, decongestants [phenylephrine, pseudoephedrine], stimulants [amphetamine], etc.).
- Symptoms suggesting secondary causes: muscle weakness, episodes of tachycardia, sweating, tremor, thinning of the skin, flank pain, features of sleep apnea (early morning headaches, daytime somnolence, loud snoring, erratic sleep).
- Symptoms of target organ damage: headache, transient weakness or blindness, loss of visual acuity, chest pain, dyspnea, edema, claudication, polyuria, nocturia or hematuria.
- Sexual function (erectile dysfunction).



## PHYSICAL EXAMINATION ●●●●

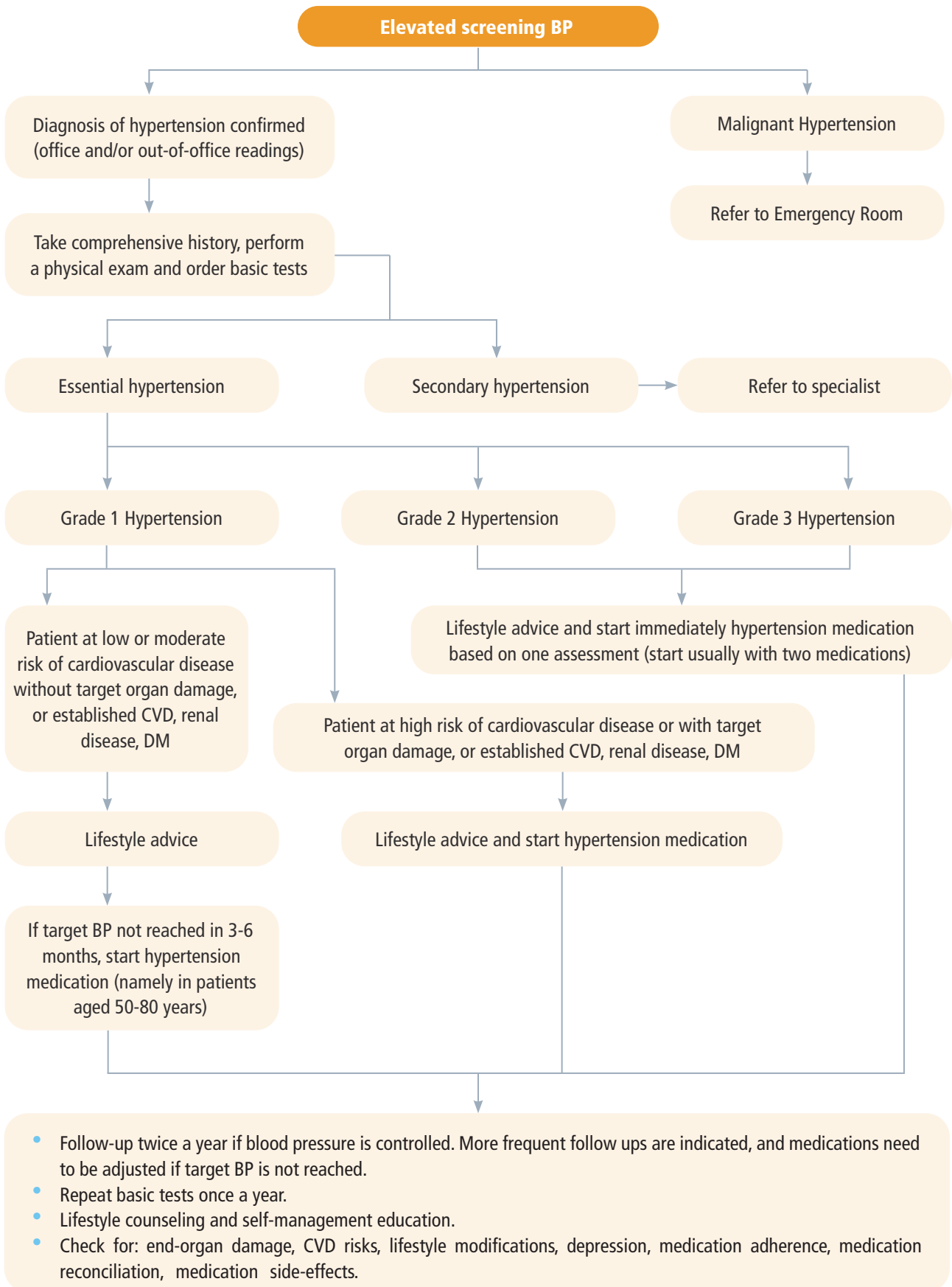
It aims at evaluating the presence of signs of end-organ damage, signs of established cardiovascular diseases and potential causes of secondary hypertension.

- Check BP (pay attention to cuff size), Pulse, height, weight, waist circumference, and jugular venous pulse/pressure.
- Check general appearance: distribution of body fat, colored striae, muscle strength, alertness.
- Conduct a general exam focusing on:
  - Eye exam (exophthalmos) and fundoscopy (if trained) (hemorrhage, papilledema, cotton wool spots).
  - Neck: palpation and auscultation of carotids (carotid bruit), thyroid exam, neck circumference (>40 cm might indicate obstructive sleep apnea).
  - Heart: apex beat, rhythm, sounds.
  - Lungs: rhonchi, rales, basal crackles.
  - Abdomen: renal masses, bruits over the aorta or renal arteries, femoral pulses (check for radio-femoral delay).
  - Extremities: peripheral pulses, edema.
  - Neurologic assessment: visual disturbance, focal weakness, confusion.



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○●

- Screening recommendation for hypertension: all individuals 18 years or older should be evaluated for hypertension.
  - Yearly for adults 40 years and older or those with risk factors for hypertension.
  - Every 3 to 5 years for younger adults with no risk factors and previously normal BP.
- Use out-of-office BP measurement (HBPM and/or ABPM) to confirm the diagnosis of hypertension namely in patients with  $140\text{mmHg} \leq \text{SBP} < 160\text{mmHg}$  and/or  $90\text{mmHg} \leq \text{DBP} < 100\text{mmHg}$  and patients with  $\text{SBP} \geq 160\text{mmHg}$  and/or  $\text{DBP} \geq 100\text{mmHg}$  without evidence of target organ damage.
- Evaluation of patients with hypertension:
  - Perform basic tests: Electrocardiogram (EKG); fasting glucose; lipid profile; creatinine; calcium; sodium potassium; complete blood count (CBC, platelets); uric acid; urinalysis; and microalbuminuria (albumin/creatinine ratio). Liver function tests and Hba1c might be added if needed. Other tests are indicated in case secondary hypertension is suspected such as thyroid stimulating hormone (TSH), aldosterone-renin ratio.
  - Calculate the 10-year cardiovascular risk for all patients diagnosed with hypertension (refer to the CVR algorithm).
- Management of patients with hypertension:
  - It is important to use shared decision in the management of patients with hypertension, applying the principles of person-centered care.
  - Lifestyle modifications are indicated for all patients with hypertension and for those with high normal blood pressure.
  - Start treatment with any of the following: Thiazide-type diuretics (e.g. indapamide); Angiotensin- (ACE) inhibitors; angiotensin II receptor blockers (ARBs); Calcium channel blockers (CCB).
    - » Beta-blockers are not first-line treatment, but they should be added in presence of a heart attack within the previous three years, or atrial fibrillation or heart failure, or angina.
  - Start Statin in hypertensive patients with prior heart attack or stroke, or those with high risk for cardiovascular diseases.
  - Start low-dose aspirin in hypertensive patients with prior heart attack or ischemic stroke.
  - Basic tests need to be repeated on yearly basis or more frequently as needed.
  - A target BP  $< 140/90\text{mmHg}$  is recommended in almost all patients with hypertension, with additional preferences depending on the patient age and presence of comorbidities:
  - Referral is usually done to ophthalmologist, dietician, and other specialists as needed.



## Patient Education

- Educate patient about his/her disease: including nature of hypertension, risk of complications, and importance of adherence to treatment.
- Provide patient with brief counseling on lifestyle modifications (see Lifestyle algorithm for food-based and practical examples):
  - Salt reduction: Reduce salt to < 5g per day (including ready-made/packaged food, cooked meals and salt added at the table). Salt reduction is achieved by limiting processed food and added salt. 5g of salt is the equivalent of 1tsp of salt
  - Healthy diet: Consume a diet rich in whole grains, fruits, vegetables, unsaturated fats and dairy products. Reduce consumption of sugar, saturated fat and reduce/eliminate trans fats. Advise patients to consuming a variety of vegetables and fruits (variety in the colors of fruits and vegetables provides nutrient variety), , . Food high in magnesium, calcium and potassium such as nuts, seeds, and legumes have a positive impact on blood pressure. Moderate consumption of coffee, green and black tea is acceptable. For practical examples of food sources refer to the Lifestyle algorithm)
  - Physical activity: Moderate intensity aerobic exercise (walking, jogging, cycling, yoga, or swimming) for 30 minutes on 5–7 days per week. Performance of resistance/ strength exercises on 2–3 days per week.
  - Smoking cessation: is recommended with possibility of referral to smoking cessation programs. Avoiding secondhand tobacco smoke is also recommended.
  - Limit alcohol: if a patient drinks alcohol, the recommended daily limit for alcohol consumptions is 2 units for men and 1 unit for women per day. Avoid binge drinking.
  - Calculate BMI as weight (kg)/height (m<sup>2</sup>) and assesses patient's weight status (see Lifestyle algorithm for BMI classification)
  - Weight reduction: is recommended in patients with overweight and obesity. It is also important to manage abdominal obesity.
- Self-management- Home blood pressure monitoring: advise the patient to:
  - Measure and record blood pressure twice daily morning and evening, while seated.
  - For each recording, have two consecutive measurements at least 1 minute apart.
  - Do this for at least 4 days (ideally for 7 days).
  - When interpreting values, discard measurements of the first day and use the average of all remaining measurements to confirm a diagnosis of hypertension.

**DEFINITION** ●○○○

Coronary artery disease (CAD) or ischemic heart disease refers to the presence of a reversible mismatch in the blood supply and demand related to ischemia; a history of myocardial infarction; or the presence of a plaque by catheterization or computed tomography angiography. Patients with stable coronary artery disease are those who are asymptomatic or whose symptoms are controlled by medications.

**HISTORY** ○●○○

- Symptoms of CAD namely chest pain, dyspnea, shortness of breath (upon exertion or at rest)
- Lifestyle factors: smoking, unhealthy diet, low exercise level, alcohol
- Family history of CAD
- Associated comorbidities including hypertension, diabetes mellitus, dyslipidemia, obesity
- Review of potential other arterial diseases (Cerebral Vascular Accident, etc.)

**PHYSICAL EXAMINATION** ○○○●

- Height, weight, body mass index, blood pressure, fasting or random blood sugar
- Comprehensive physical examination with focus on heart, lungs, carotid arteries, and lower extremities

**DIAGNOSTIC AND MANAGEMENT TIPS** ○○○●

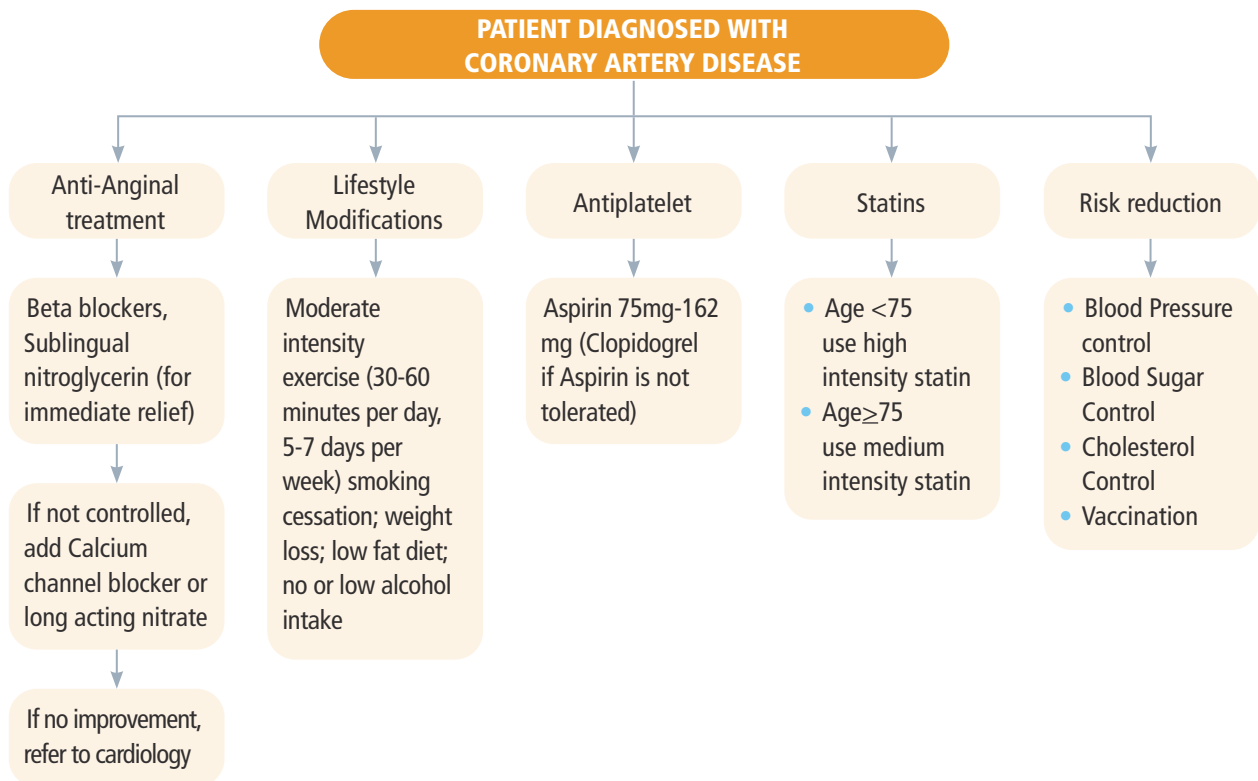
- Risk reduction to prevent cardiovascular diseases through controlling blood pressure, cholesterol and blood sugar.
- Antiplatelet therapy: Aspirin 75-162 mg daily; if contraindicated, Clopidogrel 75mg daily is an alternative. Dual antiplatelet therapy is recommended for 6 to 12 months after placement of a drug-eluting stent and for at least one month after placement of a bare-metal stent in patients who underwent elective percutaneous coronary intervention.
- Anti-anginal medications: Medications can be added until symptoms are controlled. Beta blockers are the initial therapy for long term relief [If beta blockers are contraindicated and the patient has normal ejection fraction, calcium channel blockers (long-acting non-dihydropyridines) can be used instead. If beta blockers are not enough to control symptoms, or the patient has abnormal ejection fraction; calcium channel blockers (long-acting dihydropyridines) can be added]. Medications can be added as per the algorithm.





## DIAGNOSTIC AND MANAGEMENT TIPS (cont.) ●●●●●

- Statins (unless contraindicated): high intensity statins for patients with coronary artery disease younger than 75 years and moderate intensity statins to those aged 75 years and more or those who cannot tolerate high intensity statins.
- Lifestyle modifications: smoking cessation, exercise, healthy diet and weight loss
- Optimize treatment of comorbidities such as diabetes mellitus, dyslipidemia, and hypertension (target blood pressure <130/80 mmHg)
- Vaccination with one dose of pneumococcal PPSV 23 vaccine (if not taken), and Flu vaccine (yearly).
- In the case of associated heart failure, perform an echocardiography to determine ejection fraction and manage accordingly.



**Patient Education:** Refer to the healthy lifestyle algorithm

**DEFINITION** ●○○○

**Obesity** is defined as abnormal or excessive fat accumulation that may impair health.

**Overweight** is defined as a body mass index (BMI) in the 25 to 29.9 kg/m<sup>2</sup> range, whereas obesity is a BMI in excess of 30 kg/m<sup>2</sup>.

**HISTORY** ○●○○

- Symptoms of possible causes: Hypothyroidism, Cushing's syndrome, Insulinoma, Hypothalamic obesity, Polycystic ovary syndrome, Growth hormone deficiency, Hypogonadism, Pseudohypoparathyroidism.
- Medication intake: including phenothiazines, sodium valproate, carbamazepine, tricyclic antidepressants, lithium, glucocorticoids, megestrol acetate, the thiazolidinediones, the sulphonylureas, insulin, adrenergic antagonists, serotonin antagonists, and oral contraceptives.
- History of eating disorders (binge eating disorder, bulimia nervosa and night eating disorder), or internalized weight bias and stigma (bias towards oneself), or presence of genetic syndromes such as Prader Willi.
- Family history of obesity.
- Lifestyle: sedentary behaviors, environmental and societal changes, and dietary habits including sedentary nature of work, consumption of energy-dense foods that are high in fat and sugars sweetened beverages, smoking cessation history.
- Weight gain history: age of onset, events associated with weight gain, previous weight loss attempts.

**PHYSICAL EXAMINATION** ○○○●

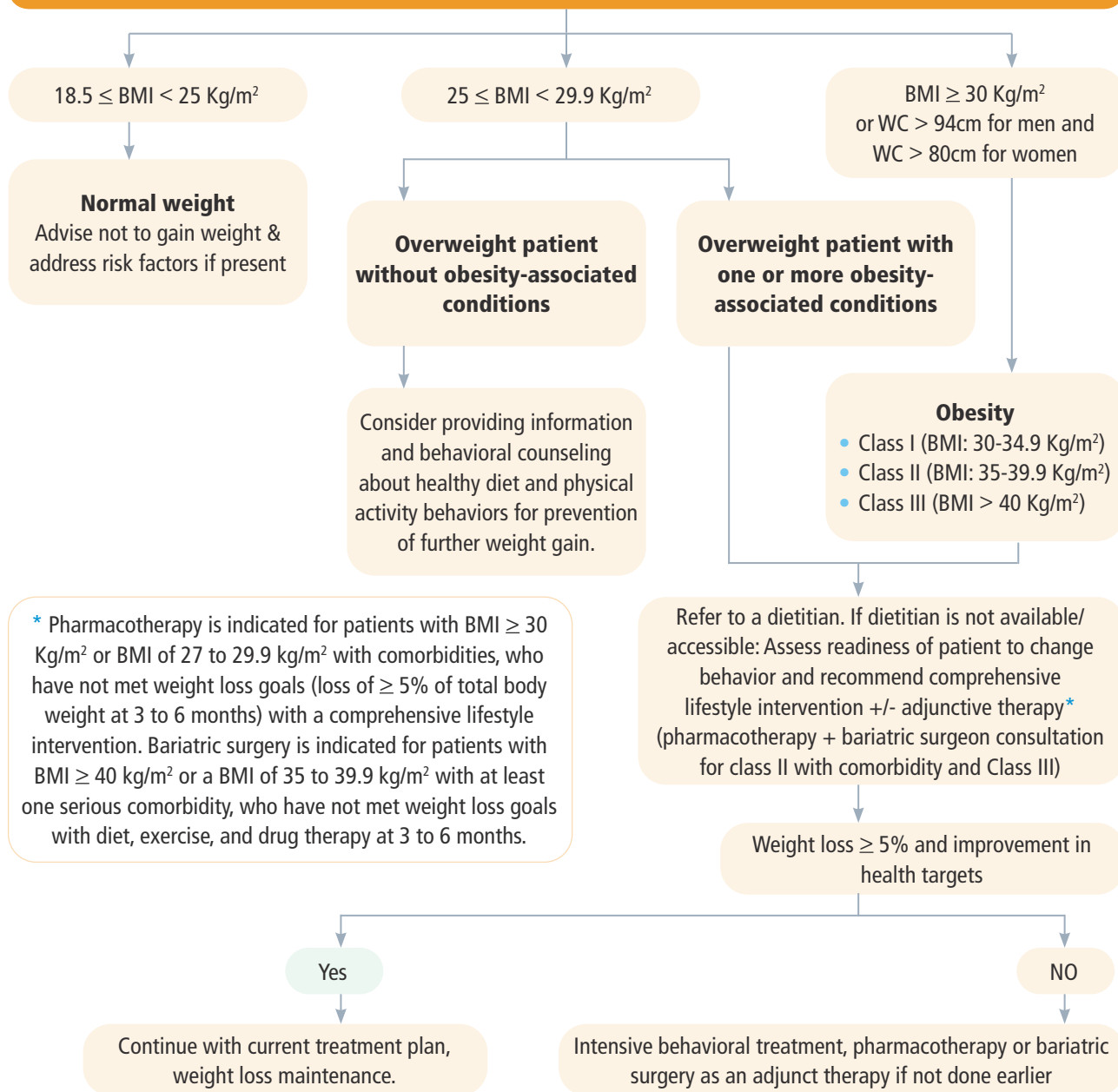
- Anthropometry: height, weight, and waist circumference, blood pressure measurement.
- Skin: intertriginous rashes reflect skin friction; hirsutism in women, acanthosis nigricans, and skin tags are common with insulin resistance state.
- Neck: goiter may denote thyroid abnormalities.
- Abdomen: tender large liver may suggest hepatic fatty infiltration or non-alcoholic steatohepatitis, and pink broad striae that suggest cortisol excess.
- Extremities: joint deformities, crepitations suggestive of osteoarthritis, pressure ulcers.
- Localized fat distribution should also be identified, because of their common association with insulin resistance.



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○●

- Always assess the presence of obesity-associated conditions including hypertension, prediabetes, diabetes mellitus type 2, dyslipidemia, metabolic syndrome, obstructive sleep apnea, degenerative joint disease, non-alcoholic fatty liver disease.
- Request the following laboratory tests: Fasting lipid panel, liver function studies, thyroid function tests, fasting glucose and hemoglobin A1c (HbA1c).
- Comprehensive lifestyle intervention combines dietary, physical activity and behavioral components; and it includes at least 12 intervention sessions over a 12-month period.
- Medical nutrition therapy should aim to:
  - Plan a net deficit of 500 to 1,000 kcal/day addressing both diet and physical activity to achieve a weight loss of 1 kg per week, resulting in a 5-10% reduction in body weight over 3 to 6 months.
  - Personalize dietary changes that produce a caloric deficit and have evidence for weight loss efficacy, safety, and nutritional adequacy that are affordable, and accessible (e.g., energy-restricted Mediterranean diet or Dietary Approaches to Stop Hypertension [DASH], mindful eating, low-carbohydrate, low-fat, intermittent or continuous caloric restrictions...). Promote changes in dietary patterns rather than short-term "diets".
  - Very-low-calorie diets can be offered for weight loss, but only for short durations (12-16 weeks) and under close medical supervision.
  - Offer moderate-intensity physical activity performed for 150 minutes per week (30 minutes or more, 5 to 7 days a week). Offer physical activity options that start progressively and include short intermittent bursts (at least 10 minutes) as well as longer continuous exercise.
  - Behavior modification aims at supporting and enabling patients through the use of different strategies (such as self-monitoring, goal setting, management of stimuli, and planning and addressing barriers to lifestyle modification).
- Medications that can be used for treatment of obesity include Liraglutide, Semaglutide, Orlistat, phentermine, phentermine-topiramate (combination tablet), bupropion-naltrexone (combination tablet).

- Measure Height and Weight and calculate BMI (as part of the routine physical examination or on annual basis)
- Measure Waist Circumference (WC)



### Patient Education

- Highlight the relationship between eating behavior and stressors.
- Explain that changing lifestyle is integral to success in weight loss (refer to the Healthy Lifestyle algorithm for more tips)
- No one-size solution fits all! It is important to individualize approach to obesity taking into consideration risk factors, stressors, comorbidities, lifestyle and social and environmental factors for each patient.
- Advise patients to:
  - Choose an eating pattern that supports their best health and can be maintained over time rather than a short-term diet
  - Track overall health improvements rather than just weight (such as medical parameters, memory, mobility, self-esteem, bowel movements, sleep and other health indicators...)
  - Avoid severe dietary restrictions and skipping meals because they are not sustainable and often lead to weight regain
  - Decrease sedentary time, add more movement to each and schedule regular physical activity that is enjoyable
  - Ensure family support and involvement.



## DEFINITION ●○○○

Hypothyroidism is defined as the failure of the thyroid gland to produce enough thyroid hormone to meet the metabolic demands of the body.

- Primary hypothyroidism: High TSH and low free T4 (95% of all cases).
- Secondary hypothyroidism (central): Low free T4 and a low or normal (not appropriate) TSH level.



## HISTORY ○●○○

- Presence of typical symptoms of hypothyroidism: fatigue, cold intolerance, weight gain, constipation, myalgia, and menstrual irregularities.
- Other symptoms: arthralgia, depression, difficulty concentrating, hoarse voice, dry skin, hair thinning, hair loss, memory impairment, and proximal muscle weakness.
- The symptoms are highly variable and atypical most of the times; they depend on the age at onset, duration and severity of the thyroid hormone deficiency.
- Medication intake such as Lithium or Amiodarone.
- History of previous thyroid surgery, use of thyrotoxic medications, previous radiotherapy to the neck, or previous iodine therapy.



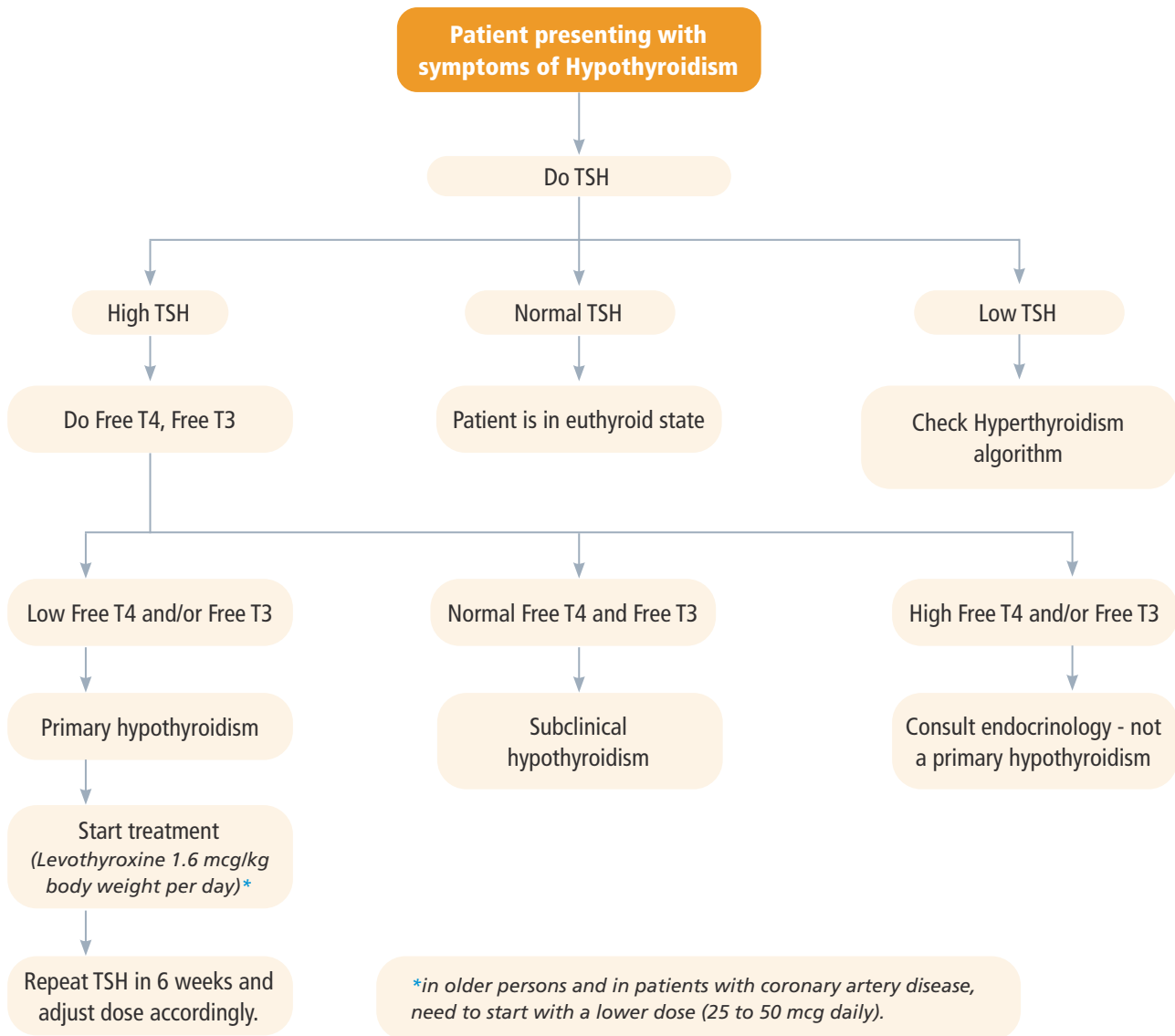
## PHYSICAL EXAMINATION ○○○●

- Conduct a comprehensive exam including vital signs (pulse might show bradycardia)
- Thyroid: look for goiter or scar of previous thyroid surgery
- Look for thin or brittle hair, dry skin and peripheral edema
- Examine deep tendon reflexes, which might show a delayed relaxation phase.



## DIAGNOSTIC AND MANAGEMENT TIPS ●●●●

- No need to measure Antithyroid antibodies (anti-TPO and anti-thyroglobulin) routinely in patients with overt primary hypothyroidism.
- Treatment is with thyroid hormone replacement [Levothyroxine (T4)] unless the cause is transient such as in painless thyroiditis or subacute thyroiditis; or the condition is reversible.
- Average replacement dose of Levothyroxine T4 is approximately 1.6 mcg/kg body weight per day.
- Older patients and those with coronary artery disease should be started on a lower dose (25 to 50 mcg daily) to avoid arrhythmias. Dosage can be increased by 25 mcg every three to four weeks until the estimated full replacement dose is reached.
- Serum TSH should be measured in 4 - 6 weeks of initiation of treatment; if TSH is still high, then the dose can be increased by 12 to 25 mcg/ day in older patients or by a higher dose in younger patients. The patient will require a repeat TSH measurement in 6 weeks.
- After identification of the proper maintenance dose, TSH should be measured once yearly or more often if symptoms recur.



### Patient Education

- Advise patients to take the thyroid replacement hormone medication on an empty stomach, ideally 30-60 minutes before breakfast. Avoid taking the replacement hormone with other medications that interfere with its absorption such as calcium carbonate and ferrous sulfate.
- Symptoms of hypothyroidism begin to improve within 2 weeks of starting the thyroid replacement hormone.
- Alert patients on symptoms of overdose namely decrease in weight of more than 10%. This might necessitate decreasing the dose. The dose of thyroid replacement hormone needs to be adjusted with aging as well.
- Pregnant women on thyroid replacement hormone need to continue taking the medication. The dose might need to be adjusted.
- Once maintenance dose is reached, patients need to measure their TSH on yearly basis or earlier if symptoms appear.

**DEFINITION** ●○○○

Hyperthyroidism is defined as an excessive concentration of thyroid hormones in tissues leading to a specific clinical state. In an overt primary hyperthyroidism state, there is high free T4 and/or free T3 with suppressed TSH.

**HISTORY** ○●○○

- Presence of typical symptoms: nervousness, anxiety, tremors, palpitations, heat intolerance, excessive sweating, weight loss despite a normal or increased appetite, stare and hyperdefecation.
- Presence of other symptoms: fatigue, weakness, menstrual disorders in females, and gynecomastia and erectile dysfunction in males.
- Presence of atrial fibrillation or heart failure.
- Symptoms can be absent sometimes or atypical, especially in older persons.
- Medication intake such as Lithium or Cordarone.

**PHYSICAL EXAMINATION** ○○○●

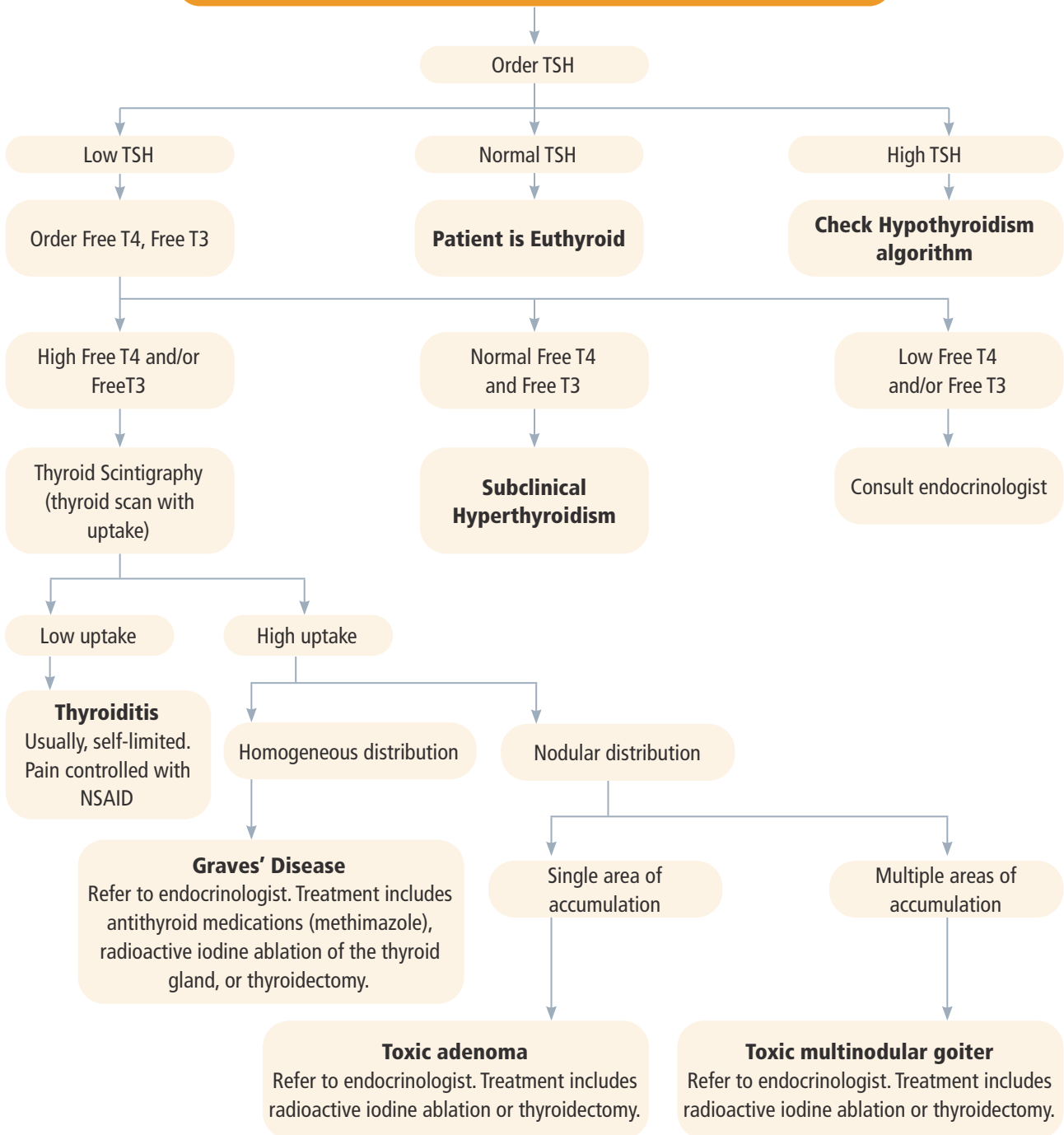
- Conduct a comprehensive physical examination including vital signs, and exam of the heart, thyroid, skin and eyes.
  - General: hyperactivity and irritability.
  - Thyroid exam: look for enlarged thyroid, or goiter with palpable nodule or nodules.
  - Signs of sympathetic overactivity: Tachycardia, tremors, hyperreflexia, high blood pressure, stare or lid lag.
  - Skin examination: skin can be warm, moist, with thin and fine hair.
  - Exophthalmos, periorbital and conjunctival edema, limitation of eye movement, and pretibial myxedema (present in Graves' disease).

**DIAGNOSTIC AND MANAGEMENT TIPS** ○○○●

- Request Thyrotropin receptor autoantibodies (TRAB) if suspecting Graves' disease.
- Beta Blockers are used to control adrenergic symptoms. Use (Propranolol 10-40 mg/dose every 6-12 hours or Atenolol 25 to 50 mg QD, and titrate up the dose as needed, up to 200 mg daily).
- Antithyroid medications include Methimazole, which can be given usually at a dose of 5-30 mg/day in divided doses.
- Measure Free T3 and Free T4 around 4 weeks after starting the antithyroid medication, then every 4-8 weeks until dose is adjusted. Treatment with antithyroid medications can be tapered or stopped after 12-18 months.



## Patient presenting with symptoms and signs of Hyperthyroidism



### Patient Education

- In case radioactive iodine ablation is indicated, explain to patient that the radiation amount used is small and it will not cause cancer or infertility or birth defect.
- Radioactive iodine ablation is contraindicated in pregnancy.
- Treatment with antithyroid medications is required in certain situations before the radioactive iodine ablation: in patients with severe symptoms, in older adults and in patients with heart problems.
- Antithyroid medications block the formation of new thyroid hormones. An average of 3 weeks (6-8 weeks) is needed to lower the level of thyroid hormone in the blood.



## DEFINITION ●○○○○

Thyroid nodules can be reported by the patient, discovered on physical examination or detected incidentally during a radiologic procedure.



## HISTORY ●●○○○

- Get a comprehensive history focusing on risk factors predicting malignancy (see below).
- Check for symptoms of hypothyroidism or hyperthyroidism.
- Check for symptoms of local pressure such as difficulty in swallowing or breathing, cough or change in voice.



## PHYSICAL EXAMINATION ○●●○○

- Conduct a comprehensive physical examination looking for signs of hypothyroidism and hyperthyroidism.
- Examine the thyroid gland in terms of consistency and volume, presence of masses/nodules (numbers, movable or fixed, hard or soft).
- Check for the presence of cervical lymph nodes.



## RED FLAGS ○○○●○

The following are risk factors that can predict malignancy:

- Rapid growth of a neck mass.
- Childhood head and neck irradiation.
- Total body irradiation for bone marrow transplantation.
- Prior history of thyroid carcinoma.
- Family history of thyroid cancer, or thyroid cancer syndromes.
- Presence of fixed hard mass, or obstructive symptoms (dysphagia), or cervical lymphadenopathy, or vocal cord paralysis.



## DIAGNOSTIC AND MANAGEMENT TIPS ●●●●●

- The main aim of the diagnostic evaluation is to rule out the presence of thyroid cancer.
- Indications for fine needle aspirate (FNA) based on ultrasound findings include:  
Calculate the TIRADS score using the online calculator at <https://tiradscalculator.com>, or follow the table below:

### COMPOSITION (choose 1)

cystic or almost completely cystic	0 points
spongiform	0 points
mixed cystic and solid	1 point
solid or almost completely solid	2 points

### ECHOGENICITY (choose 1)

anechoic	0 points
hyperechoic or isoechoic	1 point
hypoechoic	2 points
very hypoechoic	3 points

### SHAPE (choose 1)

wider than tall	0 points
taller than wide	3 points

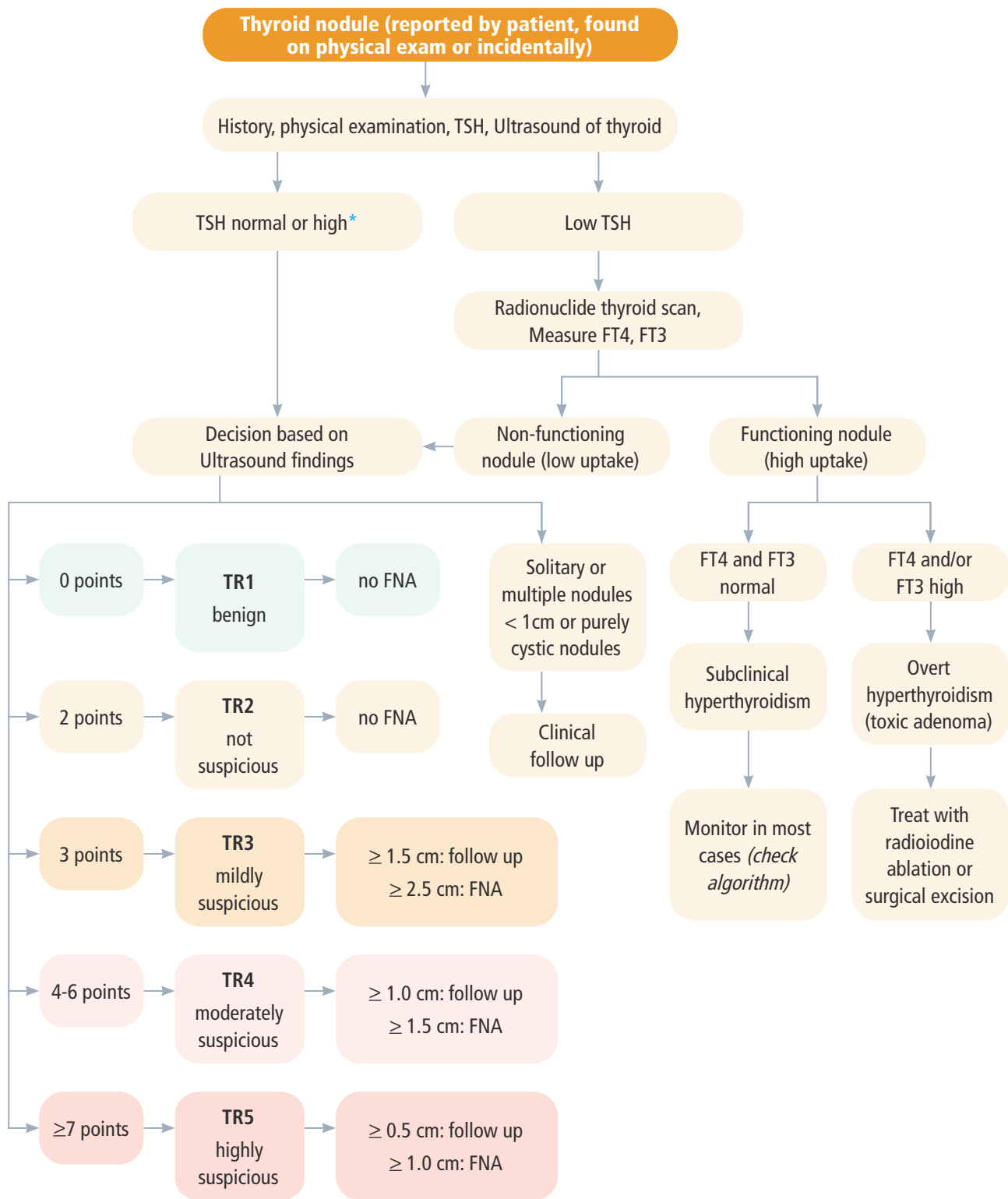
### MARGIN (choose 1)

smooth	0 points
ill-defined	0 points
lobulated / irregular	2 points
extra-thyroidal extension (ETE)	3 points

### ECHOGENIC FOCI (choose all that apply)

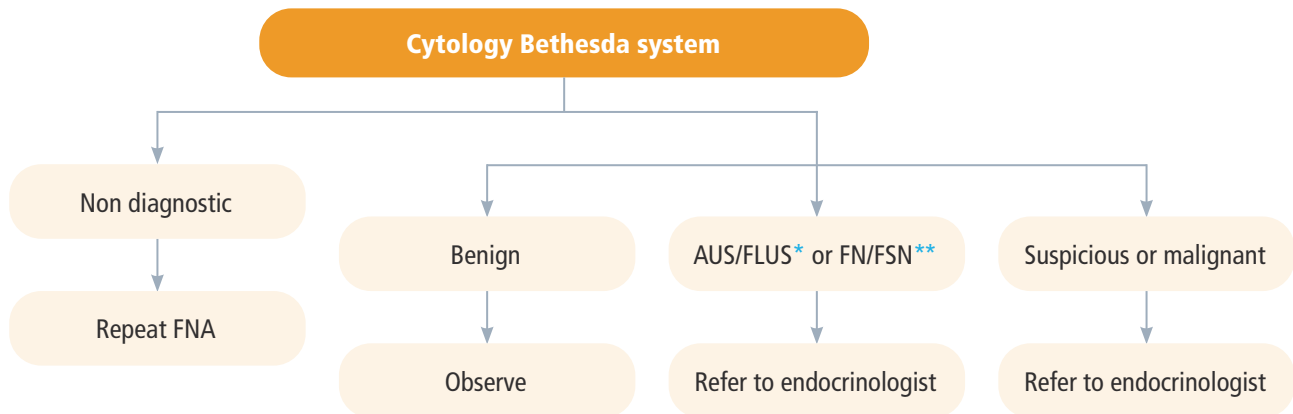
none or large comet tail artefacts	0 points
macro-calcifications	1 point
peripheral/rim calcifications	2 points
punctate echogenic foci	3 points

Summation of points from each column  
to determine TI-RADS grade



\*Need to investigate for hypothyroidism for high TSH (check algorithm).

## TIP FOR CYTOLOGY READING



\* AUS/FLUS: Atypia of undetermined significance or follicular lesion of undetermined significance

\*\* FN/FSN: Follicular neoplasm or suspicious for a follicular neoplasm

### Patient Education

- What is a thyroid nodule? It is a lump within the thyroid gland due to an abnormal growth of thyroid cells. It is most frequently benign but can be cancerous in some cases. Thyroid nodules are extremely common.
- Some nodules need to be evaluated by a blood test, ultrasound and potentially by fine needle aspiration.



# SECTION 3

## OTHER COMMON MEDICAL CONDITIONS

A. Anaemia – D64.9 .....	66
B. Acute monoarthritis (Joint pain) – M13.10 .....	69
C. Bronchitis – J20.9 .....	72
D. Common skin infections – L08.9 .....	74
E. Constipation – K59.0 .....	80
F. Acute diarrhea – R19.7 .....	84
G. Common cold – J00 .....	87
H. Otitis media – H66.9 .....	90
I. Community acquired pneumonia – J18 .....	93
J. Sinusitis – J01.90 .....	97
K. Uncomplicated lower urinary tract infection – N39.0 .....	101

# ANAEMIA



## DEFINITION ●●●●

Anaemia is defined as low hemoglobin concentration or low Red Blood Cell (RBC) count. It is defined as a blood hemoglobin values of less than 13 g/dL in men and 12 g/dL in women. Anaemia is classified as macrocytic, microcytic or normocytic based on the mean corpuscular volume (MCV).



## HISTORY ●●●●●

- Duration of anaemia to determine its chronicity and rapidity of installation.
- General symptoms of anaemia such as fatigue, dizziness, pica, craving for ice, or dyspnea.
- Constitutional symptoms (loss of appetite, weight loss, fever, and/or night sweats), which might indicate an infection or a malignancy.
- Symptoms or conditions that might suggest hemolysis such as dark urine, jaundice, history of gallstones, or anaemia with certain types of food or drugs.
- Other associated symptoms such as abdominal discomfort, hematochezia, bright red rectal bleeding, memory changes, peripheral numbness, mood changes.
- Medical conditions that might be associated with anaemia such as chronic kidney disease, rheumatoid arthritis, peptic ulcer etc.
- Intake of medications: Macrocytosis can be caused by Valproic acid, Trimethoprim/sulfamethoxazole, Biguanides.
- Surgery history: gastric or bariatric surgeries.
- Family history of anaemia, which can indicate hemoglobinopathies.
- Nutrition, eating habits, alcohol consumption.
- Exposure to toxins (occupational or environmental exposure to toxins such as Lead)
- Travel history (possibility of parasitic infections)
- Menstrual history in females with anaemia.



## PHYSICAL EXAMINATION ●●●●●

- Check vital signs namely heart rate, respiratory rate, temperature, and blood pressure (look for postural hypotension).
- Check for the presence of pallor or jaundice
- Conduct a comprehensive physical examination to detect signs of organ involvement (such as splenomegaly, lymph nodes, bruises) and assess the severity of the condition.



## RED FLAGS ○○○○●

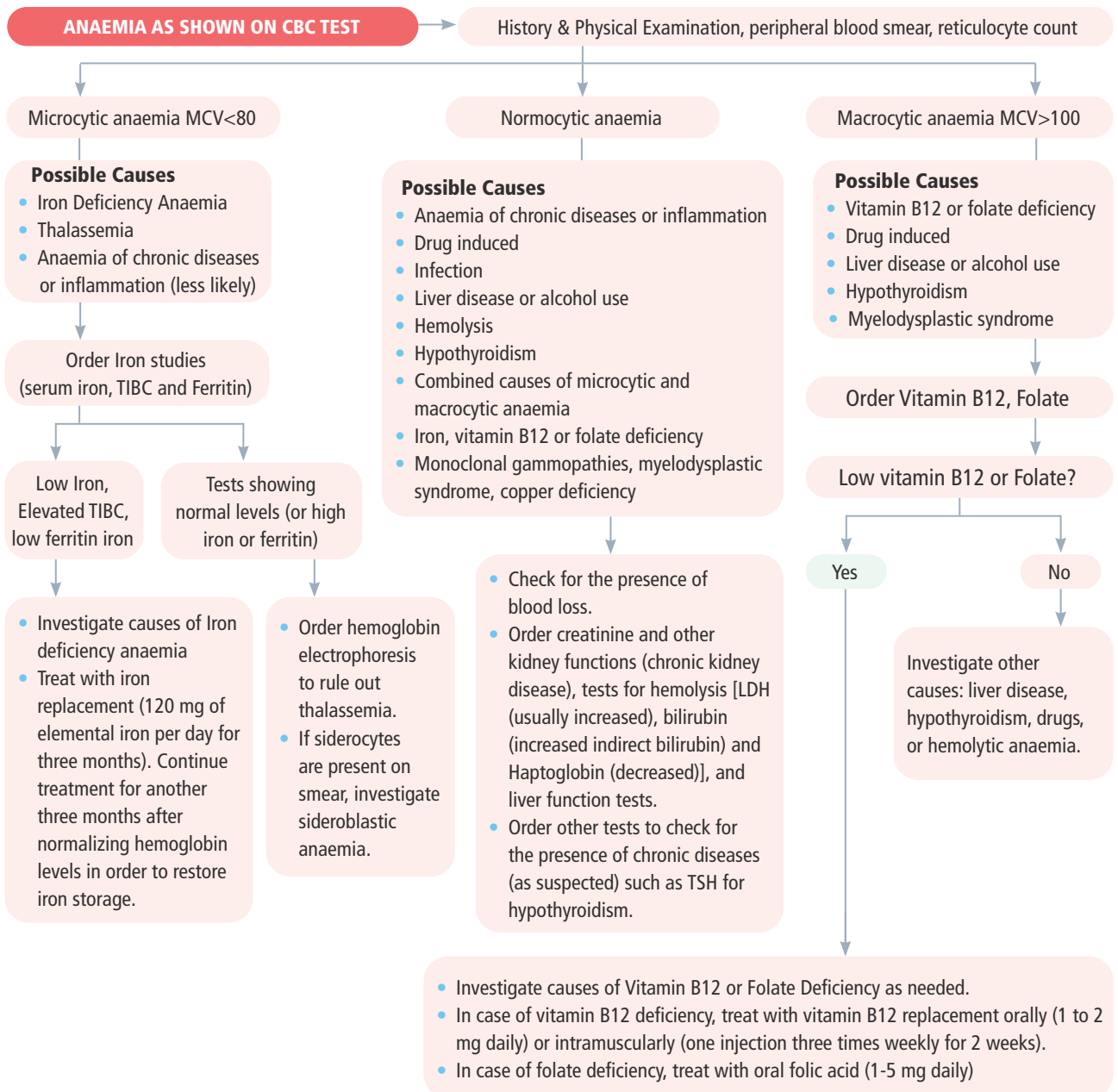
- Weight loss
- Cirrhosis
- Palpable lymph nodes
- Age above 50 with or without FIT test
- Melena
- Acute abdominal pain.



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○○●

- Anaemia is most often discovered by laboratory evaluation of complete blood count (CBC), since most patients are asymptomatic.
- Diagnosis of anaemia is made if a hemoglobin concentration  $<13$  g/dL or a hematocrit  $<41\%$  in men; and hemoglobin concentration  $<12$  g/dL or hematocrit  $<36\%$  in women.
- Evaluation of anaemia includes ordering CBC (if not done already), reticulocyte count and peripheral smear. Further tests need to be requested based on the morphological type of anaemia: microcytic (VGM  $<80$ fl), normocytic ( $80 < \text{VGM} < 100$ ) and macrocytic (VGM  $>100$ ).
- Decrease in hemoglobin and hematocrit may be present in older people, pregnancy (due to high plasma volume) and with intense physical activity.
- Interpretation of other RBC indices can be helpful. This includes the following:
  - Mean corpuscular hemoglobin (MCH): this is the average hemoglobin content in RBC. A low MCH indicates decreased hemoglobin content per cell, such as in iron deficiency and hemoglobinopathies.
  - Mean corpuscular hemoglobin concentration (MCHC): this is the average hemoglobin concentration per RBC. Very low MCHC values are typical of iron deficiency anaemia, while very high MCHC values reflect spherocytosis or RBC agglutination.
  - Red cell distribution width (RDW): this is the measure of the variation in RBC size. A high RDW implies a large variation in RBC sizes (present in iron deficiency anaemia, myelodysplastic syndrome and hemoglobinopathies); and a low RDW implies a more homogeneous population of RBCs.
- Interpretation of some tests:
  - Causes of high reticulocyte count include hemolysis, recovery from bleeding, removal of a bone marrow insult (drug or infection), or repletion of iron, folic acid, or vitamin B12.
  - If dysplastic features or cytopenia are present in case of macrocytic anaemia, this might indicate myelodysplastic disorder.
  - Anaemia of chronic diseases, infection, inflammation or malignancy can present with microcytic anaemia with low iron levels, low to normal total iron binding capacity (TIBC) and normal to high ferritin.





### Patient Education

- Advise patients in general to have healthy diet rich in iron, vitamin B12 and folate in order to prevent anaemia.
- Advise patients taking iron replacement of the following:
  - Do not take iron tablets with tea, coffee, calcium supplements, or milk as they might reduce iron absorption.
  - Take iron tablet one hour before or two hours after the above food types and at least two hours before or four hours after antacids.
- In case of developing side effects with iron replacement (nausea, vomiting, metallic taste, stomach upset, constipation), advise patients to:
  - Take a smaller dose
  - Take iron with food although this might decrease its absorption
  - Use a formulation with a lower elemental iron content (such as using ferrous gluconate instead of ferrous sulfate)
  - Take the liquid form of ferrous sulfate
  - Switch to intravenous iron

# ACUTE MONOARTHRITIS (JOINT PAIN)



## DEFINITION ●●●●●

Monoarthritis (joint pain) is an inflammation of one joint characterized by joint swelling, pain, warmth, and periarticular erythema with or without fever. It is associated with joint stiffness and total loss or decreased range of motion. It can be acute (less than 3 months) or chronic (more than 3 months).



## HISTORY ●●●●●

- Check the onset of the pain and swelling. Check if the symptoms are getting worse with activity and improve with rest (suggesting mechanical process) or worsening at rest with a morning stiffness (suggest an inflammatory process).
- Check if there is any recent trauma.
- Check previous joint disease.
- Check presence of medical conditions such as psoriasis.
- Check if there is any family history of joint diseases such as Gout.
- Check personal history of Gout.
- Check medication intake such as diuretic.
- Check recent travel, diet history, alcohol use, any substance abuse (intravenous drug use).
- Check occupational history and sexual history.



## PHYSICAL EXAMINATION ●●●●●

- Measure vital signs namely temperature.
- Conduct a comprehensive physical examination with focus on the affected joint (Effusion, limitation and pain at mobilization) and contralateral ones.
- Examine the joint as follows:
  - Check for swelling, redness and elicited pain with movement.
  - Check for effusion, which indicates an internal joint derangement.



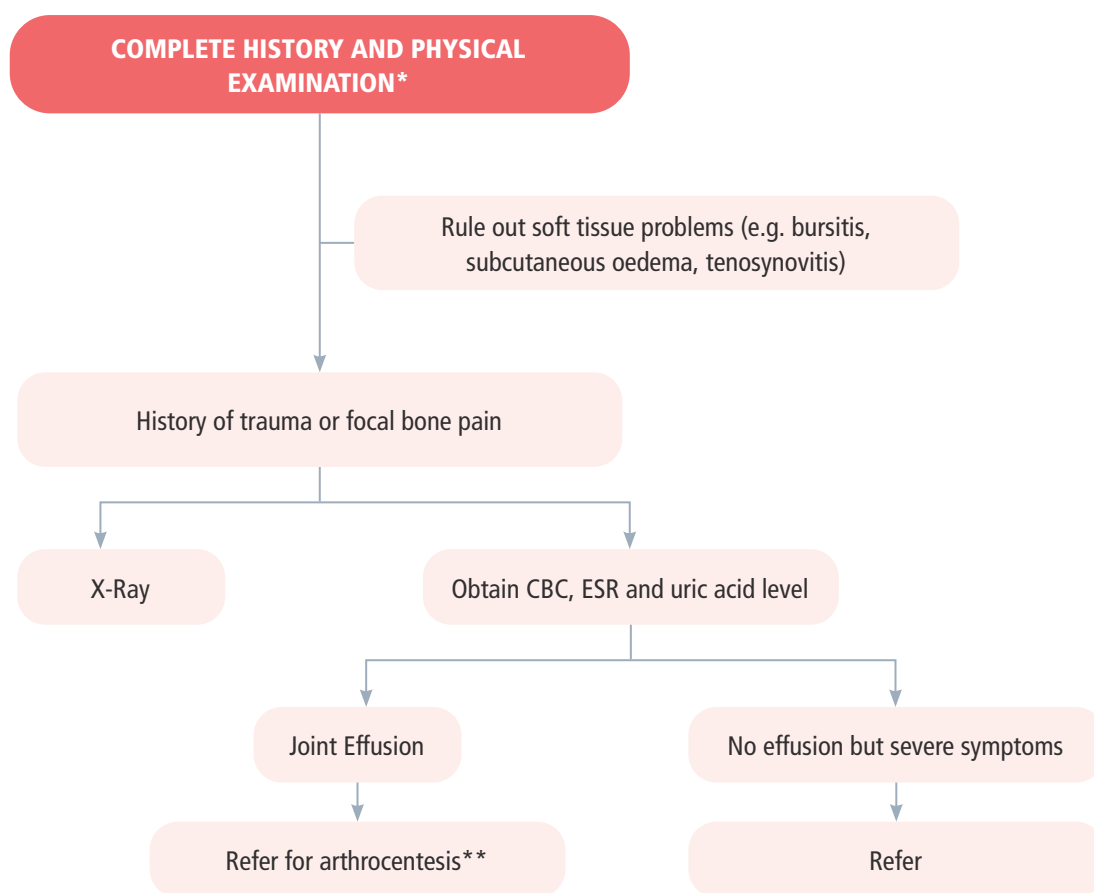
## RED FLAGS ○○○●○

- Suspicion of septic arthritis.
- Total loss of function of the joint.



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○○●

- It is important to have a prompt diagnosis since a delay in treatment can have deleterious effects including sepsis, bacteremia, joint destruction or even death especially in the case of septic arthritis.
- Most common diagnosis in primary care are: osteoarthritis, gout and trauma.
- Diagnostic clues include:
  - Restricted active range of motion of the joint more than the passive range of motion indicates a periarticular pathology – order Xray or MRI.
  - Presence of back pain and eye inflammation raises suspicion of Ankylosing Spondylitis – refer to a specialist.
  - Presence of immunosuppression and/or intravenous drug abuse raises suspicion of septic arthritis.
  - Presence of erythema nodosum and hilar adenopathy raises suspicion of sarcoidosis.
  - Presence of use of a diuretic medication, presence of tophi, renal stones raise suspicion of gout.
  - Presence of urethritis, conjunctivitis, diarrhea, rash, sacroiliitis raises suspicion of reactive arthritis.
- An acute monoarthritis with fever is considered to be of bacterial origin until proven otherwise.



\* In case of trauma or focal pain, need to do XRay to rule out any bone abnormality such as fracture.

\*\* Diagnostic rule for diagnosis of Gout in case arthrocentesis is not available:

- Male sex (2 points)
- Previous patient-reported arthritis attack (2 points)
- Onset within 1 day (0.5 point)
- Joint redness (1 point)
- Involvement of first metatarsophalangeal joint (2.5 points)
- Hypertension or  $\geq 1$  cardiovascular diseases (angina pectoris, myocardial infarction, heart failure, cerebrovascular accident, transient ischemic attack, or peripheral vascular disease) (1.5 points)
- Serum uric acid  $> 5.88$  mg per dl (3.5 points)

If score is  $\geq 8$ , then diagnosis as Gout is most probable- manage as gout (Corticosteroids, nonsteroidal anti-inflammatory drugs, or low-dose colchicine should be prescribed in case of acute gout. Long-term urate-lowering therapy should not be initiated in most patients after their first gout attack or in patients who have infrequent gout attacks).

If score is between 4 and 8, then diagnosis is uncertain and need to do arthrocentesis.

If score is  $\leq 4$ , then diagnosis is most probably not gout and possibilities of calcium pyrophosphate dihydrate deposition disease arthritis, reactive arthritis, septic arthritis, rheumatoid arthritis, osteoarthritis, or psoriatic arthritis.

# BRONCHITIS



## DEFINITION ●○○○○

Acute bronchitis is a lower respiratory tract infection involving the large airways without evidence of pneumonia that occurs in the absence of Chronic Obstructive Pulmonary Disease (COPD). It is characterized by cough, with or without sputum production. It typically lasts for at least five days and can resolve within one to three weeks. It is usually due to viral infection, and it is a self-limited disease.



## HISTORY ●●○○○

- Cough characteristics: usually non-productive or minimally productive (sputum may be clear, white, yellow, green or blood-tinged); duration is less than 2-3 weeks accompanied or preceded by upper respiratory tract symptoms.
- Other signs and symptoms may include dyspnoea, wheezing, chest pain, fever (usually absent or mild), hoarseness, and malaise. These symptoms may be present in varying degrees or may be absent.



## PHYSICAL EXAMINATION ○○●○○

- Check vital signs, including the presence or absence of fever and tachypnoea.
- Head and neck: rhinorrhoea, normal or red pharynx, localized submandibular and cervical lymphadenopathy.
- Lung exam: coarse rhonchi and wheezes that change in location and intensity after a deep and productive cough.



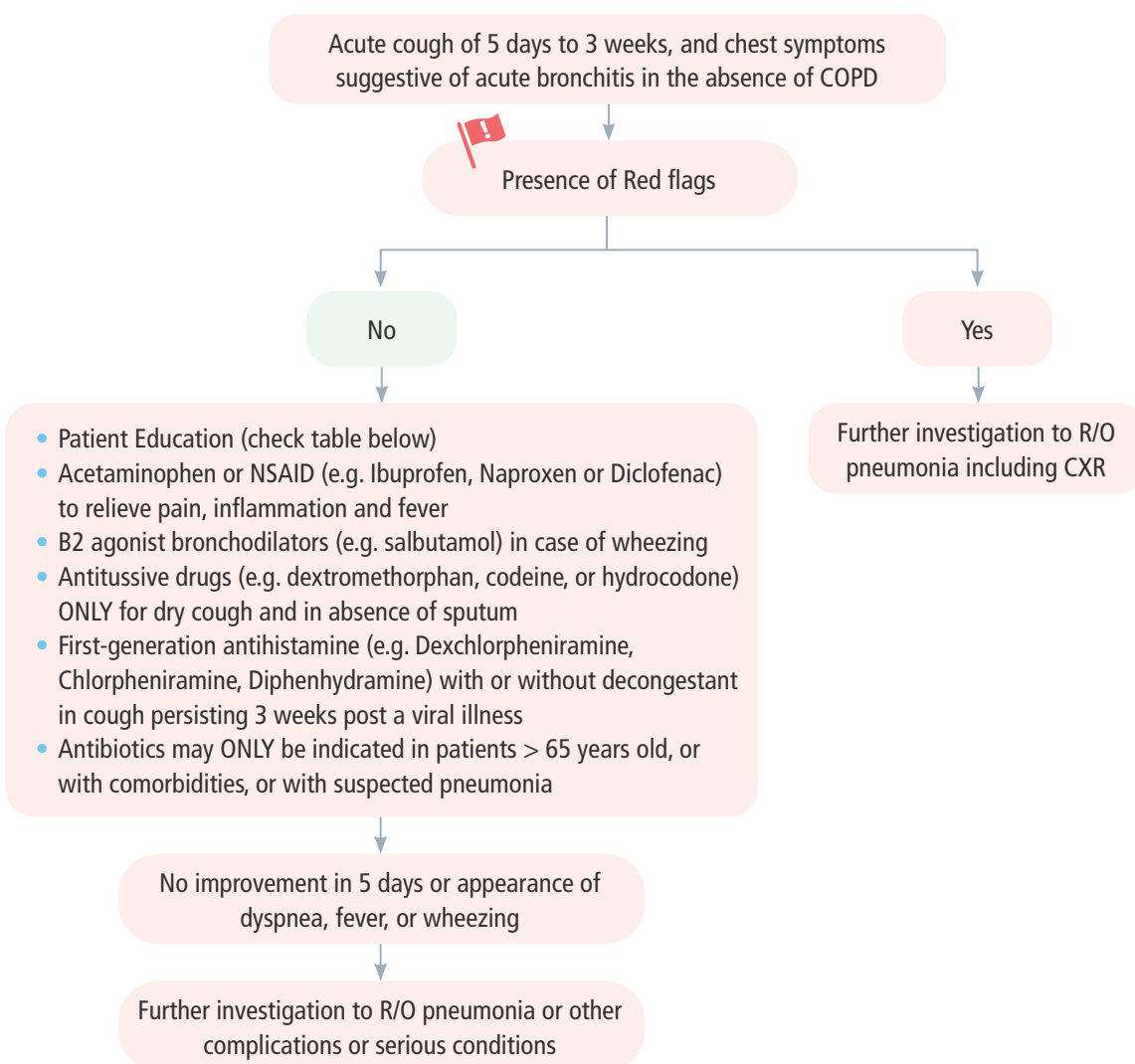
## RED FLAGS ○○○●○

- Abnormal vital signs (pulse >100/minute, respiratory rate >24 breaths/minute, temperature >38°C, or oxygen saturation <95%).
- Signs of consolidation on chest examination (rales, egophony, or tactile fremitus).
- Mental status or behavioural changes in patients >75 years old, who may not have fever.
- Additional factors, such as moderate or severe dyspnoea, haemoptysis, immunocompromise status, older age, and/or dementia, that might raise the likelihood of pneumonia or other underlying pulmonary disorders.



## DIAGNOSTIC AND MANAGEMENT TIPS

- The colour of the sputum does not differentiate between bacterial and viral lower respiratory tract infections.
- Diagnosis of acute bronchitis is mainly clinical. It should be suspected in patients with cough for at least five days (often one to three weeks) who do not have clinical findings suggestive of pneumonia and do not have COPD.
- Differential Diagnosis include: Pneumonia, postnasal drip, gastroesophageal reflux, asthma, ACE inhibitor use and more serious conditions like heart failure, pulmonary embolism and lung cancer.



### Patient Education

- Stop smoking, increase non-caffeinated fluid intake, and bed rest.
- Handwashing to reduce spread in the household.
- Non-pharmacologic cough remedies (throat lozenges, hot tea, honey)

# COMMON SKIN INFECTIONS

Type	Description	Management
<b>Purulent bacterial skin and soft tissue infections</b>		
Folliculitis	<ul style="list-style-type: none"> <li>• Superficial infection of the hair follicles in body areas associated with friction and heavy perspiration (beard, posterior neck, occipital scalp, axillae, breasts and thighs).</li> <li>• Mostly asymptomatic.</li> <li>• Pathogens: Staphylococcus Aureus, and Pseudomonas aeruginosa in swimming pools.</li> </ul>	<ul style="list-style-type: none"> <li>• Topical antibiotics: Clindamycin 1% or Erythromycin 2% (2-3 times daily for 7 to 10 days) OR Mupirocin 2% ointment (2-3 times daily for 7 to 10 days)</li> </ul>
Furuncle	<ul style="list-style-type: none"> <li>• Painful deep infection of hair follicles that extends to subcutaneous tissue</li> </ul>	<ul style="list-style-type: none"> <li>• Warm compresses 3-4 times daily for 15 to 20 minutes.</li> <li>• Topical antibiotics: Clindamycin 1% or Erythromycin 2% (2-3 times daily for 7 to 10 days) OR Mupirocin 2% ointment (2-3 times daily for 7 to 10 days)</li> <li>• Incision &amp; Drainage if needed</li> </ul>
Carbuncle	<ul style="list-style-type: none"> <li>• A cluster of interconnected furuncles/nodules. Sometimes with fever and regional adenopathy</li> </ul>	<ul style="list-style-type: none"> <li>• Warm compresses 3-4 times daily for 15 to 20 minutes.</li> <li>• Topical antibiotics: Clindamycin 1% or Erythromycin 2% (2-3 times daily for 7 to 10 days) OR Mupirocin 2% ointment (2-3 times daily for 7 to 10 days)</li> <li>• Incision &amp; Drainage if needed</li> </ul>
Abscess	<ul style="list-style-type: none"> <li>• Painful collection of pus within dermis</li> </ul>	<ul style="list-style-type: none"> <li>• Warm compresses 3-4 times daily for 15 to 20 minutes.</li> <li>• Incision &amp; Drainage.</li> </ul>
<b>Non-purulent bacterial skin and soft tissue infections</b>		
Cellulitis	<ul style="list-style-type: none"> <li>• Deep skin infection that extends to the subcutaneous tissues. Skin is very red hot/warm, tender, erythematous, and edematous. Not well demarcated plaque that expands rapidly.</li> </ul>	For 5-10 days <ul style="list-style-type: none"> <li>• Amoxiclav 625 mg Q 8 hours or 1000 mg BID OR</li> <li>• Clindamycin 450 mg Q 6 hours</li> </ul>
Erysipelas	<ul style="list-style-type: none"> <li>• Well-demarcated, painful plaque.</li> </ul>	For 5-10 days <ul style="list-style-type: none"> <li>• Cephalexin 1000 mg BID or 500 mg Q 6 hours OR</li> <li>• Clindamycin 450 mg Q 6hours</li> </ul>
Impetigo & Ecthyma	<ul style="list-style-type: none"> <li>• Highly contagious superficial skin infection; honey-colored crusted exudates with flaccid pustules or vesicles. Usually non-bullous in adults.</li> </ul>	For 7-10 days <ul style="list-style-type: none"> <li>• Cephalexin 1000 mg BID or 500 mg Q 6 hours OR</li> <li>• Amoxiclav 625 mg Q 8 hours or 1000 mg BID OR</li> <li>• Clindamycin 450 mg Q 6 hours OR</li> <li>• Erythromycin 250 mg 4 times daily OR</li> <li>• Penicillin V if culture yield streptococci alone</li> </ul>

Type	Description	Management
<b>Common skin viral infections</b>		
Herpes Simplex Virus (HSV)	<ul style="list-style-type: none"> <li>• Primary HSV-1 infection occurs following exposure to the secretions (usually saliva) of infected persons while they are shedding the virus.</li> <li>• Predominantly affect the mouth (herpes labialis) or the genitals (genital herpes)</li> <li>• Prodromal symptoms of pain, burning, or itching can precede the muco-cutaneous manifestations of herpes labialis and genital herpes infections.</li> </ul>	<p>Treatment of Herpes Labialis:</p> <ul style="list-style-type: none"> <li>• Acyclovir: 200 mg 5×/day or 400 mg TID daily for 5 days OR</li> <li>• Famciclovir 1500 mg once for one day OR</li> <li>• Valacyclovir 2000 mg bid for one day, taken 12 hours</li> </ul>
Varicella-Chicken Pox	<ul style="list-style-type: none"> <li>• Febrile illness associated with a diffuse, intensely pruritic, vesicular rash; the vesicles appear in crops in various stages of development (new, crusted and healed vesicles at the same time).</li> <li>• Scratching the lesions can lead to secondary bacterial skin infections.</li> <li>• Other serious complications include invasive group A streptococcal infections (toxic shock syndrome and necrotizing fasciitis), cerebellar ataxia, severe encephalitis, and pneumonia.</li> <li>• Highly contagious and is transmitted by aerosolized droplets from respiratory secretions or by direct contact with the fluid from vesicular skin lesions. The incubation period is 10 to 21 days.</li> </ul>	<ul style="list-style-type: none"> <li>• Symptomatic treatment</li> <li>• In patients with high risk of complications, can give Acyclovir 800 mg 4×/day for 5 Days</li> </ul>
Herpes Zoster	<ul style="list-style-type: none"> <li>• Acute onset of unilateral dermatomal neuritic paresthesia or pain ± itching, followed by a painful ± prurigenous dermatomal skin vesicular rash/ eruption (vesicles &gt; papules / pustules &gt; macules) in varying stages of evolution.</li> <li>• Occasionally, fever and malaise occur.</li> <li>• The lesions begin to crust within 7 to 10 days, and the acute pain syndrome resolves. If the pain persists, development of postherpetic neuralgia is likely.</li> </ul>	<p>Within 72 hours, can prescribe:</p> <ul style="list-style-type: none"> <li>• Acyclovir: 800 mg 5×/day for 7-10 days OR</li> <li>• Famciclovir: 500 mg TID for 7 days OR</li> <li>• Valaciclovir: 1 g TID for 7 days</li> </ul>

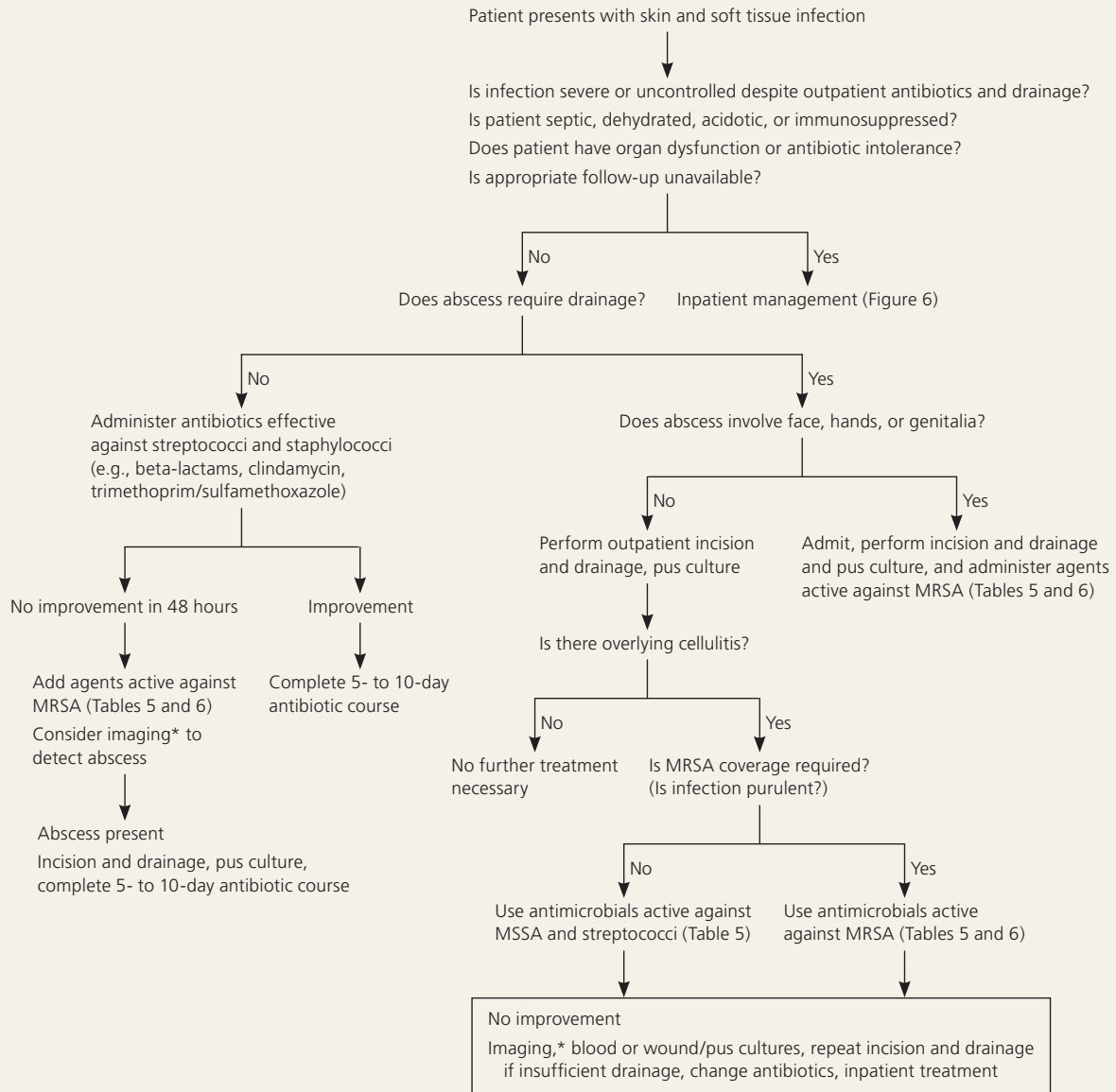


Type	Description	Management
<b>Common skin viral infections (cont.)</b>		
Molluscum Contagiosum	<ul style="list-style-type: none"> <li>An infectious viral disease of the skin caused by the poxvirus.</li> <li>Transmission can occur via direct skin or mucous membrane contact, or via fomites.</li> <li>Smooth pink, or flesh-colored, pearly, dome-shaped, umbilicated papules with a central keratotic plug.</li> <li>Most patients have many papules, often in intertriginous sites, such as the axillae, popliteal fossae, and groin. They usually resolve spontaneously, but they often persist in immunocompromised patients.</li> </ul>	<ul style="list-style-type: none"> <li>Treatment might not be necessary because the disease often resolves spontaneously in children.</li> <li>Cryosurgery and Curettage are perhaps the easiest and most definitive approaches.</li> <li>A medication composed of Cantharidin, Podophyllin and Salicylic Acid can be applied topically then washed off 2 to 6 hours later; it is well tolerated, and is very effective even in children.</li> <li>A solution containing 5% Potassium Hydroxide can be applied topically 1-2 times daily (age &gt; 3 years).</li> </ul>
Pityriasis Rosea	<ul style="list-style-type: none"> <li>A single, round or oval, pink patch that is scaly with a raised border (herald patch of 2-10 cm diameter) appears first.</li> <li>Few days to weeks later, salmon-colored, 1-2 cm oval patches (<math>\pm</math> mild itching) appear mainly on the body trunk and upper parts of the extremities (in a Christmas tree distribution over the back).</li> <li>They usually spare the face.</li> <li>The patches usually last 6 to 8 weeks and even to several months.</li> <li>They may leave post-inflammatory hypo or hyperpigmented macules that disappear with time.</li> </ul>	<ul style="list-style-type: none"> <li>Just observation (self-limited).</li> <li>In case of itching: avoid hot clothes or showers; Hydrocortisone cream 1% can be used for small itchy areas; A topically applied lotion containing calamine and zinc oxide and/or oral anti-histamines in case of wide itchy areas.</li> </ul>
<b>Common Skin Fungal Infections</b>		
Tinea Capitis	<ul style="list-style-type: none"> <li>Scaly, erythematous skin, often with hair loss. It can resemble seborrheic dermatitis.</li> </ul>	<ul style="list-style-type: none"> <li>Griseofulvin for 6-12 weeks in tinea capitis, 250 mg 4 times daily (microsize formulation) or 250 mg 3 times daily (ultramicrosize formulation)</li> <li>Fluconazole orally 150 mg daily or Fluconazole orally 150 mg once weekly for 2-4 weeks</li> <li>Itraconazole orally 200 mg twice daily for one week each month for 1-3 months.</li> <li>Terbinafine orally 250 mg daily for 2-4 weeks based on the indication.</li> </ul>

Type	Description	Management
<b>Common Skin Fungal Infections</b> <i>(cont.)</i>		
Limited Dermatophytes (Tinea Cruris, Pedis or Corporis)	<ul style="list-style-type: none"> <li>• Tinea pedis: usually pruritic, with scaling plaques on the soles, extending to the lateral aspects of the feet and interdigital spaces, often with maceration.</li> <li>• Tinea cruris: occurs in the groin and on the upper, inner thighs and buttocks as scaling annular plaques with central clearing without satellite pustules; more common in men and typically spares the scrotum</li> <li>• Tinea corporis: represent infections of different sites, each invariably with annular scaly plaques.</li> </ul>	<p>Aeration+</p> <ul style="list-style-type: none"> <li>• Topical Azole cream 1-2% or Ciclopirox cream 1% or Terbinafine cream 1% twice daily for 1 to 4 weeks (4 weeks for tenia pedis).</li> <li>• Use oral treatment if extensive or failure of topical treatment: Fluconazole orally 150 mg daily or Fluconazole orally 150 mg once weekly for 2-4 weeks (2-6 weeks in tinea pedis); Itraconazole orally 200 mg twice daily for 1 week or 100 mg daily for 2 weeks in tinea corporis or cruris; or 200 mg twice daily for 1 week in tinea pedis; Terbinafine orally 250 mg daily for 2-4 weeks based on the indication.</li> </ul>
Tinea or Pityriasis Versicolor	<ul style="list-style-type: none"> <li>• Hyper - or hypopigmented, red or yellowish-brown macules that are well-defined and have fine, powdery, bran-like (pityriasiform) scales.</li> <li>• Lesions may appear all over the body, with the upper trunk, neck and proximal parts of the upper limbs being most commonly affected.</li> <li>• Pigmentary alterations will usually take weeks to resolve after successful therapy.</li> <li>• It is a very benign condition.</li> <li>• Its course is chronic and subject to relapse.</li> </ul>	<ul style="list-style-type: none"> <li>• Selenium sulfide 2.5% lotion applied either overnight or for 10 to 15 minutes once daily for 10-14 days.</li> <li>• Ketoconazole shampoo "leave in place for 5 minutes every day" for 5 days, and the imidazole or triazole creams are also effective topically for 1 week.</li> <li>• Single-dose oral Ketoconazole, 400 mg (may repeat dose in 1 week)</li> <li>• If widespread lesion: Itraconazole 200 mg orally daily for 5-7 days or Fluconazole 300 mg orally once weekly dose for 2 weeks.</li> </ul>
Oropharyngeal candidiasis	<ul style="list-style-type: none"> <li>• White nonadherent plaques on tongue and buccal mucosa.</li> </ul>	<ul style="list-style-type: none"> <li>• Nystatin suspension or Miconazole oral gel 20 mg/g 4-6 times daily until symptoms resolve.</li> <li>• In severe disease, use Fluconazole orally 200 mg on the first day, followed by 100 mg/day for 5 to 10 days, or Itraconazole orally 100 to 200 mg/day, for 5 to 10 days</li> </ul>
Onychomycosis	<ul style="list-style-type: none"> <li>• Fungal nail disease, characterized by thickened yellow nails and subungual debris, and usually associated with tenia pedis.</li> <li>• It may cause sububgual hyperteratosis and sometimes complete destruction of the nail.</li> </ul>	<p>Minimum Duration of Therapy: 6-8 weeks for fingernails; 12-16 weeks for toenails.</p> <ul style="list-style-type: none"> <li>• Itraconazole orally 200 mg/day (or twice daily for 1 week per month)</li> <li>• Terbinafine orally 250 mg/day</li> <li>• Fluconazole orally 150-300 mg once weekly</li> <li>• In mild onychomycosis, use a nail lacquer: Amorolfine 5% lacquer once to twice weekly or Ciclopirox 8% lacquer once daily for 48 weeks</li> </ul>

Type	Description	Management
<b>Common Skin Parasitic Infections</b>		
Scabies	<ul style="list-style-type: none"> <li>• Ectoparasitic infestation caused by <i>Sarcoptes scabiei</i> var <i>hominis</i>.</li> <li>• Itching, often severe and worse at night.</li> <li>• Small, erythematous papules, often excoriated and tipped with hemorrhagic crusts. Vesicles, pustules, and rarely bullae may also be present.</li> <li>• Thread-like burrows are pathognomonic of scabies.</li> <li>• Affected areas: sides and webs of the fingers, flexor aspects of wrists, extensor aspects of elbows, anterior and posterior axillary folds, skin adjacent to nipples, periumbilical areas, waist, male genitalia, extensor surface of knees, lower half of the buttocks and adjacent thighs, and the lateral and posterior aspects of the feet.</li> </ul>	<ul style="list-style-type: none"> <li>• Permethrin 5% cream: application to all areas of the body from the neck down and washed off after 8-14 hours; repeated in one week. Benzyl Benzoate and Lindane are other alternatives.</li> <li>• Treat close contacts simultaneously.</li> <li>• For itching: Antihistamines oral +/- Corticosteroids topical.</li> <li>• Recently used clothing and linens should be washed in hot water (&gt; 60°C) and dried in a hot dryer or bagged for several days.</li> </ul>
Pediculosis	<ul style="list-style-type: none"> <li>• Infestation of the head (scalp), body or pubic region by site specific ectoparasites: respectively (<i>Pediculus humanus</i> var <i>capitis</i>), (<i>Pediculus humanus</i> var <i>corporis</i>), or (<i>Phthirus pubis</i>).</li> <li>• Cause pruritis.</li> <li>• Diagnosis by visual inspection.</li> </ul>	<p>Wet hair Combing +</p> <ul style="list-style-type: none"> <li>• Permethrin 1% lotion: apply on hair, leave on for 10 minutes, then rinse; repeat in 7 days OR</li> <li>• Lindane 1% shampoo (2nd line if Permethrin fails)</li> </ul>

## Initial Management of a Patient with Skin and Soft Tissue Infection



\*—Ultrasonography, computed tomography, or magnetic resonance imaging.

Source : Am Fam Physician. 2015;92(6):474-483

# CONSTIPATION



## DEFINITION ●●●●●

Constipation can be manifested as incomplete elimination of stools or difficulty passing stools or both. Chronic constipation is diagnosed when the symptoms are present for at least 3 months out of the preceding 12 months. Constipation can be primary (functional) or secondary (due to medications such as iron supplements, or medical conditions such as diabetes or hypothyroidism, or psychological problems).



## HISTORY ●●●●●

- Characteristics of bowel movements: frequency, recent and persistent change in bowel habits, duration of constipation, feeling of a sense of incomplete evacuation.
- Stool characteristics: hard stools, change in caliber, presence of blood etc.
- Presence of symptoms suggestive of irritable bowel syndrome: abdominal pain, bloating, or intestinal cramping between bowel movements.
- Presence of pelvic floor dysfunction: prolonged and excessive straining, especially with soft stools.
- Weight loss.
- Use of laxatives (type and dose) or other medications (such as iron supplement, antihistamines, antidepressants, antihypertensives etc.).
- Presence of chronic diseases such as diabetes mellitus, hypothyroidism or multiple sclerosis.
- Dietary habits and practice of physical activity.
- Family history of colorectal cancer.



## PHYSICAL EXAMINATION ●●●●●

- Look for signs of weight loss or anemia.
- Perform an abdominal examination looking for abdominal masses, liver enlargement or palpable colon.
- Do a digital rectal examination:
  - Look for hemorrhoids, skin tags, fissures, rectal prolapse, or anal warts.
  - Ask patient to strain and look for stool leakage; this might indicate fecal impaction or rectal prolapse.
  - Assess anal sphincter strength and wink (involuntary contraction of the external anal sphincter upon stroking of the skin around the anus with a cotton-tipped applicator or cotton pad); lack of anal wink might suggest a sacral nerve pathology.
  - Palpate the walls of the rectum for tenderness, masses, strictures, and stools. Note the consistency and color of the stool if present.
  - Ask the patient to bear down (or expel the finger); observe if there is a lift to the pelvic floor and whether the perineum and anus descend (descent of 1.0 to 3.5 cm is normal). An abnormality suggests the presence of pelvic floor dysfunction.



## RED FLAGS ○○○●○

- Hematochezia (fresh blood in stool)- might suggest presence of colorectal cancer, diverticulosis, or inflammatory bowel disease
- Unintended weight loss of 4.5 kg or more- might suggest colorectal cancer
- Family history of colorectal cancer
- Iron deficiency anemia
- Positive fecal occult blood tests
- Acute onset of constipation in an older patient- might suggest colorectal cancer



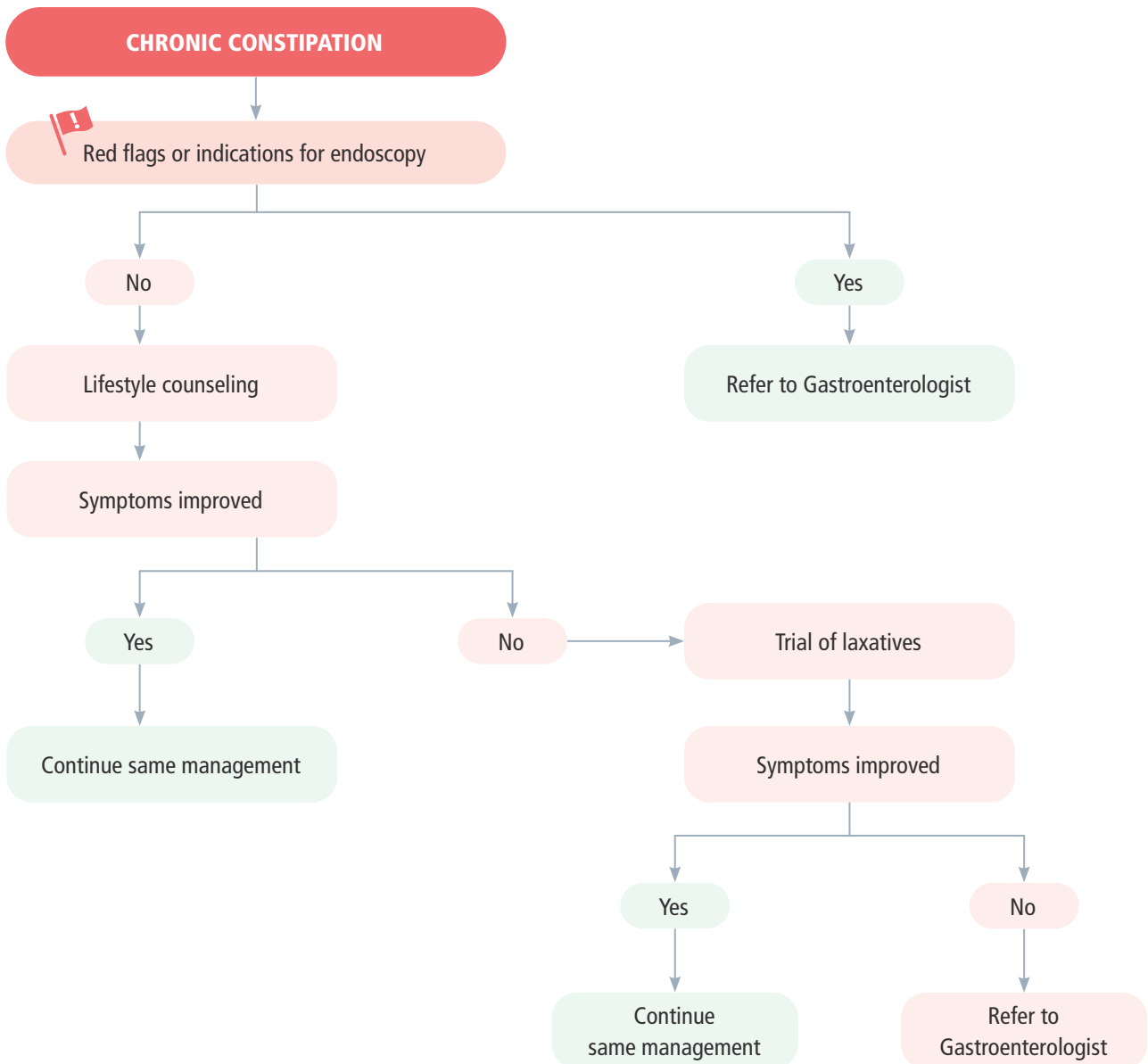
## DIAGNOSTIC AND MANAGEMENT TIPS ○○○●○

- Functional constipation is diagnosed using Rome III Diagnostic Criteria, which must be fulfilled for the past three months, with symptom onset at least six months before diagnosis. Criteria are:
  - Presence of two or more of the following:
    - » Straining during at least 25% of defecations
    - » Lumpy or hard stools in at least 25% of defecations
    - » Sensation of incomplete evacuation for at least 25% of defecations
    - » Sensation of anorectal obstruction/blockage for at least 25% of defecations
    - » Manual maneuvers to facilitate at least 25% of defecations such as digital evacuation
    - » Fewer than three defecations per week
  - Loose stools are rarely present without the use of laxatives
  - There are insufficient criteria for irritable bowel syndrome
- Diagnostic tests (blood tests, radiography, endoscopy) are not routinely recommended in the absence of red flags/alarm signs or symptoms. Tests can be requested depending on the clinical suspicion.
  - Complete blood cell count (CBC), serum glucose, creatinine, calcium, and thyroid-stimulating hormone (TSH) should be performed in patients with hematochezia, weight loss of  $\geq 4.5$  Kg, a family history of colon cancer or inflammatory bowel disease, anemia, or positive fecal occult blood tests, as well as a person with short-term history of constipation.
  - Indications for endoscopy:
    - » Age older than 50 years with no previous colorectal cancer screening
    - » Change in stool caliber
    - » Heme-positive stools
    - » Iron deficiency anemia
    - » Obstructive symptoms
    - » Recent onset of constipation
    - » Rectal bleeding
    - » Rectal prolapse
    - » Weight loss



## DIAGNOSTIC AND MANAGEMENT TIPS (cont.) ○○○○●

- Management of patients with constipation:
  - Empiric treatment including patient education, a trial of dietary changes, and a trial of fiber can be considered when alarm features are absent, without the need for diagnostic testing.
  - Trial of laxatives can be tried in case lifestyle changes did not work: including bulk-forming laxatives, and non-bulk-forming laxatives or enemas.
    - » Start with bulk-forming laxatives (e.g., psyllium). They increase the frequency and soften stools through absorbing water and increasing fecal mass, with a minimum of adverse effects.
    - » If bulk-forming laxatives are not tolerated or there is no improvement, use an osmotic agent (e.g., magnesium citrate, magnesium sulfate, lactulose, polyethylene glycol).
    - » Stimulant laxatives (e.g., bisacodyl and Senna) can be used, but it is preferred not to use them on chronic basis because they are associated with hypokalemia and salt overload.



### Patient Education

- Patient education involves efforts to reduce dependency on laxatives by emphasizing that daily bowel movements are not the norm or necessary for health, and to increase fluid and fiber intake.
- Advise patient to try to defecate after meals, taking advantage of normal postprandial increases in colonic motility.
- Lifestyle counseling: advise patient to have high fiber diet (20-35 grams/day), do exercise and increase fluid intake.
  - Many fruits (dates, prunes, pears, apples with skin), vegetables (raw or cooked; spinach, broccoli), legumes (beans, peas), nuts (almonds), and grains (oat) are rich in fiber.
  - Advise patients to add fiber to their diet slowly to avoid bloating, abdominal gas and cramps.





## DEFINITION ●●●●●

The passage of loose or watery stools, typically at least three times in a 24-hour period, for a duration of 14 days or less. Most cases of acute diarrhea are self-limited.

Causes for non-infectious diarrhea include: medication use or adverse event (laxatives, cholinergic agents, metformin, and magnesium containing antacids), stool impaction (or false diarrhea especially in older adults), food allergies, appendicitis, diverticulitis, irritable bowel syndrome, inflammatory bowel diseases (Crohn and ulcerative colitis), ischemic colitis, hyperthyroidism (thyrotoxicosis) and malignancy (such as carcinoid syndrome).



## HISTORY ●●●●●

- Check for the duration of symptoms, the frequency and characteristics of the stool (bloody stool).
- Check for associated symptoms (fever, vomiting, abdominal cramping, gas, bloating, tenesmus). The presence of bloody stools, fever and tenesmus might indicate the presence of invasive bacterial diarrhea. The presence of vomiting may indicate a viral cause or ingestion of preformed bacterial toxin.
- Check for symptoms that indicate dehydration, especially in the presence of vomiting (for example dark yellow or minimal urine output, thirst, decreased skin turgor, orthostatic hypotension, change of mental status).
- Check for food history (symptoms within 6 hours suggest ingestion of a preformed toxin of *Staphylococcus aureus* or *Bacillus cereus*, particularly if nausea and vomiting were the initial symptoms; symptoms at 8 to 16 hours suggest infection with *Clostridium perfringens*; symptoms at more than 16 hours suggest either viral or other bacterial infection)
- Check for potential exposures: residence, occupational exposure, recent and remote travel, sick contacts, pets, and hobbies.
- Check for medication intake: recent antibiotic use (*Clostridioides difficile* infection), other medications (such as proton pump inhibitors, which can increase the risk of infectious diarrhea and other medications or herbs).
- Check for presence of medical conditions: immunocompromised state or the possibility of nosocomial infection (if history of hospitalization for > 3 days).



## PHYSICAL EXAMINATION ○ ○ ● ○ ○

- Check for signs of dehydration: dry mucous membranes, decrease skin turgor, orthostatic hypotension, and increase in heart rate, abnormal orthostatic vital signs (difference of 10 in diastolic BP, difference of 20 in systolic BP, and difference of 30 in pulse).
- Examine the abdomen: bowel sounds most likely to be hyperactive in infectious diarrhea, localized tenderness in appendicitis and diverticulitis. If non-infectious etiologies are suspected, please refer to the relevant algorithm.



## RED FLAGS ○ ○ ○ ● ○

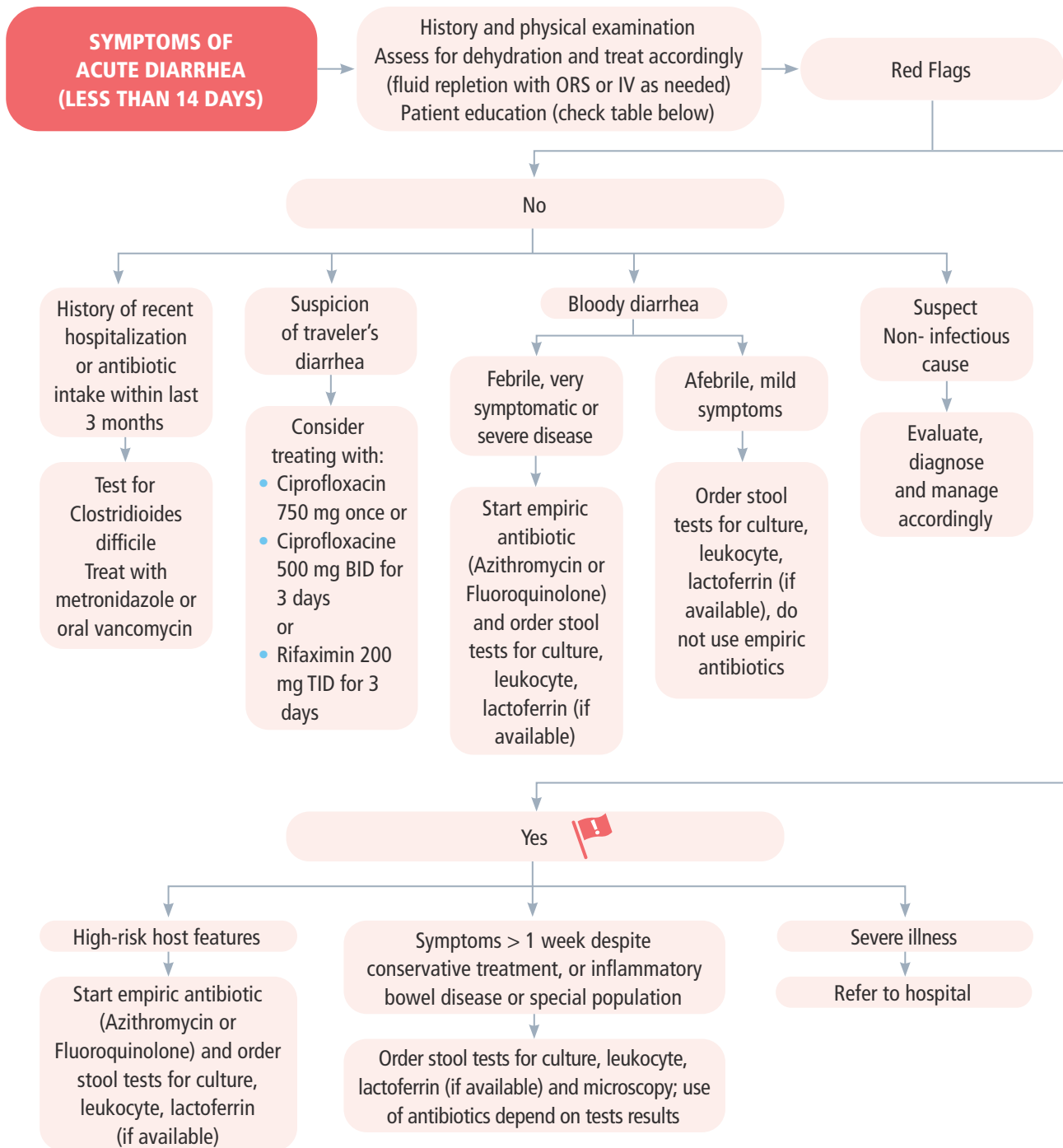
- Suspicion of severe illness (profuse watery diarrhea with signs of hypovolemia, passage of >6 unformed stools per 24 hours, severe abdominal pain).
- Other signs or symptoms related to inflammatory diarrhea (bloody diarrhea, passage of many small volume stools containing blood and mucus, temperature  $\geq 38.5^{\circ}\text{C}$ ) (suggestive of invasive or toxin-producing bacteria).
- High-risk host features (age  $\geq 70$  years, presence of comorbidities such as cardiac disease, immunocompromising condition, inflammatory bowel disease, pregnancy).
- Symptoms persisting for more than one week.
- Diarrhea in special population (such as food handlers, health care workers, and individuals in day care centres).

**PS: The following diagnosis of acute diarrhea are notifiable diseases for MOPH epidemiological surveillance unit: food poisoning, dysentery, Cholera and typhoid fever.**



## DIAGNOSTIC AND MANAGEMENT TIPS ○ ○ ○ ● ○

- Most cases of acute diarrhea are viral and self-limited.
- Laboratory tests are not indicated in majority of cases of acute diarrhea. The following tests might be needed depending on the clinical evaluation: basic blood chemistry including blood urea nitrogen (BUN), Creatinine, electrolytes to assess for dehydration, and liver enzymes; stool culture in case of severe diarrhea (passage of six or more unformed stools per day), diarrhea of any severity that persists for longer than a week, fever, dysentery, or suspicion of an outbreak.



### Patient Education

- Diet counselling: Start with clear soup, rice, salted crackers, dry toast or bread, and add progressively baked potatoes, chicken soup. Avoid coffee, alcohol, fruits and vegetables, and red meat.
- Fluid replacement: fluid repletion is crucial. Use oral rehydration solution (ORS); if not available, homemade solution with 1 litre of clean/safe water, 1/2 teaspoon of salt and 6 teaspoons of sugar.
- Loperamide (2 mg caps): initially take 4 mg, followed by 2-mg capsule for each unformed stool. To use with caution in patients suspected of infectious diarrhea if not on antibiotic.
- Prevention: Good hygiene, hand washing, use of clean water, safe food preparation (avoid: raw meat, unpasteurized milk, raw eggs, mayonnaise-based salads or sandwiches, ice cubes if water source is questionable).



## DEFINITION ●●●●

Common cold is the most common upper respiratory tract infection (URTI). It is a benign, mild, self-limited URTI, caused by viruses.

Influenza is a highly contagious virus transmitted by respiratory droplets. There are 3 types of influenza: A, B, and C.

Symptoms resolve usually within 7 days.



## HISTORY ●●●●

### Common cold

- Sore throat, followed by nasal congestion and/or obstruction, sneezing and rhinorrhea and followed by dry or slightly productive cough that can persist up to 21 days.
- Constitutional symptoms can be present but are rarely severe: fever  $< 39^{\circ}\text{C}$  for  $< 72$  hours, malaise, headache, and weakness.

### Flu/influenza

- Abrupt onset of systemic symptoms: high grade fever, chills, malaise, myalgias, headache, weakness, cough, coryza (rhinorrhea, lacrimation), that overshadow respiratory complaints. Gastrointestinal symptoms may be present.



### Attention:

Older patients may have atypical presentations characterized only by confusion.

While in the COVID-19 pandemic, remember to follow the Ministry of Public Health guidance on COVID-19 testing, reporting and management.



## PHYSICAL EXAMINATION ●●●●

- Fever: high grade in case of flu and low grade or no fever in common cold.
- Coryza (rhinorrhea, lacrimation) more prominent in flu. Erythematous pharyngitis without exudates.
- Check for complications: pneumonia, acute bronchitis, acute sinusitis, and exacerbation of Chronic Obstructive Pulmonary Disease (COPD) and asthma.



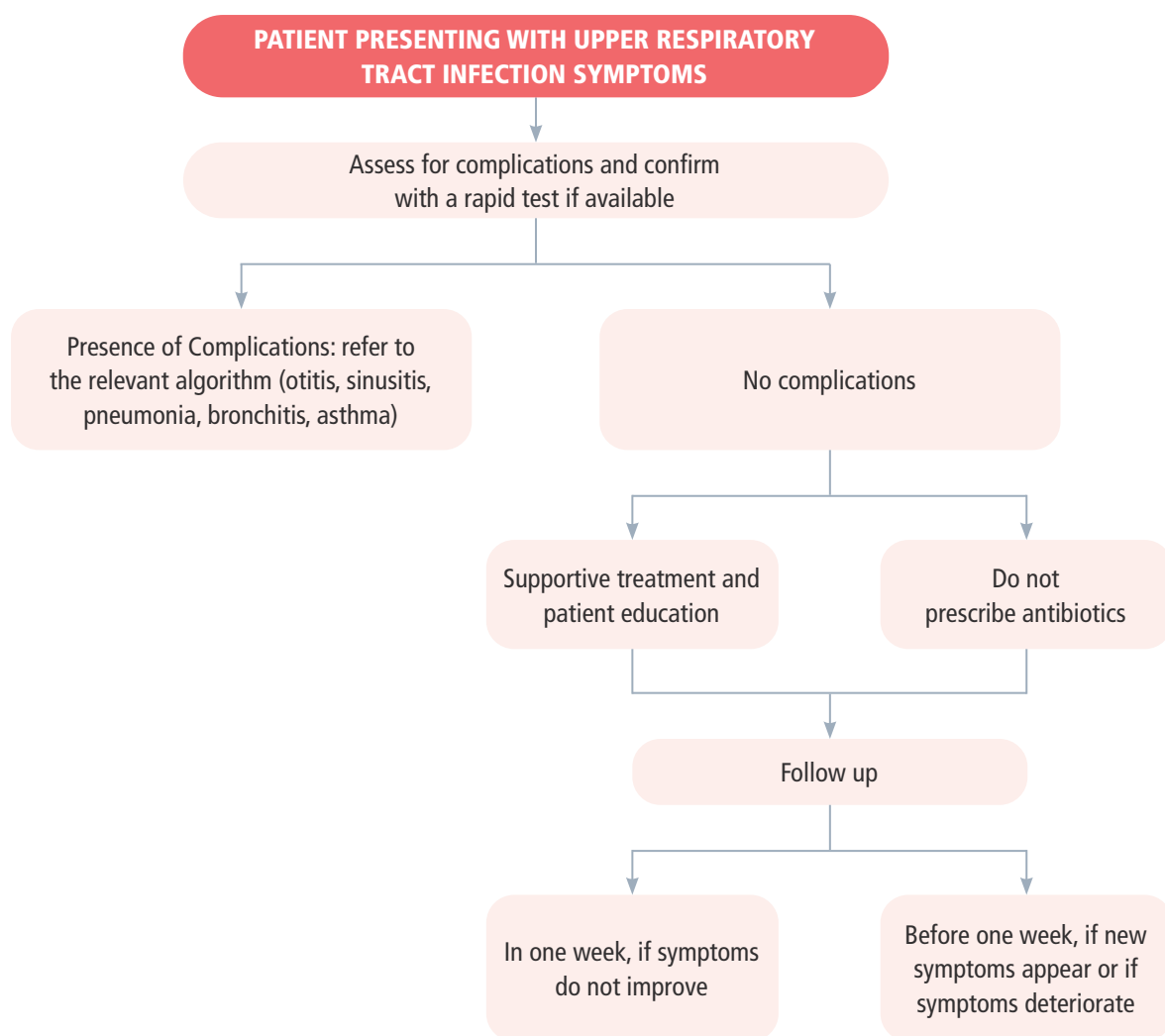
## DIAGNOSTIC AND MANAGEMENT TIPS ●●●●

- Additional investigations are not recommended unless influenza is suspected or complications.
- Rapid influenza test of viral antigens from nasopharyngeal swabs (when available).
- COVID-19 testing if available and according to MOPH testing strategy.

The treatment is mainly supportive. Common cold and flu/influenza are usually a self-limited disease. Avoid inappropriate antibiotics prescription.

- Adequate hydration: loosens secretions and prevents airway obstruction. It can be achieved by increasing fluid intake and inhaling steam.
- Rest and analgesics (Acetaminophen, Ibuprofen or Naproxen)—for relief of malaise, headache, fever, aches.
- Nasal decongestant sprays or drops for less than 5 days with or without oral first-generation antihistamines for rhinorrhea/sneezing. Alternatively, a combination of oral Over the Counter (OTC) antihistamines with decongestant for a maximum of 5 days.
- Antivirals: neuraminidase inhibitor such as Oseltamivir in patients with severe influenza (e.g. requiring hospitalization). They are most effective when used within 2 days of onset and may shorten the duration of infection by 1-2 days.

Ask previously healthy patient to follow-up in one week if symptoms do not improve and before that period if symptoms deteriorate/exacerbate after initial improvement and in case of new symptoms (breathlessness, earache, etc.).



### Patient Education

- Explain the etiology and course of the disease.
- Educate about inefficacy and risks of inappropriate use of antibiotics, cough and cold medicines.
- Educate about the use of intranasal saline solutions.
- Educate about preventive measures to limit its spreading to contacts e.g. hand washing, protective masks, limited isolation, hygienic tissues disposal, limiting handshakes, staying at home until symptoms resolve, etc.
- Flu/influenza vaccine annually as indicated.



## DEFINITION ●●●●

Acute otitis media is an infection of the middle ear, due to viral or bacterial infection (*Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, or *Moraxella catarrhalis*). Otitis media with effusion can mimic acute otitis media on otoscopy, but it is not infectious in origin.



## HISTORY ●●●●

- Symptoms: ear pain (usually unilateral), decreased hearing, otorrhea, fever.
- Preceding or accompanying upper respiratory tract infection (mainly viral) or allergic rhinitis exacerbation.
- Presence of risk factors facilitating eustachian tube dysfunction such as allergic rhinitis.
- Smoking.



## PHYSICAL EXAMINATION ●●●●

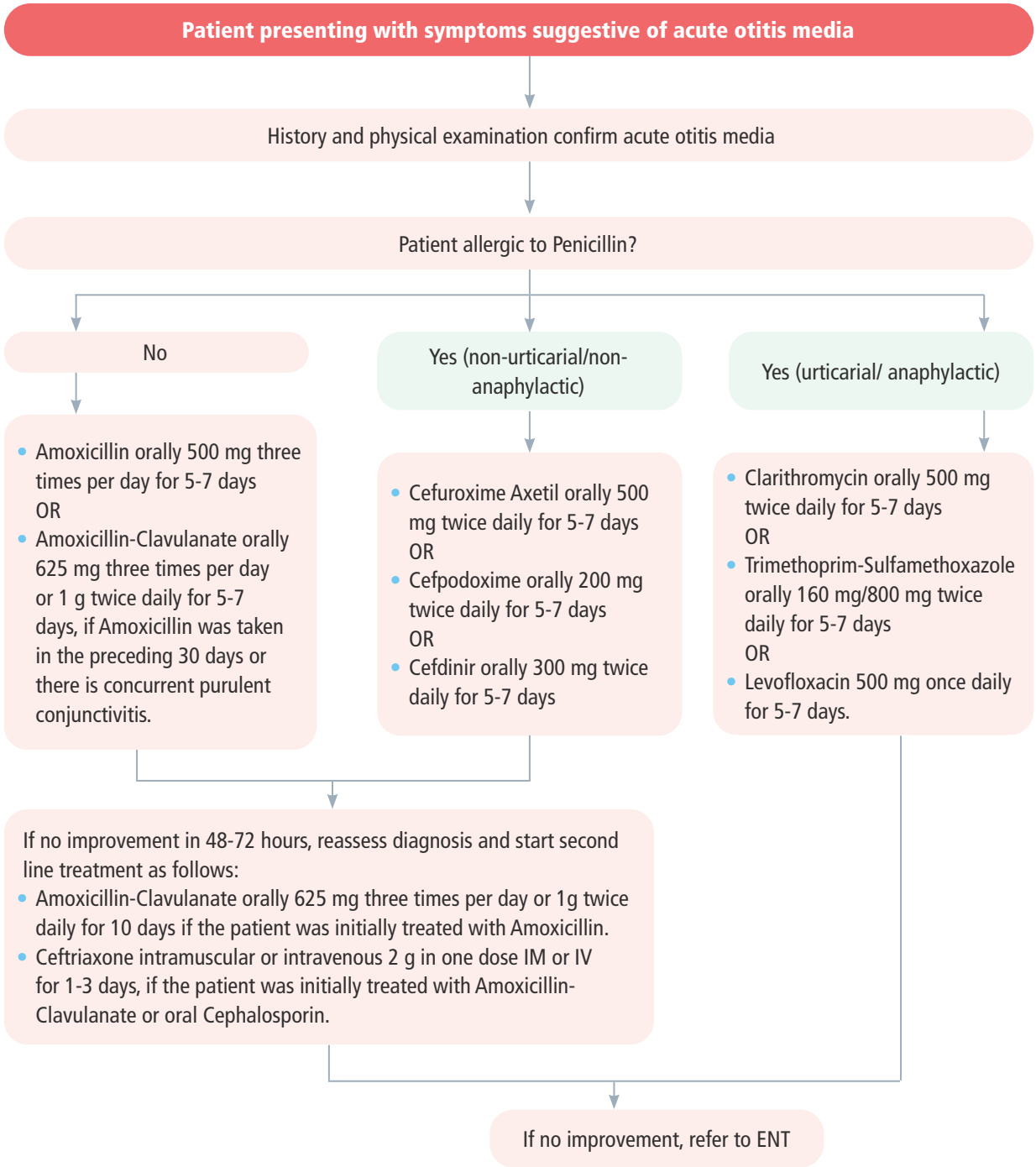
- Check vital signs (namely temperature).
- Check the tympanic membrane for any of the following abnormalities:
  - Bulging
  - Erythema
  - Opacification
  - Reduced mobility with pneumatic otoscopy
- Check for signs that indicate complications: conductive hearing loss, tympanic membrane perforation, otorrhea, acute mastoiditis, acute labyrinthitis; and rarely acute meningitis, brain abscess, facial nerve paralysis, and lateral sinus thrombosis.



## DIAGNOSTIC AND MANAGEMENT TIPS ●●●●●

- A diagnosis of acute otitis media is made with one of these criteria:
  - Moderate to severe bulging of the tympanic membrane
  - Mild bulging of the tympanic membrane + earache of recent onset (< 48 hours)
  - Mild bulging of the tympanic membrane + intense erythema of the tympanic membrane
  - Otorrhea (new onset) not due to otitis externa
- A diagnosis of acute otitis media should NOT be made when there is NO middle ear effusion based on pneumatic otoscopy.
- Use non-steroidal anti-inflammatory medications or acetaminophen to decrease pain.
- Unlike children, adults with acute otitis media should be treated with antibiotics at initial presentation in order to prevent complications.
- Amoxicillin is recommended as first-line antibiotic for the treatment of acute otitis media in adults, if the patient is not allergic to penicillin.
- Treat patients with mild to moderate infections for five to seven days, and those with more severe infections (significant hearing loss, severe pain, and/or marked tympanic membrane erythema) with a 10-day course of antibiotics.
- Decongestants, antihistamines or nasal steroids can be used in case of accompanying respiratory or allergic symptoms.
- Topical antibiotic ear drops can be used in the presence of tympanic membrane perforation (avoid the use of ototoxic medications).
- Refer patients to an otolaryngologist (ENT) in case any of the following is present:
  - no response to first-line and second-line antibiotics
  - recurrent acute otitis media (more than two episodes per year)
  - persistent subjective hearing loss for more than 1-2 weeks following resolution of infection and effusion
  - otitis media with effusion that persists for more than 6 weeks
  - tympanic membrane perforation that persists 6 weeks or longer (with or without suppurative drainage).





**Patient Education**

- Advise patient to avoid active and passive smoking.
- Symptoms improve usually within 48-72 hours after initiation of antibiotic treatment. If no improvement, advise patient that he/she needs to be re-examined.
- In the presence of tympanic membrane perforation, patient needs to avoid water in the affected ear: avoid swimming or diving; insert cotton ball coated with petroleum jelly in the affected ear during showering or bathing.

# COMMUNITY ACQUIRED PNEUMONIA



## DEFINITION ●●●●●

Community acquired pneumonia (CAP) is defined as an acute infection of the lung parenchyma and pulmonary system not acquired in a hospital or in a long-term care facility.

CAP can be either:

- Typical, most commonly caused by *Streptococcus pneumoniae*, followed by *Hemophilus influenzae* and *Moraxella catarrhalis*.
- Atypical, caused by *Mycoplasma pneumoniae*, *Chlamydia* species, *Legionella* species, and respiratory viruses (most common: Influenza virus A and B).



## HISTORY ●●●●●

- Typical symptoms include: cough, fever (+/- chills), pleuritic chest pain, dyspnoea, and sputum production.
- Characteristics of sputum: mucopurulent sputum (can be rust coloured) in case of bacterial pneumonia; scant or watery sputum in case of atypical or viral pneumonia.
- Presence of extra-pulmonary symptoms: upper respiratory tract symptoms (sore throat, runny nose, etc.) or gastrointestinal symptoms (nausea/vomiting, diarrhoea, abdominal pain) suggest atypical or viral pneumonia.
- Other symptoms: myalgia, headache, generalized weakness, chest pain, changes in mental status (can be presenting symptom in elderly).
- **Presence of other comorbidities.**
- **Travel history.**
- **Use of antimicrobials in the past 3 months.**



## PHYSICAL EXAMINATION ●●●●●

- Fever with  $T > 38.5^{\circ}\text{C}$  (can be absent in older patients).
- Tachycardia (HR  $> 100/\text{min}$ ) or bradycardia (HR  $< 60/\text{min}$ ).
- Tachypnoea (RR  $> 20/\text{min}$ ), cyanosis (signs of respiratory distress).
- Lung exam: Audible rales; decreased breath sounds and dullness to percussion in consolidation and pleural effusion; egophony (when the patient says "E", the physician hears it as "A" upon auscultation); tactile fremitus increased in consolidation, and decreased in pleural effusion; crackles; or bronchial breath sounds.
- Abdominal exam: presence of abdominal tenderness or pain may indicate lower lobe pneumonia.



## RED FLAGS ○○○●○

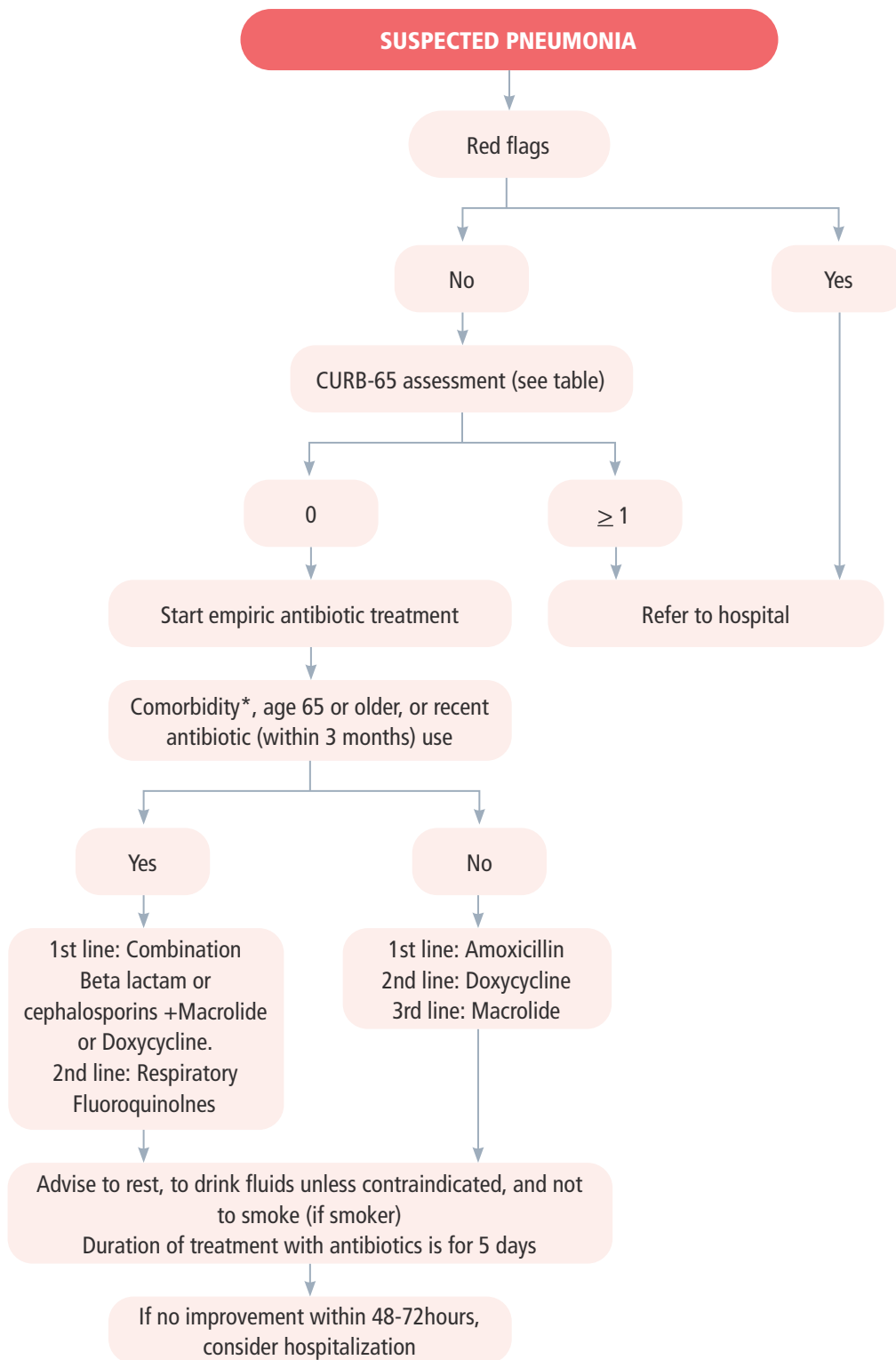
Presence of any of the following:

- Inability to maintain oral intake.
- Concern about treatment compliance.
- Mental illness, confusion.
- Cognitive or functional impairment.
- History of substance abuse.
- Oxygen saturation less than 92% on room air.
- Presence of septic shock and respiratory failure requires ICU admission.



## DIAGNOSTIC TIPS ○○○○●

- If possible, a Chest X ray (CXR) should be obtained in patients with suspected pneumonia; the presence of an infiltrate is the "gold standard" for diagnosing pneumonia.
- If available, a pulse oximetry measurement should be performed.
- No need for microbial diagnosis on outpatient level; appropriate empiric treatment is usually successful.
- The CURB-65 is a severity score for CAP, comprising 5 variables, attributing 1 point for each item: new onset confusion; urea  $>7$  mmol/L; respiratory rate  $\geq 30$ /minute, systolic blood pressure  $<90$  mmHg and/or diastolic blood pressure  $\leq 60$  mmHg; and age  $\geq 65$  years.



\*Major co-morbidity: chronic obstructive pulmonary disease (COPD), liver or renal disease, cancer, diabetes, congestive heart failure, alcoholism, and immunosuppression

### Mortality Prediction Tool for Patients with CAP (CURB- 65)

Symptom or Sign	Points
Confusion	1
Respiratory rate $\geq$ 30 breaths per minute	1
Blood Pressure (systolic $<$ 90 mmHg OR diastolic $\leq$ 60 mmHg)	1
Age $\geq$ 65 years	1
Total Score	

*Interpretation of risk:*

Score of 0 – Low risk  $\rightarrow$  Outpatient treatment unless otherwise contraindicated

Score of 1 or 2 – Moderate risk  $\rightarrow$  hospitalize

Score of 3 or 4 – High risk  $\rightarrow$  hospitalize and consider intensive care unit

*NB- In case BUN test is available, use CURB-65 to assess the risk. In this case, low risk (0-1), moderate risk (2), high risk (3-5)*

Category	Antibiotics
Healthy, age less than 65 years and no recent antibiotic use (last 3 months)	<ul style="list-style-type: none"> <li>• amoxicillin 1 g three times daily OR</li> <li>• doxycycline 100 mg twice daily OR</li> <li>• macrolide (azithromycin 500 mg on first day then 250 mg daily or clarithromycin 500 mg twice daily or clarithromycin extended release 1,000 mg daily)</li> </ul>
Presence of comorbidities, age 65 years or older or recent antibiotic use	<p>Combination therapy:</p> <ul style="list-style-type: none"> <li>• amoxicillin/clavulanate 500 mg/125 mg three times daily, or amoxicillin/clavulanate 875 mg/125 mg twice daily, or 2,000 mg/125 mg twice daily, or a cephalosporin (cefepodoxime 200 mg twice daily or cefuroxime 500 mg twice daily)</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>• macrolide (azithromycin 500 mg on first day then 250 mg daily, clarithromycin [500 mg twice daily or extended release 1,000 mg once daily]), or doxycycline 100 mg twice daily</li> </ul> <p>OR</p> <p>Monotherapy:</p> <ul style="list-style-type: none"> <li>• fluoroquinolone (levofloxacin 750 mg daily, moxifloxacin 400 mg daily).</li> </ul>



## DEFINITION ●●●●●

Acute rhinosinusitis (also called sinusitis) is an inflammation of the paranasal sinuses and the nasal cavity of less than 4 weeks duration. It is usually viral (most common) but can be complicated with bacteria in up to 2% of cases. Complications of acute sinusitis include: pre-septal (periorbital) cellulitis, orbital cellulitis, subperiosteal abscess, osteomyelitis of the sinus bones, meningitis, intracranial abscess, and septic cavernous sinus thrombosis.

Chronic sinusitis is diagnosed when symptoms persist for more than 12 weeks.



## HISTORY ●●●●●

- Check for symptoms: nasal congestion and obstruction, purulent nasal discharge, maxillary tooth discomfort, facial pain or pressure worsening when bending forward.
- Check for associated symptoms: fever, fatigue, cough, hyposmia or anosmia, ear pain, ear pressure or fullness, headache, and halitosis.
- Check for symptoms predictive of bacterial sinusitis (symptoms lasting for  $\geq 10$  days) or double sickening (worsening of symptoms after initial improvement).
- Check for alarming symptoms that require urgent attention: severe persistent headache, visual disturbances, especially diplopia; periorbital swelling or erythema; altered mental status.
- Check for the presence of risk factors: viral upper respiratory tract infection; allergic rhinitis; nasal anatomical abnormalities (deviated septum, turbinate hypertrophy, nasal polyps); tonsillar and adenoid hypertrophy; cleft palate; gastroesophageal reflux; tobacco smoke exposure; asthma; dental infections and procedures; Immunodeficiency (such as HIV); cystic fibrosis.



## PHYSICAL EXAMINATION ●●●●●

- Fever
- Oedema and erythema of nasal mucosa
- Purulent postnasal drip/discharge
- Facial tenderness to palpation [over sinus(es)]
- Painful tooth percussion
- Negative transillumination test (helpful if asymmetric, not helpful if symmetric exam)



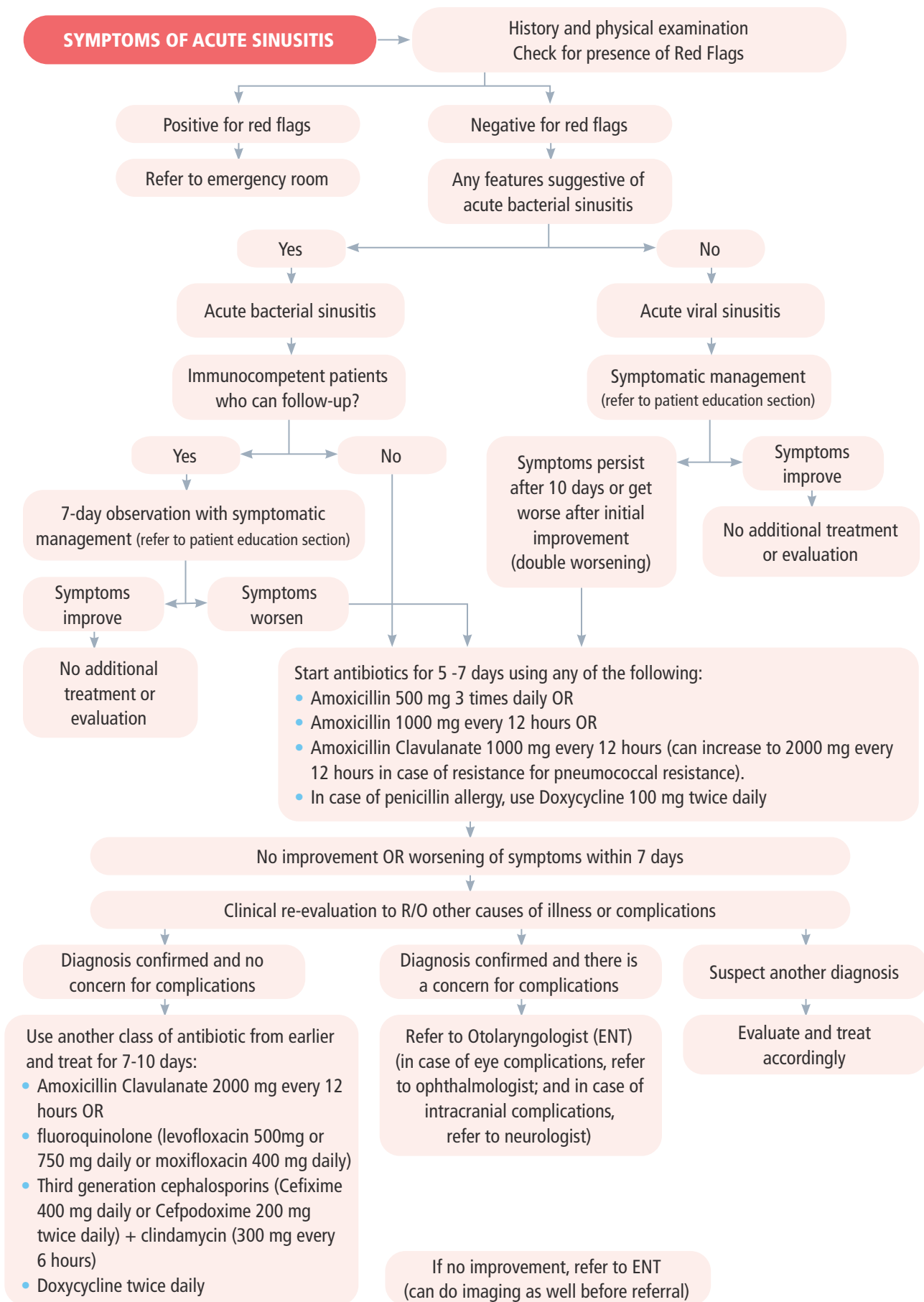
## RED FLAGS ○ ○ ○ ● ○

- High, persistent fever  $\geq 39^{\circ}\text{C}$
- Severe persistent headache
- Periorbital edema, inflammation, or erythema
- Proptosis
- Change in vision (double vision or impaired vision)
- Pain with eye movement
- Abnormal extra-ocular eye movement
- Cranial nerves abnormalities or palsies
- Mental status change
- Neck stiffness
- Signs of increased intracranial pressure (such as nausea, vomiting, papilledema)



## DIAGNOSTIC TIPS ○ ○ ○ ○ ●

- The diagnosis of acute rhinosinusitis is based on clinical grounds in patients presenting with purulent nasal discharge of less than 4 weeks AND nasal obstruction and/or facial pain/pressure/fullness.
- Radiology or other diagnostic tests are not indicated.





### **Patient Education**

- Educate about the importance of the watchful waiting period, warning signs (red flag), and the compliance with provided treatment (including antibiotics when prescribed).
- Symptomatic Management (Self-care)
  - » Analgesics and antipyretics such as Acetaminophen or NSAIDs.
  - » Nasal inhaled corticosteroids especially in patients with allergic rhinitis.
  - » Nasal irrigation with saline.
  - » Intranasal decongestant sprays OR oral decongestants can temporarily relieve nasal congestion, but their effects do not extend to the paranasal sinuses. Use not to exceed 3 days for sprays and 5-7 days for oral because of the risk of rebound nasal congestion. They should be avoided in patients with heart problems, high blood pressure, kidney problems, diabetes, glaucoma, an overactive thyroid, prostate problems or taking a Monoamine Oxidase Inhibitor antidepressant.
  - » Antihistamines to be used only in patients with symptoms of general allergy (e.g. itching) because they may over-dry the nasal mucosa and increase discomfort.

# UNCOMPLICATED LOWER URINARY TRACT INFECTION



## DEFINITION ●●●●●

A urinary tract infection (UTI) is an infection in any part of the urinary system which includes the kidneys, ureters, bladder and urethra.



## HISTORY ●●●●●

- Presence of urinary symptoms: dysuria, urinary frequency, urinary urgency, suprapubic pain, and hematuria.
- Presence of other symptoms such as fever, chills, malaise and fatigue beyond normal (these indicate possible complicated cystitis/pyelonephritis).
- Presence of perineal or pelvic pain in men might indicate prostatitis.
- Presence of vaginal discharge or itching or possibility of pregnancy in women.
- Past medical history such as diabetes mellitus, immunocompromised state, recurrent UTI, or kidney stones.



## PHYSICAL EXAMINATION ●●●●●

- Conduct a comprehensive physical examination with focus on:
  - Presence of fever.
  - Presence of flank pain and abdominal tenderness.
  - A pelvic examination is indicated in women if symptoms are suggestive of vaginitis.



## RED FLAGS ●●●●●

- Fever (>37.7°C)
- Presence of systemic symptoms: chills, rigors, or marked fatigue or malaise beyond baseline
- Flank pain
- CVA tenderness



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○○●

- Cystitis is suspected in presence of acute symptoms of dysuria, urinary frequency or urgency, and/or suprapubic pain.
  - Urine culture and susceptibility testing should be performed in women who are at risk for infection with a resistant organism.
  - In men with symptoms suggestive of cystitis, urinalysis and urine culture should be performed. Prostatitis should be considered with recurrent cystitis symptoms or in the presence of pelvic or perineal pain or fever.
- Multidrug-resistant gram-negative urinary tract infection is suspected in patients with a history of any of the following in the prior three months:
  - A multidrug-resistant gram-negative urinary isolate including extended-spectrum beta-lactamase (ESBL).
  - Inpatient stay in hospital, nursing home, or long-term acute care facility
  - Use of a fluoroquinolone, trimethoprim-sulfamethoxazole, or broad-spectrum beta-lactam (third or later generation cephalosporin).
- A urinary analgesic such as oral phenazopyridine 100 mg TID as needed for 2 days may relieve urinary discomfort.

## Symptoms suggestive of uncomplicated Cystitis



### Presence of Red Flags

- Systemic symptoms
- Fever
- CVA tenderness
- Flank pain

NO

### Empiric treatment

- Nitrofurantoin 100mg PO BID for 5 days OR
- Trimethoprim-sulfamethoxazole (160/800 mg) PO BID for 3 days OR
- Fosfomycin 3 grams of powder mixed in water as a single oral dose (reserved to cases with documented resistance on culture or for specialist prescription).

In case of any contraindication for any of the above, alternative treatment includes:

- Beta lactams such as Amoxicillin-clavulanate (500 mg BID) OR cefpodoxime (100 mg BID) OR cefdinir (300 mg BID) OR cefadroxil (500 mg BID) for 5-7 days.
- If beta-lactams cannot be used, then prescribe ciprofloxacin (250 mg BID or 500 mg extended release daily) OR levofloxacin (250 mg daily) for 3 days.

If there is a concern about early involvement of the prostate in men, use a fluoroquinolone (ciprofloxacin 500 mg orally BID or 1000 mg extended release once daily, or levofloxacin 750 mg orally once daily) for empiric therapy.

If no improvement within 48-72 hours or recurrence of symptoms, refer to urologist for further evaluation

YES

Manage as complicated Cystitis /pyelonephritis

Assess Risk

Refer to ER or specialist

### Patient Education

- To prevent UTI, advise patients to:
  - Drink more fluids (2 to 3L).
  - Urinate when they feel the urge to do so.
  - Wipe from front to back after bowel movements.
  - Urinate after sexual intercourse.
- Inform patients that symptoms would improve within 48 hours after starting antibiotics.

# **BASIC CLINICAL ALGORITHMS OF CARE**

**FOR THE MOST COMMON CONDITIONS IN ADULTS,  
ENCOUNTERED AT PRIMARY HEALTH CARE SETTING,  
FOR PHYSICIANS IN THE PUBLIC HEALTH SYSTEM**



# SECTION 4

# SYMPTOMS

A. <i>Abdominal pain – R10</i> .....	106
B. <i>Chronic cough – R05.3</i> .....	109
C. <i>Functional dyspepsia – K30</i> .....	112
D. <i>Headache – R51</i> .....	115
E. <i>Low back pain – M54.5</i> .....	118
F. <i>Palpitations – R00.2</i> .....	122
G. <i>Red eye – H10.31</i> .....	125
H. <i>Sore throat – R07.0</i> .....	128
I. <i>Vertigo – R42</i> .....	131



## DEFINITION ●●●●●

Abdominal pain can be general or localized to a specific area: right or left upper quadrant, right or left lower quadrant, epigastric or suprapubic. Abdominal pain can be acute or chronic. Most of the causes of abdominal pain are benign. However, it is important to identify potentially life-threatening conditions when evaluating a patient with abdominal pain.



## HISTORY ●●●●●

### Remember to rule out red flags

- Characteristics of pain: Onset (acute, chronic), duration, severity, quality and type of pain, radiation of pain, exacerbating and relieving factors.
- Associated symptoms: nausea; vomiting; fever; dysuria and other urinary symptoms; diarrhea; constipation; and other gastrointestinal symptoms.
- Sexual history, gynecologic symptoms and menstrual history in women.
- Sick contacts.
- Intake of medications.
- Current medical conditions such as diabetes mellitus, cardiovascular diseases.
- Lifestyle factors: alcohol, smoking, travel history etc.
- Family history of inflammatory bowel disease or cancer.



## PHYSICAL EXAMINATION ●●●●●

### Remember to rule out red flags

- Assess the patient's general appearance, and sclera for jaundice.
- Check vital signs namely temperature, blood pressure, respiratory rate and heart rate.
- Conduct a comprehensive physical examination with focus on cardiovascular and respiratory systems along with examination of the abdomen.
- Abdomen examination includes: inspection, auscultation, percussion, palpation (superficial and deep) and performing special maneuvers such as Carnett's sign, Murphy's sign, Psoas sign, Obturator sign, Mc Burney's sign, and Cullen's sign.
- Perform rectal and pelvic examination as required.



## RED FLAGS ○ ○ ○ ● ○

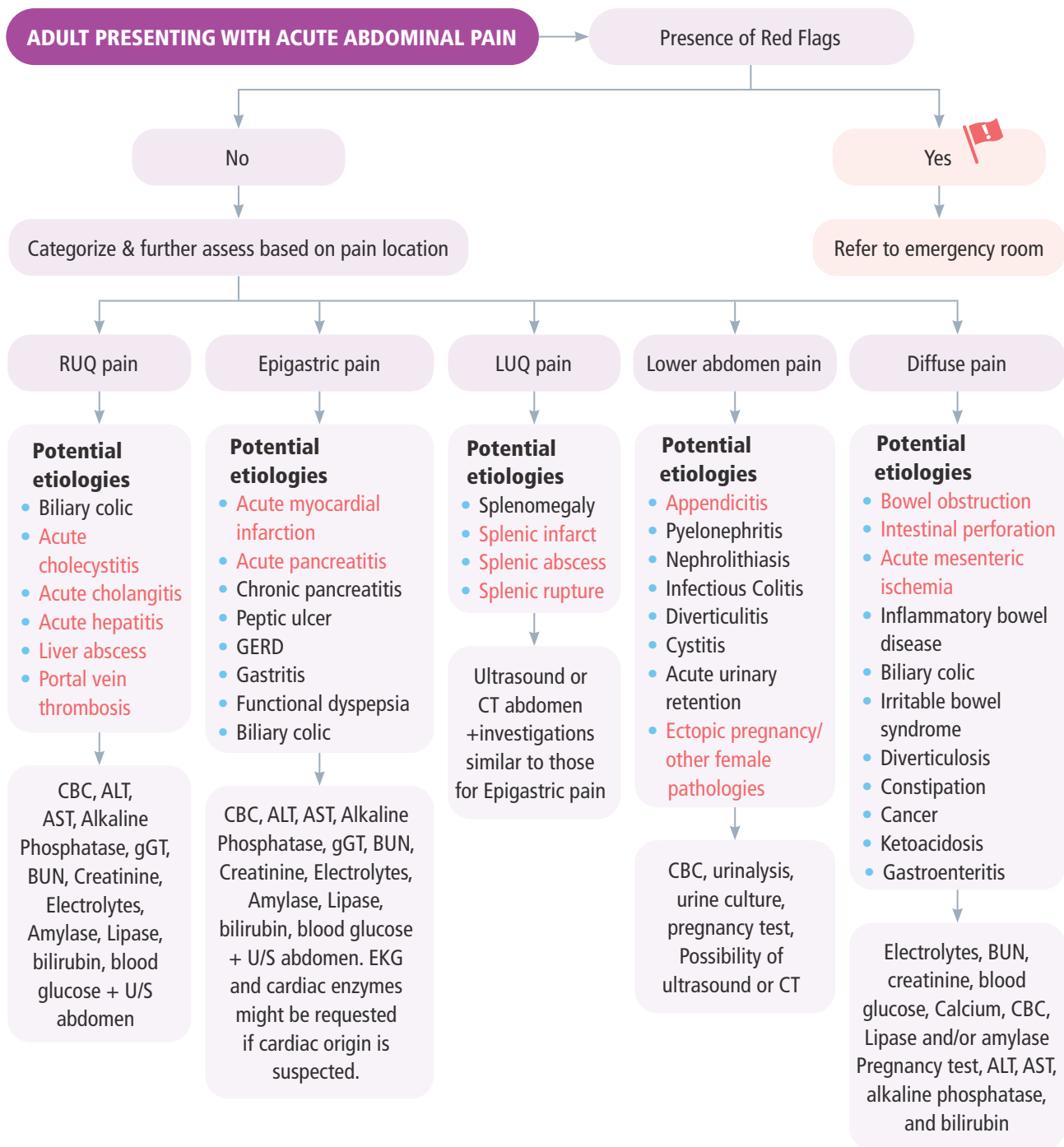
- Abdominal pain during pregnancy (possible ectopic pregnancy).
- Signs of bleeding: melena, hematochezia.
- Dyspnea or signs of respiratory distress.
- Symptoms and signs suggestive of myocardial infarction.
- Severe abdominal pain.
- High grade fever.
- Hemodynamic instability (unstable vital signs).
- Coffee ground vomiting.
- Inability to eliminate gas and stool (possible bowel obstruction).
- Older patients with migrating low back pain suggestive of aortic dissection or aneurysm rupture.
- Atrial fibrillation with abdominal pain suggestive of mesenteric ischemia.
- Gross and massive hematuria or inability to urinate.
- Signs of peritonitis on abdominal examination (abdominal rigidity, rebound tenderness)
- Symptoms and signs suggesting an infection requiring hospitalization (for example fever, jaundice, and right upper quadrant pain)
- Clinical suspicion of appendicitis or any abdominal emergency requiring urgent surgery.
- In older individuals (age older than 84 years), presence of free air on plain film radiographs and leukocytosis are associated with increased risk of death; better refer to emergency room.



## DIAGNOSTIC AND MANAGEMENT TIPS ○ ○ ○ ● ○

- Laboratory tests, as indicated clinically, and may include complete blood count (CBC), amylase and lipase, Liver function tests, electrolytes, urinalysis, and pregnancy test (women). Additional tests might be requested depending on the pain location.
- Imaging testing, as clinically indicated, and may include plain Xray, ultrasonography, or CT abdomen.
- Laboratory and imaging tests should be ordered based on high index of suspicion.
- Treatment depends on diagnosis and etiology.
- The following tests should be performed in most patients presenting with chronic abdominal pain: CBC, electrolytes, BUN, creatinine, glucose, calcium, liver function tests (aminotransferase, alkaline phosphatase, and bilirubin), lipase and/or amylase, serum iron, total iron binding capacity, and ferritin.





**Notes:**

- The algorithm is not exhaustive. The physician’s clinical judgment remains key.
- The diagnosis highlighted in red require immediate referral if suspected.

**Patient Education**

- Explain to patients that abdominal pain is common and that most causes are benign. However, advise them to seek immediate medical help if any of the red flags are present.
- Advise patients that they might need to do laboratory and radiology tests to determine the cause of abdominal pain.
- Advise patients that treatment might include: intravenous administration of fluids, pain medications, antibiotics (if infection is diagnosed), other types of medications (depending on the diagnosed condition), or surgery.



## DEFINITION ●●●●●

Chronic cough is defined as symptoms lasting longer than eight weeks, as compared to acute cough (symptoms less than three weeks) and subacute cough (symptoms between three and eight weeks).



## HISTORY ●●●●●

- Description of the cough in terms of onset, character, timing, presence or absence of sputum production.
- Recent upper respiratory tract infection.
- Identification of potential triggers, such as the use of an angiotensin-converting enzyme inhibitor, environmental exposures, smoking status, and chronic obstructive pulmonary disease.
- Presence of red flags.
- Symptoms of most common causes of chronic cough: upper airway cough syndrome, asthma, non-asthmatic eosinophilic bronchitis, and gastroesophageal reflux disease (GERD)/ laryngopharyngeal reflux disease.



## PHYSICAL EXAMINATION ●●●●●

Comprehensive examination with focus on lungs, sinuses, nasal mucosa and throat for postnasal drip.



## RED FLAGS ●●●●●

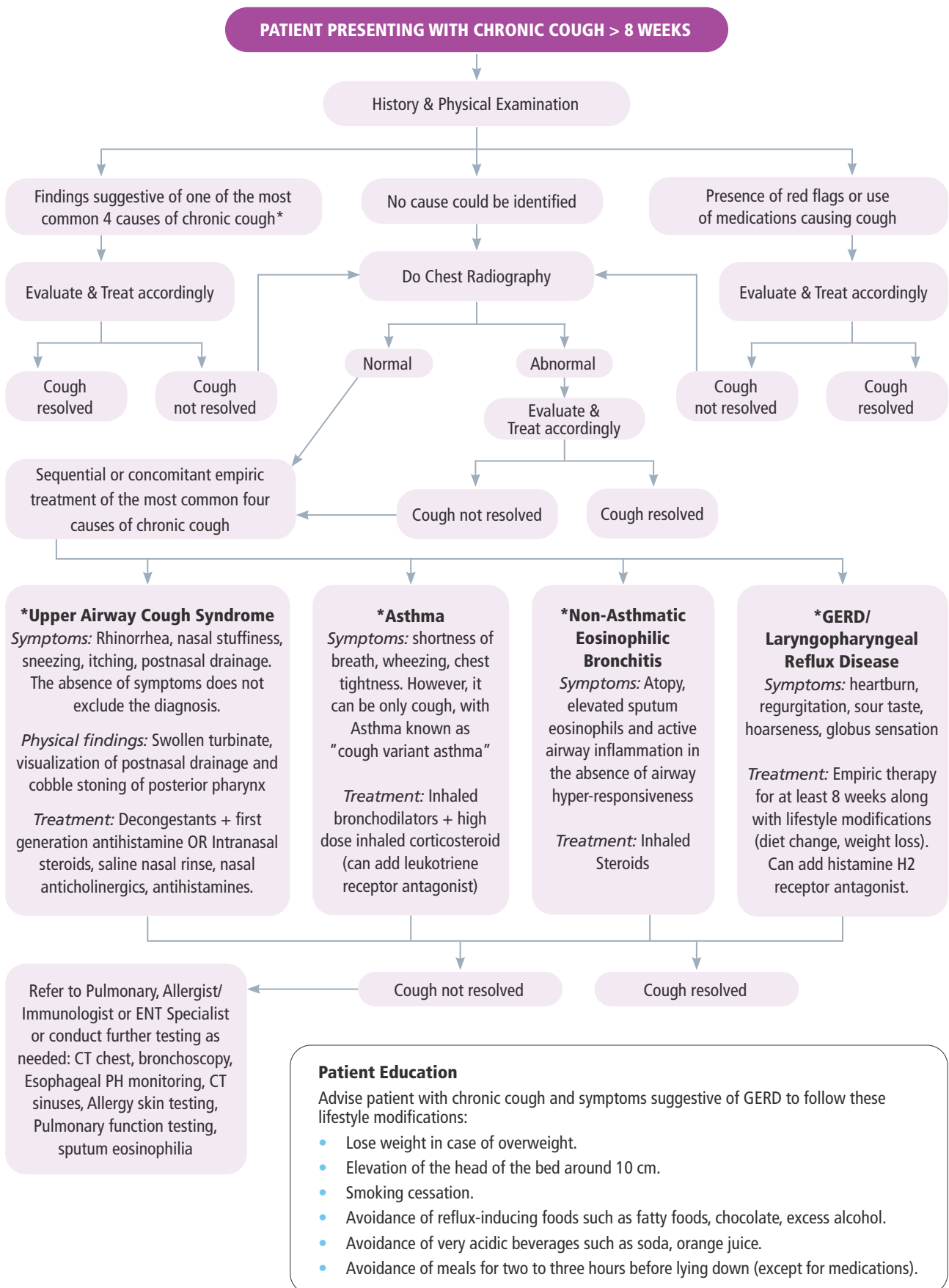
- Fever
- Weight loss
- Hemoptysis
- Hoarseness
- Excessive dyspnea
- Purulent sputum production
- Recurrent pneumonia
- Smoking history of 20 pack-years
- Smoker older than 45 years
- Snoring



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○○●

- Chest radiography should be obtained in patients with chronic cough unless a cause has been identified.
- Diagnostic evaluation should focus on detection and treatment of the four most common causes of chronic cough in adults.
- Patients with chronic cough after a respiratory infection may respond to treatment for postnasal drip or cough variant asthma.
- May need evaluation for possible sleep apnea.

# MANAGEMENT OF CHRONIC COUGH





## DEFINITION ●●●●●

Functional Dyspepsia is defined as the presence of at least one of the following: 1. postprandial fullness (3 days per week), 2. early satiation (3 days per week), 3. epigastric pain (1 day per week) or epigastric burning (1 day per week), without evidence of structural diseases (such as peptic ulcer disease, reflux esophagitis, gastric or esophageal malignancy, drug-induced dyspepsia, cholelithiasis, pancreatic disease, and coronary artery disease).



## HISTORY ●●●●●

Take a detailed history to rule out the presence of organic diseases and malignancy. This includes:

- History of heartburn or regurgitation.
- Pain history including location, type, severity, radiation, exacerbating factors and relation to food intake. Note that exercise-induced pain is suggestive of coronary artery disease.
- Presence of red flags.
- Drug history namely Aspirin, non-steroidal anti-inflammatory drugs (NSAID), calcium antagonist, nitrates, theophylline, bisphosphonates, metformin, and corticosteroids.
- Lifestyle factors namely alcohol intake, and smoking.
- Family history of gastrointestinal cancer.



## PHYSICAL EXAMINATION ●●●●●

Conduct a comprehensive physical examination focusing on:

- General appearance: pallor, jaundice.
- Vital signs and weight.
- Abdominal examination looking for tenderness, abdominal mass, lymphadenopathy, or ascites.
- Presence of muscle wasting, loss of subcutaneous fat, and peripheral edema.
- Rectal exam to check for signs of bleeding (blood or melena).



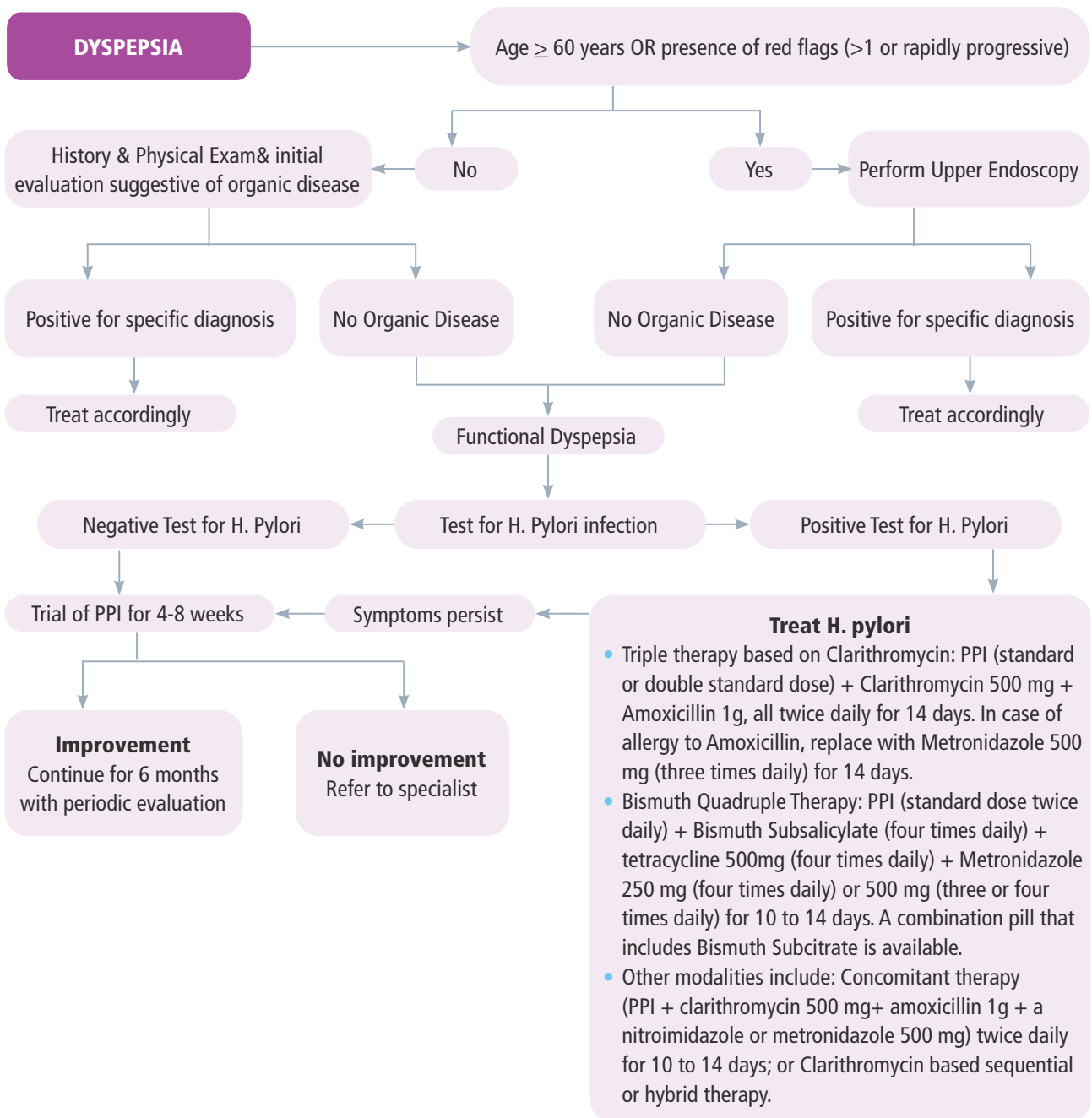
## RED FLAGS ○ ○ ○ ● ○

- Unintentional weight loss
- Progressive dysphagia
- Odynophagia
- Unexplained iron deficiency anemia
- Persistent vomiting
- Palpable abdominal mass or lymphadenopathy (enlarged supraclavicular lymph node)
- Family history of upper gastrointestinal cancer



## DIAGNOSTIC AND MANAGEMENT TIPS ○ ○ ○ ○ ●

- Blood tests can be ordered to identify patients with red flags. This includes complete blood count (CBC) and blood chemistry including liver function tests, serum lipase, and amylase.
- A test-and-treat strategy for *Helicobacter pylori* (*H. pylori*) is effective and cheaper than initial endoscopy in the absence of warning signs for serious disease.
- Testing for *H. Pylori* can be done serologically or through Urea Breath Test or stool antigens; in case the endoscopy is done, biopsies for *H. pylori* testing are usually taken. Urea breath test and stool antigens are preferred.
- Scientific evidence for the cost-effectiveness of testing for *H.pylori* eradication is lacking. If needed (in case of persistent symptoms), testing for eradication is to be performed at least four weeks after completion of antibiotic therapy and after withholding PPI therapy for one to two weeks. *H. pylori* serology should not be used to confirm eradication of *H. pylori*.
- If *H.pylori* infection persists after treatment, there is a need to retreat patients. Avoid using the same antibiotics used in the initial treatment. Bismuth quadruple therapy ( PPI, bismuth, tetracycline, metronidazole) or levofloxacin triple therapy (PPI, levofloxacin 500 mg daily, amoxicillin) for 14 days are preferred for patients who initially received a regimen containing clarithromycin. In case of the failure of two courses of antibiotic treatment, an endoscopy with biopsy for culture and sensitivity for *H.pylori* should be performed.
- H2 Receptor antagonists can be used instead of PPI in the treatment of persistent symptoms, but PPI remain first-line choice.



### Patient Education

- Advise patients to make dietary modifications including limiting intake of food high in fat, wheat, and caffeine as well as food high in fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAP).
- Advise patients to eat small, frequent meals (5-6 small meals instead of 3 large meals), and to avoid foods that make you feel worse.
- Even if symptoms improve on PPI, advise patients to try to discontinue PPI every 6-12 months in order to avoid long term risks.
- Antacids are not usually helpful for patients with functional dyspepsia.
- When prescribing the treatment regimens for H.pylori eradication, advise patients as follows:
  - Many of the regimens can cause diarrhea and stomach cramps.
  - Metronidazole and clarithromycin can cause a metallic taste in the mouth.
  - Avoid alcoholic beverages when taking metronidazole.
  - Bismuth makes the stool black and may cause constipation.

**DEFINITION** ●○○○○

Headache is a common pain condition. It can be primary or secondary, acute or chronic. Primary headache includes tension, migraine, and cluster headache.

**HISTORY** ○●○○○

- Age at onset
- Duration
- Pain characteristics: Frequency (number of headache days per month), time and mode of onset, quality, intensity, site, duration of attack, and radiation of pain
- Associated symptoms: Presence or absence of aura and prodrome, nausea, vomiting, phonophobia, photophobia, any recent change in vision
- Precipitating and relieving factors: Exacerbation or relief with change in position (e.g., lying flat versus upright), effect of activity on pain, relationship with food/alcohol
- Associated factors: Association with recent trauma; any recent changes in sleep, exercise, weight, or diet; change in work or lifestyle (disability); possible association with environmental factors; change in method of birth control and effects of menstrual cycle and exogenous hormones (women).
- Response to any previous treatment
- Review of current medications
- Family history of migraine

**PHYSICAL EXAMINATION** ○○●○○

- Check vital signs including blood pressure, pulse, and temperature
- Listen for bruit at neck, eyes, and head for clinical signs of arteriovenous malformation
- Palpate the head, neck, and shoulder regions
- Check temporal and neck arteries
- Examine the spine and neck muscles
- Conduct complete neurological and a complete ENT examination





## RED FLAGS ○○○●○

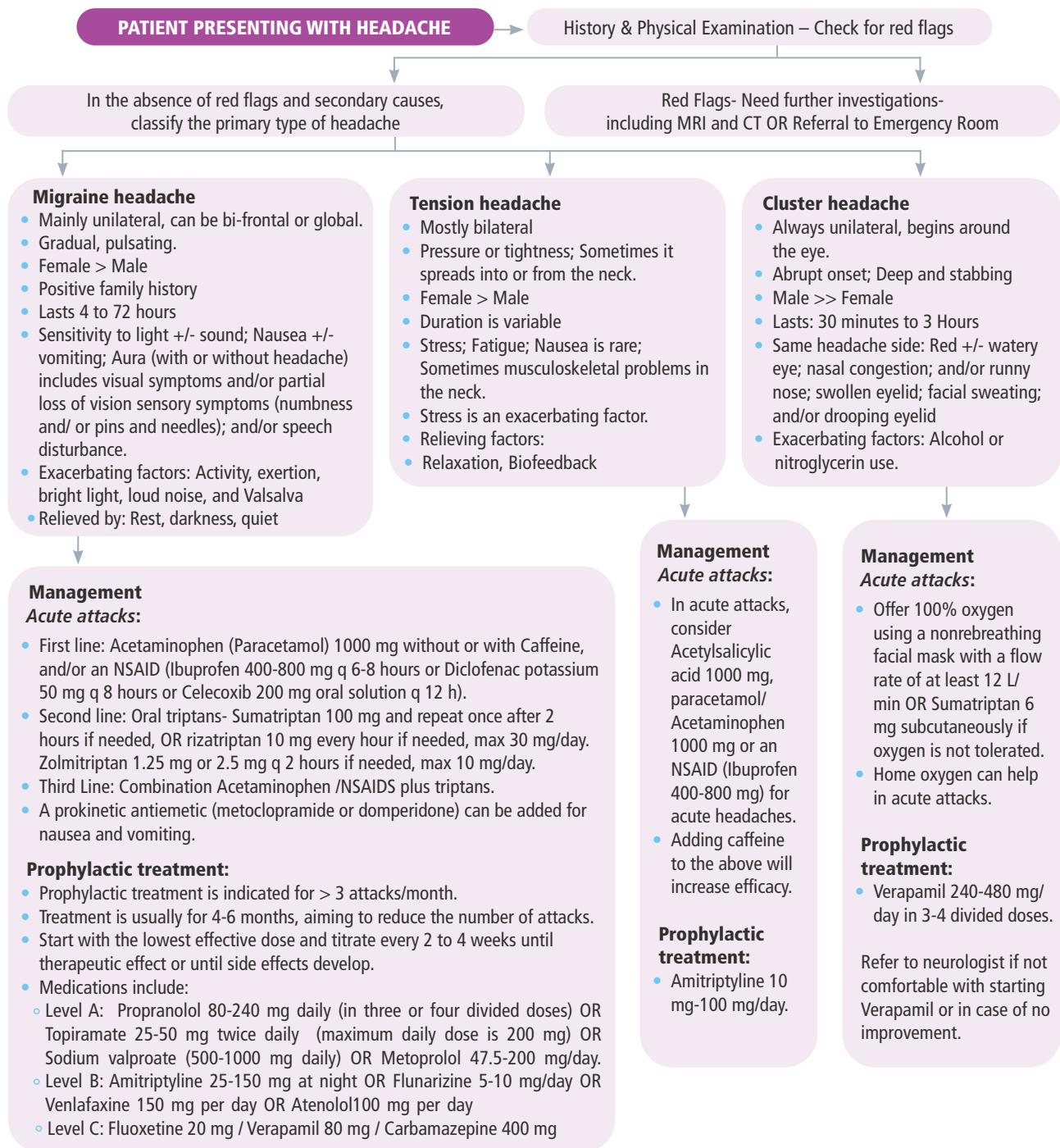
- Systemic symptoms, illness, or condition (such as fever or chills, night sweats, weight loss, cancer, pregnancy, post-partum, immunocompromised state, including HIV)
- Neurologic symptoms or abnormal signs (such as confusion, impaired alertness or consciousness, diplopia, papilloedema, focal neurologic symptoms or signs, meningismus, pulsatile tinnitus, or seizures)
- Onset is new (particularly for age >50 years) or sudden with maximal intensity within minutes (such as “thunderclap headache”)
- Other associated conditions or features (such as head trauma, illicit drug use, or toxic exposure; headache awakens from sleep, is worse with Valsalva maneuvers, or is precipitated by cough, exertion, postural aggravation, or sexual activity)
- Previous headache history with headache progression or change in attack frequency, severity, or clinical features



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○●○

- It is important to rule out the presence of secondary headache during evaluation and determine the type of primary headache that the patient has.
- Need emergency evaluation in the following cases:
  - Sudden onset “thunderclap” headache
  - Acute or subacute neck pain or headache with Horner syndrome\* and/or neurologic deficit
  - Headache with suspected meningitis or encephalitis
  - Headache with global or focal neurologic deficit or papilloedema
  - Headache with orbital or periorbital symptoms
- Important tips:
  - Consider the need for neuroimaging for people with a first attack of cluster headache to rule out secondary causes.
  - Do not offer paracetamol, NSAIDs, opioids, ergots or oral triptans for the acute cluster headache attack.
  - Do not offer opioids for the acute treatment of any type of headache.
  - In the acute treatment of tension and migraine headaches, adding caffeine to Paracetamol/ Acetaminophen /NSAID/Aspirin increases their efficacy.
  - Do not use analgesics for more than 15 days per month. This would lead to medication overuse headache.
  - For the treatment of patients with cluster headache, do EKG before starting verapamil and with each dosage increase to monitor for bradycardia, prolonged PR interval and cardiac arrhythmia. Avoid Verapamil in patients with abnormal ejection fraction.

\* Typically, signs and symptoms of Horner syndrome include decreased pupil size, a drooping eyelid and decreased sweating on the affected side of the face.



**Patient Education**

- Educate patients about triggers of headache, which include:
  - Stress
  - Sleeping too much or too little
  - Skipping meals
  - Drinking alcohol
  - Consuming too little or too much caffeine
  - Certain types of food or drinks such as chocolate, cheese etc.
- Advise patients to make adjustments to their lifestyles, which might reduce frequency of headaches. This includes smoking cessation, decreasing alcohol intake, following a regular sleeping and eating schedule, reduce or avoid caffeine, and exercise.
- Advise patients with acute migraine attack to lie down in a quiet, cold and dark room.
- Advise patients with headache to keep a "headache calendar", where they need to document every headache attack mentioning any activity or type of food intake before headache, the course of headache, relieving factors and medications taken if any and whether they helped.
- Advise patients that treatment of headache can be abortive or preventive (prophylactic), and the importance to follow up with their doctors if headache is frequent.



## DEFINITION ●○○○○

Back pain is the pain that arises from the spine, intervertebral disks, or surrounding soft tissues. This includes lumbosacral muscle strain, disk herniation, lumbar spondylosis, spondylolisthesis, spondylolysis, vertebral compression fractures, and acute or chronic traumatic injury.

Back pain can be acute (lasting less than 4 weeks), subacute (lasting between 4 and 12 weeks) and chronic (lasting 12 weeks or more).



## HISTORY ●●○○○

- Pain characteristics: onset, location, duration, distribution, radiation, quality, severity, timing, aggravating/precipitating factors, relieving factors, any worsening of symptoms, previous episodes of pain, and attempted therapies. It is important to differentiate mechanical v/s inflammatory pain.
- Injury mechanism (if any).
- Presence of constitutional symptoms: unintentional weight loss, fever, or night sweats.
- Presence of neurologic symptoms: weakness, falls or gait instability, numbness or other sensory changes, or bowel or bladder symptoms.
- Recent history or current use of injection drugs or use of corticosteroid medications.
- Physical activity.
- Occupational hazards.
- Medical history: history of malignancy, history of recent bacterial infections, obesity.
- Recent history of epidural or spinal procedures.
- Social or psychological distress.
- Importance to screen for depression in chronic pain.



## PHYSICAL EXAMINATION ○○●○○

- Measure vital signs namely temperature.
- Assess the gait and posture.
- Inspect, palpate, and test range-of-motion of the lumbosacral musculature; this helps identifying point tenderness, restriction, and spasm.
- Palpate and percuss the spine: Paraspinal and upper gluteal muscles, intervertebral and sacroiliac joints, and vertebral bony prominences.



## PHYSICAL EXAMINATION (cont.) ○○●○○

- Conduct neurological examination: reflexes, strength, sensation and gait.
  - Deep Tendon Reflex: Knee reflex (L3, L4 nerve root), ankle reflex (S1 nerve root).
  - Motor testing: Hip flexion (L3); Knee extension (L4); Dorsiflexion of big toe (L5); Plantar flexion (S1).
  - Sensory examination.
  - Heel and Toe walk.
  - Straight leg raise test.
  - Squat and rise.
- Evaluate for malignancy including multiple myeloma (if systemic symptoms, night and at rest pain, recurrent infections, weight loss, anemia, ecchymosis, etc.); Breast and prostate exam; Lymph node examination; Splenomegaly; Vertebral tenderness with neurologic deficit.
- Assess for the presence “Waddell’s signs”, which are inappropriate physical signs that are present in case back pain is due to psychologic distress. These include:
  - Patient overreaction during physical examination
  - Superficial tenderness
  - Straight leg raise that improves when the patient is distracted
  - Unexplainable neurological deficits: non-dermatomal distribution of sensory loss, sudden giving way or jerky movements with motor exam, inconsistency in observed spontaneous activity, and pain elicited by axial loading (pressing down on top of head, or rotating the body at hips or shoulders).



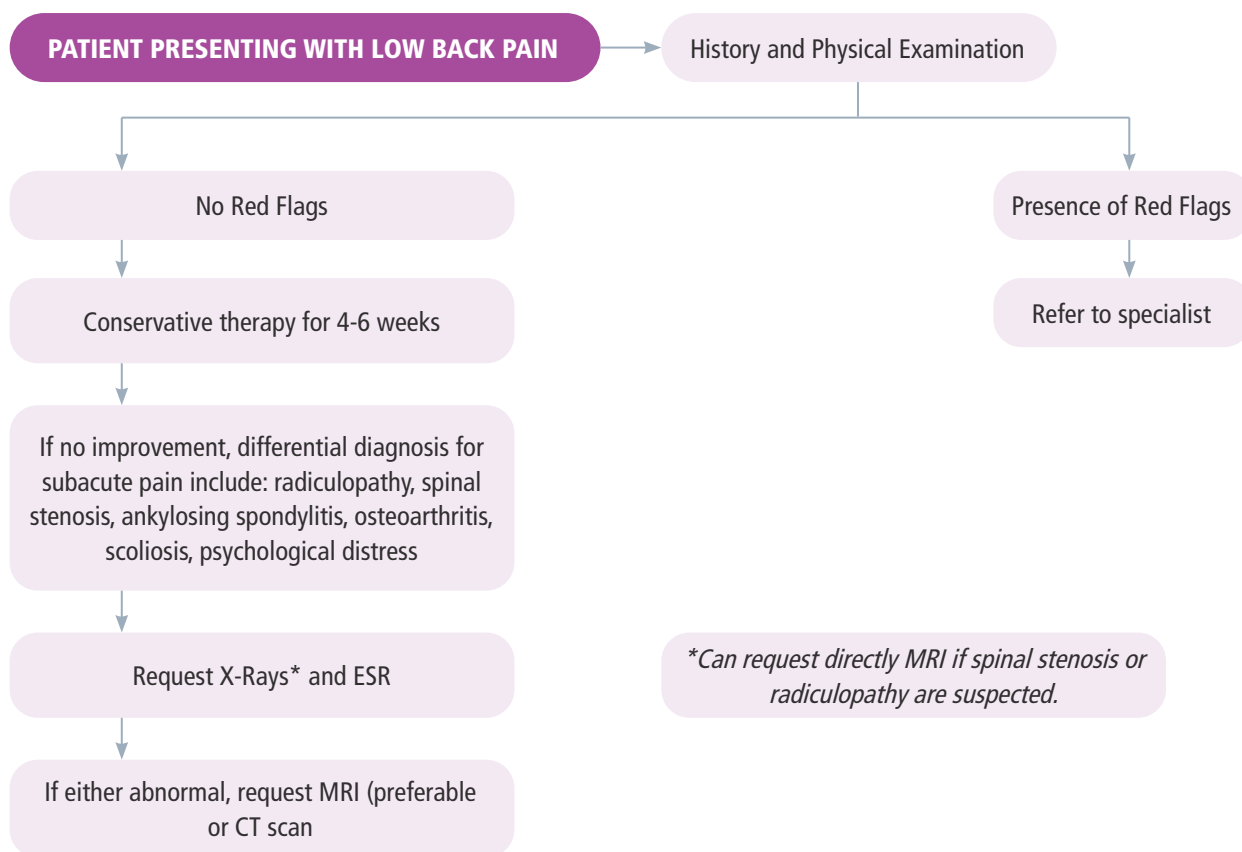
## RED FLAGS ○○○●○

- Fever.
- Age over 50 years.
- Night sweating
- History of cancer.
- Unexplained weight loss.
- Duration of pain greater than one month.
- Pain at night or unrelieved by rest.
- Saddle anesthesia.
- Bladder or bowel incontinence.
- Urinary retention.
- Urinary and/or fecal incontinence.
- Bilateral leg weakness and numbness.
- History of abdominal aortic aneurysm.
- Unresponsive to previous back therapy.
- Immunosuppression.
- Prolonged steroid use.
- Injection/intravenous drug use.
- Osteoporosis.



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○○●

- The great majority of patients seen in primary care have non-specific low back pain, where no specific underlying condition can be reliably identified.
- Laboratory tests are not routinely ordered except when suspecting systemic inflammatory or infectious etiology (such as spinal epidural abscess, discitis).
- Do not routinely obtain diagnostic imaging including plain X-rays in patients with nonspecific low back pain. Perform diagnostic imaging for patients in case:
  - Serious underlying conditions are suspected on the basis of history and physical exam such as malignancy, or infection.
  - Severe or progressive neurologic deficits are present.
- Evaluate patients with persistent low back pain and signs or symptoms of radiculopathy or spinal stenosis with MRI (preferred) or CT only if they are potential candidates for surgery or epidural steroid injection (for suspected radiculopathy).
- Conservative therapy includes non-pharmacologic and pharmacologic treatment.
- Non-Pharmacologic Treatment:
  - For acute low back pain: Spinal manipulation
  - For chronic or subacute low back pain: Interdisciplinary rehabilitation, spinal manipulation, exercise therapy, massage, acupuncture, yoga, cognitive-behavioral therapy, progressive relaxation.
- Pharmacologic Treatment:
  - First-line medication options are paracetamol, acetaminophen, or nonsteroidal anti-inflammatory drugs (NSAID).
  - Non-benzodiazepine muscle relaxants can be added in the management of low back pain for analgesia, muscle relaxation or relief of muscle spasm. These include for example cyclobenzaprine, baclofen or chlorzoxazone.
  - Reserve tramadol and other narcotic analgesics to severe pain not responsive to the first line medications.
  - Tricyclic antidepressant and Duloxetine may be beneficial in chronic low back pain but not for acute pain.
  - Referral to a pain management specialist is appropriate for patients who continue to experience severe functional impairment or unremitting pain, or when patients or physicians feel that progress has stopped or want a second opinion.



### Patient Education

- It is important to educate patients about the causes of back pain, favorable prognosis, minimal value of diagnostic testing in general, activity and work recommendations, and indications for follow up.
- Reassure the patient that the prognosis of acute low back pain is often good, with most cases resolving with little intervention.
- Advise patients to maintain physical activity as tolerated; this would help them recover faster.
- Patients can continue to work but they need to avoid prolonged standing or sitting and heavy lifting.
- Advise patients of the following non-pharmacologic therapies. Select the appropriate one depending on their preferences:
  - Heat: applying heat wrap for 20 minutes every two hours; this would decrease muscle spasm.
  - Spinal manipulation: provides modest improvement in terms of pain and function.
  - Massage: results in higher patient satisfaction although there is no evidence for clinical benefit.
  - Acupuncture: namely for chronic pain.
  - Exercise and physical therapy: namely for subacute and chronic low back pain. This includes motor control exercise (specific stabilization exercise), core strengthening (abdominal and trunk extensor), flexion/extension movements, directional preference (McKenzie exercises), general physical fitness, aerobic exercise, Pilates, yoga and other.

**DEFINITION** ●○○○

Palpitation is a subjective symptom, defined as an unpleasant awareness of the forceful, rapid, or irregular beating of the heart. The sensation may be described as a rapid fluttering or flip-flopping in the chest, or a pounding sensation in the chest or neck.

**HISTORY** ○●○○

- Description of the palpitation: age of onset, duration, heart rate, rhythm regularity.
  1. Age of onset:
    - » Recurrent rapid palpitations since childhood are likely to be supraventricular tachycardia (SVT).
    - » Older age of onset is a risk factor for life-threatening ventricular arrhythmias, as these are more likely to occur in patients with structural heart disease.
  2. Duration:
    - » Palpitations that last for an “instant” (occasional skipped beat) are more likely to represent premature contractions.
    - » Palpitations that are sustained for minutes (or longer) are more consistent with supraventricular or ventricular arrhythmias.
  3. Heart rhythm and regularity (It may be helpful for the patient to tap out the rhythm with the fingers):
    - » Rapid and regular rhythms are suggestive of Ventricular tachycardia (VT) or paroxysmal VT.
    - » Rapid and irregular rhythms suggest paroxysmal AF, atrial flutter, or atrial tachycardia with variable block.
- The mode of onset (abruptness) and termination of the palpitation.
  - Abrupt onset and resolution is suggestive of SVT or VT.
  - Gradual onset and resolution is suggestive of sinus tachycardia.
  - Self-termination with carotid sinus massage or Valsava maneuver is suggestive of SVT.
- Relation of the palpitation to positional changes, exercise or emotional stress.
- Presence of associated symptoms: chest pain, shortness of breath, dizziness, pre-syncope or syncope suggest serious heart problems and/or serious arrhythmia, most importantly VT.
- Psychiatric symptoms (anxiety, panic attacks).
- Medications intake (sympathomimetic agents, vasodilators, anticholinergics, SSRI, tricyclic antidepressants, fluoroquinolones, macrolide etc.).
- Habits especially caffeine intake, smoking, alcohol, illicit drug use (amphetamines, cocaine).
- Presence of medical conditions such as heart diseases, thyroid diseases, anemia, diabetes mellitus, chronic obstructive pulmonary disease, or psychiatric diseases.
- Family history of early cardiac death and inherited cardiac conditions.



## PHYSICAL EXAMINATION ○○○●○

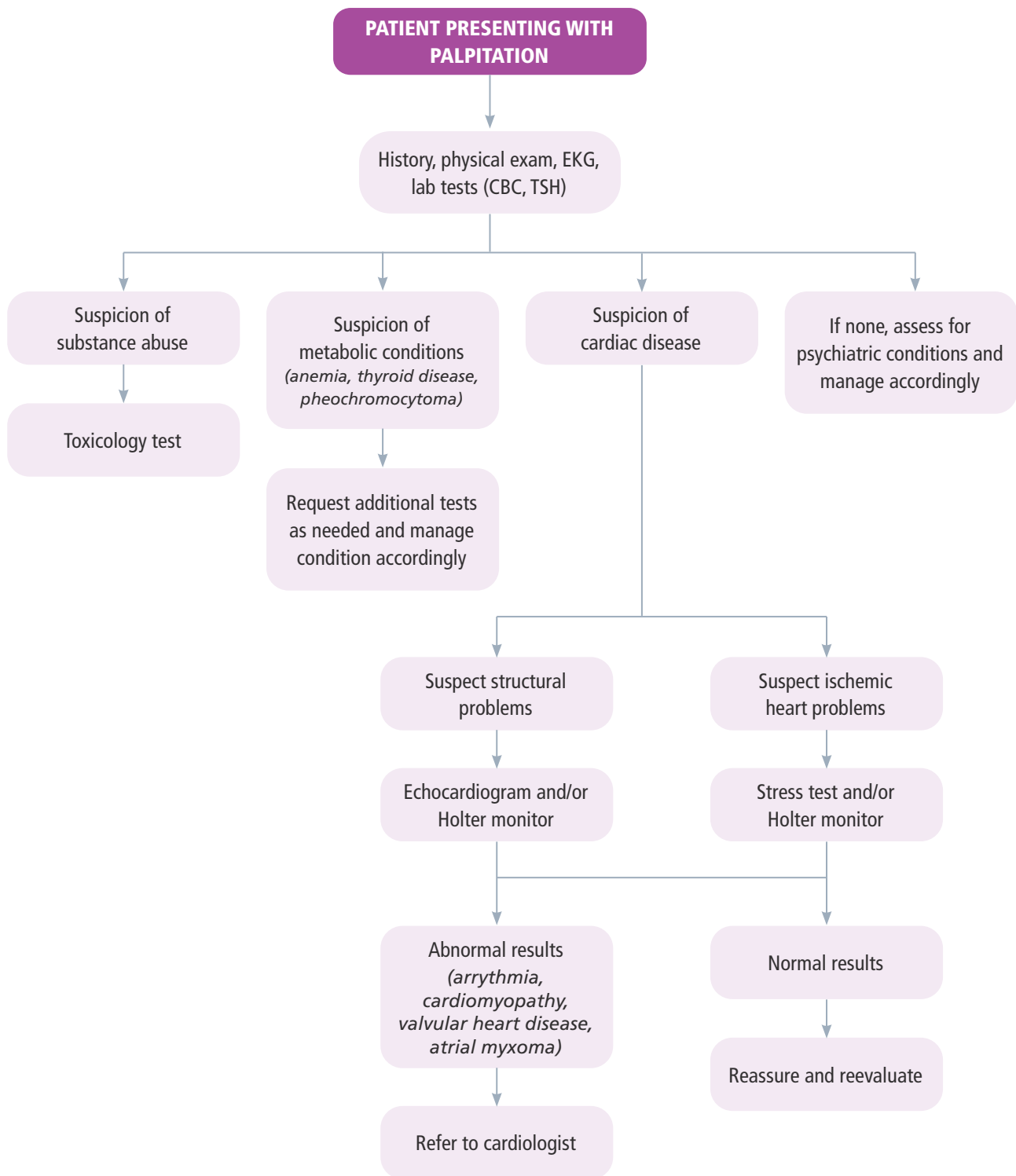
- Vital signs including blood pressure, heart rate, rhythm, and temperature.
- General physical examination with focus on heart and lung exam, and signs of thyroid diseases.



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○●○

- The cause of palpitation can be determined in the majority of patients based on medical history, physical examination, an electrocardiogram (EKG) and limited laboratory tests (complete blood count and thyroid function tests). Additional laboratory tests might be needed including blood urea nitrogen, serum creatinine, electrolyte levels, blood glucose, and liver function tests.
- Cardiac diagnostic tests are indicated as follows:
  - An ambulatory EKG monitoring (Holter monitor) is indicated if the index of suspicion for a cardiac cause is high.
  - An exercise stress test is indicated in patients with exertional symptoms.
  - Holter monitor and tilt test are indicated in patients with syncope or near-syncope and abnormal EKG findings.
  - Echocardiography is indicated when the initial history, physical examination, and EKG findings are unremarkable, or in patients with a history of cardiac disease or more complex signs and symptoms (dyspnea, rales, elevated jugular venous pressure, orthopnea, lower extremity edema).





### Patient Education

- Advise patient to avoid stimulants (caffeine, nicotine, energy drinks) and illicit drugs.
- Encourage patient to reduce stress through performing relaxing techniques and activities such as meditation, yoga or deep breathing.
- Ask patient to keep a record of palpitations if they occur (onset, frequency, duration, etc.).

**DEFINITION** ● ○ ○ ○ ○

Red eye is an inflammation of any part of the eye.

**HISTORY** ○ ● ○ ○ ○ ○

- Duration of symptoms and involvement of one or both eyes.
- Presence of associated symptoms: discharge (watery/serous, purulent), change in visual acuity, foreign body sensation, presence and severity of pain, photophobia, itchiness, or other systemic symptoms such as fever, runny nose, cough, sorethroat, sneezing or nasal congestion.
- Any previous similar episode and treatment.
- Presence of allergies or systemic disease or any medication intake.
- Use of contact lenses.
- Presence and type of trauma (blunt or sharp), if any.

**EXAMINATION** ○ ○ ● ○ ○ ○

Conduct a comprehensive examination focusing on the following:

- eyelids
- lacrimal sac
- pupil size and reaction to light
- corneal involvement
- presence and nature of the discharge
- pattern and location of the redness
- presence of hypopyon or hyphema
- pre-auricular lymph node involvement
- visual acuity



## RED FLAGS ○ ○ ○ ● ○

Refer to Ophthalmologist if any of the below symptoms or signs is present:

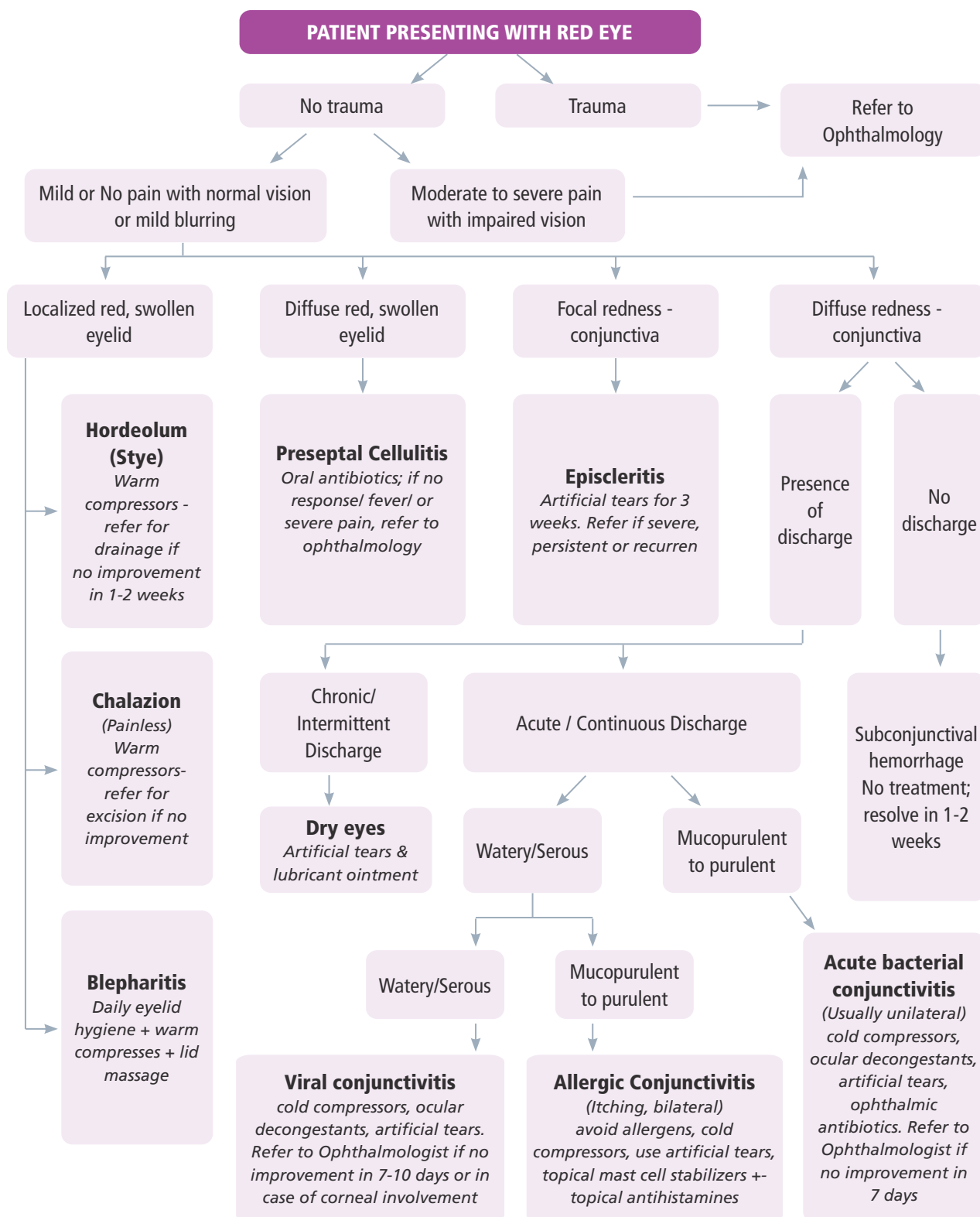
- Decreased visual acuity
- Photophobia
- Severe foreign body sensation
- Severe ocular pain (with eye globe movement)
- Severe headache with nausea
- Corneal opacity
- Fixed pupil
- Ciliary flush



## DIAGNOSTIC AND MANAGEMENT TIPS ○ ○ ○ ○ ●

- Refer patients with conditions affecting the cornea, anterior chamber, iris and lens as follows:
  - On emergent basis (same day): angle-closure glaucoma, hyphema, hypopyon, bacterial keratitis.
  - On urgent basis: Iritis, viral keratitis and scleritis.
- Medications used in treatment of red eye depending on the diagnosis include:
  - Antibiotic eye drops (such as ofloxacin, ciprofloxacin, tobramycin), 1-2 drops four times daily for 1 week.
  - Antihistamines +/- ocular decongestants (naphazoline/pheniramine, 1-2 drops up to four times daily).
  - Topical mast cell stabilizers +/- antihistamines (olopatadine, 1 drop twice daily).
  - Oral antibiotics used in preseptal cellulitis are those with anti-beta-lactamase activity such as amoxicillin/clavulanate or cefpodoxime.

**Warning: Primary Care Physicians should never prescribe topical steroids for red eye.**



### Patient Education

- Advise patients with viral or bacterial conjunctivitis of the following:
  - Avoid sharing tissues, towels, cosmetics, bed sheets, pillows etc. with uninfected family members or friends.
  - Practice frequent hand washing to prevent spread of infection.
  - Discontinue wearing contact lenses in case they already do.

# SORE THROAT



## DEFINITION ●●●●●

Pharyngitis (also called tonsillitis) is an inflammation of the pharyngeal region (pharynx and/or tonsils) that can be of viral (most frequent) or bacterial origin (mostly due to Group A Streptococcus).



## HISTORY ●●●●●

- Sore throat especially upon swallowing is the main common symptom of pharyngitis.
- Cough, hoarseness, or lower respiratory symptoms.
- Constitutional symptoms: fever and/or chills; anorexia; malaise; headache; myalgia.
- Gastrointestinal symptoms: diarrhea; nausea/vomiting; abdominal pain.
- Contact with individuals with similar symptoms or diagnosed Streptococcal infection in the past 2 weeks.



## PHYSICAL EXAMINATION ●●●●●

- Check vital signs including temperature for fever.
- Check for pharyngeal erythema ± enlarged tonsils ± exudates ± palatal petechiae.
- Look for cervical adenopathy (swollen and enlarged): anterior cervical lymphadenopathies in Streptococcal pharyngitis; posterior lymphadenopathies in infectious mononucleosis.
- Check for findings suggestive of specific conditions:
  - Scarlet fever rash: punctate erythematous macules with reddened flexor creases and circumoral pallor (Streptococcal pharyngitis).
  - Gray pseudo-membrane: diphtheria and occasionally infectious mononucleosis.
  - Characteristic erythematous-based clear vesicles: herpes stomatitis.
  - Conjunctivitis: more commonly with adenovirus infections.
  - Hepatosplenomegaly: suggestive of infectious mononucleosis.
- Check for findings of other respiratory tract infections: otitis media; rhinosinusitis; acute bronchitis; pneumonia and peritonsillar abscess.



## RED FLAGS ●●●●●

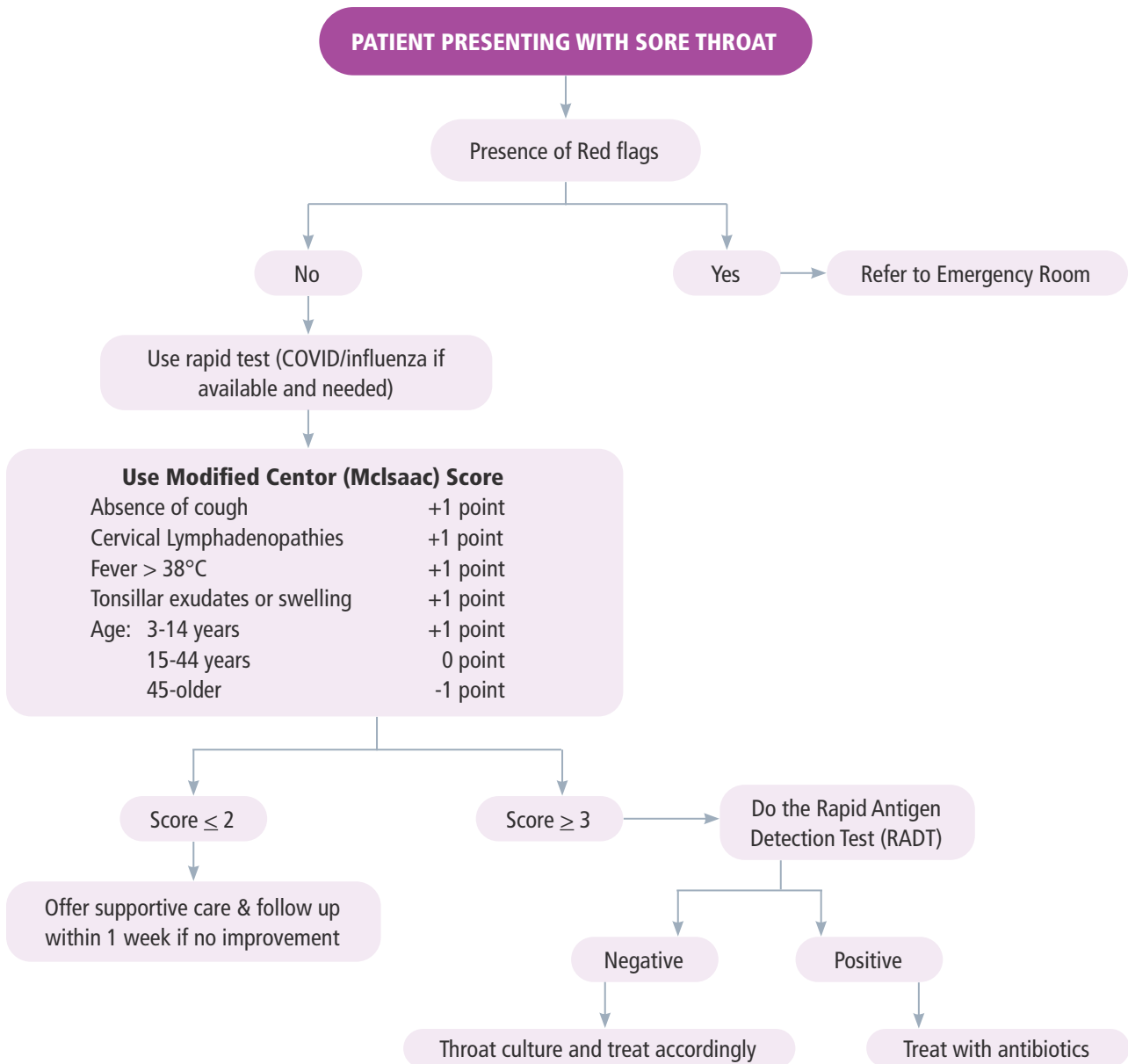
Signs and symptoms that might indicate deep neck space infections and upper airway obstruction:

- Muffled voice
- Drooling
- Stridor
- Respiratory distress
- Severe unilateral sore throat
- Bulging of pharyngeal wall, soft palate, or floor of the oropharynx
- Neck pain or swelling
- Trismus (irritation and reflex spasm of the internal pterygoid muscle)
- Stiff neck



## DIAGNOSTIC AND MANAGEMENT TIPS ○○○○●

- Diagnosis is usually clinical. Rapid strep test can be done if streptococcal infection is suspected (fever > 38°C, sudden onset of sore throat, tonsillar or uvular edema, patchy tonsillar exudates, tender anterior cervical lymph nodes, palatal petechiae, scarlatiniform skin rash and/or strawberry tongue, exposure to Group A Streptococcus).
- Viral pharyngitis is suspected in the presence of the following symptoms: cough, nasal congestion, conjunctivitis, coryza, oral ulcer, viral exanthem.
- Supportive treatment to alleviate symptoms include:
  - Fever lowering treatments and analgesics such as acetaminophen with or without non-steroidal anti-inflammatory drugs (NSAIDs) (e.g., Ibuprofen) when needed.
  - Local anesthetics in the form of lozenges or sprays.
- Most patients with mononucleosis who are given an antibiotic containing amoxicillin for suspected streptococcal pharyngitis develop a prolonged, pruritic maculopapular rash.
- Antibiotics to be used include:
  - Preferred
    - » Penicillin V 500 mg orally 2-3 times daily for 10 days (Penicillin reduces rates of acute rheumatic fever)
    - » Amoxicillin 500 mg orally twice daily for 10 days or 1000 mg orally daily for 10 days
  - Alternatives, in case of penicillin allergy
    - » Cephalexin 500 mg orally twice daily for 10 days
    - » Cefadroxil 1 g orally daily for 10 days
    - » Cefuroxime 250 mg orally twice daily for 10 days
    - » Cefixime 400 mg orally daily for 10 days
    - » Azithromycin 500 mg orally on the first day then 250 mg daily for 4 days
    - » Clarithromycin 250 mg orally twice daily for 10 days
    - » Clindamycin 300 mg orally three times daily for 10 days



- It is advised to do the RADT in patients with a score of 2 and at risk of complications (immunocompromised or frail), or if they appear clinically unwell.
- In absence of the RADT, empiric antibiotic treatment is recommended to those with a score  $\geq 4$  along with ordering a throat culture; for those with a score of 2-3, order throat culture and treat accordingly or use delayed prescriptions with instructions to use if symptoms do not improve within 3 to 5 days.

**Patient Education**

- Inform patients that sore throat/pharyngitis usually resolves on its own without any complications.
- Treatment of sore throat includes rest, and medications that decrease pain and alleviate other symptoms.
- Handwashing is essential to prevent spread of the infection.
- Warm beverages such as honey or lemon tea and soup can soothe pain.
- Inform patients to seek urgent help in case of difficulty in breathing, saliva drooling, swelling of the neck or tongue, stiff neck, difficulty opening mouth, or the presence of an underlying condition that impairs immunity.

**DEFINITION** ●○○○

Dizziness is a non-specific term used to describe a symptom. It is of four main types:

- Vertigo: False sense of motion with a spinning sensation, illusory sense of movement or orientation.
- Disequilibrium: Off-balance, non-specific slight “unsteadiness,” particularly on turning.
- Pre-syncope: Feeling of losing consciousness or blacking out, sense of near fainting.
- Lightheadedness (non-specific dizziness): Vague symptoms, possibly feeling disconnected with the environment.

**HISTORY** ○●○○

- Characteristics of the dizziness/vertigo (description, duration, time course, whether triggered or spontaneous, triggering factors, and aggravating factors). All vertigo is made worse by moving the head.
- Associated symptoms: nausea, vomiting, or hearing loss; presence of other symptoms that might indicate a specific diagnosis such as: Chest Pain, dyspnea, exertional Syncope (Cardiovascular Cause); aura, photophobia, phonophobia, visual disturbance with or without headaches (Vestibular Migraine); neurological symptoms such as gait disturbances, limb weakness (Neurological Pathology).
- Medication intake (dizziness can be an adverse effect of many medications) and exposure to toxins.
- Lifestyle namely caffeine, nicotine, and alcohol intake.
- History of head trauma or whiplash injuries.
- Current medical conditions.

**PHYSICAL EXAMINATION** ○○○●○

- Check vital signs including heart rate and blood pressure (including orthostatic blood pressure).
- Conduct a comprehensive physical examination with focus on:
  - Ear Exam (check for infection, examine the hearing)
  - Eye Exam (look for nystagmus): nystagmus of peripheral vertigo (Combined horizontal and torsional; inhibited by fixation of eyes onto object; fades after a few days; does not change direction with gaze to either side); nystagmus of central vertigo (Purely vertical, horizontal, or torsional; not inhibited by fixation of eyes onto object; may last weeks to months; may change direction with gaze towards fast phase of nystagmus)
  - Balance Test (Dix-Hallpike, Head impulse or Head thrust tests)
  - Central Nervous System (Cranial Nerves, gait, Romberg Test)
  - Cardiovascular Exam (heart exam and check for carotid bruit)





## DIAGNOSTIC AND MANAGEMENT TIPS ○○○●

- Typical features that distinguish vertigo from dizziness: getting worse when moving head, presence of nystagmus, and occurrence with certain positions such as lying down, rolling over in bed, and bending the neck back to look up.
- The diagnosis of dizziness is usually based on the history and physical exam only. Investigations are not usually necessary unless indicated by the history and physical examination. These might include:
  - Pure Tone Audiogram
  - Computed Tomography scan/ Magnetic Resonance Imaging of brain: in patients who have neurologic signs and symptoms, risk factors for cerebrovascular disease, or progressive unilateral hearing loss.
  - Vestibular Function Tests (Electronystagmography)
  - Electrocardiogram (EKG), Echocardiography
  - Tilt-Test
  - Blood Tests: Thyroid Stimulating Hormone (TSH), Fasting Blood Sugar (FBS) and others as needed.
- Vestibular suppressant medications include the following:
  - Antiemetics: metoclopramide 5-10 mg orally or IV every 6 hours; Prochlorperazine 5 to 10 mg orally or IM every 6 to 8 hours.
  - Antihistamines: Dimenhydrinate 50 mg orally every 6 hours; Meclizine 12.5 to 50 mg orally every 4 to 8 hours; Promethazine 25 mg every 6 hours orally, IM, or rectally every 4 to 12 hours.
  - Benzodiazepines: Diazepam 2 to 10 mg orally or IV every 4 to 8 hours; Lorazepam 1 to 2 mg orally every 4 hours.

### Patient Education

- Advise patient to seek medical advice immediately if dizziness/vertigo is associated with new or severe headache, fever (>38°C), double vision, disturbed vision, problems with speaking or hearing, weakness in any extremity, inability to walk independently, passing out, numbness in any extremity, chest pain, intractable vomiting
- Inform patient that benign paroxysmal positional vertigo usually resolves on its own. Epley maneuver is an effective treatment and consists of specific movements for canaliths repositioning. Symptoms improve within 1-2 days after performing this maneuver.

**PATIENT PRESENTS WITH DIZZINESS/VERTIGO**

Categorize Dizziness/vertigo type based on history and physical examination with emphasis on time course, provoking factors, and aggravating factors.

**Vertigo**

Benign Paroxysmal Positional vertigo, Vestibular Neuritis, Meniere Disease, Vestibular Migraine

**Pre-syncope**

Cardiovascular- Orthostatic hypotension, vasovagal attacks, and cardiac arrhythmias (need to do cardiac testing)

**Disequilibrium**

Peripheral Neuropathy, Parkinson: conduct further investigation including laboratory tests as needed

**Lightheadedness**

Psychiatric conditions: Anxiety, Depression (psychiatric evaluation if needed)

**Benign Paroxysmal Positional Vertigo**

- Transient triggered episodes of vertigo caused by dislodged canaliths in the semicircular canals.
- Symptoms precipitated by predictable head movements or positions.
- No hearing loss.
- Positive Dix Hallpike.
- Peripheral nystagmus.

Rx: Epley Maneuver

**Vestibular neuritis**

- Single episode, acute spontaneous onset, lasts days.
- Of viral origin.
- Falls toward side of lesion, no brainstem symptoms.
- No hearing loss.
- Head thrust exam is usually abnormal.
- Peripheral nystagmus.

Rx: Vestibular suppressant medications and vestibular rehabilitation.

**Meniere Disease**

- Recurrent episodes of spontaneous vertigo, last minutes to several hours.
- Episodes may be preceded by ear fullness/pain.
- Unilateral hearing loss worsening during attack.
- Vertigo associated with nausea, vomiting, tinnitus, and loss of balance.
- Other symptoms: sudden slips or falls, and headache.
- Unidirectional, horizontal-torsional nystagmus during vertigo episodes.
- Audiometry: unilateral low frequency sensorineural hearing loss.

Rx: lifestyle changes: limit dietary salt intake to <2,000 mg per day, reduce caffeine intake, and limit alcohol to one drink per day. Daily thiazide diuretic therapy can be added.

**Vestibular Migraine**

- Spontaneous episodic vertigo in a patient with a history of migraine headaches.
- Recurrent episodes, last several minutes to hours.
- Diagnostic criteria: at least 5 episodes of vestibular symptoms of moderate or severe intensity lasting 5 minutes to 72 hours; current or previous history of migraine headache; one or more migraine features, and at least 50% with vestibular symptoms; and no other cause of vestibular symptoms.

Rx: identify and avoid migraine triggers.

**Other Suspected Central causes**

- Suspected central causes such as cerebrovascular diseases (stroke, transient ischemic attacks) or other brain pathologies (tumor, meningiomas, multiple sclerosis)
- Spontaneous continuous vertigo
- Central nystagmus
- Presence of other neurological symptoms and signs

Refer to neurologist

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## **Basic clinical algorithms of care**

For the most common conditions in adults, encountered at Primary Health Care setting,  
for physicians in the public health system

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