QUICK REFERENCE FOR HEALTHCARE PROVIDERS

Management of

ERECTILE DYSFUNCTION

Ministry of Health Malaysia

Malaysian Urological Association

Malaysian Family Medicine Specialists' Association

Academy of Medicine Malaysia

KEY MESSAGES

1. Erectile dysfunction (ED) is a prevalent & multifaceted medical condition characterised by the persistent inability to achieve or maintain an erection sufficient for satisfactory sexual performance. It substantially impacts the quality of life of affected couples, leading to emotional distress & strained relationships.
2. There are various risk factors associated with ED e.g. age, lifestyle behaviours, cardiovascular, metabolic, neurological, psychological & hormonal risks.
3. A comprehensive medical, psychosocial & sexual history should be taken in every patient presenting with ED.
4. A validated questionnaire related to ED should be used to assess all sexual function domains (e.g. International Index of Erectile Function [IIEF]).
5. Patients with ED should have cardiac risk assessment & vice versa as ED could be the initial manifestation of coronary artery disease (CAD) & peripheral vascular disease.
6. All patients with ED should be advised on lifestyle & risk factor modifications.
7. Phosphodiesterase-5-inhibitor (PDE5i) should be offered to all patients with ED unless contraindicated.
8. Mechanical devices (e.g. vacuum erection device or shockwave therapy) may be offered in ED while penile prosthesis may be considered for those who have failed other interventions.
9. An integrated & collaborative approach with psychological interventions should be considered in the treatment of psychogenic ED.
10. Prompt referrals need to be made to relevant specialties based on the patient's conditions e.g. urology, cardiology, endocrinology &/or mental health.

This Quick Reference provides key messages & summarises the main recommendations in the Clinical Practice Guidelines (CPG) Management of Erectile Dysfunction.

Details of the evidence supporting these recommendations can be found in the above CPG, available on the following websites:
Ministry of Health Malaysia: www.moh.gov.my
Academy of Medicine Malaysia: www.acadmed.org.my

CLINICAL PRACTICE GUIDELINES SECRETARIAT
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DIAGNOSIS & ASSESSMENT

A) Relevant history taking in patients with symptoms of ED

History components	Questions
History of presenting complaint	Patients with suspected ED will primarily complain of difficulties initiating or sustaining an erection. Further details surrounding these issues should be explored: • Onset of sexual dysfunction (i.e. acute, gradual) • Duration of sexual dysfunction • Lack of libido • Rigidity of erection • Duration of sexual stimulation • Difficulties with ejaculation/orgasm • Absence of morning erection
Past medical/ surgical history	Previous sexual dysfunction, cardiovascular disease, metabolic syndrome (i.e. diabetes mellitus, hypertension, obesity & dyslipidaemia) & pelvic surgery
Medication history	Antihypertensives, antidepressants, antipsychotics, anticonvulsants, nitrates & PDE5i
Psychiatric history	Current or previous psychological problems (e.g. depression, anxiety), stress, coping abilities, cognitive factors & previous trauma
Social history	Smoking, alcohol consumption, illicit drug use, diet, exercise, cultural & religious aspects
Sexual history	Current sexual partner(s), relationship status, partner's perception to ED, gender dysphoria or sexual orientation, sexual exposure & experience (e.g. masturbation, pornography usage), plan for children

B) Physical examinations & investigations

- A focused physical examination in the initial assessment of men with ED should be done to identify underlying medical conditions & co-morbid genital disorders that may be associated with ED.
- Routine laboratory tests should be performed to identify modifiable risk factors of ED.
- Specific diagnostic tests may be performed when it is indicated.

C) Assessment

5-ITEM VERSION OF INTERNATIONAL INDEX OF ERECTILE FUNCTION (IIEF-5)

Over the past 6 months:					
1. How do you rate your **confidence** that you could get & keep an erection?	1 Very Low	2 Low	3 Moderate	4 High	5 Very high
2. When you had erections with sexual stimulation, **how often** were your erections hard enough for penetration?	1 Almost never/ Never	2 A few times (much less than half the time)	3 Sometimes (about half the time)	4 Most times (much more than half the time)	5 Almost always/ Always
3. During sexual intercourse, **how often** were you able to maintain your erection after you had penetrated (entered) your partner?	1 Almost never/ Never	2 A few times (much less than half the time)	3 Sometimes (about half the time)	4 Most times (much more than half the time)	5 Almost always/ Always
4. During sexual intercourse, **how difficult** was it to maintain your erection to completion of intercourse?	1 Extremely difficult	2 Very difficult	3 Difficult	4 Slightly difficult	5 Not difficult
5. When you attempted sexual intercourse, **how often** was it satisfactory for you?	1 Almost never/ Never	2 A few times (much less than half the time)	3 Sometimes (about half the time)	4 Most times (much more than half the time)	5 Almost always/ Always

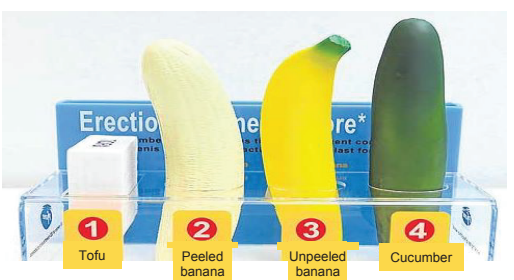
IIEF-5 scoring:
The IIEF-5 score is the sum of the ordinal responses to the 5 items.
22 - 25: No erectile dysfunction
17 - 21: Mild erectile dysfunction
12 - 16: Mild to moderate erectile dysfunction
8 - 11 : Moderate erectile dysfunction
5 - 7 : Severe erectile dysfunction

ERECTION HARDNESS SCORE (EHS)

Erection Hardness Score*

0 : Penis does not enlarge.
1 : Penis is larger but not hard.
2 : Penis is hard but not hard enough for penetration.
3 : Penis is hard enough for penetration but not completely hard.
4 : Penis is completely hard & fully rigid.

*"How would you rate the hardness of your erection?"

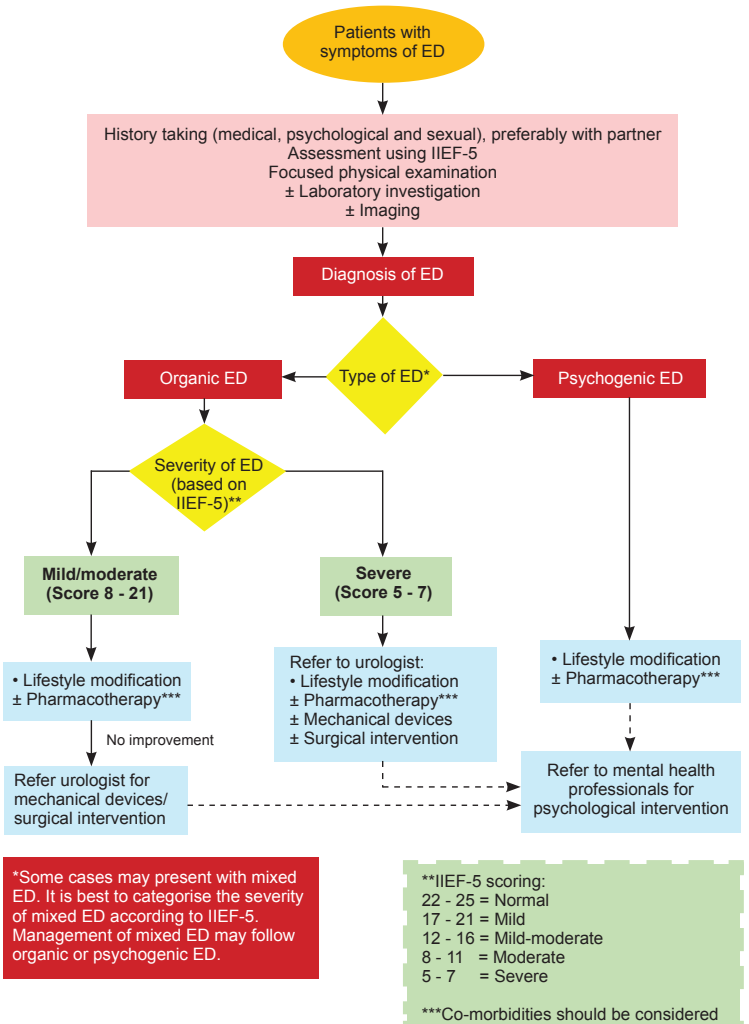


MEDICATION TABLE IN ED

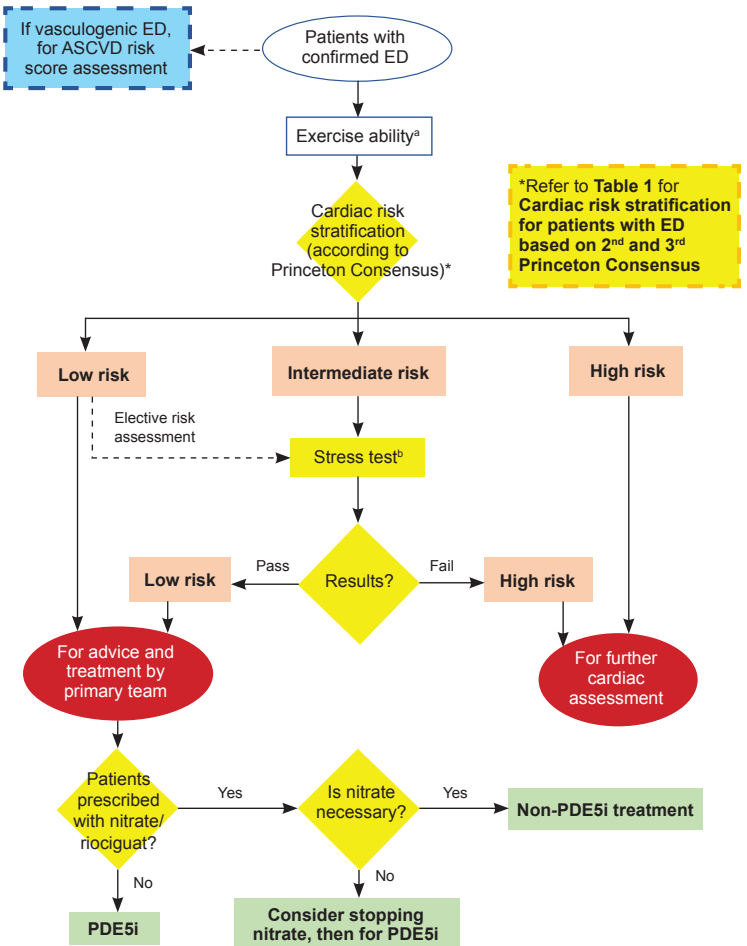
Drug	Recommended dose	Adverse events	Contraindications/ Precautions
Sildenafil	**Initial dose**: 50 mg to be taken approximately 1 hour before sexual activity, effective 30 minutes to 4 hours after administration (Half-life: 4 hours)	**Common:** Headache, flushing, dyspepsia, nasal congestion, nasopharyngitis, back pain, myalgia, visual abnormalities **Serious**: QT prolongation (reported in vardenafil) **Rare**: NAION Patients should seek emergency treatment if an erection lasts >4 hours. Use PDE5i with caution in patients predisposed to priapism. Patients to stop taking PDE5i & seek prompt medical attention in the event of sudden decrease or loss of hearing.	Known hypersensitivity to PDE5i or any component of tablet Precaution on concurrent use of PDE5i with NO donors, organic nitrates or organic nitrites (e.g. glyceryl trinitrate) due to risk of hypotension Time required from last dose to administration of a nitrate (e.g. glyceryl trinitrate): • sildenafil - 24 hours • tadalafil - 48 hours • avanafil - 12 hours • vardenafil - 24 hours **Avanafil** **Strong CYP3A4 inhibitors** are contraindicated (e.g. ketoconazole, ritonavir, itraconazole, clarithromycin) **Vardenafil** Patients with congenital QT syndrome or taking class IA (e.g. quinidine, procainamide) or class III (e.g. amiodarone, sotalol), antiarrhythmics
	Dose range: 25 - 100 mg of maximum once a day		
Tadalafil	**Initial dose**: As needed: 10 mg to be taken at least 30 minutes before sexual activity, effective for up to 36 hours after administration Once daily use: 2.5 mg once daily without regard to timing of sexual activity (Half-life: 17.5 hours)		
	Dose range: As needed: 5 - 20 mg of maximum once a day Once daily use: 2.5 - 5 mg		
Avanafil	**Initial dose**: 100 mg to be taken approximately 30 minutes before sexual activity (Half-life: 5 hours)		
	Dose range: 50 - 200 mg of maximum once a day		
Vardenafil	**Initial dose** 10 mg to be taken approximately 60 minutes before sexual activity (Half-life: 4 - 5 hours)		
	Dose range 50 - 200 mg of maximum once a day		

mg = milligram; NAION = non-arteritic anterior ischaemic optic neuropathy; NO = nitric oxide

ALGORITHM 1: DIAGNOSIS & TREATMENT OF ED



ALGORITHM 2: CLASSIFICATION FOR ED PATIENTS WITH CARDIOVASCULAR DISEASE



ASCVD = atherosclerotic cardiovascular disease

[a] Exercise ability is used to guide physician estimating cardiovascular risk associated with sexual activity & should be established before the initiation of ED treatment. Sexual activity is equivalent to walking 1.6 kilometre (1 mile) on the flat in 20 minutes or briskly climbing two flights of stairs in 10 seconds.

[b] Sexual activity is equivalent to 4 minutes of the Bruce treadmill protocol. Pass is defined as completion of the test without symptoms, arrhythmias or a fall in systolic blood pressure.

TABLE 1: CARDIAC RISK STRATIFICATION FOR PATIENTS WITH ED BASED ON 2ND & 3RD PRINCETON CONSENSUS

Cardiac risk	Low-risk category	Intermediate-risk category	High-risk category
Characteristics	Asymptomatic, <3 risk factors* for CAD (excluding sex)	≥3 risk factors* for CAD (excluding sex)	High-risk arrhythmias
	Mild, stable angina (evaluated &/ or being treated)	Moderate, stable angina	Unstable or refractory angina
	Uncomplicated previous MI	Recent MI (>2, <6 weeks)	Recent MI (<2 weeks)
	LVD/CHF (NYHA class I or II)	LVD/CHF (NYHA class III)	LVD/CHF (NYHA class IV)
	Post-successful coronary revascularisation	Non-cardiac sequelae of atherosclerotic disease (e.g. stroke, peripheral vascular disease)	Hypertrophic obstructive & other cardiomyopathies
	Controlled hypertension		Uncontrolled hypertension
	Mild vascular disease		Moderate-to-severe valvular disease
Management	Manage within primary care setting Review treatment options with patient & their partner (where possible)	Specialised evaluation recommended (e.g. exercise stress test for angina, echocardiogram for a murmur) Patient to be placed in high or low risk category depending upon outcome of testing	Refer for specialised cardiac evaluation & management Treatment for ED to be deferred until cardiac condition stabilised &/or specialist evaluation completed

CHF = congestive heart failure; LVD = left ventricular dysfunction; MI = myocardial infarction; NYHA = New York Heart Association

*Risk factors for CAD include high blood pressure, high low-density lipoprotein cholesterol, diabetes mellitus, smoking &/or second-hand smoke exposure, obesity, unhealthy diet & physical inactivity.

SPECIAL GROUPS

1. Patients with cardiac disease:

- Certain drugs used for the management of cardiac conditions may need to be assessed in patients with ED.
- The appropriateness of using PDE5i is based on patient's cardiac status & medication regimen.
- A multidisciplinary team consisting of cardiologist, urologist, family medicine specialist, psychiatrist &/or rehabilitative physician are important in managing patients with ED & cardiac disease.

2. Patients with pelvic surgery or prostate cancer treatment:

- Multimodal penile rehabilitation with nerve sparing approach may help to improve erectile function post-radical prostatectomy.

3. Spinal cord injury survivors:

- Treatments of ED may trigger autonomic dysreflexia* which can potentially be life-threatening in spinal cord injury patients.

*Autonomic dysreflexia is a dangerous syndrome involving an overreaction of autonomic nervous system. It causes a sudden & severe rise of blood pressure in addition to other symptoms (unopposed sympathetic responses e.g. shortness of breath, chest tightness, flushing, throbbing headache & goosebumps).