

Guideline for Management of Type 2 Diabetes Mellitus: Kingdom of Bahrain Ministry of Health 2016

1. Screening and diagnosis: Detection type 2 Diabetes are usually based on a two-step approach:

Step 1: - Identify high-risk individuals: age, waist circumference (Male 94 cm or more, Female 80 cm or more), family history, cardiovascular history, gestational history and drug history. - Other risk factors are, High level triglyceride, low HDL and high blood pressure.

In the absence of the above criteria, testing for diabetes should begin at age ≥ 45 years.

Step 2: - Glycemic measure in high-risk individuals (HBA1C)

2. Diabetic Patient's Education:

Advices in general: - Lifestyles:

- Practicing physical activity
- Applying healthy dietary habits
- Quit smoking
- Avoiding alcohol abuse
- Taking enough sleep

Self-care: Taking medications

- Taking injection by him/her self
- Foot care
- Monitor sugar status - Follow-up:
- Regular blood, eyes, renal and foot testing *Taking appointment for follow-up

3. Psychological care:

Explore to your doctor your concerns about the social situation, attitudes, beliefs and worries related to diabetes and self-care issue.

4. Lifestyle management:

Changing patterns of eating and physical activity, can be effective in controlling many of the adverse risk factors found in the condition.

Advise on reducing energy intake and control of foods with high amounts of added sugars, fats or alcohol. Match the timing of medication (including insulin) and meals. Provide advice on the use of foods in the

prevention and management of hypoglycemia where appropriate. Introduce physical activity gradually, based on the individual's willingness and ability, and setting individualized and specific goals. increased duration and frequency of physical activity (where needed), up to 30-45 minutes on 3-5 days per week, or an accumulation of 150minutes per week of moderate-intensity aerobic activity (50-70% of maximum heart rate).

5. Glucose control levels:

Maintaining anHbA1c below 7.0% / 53 mmol/mol minimizes the risk of developing complications. A lower HbA1c target may be considered if it is easily and safely achieved. A higher HbA1c target may be considered for people with co-morbidities or when previous attempts to optimise control have been associated with unacceptable hypoglycemia.

6. Clinical monitoring: Monitor blood glucose control by measuring HbA1c using high-precision. Measure HbA1c every 2 to 6 months depending on level, stability of blood glucose control and changes in therapy.

7. Self-monitoring:

The purpose(s) of performing SMBG and using SMBG:

- To provide information on, and help avoid, hypoglycemia.
- To assess changes in blood glucose control due to medications and lifestyle changes.
- To monitor the effects of foods on postprandial glycaemia.
- To monitor changes in blood glucose levels during undercurrent illness.

8. Blood pressure control:

Recommendations • Measure blood pressure at least annually, and at every routine clinic visit in people with known CVD.

9. Cardiovascular risk protections:

Cardiovascular risk protection through blood glucose control, blood pressure control, lipid and cholesterol control.

Lipid targets are as follows:

- LDL cholesterol <2.0 mmol/l (<80 mg/dl)
- Triglyceride <2.3 mmol/l (<200 mg/dl)

- HDL cholesterol >1.0 mmol/l (>39 mg/dl)
- Non-HDL cholesterol <2.5 mmol/l (<97 mg/dl)

10. Eye screening:

Examination of the eyes of people with type 2 diabetes is performed around the time of diagnosis and then routinely yearly as part of a formal recall process.

The following frequency of screening is suggested:

- Yearly if no retinopathy.
- 6-8 months if minimal unchanged retinopathy.
- 3 to 6 months if worsening since last examination.
- More often during pregnancy.

The following situations require specialist referral: The same day:

- Sudden loss or decrease of vision/Evidence of pre-retinal and/or vitreous hemorrhage, new vessel formation or rubeosis iridis.
- Visual field defect/Evidence of retinal detachment.
- Severe pain

Good control of blood glucose, blood pressure and blood lipids can help to reduce the risk of eye damage developing or worsening.

Diabetic retinopathy is not a contraindication for use of aspirin if this is indicated for prevention of CVD. Tests of intra-ocular pressure should be made periodically.

11. Kidney damage:

Diabetes is now the leading cause of CKD in many developed countries. The prevalence of CKD in people with type 2 diabetes varies between 25 and 50% and it is associated with increased risk of morbidity and premature mortality. With increasing numbers of people with type 2 diabetes, younger age of onset, and better cardiovascular protection measures, the health impact of CKD in individuals with diabetes are growing. While the major effort of management must go to primary prevention (good blood glucose and blood pressure control from early diagnosis), the success of interventions at a later stage suggests that detection of developing kidney damage is useful.

Kidney function should be assessed at diagnosis and annually by:

- Urine test for albuminuria.
- Measurement of serum creatinine and calculation of eGFR.

12. Foot care Recommendations:

Active treatment for risk factors for ulcer and amputation:

- History of previous foot ulceration or amputation, symptoms of peripheral arterial disease, physical or visual difficulty in self-foot care.
- Foot deformity (hammer or clawed toes, bone prominences); visual evidence of neuropathy (dry skin, dilated veins) or incipient ischemia;
- Callus; nail deformity or damage; footwear.
- Detection of neuropathy by 10 g monofilament (or 128 Hz tuning fork); a biothesiometer is an option for quantitative assessment (cut-off point for ulcer risk >25 volts); non-traumatic pinprick.
- Palpation of foot pulses (dorsally Pedi's and posterior tibial).
Doppler ankle: brachial pressure ratio (<0.9 for occlusive vascular disease) may be used where pulses are diminished to quantify the abnormality.

13. Nerve Damage:

Optimize glycemic control, lipid levels and blood pressure.

There are several neuropathic pain treatments available with class A and B.

14. Diabetes and Sexual Dysfunctions:

Diabetes has been associated with sexual dysfunction both in men and in women. Hyperglycemia, which is a main determinant of vascular diabetic complications, may participate in the pathogenic mechanisms of sexual dysfunction in diabetes. On the other hand, diabetic people may present with several clinical conditions, including hypertension, overweight and obesity, metabolic syndrome, cigarette smoking, or atherogenic dyslipidemia, which are themselves risk factors for sexual dysfunction in both sexes. Sexual problem identification should be regarded as a routine and necessary aspect of medical care for both men and women.

As a consequence of its multifactorial etiology, the treatment of sexual dysfunctions in diabetic men requires a global approach. The first step is to correct the modifiable risk factors and to promote lifestyle changes.

Tight glycemic control, so as to maintain an HbA1c concentration less

than 7%, is recommended for all nonpregnant adults with diabetes to minimize the risk of long-term microvascular complications.

Indications for referral to the specialized sexual health care clinic:

Some common Indications for referrals

1. Males or females with sexual dysfunction or sexual concerns
2. Primary / lifelong sexual dysfunction
3. Reluctance of the primary care physician to deal with sexual dysfunction
4. Patient request
5. Gender Dysphoria
6. Treatment failure or failure to respond to oral PDE inhibitors
7. Relationship problems
8. Complex medical problems (comorbidities)
9. Medicolegal cases

Sexuality is a complex interaction of biology, culture, developmental, and current intra and interpersonal psychology. A bio-psychosocial model of sexual dysfunction provides a compelling argument for combined therapy integrating sex therapy and sexual pharmaceuticals. Restoration of lasting and satisfying sexual function requires a multidimensional understanding of all of the forces that created the problem, whether a solo physician or multidisciplinary team approach is used. Each clinician needs to carefully evaluate their own competence and interests when considering the treatment of a person's sexual dysfunction, so that regardless of the modality used, the patient receives optimized care. Combining sexual pharmaceuticals and sex therapy is the "oral therapy" of choice to optimize treatment for all sexual dysfunctions. This is true for men with erectile dysfunction, premature ejaculation, or retarded ejaculation and will also be true for female sexual dysfunction. Less medication is required when you modify immediate causes while appreciating other psychological obstacles.

15. Detection & Management of Diabetes in pregnancy:

A. of Gestational Diabetes: Screen for undiagnosed type 2 diabetes at the first prenatal visit in those with risk factors. As the incidence of obesity and

diabetes is increasing in women of childbearing age and the number of pregnant women with undiagnosed type 2 diabetes have increased.

Antenatal care for women with diabetes:

- Women with diabetes who are pregnant should be offered immediate contact with a joint diabetes and antenatal clinic.
- Women with diabetes should have contact with the diabetes care team for assessment of glycemic control every 1–2 weeks throughout pregnancy.
- Antenatal appointments for women with diabetes should provide care specifically for women with diabetes, in addition to the care provided routinely for healthy pregnant women.
- Screen for GDM at 24–28 weeks of gestation in pregnant women not previously known to have diabetes or other risk factors.
- Women with gestational diabetes should be informed that good glycemic control throughout pregnancy will reduce the risk of fetal macrosomia, trauma during labour, induction of labour or caesarean section, neonatal hypoglycemia and perinatal death.
- Women with gestational diabetes whose pre-pregnancy body mass index was above 27 kg/m² should be advised to restrict calorie intake (to 25 kcal/kg/day or less) and to take moderate exercise (of at least 30 minutes daily).
- If diet and exercise fail to maintain blood glucose targets during a period of 1–2 weeks, hypoglycemic therapy should be considered.
- Women with insulin-treated diabetes should be advised of the risks of hypoglycemia and hypoglycemia unawareness in pregnancy, particularly in the first trimester.
- During pregnancy, women with insulin-treated diabetes should be provided with a concentrated glucose solution and women with type 1 diabetes should also be given glucagon, women and their partners or other family members should be instructed in their use.
- During pregnancy, women who are suspected of having diabetic ketoacidosis should be admitted immediately.
- Pregnant women with pre-existing diabetes should be offered retinal assessment following their first antenatal clinic appointment and at again at 28 weeks if the first assessment is normal.
- If any diabetic retinopathy is present, an additional retinal assessment should be performed at 16–20 weeks.

Renal assessment during pregnancy:

- If renal assessment has not been undertaken in the preceding 12 months in women with pre-existing diabetes, it should be arranged at the first contact in pregnancy.
- If serum creatinine is abnormal (120 micromol/litre or more) or if total protein excretion exceeds 2 g/day, referral to a nephrologist should be considered (eGFR should not be used during pregnancy).
- Thromboprophylaxis should be considered for women with proteinuria above 5 g/day (macroalbuminuria). VI. Diabetic mother and Antihypertensive:
- In a pregnancy complicated by diabetes and chronic hypertension, target blood pressure goals of SBP 110–129 mmHg and DBP 65–79 mmHg are reasonable, as they contribute to improved long term maternal health.
- Lower blood pressure levels may be associated with impaired fetal growth.
- During pregnancy, treatment with ACE inhibitors and ARBs is contraindicated, since they may cause fetal damage.
- Antihypertensive drugs known to be effective and safe in pregnancy include methyldopa, labetalol, diltiazem, clonidine, and prazosin.
- Chronic diuretic use during pregnancy has been associated with restricted maternal plasma volume, which may reduce uteroplacental perfusion.. Screening for congenital malformations: • Women with diabetes should be offered antenatal anomalies scan at 20- 22 weeks
- Women with diabetes should be offered antenatal examination of the four chamber view of the fetal heart and outflow tracts at 18–20 weeks. VIII. Monitoring fetal growth and wellbeing: • Pregnant women with diabetes should be offered ultrasound monitoring of fetal growth and amniotic fluid volume every 4 weeks from 28 to 36 weeks.
- Diabetes should not be considered a contraindication to antenatal steroids for fetal lung maturation or to tocolysis.
- Women with insulin-treated diabetes who are receiving steroids for fetal lung maturation should be closely monitored.
- Betamimetic drugs should not be used for tocolysis in women with diabetes. X.

Intrapartum care:

- Pregnant women with diabetes who have a normally grown fetus should be offered elective birth through induction of labour, or by elective caesarean section if indicated, after 38 completed weeks.
- Diabetes should not in itself be considered a contraindication to attempting vaginal birth after a previous caesarean section.
- Pregnant women with diabetes who have an ultrasound-diagnosed macrosomic fetus should be informed of the risks and benefits of vaginal birth, induction of labour and caesarean section. • During labour and birth, capillary blood glucose should be monitored on an hourly basis in women with diabetes and maintained at between 4 and 7 mmol/litre.
- Women with type 1 diabetes should be considered for intravenous dextrose and insulin infusion from the onset of established labour.
- Intravenous dextrose and insulin infusion is recommended during labour and birth for women with diabetes whose blood glucose is not maintained at between 4 and 7 mmol/litre. XI.

Neonatal care:

- Women with diabetes should be advised to give birth in hospitals where advanced neonatal resuscitation skills are available 24 hours a day.
- Babies of women with diabetes should be kept with their mothers unless there is a clinical complication or there are abnormal clinical signs that warrant admission for intensive or special care.
- Blood glucose testing should be carried out routinely in babies of women with diabetes at 2–4 hours after birth.
- Blood tests for polycythaemia, hyperbilirubinaemia, hypocalcaemia and hypomagnesaemia should be carried out for babies with clinical signs.
- Babies of women with diabetes should have an echocardiogram performed if they show clinical signs associated with congenital heart disease or cardiomyopathy, including heart murmur. XII.

Postnatal care:

- Women with insulin-treated pre-existing diabetes should reduce their insulin immediately after birth and monitor their blood glucose levels carefully to establish the appropriate dose.
- Women with insulin-treated pre-existing diabetes should be informed that they are at increased risk of hypoglycemia in the postnatal period, especially when breastfeeding, and they should be advised to have a meal or snack available before or during feeds.
- Women with pre-existing type 2 diabetes who are breastfeeding can resume or continue to take metformin and glibenclamide immediately

following birth but other oral hypoglycemic agents should be avoided while breastfeeding.

- Women with diabetes who are breastfeeding should continue to avoid any drugs for the treatment of diabetes complications that were discontinued for safety reasons in the preconception period.

Follow-up after birth:

- Women with pre-existing diabetes should be referred back to their routine diabetes care arrangements.
- Women with diabetes should be reminded of the importance of contraception and the need for preconception care when planning future pregnancies

16. Older people Recommendations:

Diagnosis of diabetes in older people should be in accordance with WHO criteria which apply to all age groups. Glucose-lowering interventions should aim to achieve an HbA1c of 7.0-7.5% / 53-59 mmol/mol. A higher target may be appropriate in the presence of modifying factors such as vulnerability to hypoglycaemia, presence of co-morbidities, cognitive and mood status, and limited life expectancy. Care should be taken in commencing blood glucose lowering medications unless FPG is consistently 6 mmol/l or higher. As a precaution to reduce the risk of hypoglycaemia, particular care should be taken to avoid FPG