

Laboratory Evaluations

Achieving metabolic goals—Suggested actions

Category	Action
Blood Glucose & HbA1c Levels	Diabetes self-management education
	Adjustment of medication
	Diabetes team management
	Referral to endocrinologist
	Blood glucose self-monitoring
	Increase patient contact
Lipid Levels	Lifestyle changes
	Improved glycaemic control
	Statins
	Consider fibrate if hypertriglyceridaemia
Albuminuria	Refer to Nephrologist

Goals for Glycaemic Control

Test	Normal	Goal	Action
FPG (mg/dl)	< 100	110	100
2HrPG (mg/dl)	< 140	140	140
FBG (finger stick)	< 100	90 - 130	110
2HrBG (mg/dl)	< 140	180	180
HbA1c (%)	< 6	-	7

Goals for Lipid Management

Test	Men	Women	Action
LDL (mg/dl)	< 100	< 100	100
HDL (mg/dl)	> 40	> 50	40
Triglycerides (mg/dl)	< 150	< 150	150

Abnormalities in Albumin Excretion

Test	Spot or 24 Hr Collection (µg/ml Creatinine)
Normal	< 30
Microalbuminuria	30 - 299 (Action)
Clinical albuminuria	300 (Action)

If abnormal, recheck in 3 to 6 months

Causes of transient elevated urinary albumin

- Exercise within 24 hours
- Infection
- Fever
- Congestive Heart failure
- Semen contamination
- Marked hyperglycaemia
- Marked hypertension

Management Plan

Lifestyle Modification

1. Individualized Nutrition Therapy
 - Dietitian/Nutritionist
2. Planned Physical Activity Programme
 - Most days of the week
3. Cessation of Smoking
4. Limited Alcohol Consumption (per day)
 - < 2 beers for men
 - < 1 beer for women
5. Education about Diabetes
 - Diabetes self-management education
 - self- monitoring of Blood Glucose (SMBG)
 - Lifestyle changes
 - Complications
6. Pharmacotherapy
 - if obese, overweight or symptomatic

In obese/overweight, non-pregnant subjects:

Although weight-reducing diet and regular, organized physical activity are an integral part of management, it is not encouraged that it be the only first line of treatment. Preliminary data suggests that the early use of insulin sensitizers retards the progression of Beta cell loss from the pancreas in type 2 diabetes

Glycaemic goals should be individualized, based on age, health status & presence of complications. Attempts to attain goal may need to be tempered if severe/troubling hypoglycaemia occurs

Types of Assessment

Medical History	Initial	Rou-tine	Annual
Symptoms	√	√	√
Review Prior Lab HbA1c & BG	√	√	√
Nutritional Assessment	√	√	√
Previous Treatment Plan	√	√	√
Physical Activity	√	√	√
Acute Complications	√	√	√
Chronic complications	√		√
Medication History	√	√	√
Family History	√		
Coronary Heart Disease	√		√
Tobacco & Alcohol Use	√		√
Immunization Status	√		√
Screen for depression	√		√

Management Algorithm

Physical Examination	Initial	Routine	Annual
Height	√		
Weight/Waist circumference	√	√	√
BP	√	√	√
Oxygen saturation	√	√	√
Temperature	√	√	√
Fundoscopic examination	√		√
Thyroid examination	√		√
Cardiac examination	√	√	√
Evaluation of pulses	√		√
Abdominal examination	√		√
Foot inspection	√	√	√
Monofilament & Vibration test	√		√
Skin examination	√		√
Oral examination	√		√

Laboratory Tests	Initial	Rou-tine	An-nual
HbA1c*	√	√	√
Blood Glucose (glucosmeter)	√	√	√
Lipid profile	√		√
Serum creatinine	√		√
ECG	√		√
Microalbumin/Spot urine sample**	√		√
Urinalysis - glucose, ketones, protein	√	√	

*HbA1c every three months for patients not at goal

** Microalbumin is an early indicator of Kidney Disease.

Body Mass Index (BMI)	Classification
< 18.5	Underweight
18.5 - 24.9	Normal weight
25 - 29.9	Overweight
> 30	Obese
Indicators of Risk (Waist Circumference)	
Men	> 100 cm (40 inches)
Women	> 87.5 cm (35 inches)

BMI = Weight in kg/Height in meters²



NCD Programmes,
OCMO,
Ministry of Health

DIABETES
PRACTICE
GUIDELINES—
for Primary Care!

Aims & Objectives of
Diabetes Management

Lifestyle Modification
1. Refer to Nutritionist/Dietitian
2. Body Weight - BMI<25
3. Physical activity- 30 min/day most days
4. Smoking - Stop smoking
5. Alcohol - 1 drink/day or less
Education
1. What is diabetes
2. Types of diabetes
3. Self-management
4. Medication
5. Nutrition
6. Physical Activity
7. Complications
8. Sick Day Guidelines
9. Coping with Diabetes
10. Depression Screening
Preventing Complications
1. HbA1c <7.0%
2. BP <130/80 mm Hg
3. LDL Chol < 100 mg/dl
4. Prevent/Control Renal Disease
ACE Inhibitor early esp. if
Microalbuminia
GFR < 60 ml/min
5. Wt. loss 5-10% if BMI > 25

Prevalence of Diabetes in The Bahamas

- Approximately 11.6% among adults (2019 STEPS Survey)
- Increases with age

Complications

- Heart disease is leading cause of death
- Similar risk of MI as smoker or previous MI
- Blindness
- End Stage Renal Diseases
- Amputations
- Sexual Impotence

Criteria for Screening and Diagnosing Diabetes

Criteria for Screening in Health Care Setting

- 1. No risk factors – screen at 3-year intervals after age 40 yr
- 2. Risk factors – screen at 1 year intervals if:
 - Family history of diabetes (parents or siblings)
 - GDM or delivery of baby > 4.1 kg (9 lbs)
 - Obesity (BMI > 30 kg/m²)
 - Waist circumference > 40 in. in males and > 35 in. in females
 - History of hypertension and/or vascular disease
 - Raised Blood Pressure > 140/90 mm Hg
 - HDL < 35 mg/dl and/or Trig. > 250 mg/dl
 - IFG (FPG between 100 mg/dl & 125 mg/dl)
 - IGT (2hrPG between 140 mg/dl & 199 mg/dl)
 - Polycystic Ovarian Syndrome

FPG is the recommended test for screening
RBG > 140 mg/dl should be evaluated again with a FBG

On average, people have type 2 diabetes (with or without symptoms) for between five and seven years before it is diagnosed. Symptoms of diabetes include:

- polyuria (excessive passing of urine)
- polydipsia (excessive thirst)
- unexplained weight loss
- polyphagia (excessive hunger)
- vision changes
- fatigue.

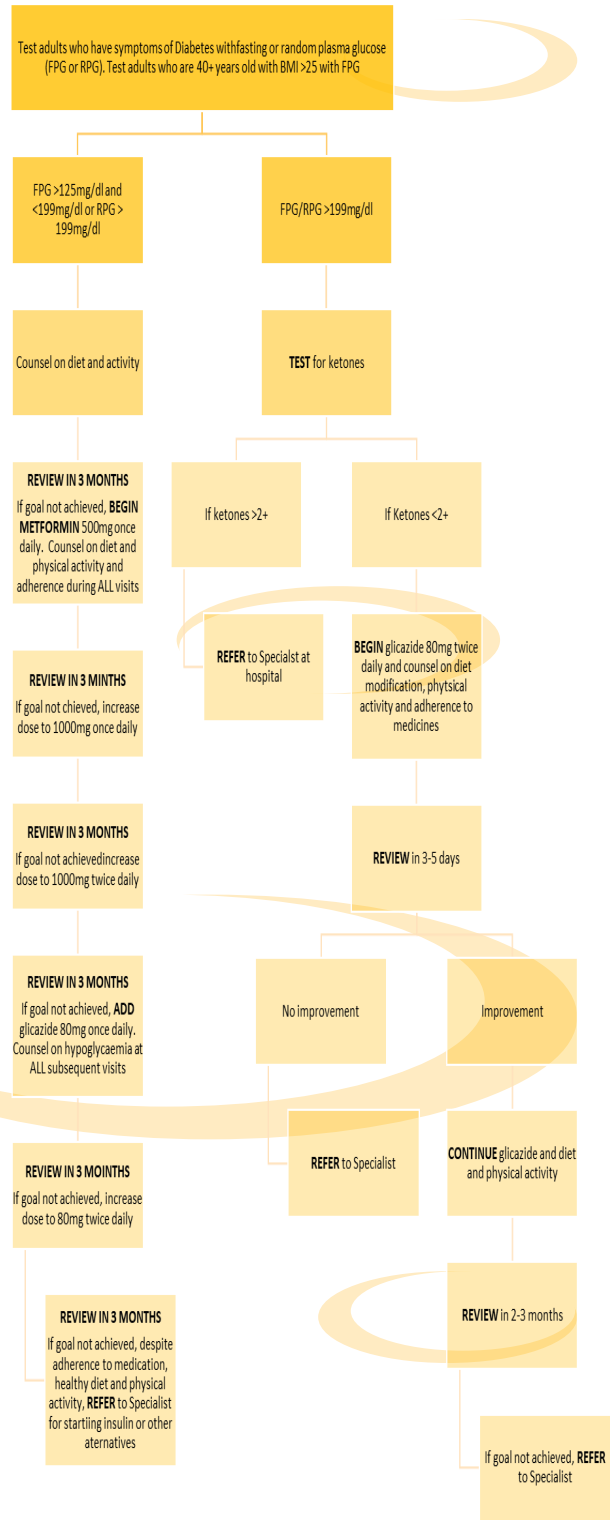
Criteria for Diagnosis of Glucose Intolerance

Test	Normal (mg/dl)	IFG/IGT (mg/dl)	Diabetes (mg/dl)
FPG	< 100	100-125	> 125
2-hrPG	< 140	140 - 199	> 199
Casual PG	<126	N/A	>199

Abbreviations:

SMBG – Self Monitoring of Blood Glucose
FBG – Fasting Blood Glucose
FPG – Fasting Plasma Glucose
GDM – Gestational Diabetes Mellitus
HDL – High Density Lipoprotein
IFG – Impaired Fasting Glucose
IGT – Impaired Glucose Tolerance
PG – Plasma Glucose
RBG – Random Blood Glucose

Treatment Algorithm



Control of blood glucose

Metformin is recommended as the first-line drug in the treatment of diabetes. Sulfonylurea is recommended as the second-line treatment, and human insulin as the third-line treatment.

Patients may require two or three drugs. Although there are other drug classes usually used as second- and third-line treatment, including thiazolidinediones (TZDs), DPP-4 inhibitors, SGLT2 inhibitors, and GLP-1 receptor agonists, these medicines tend to be more costly than metformin, sulfonylurea and insulin, with currently limited evidence of superior effectiveness. They may, however, be considered in the rare cases when treatment with metformin, sulfonylurea, and insulin is not possible. Insulin treatment should be introduced and monitored according to national practices. Consider referral to specialist prior to the introduction of insulin.

Screening for Chronic Complications

1. Measure blood pressure at every scheduled visit, review medication as per hypertension protocol
2. REFER for dilated-pupil retinal exam upon diagnosis, and every two years thereafter, or as per ophthalmologist recommendation
3. Examine feet for ulcers at every visit. REFER to higher level of care if ulcer present
4. Assess risk of lower limb amputation annually (foot pulses, sensory neuropathy by monofilament, presence of healed or open ulcers, calluses). REFER to higher level of care if ulcer present or pulse absent
5. Test for proteinuria annually. REFER to higher level of care if positive.

Management of Acute Complications

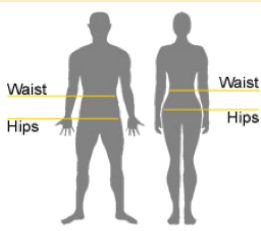
1. **Severe hypoglycaemia** (plasma glucose <50 mg/dl or 2.8 mmol/l) or signs:
 - If conscious, give a sugar-sweetened drink
 - If unconscious, give 20–50 ml of 50% glucose (dextrose) IV over 1–3 minutes.
2. **Severe hyperglycaemia** (plasma glucose >18 mmol/l (325 mg/dl) and urine ketone 2+) or signs and symptoms of severe hyperglycaemia:
 - Set up intravenous drip 0.9% NaCl 1 litre in 2 hours; continue at 1 litre every 4 hours, REFER to hospital.

Physical Examination

Weight

Waist Circumference

Waist circumference is measured midway between lower costal margin (bottom of lower rib) and iliac crest.



Blood Pressure

Goal: 130/80 mm Hg

Cardio-pulmonary Examination

Chest x-ray

Electrocardiography (ECG)

Foot examination

1. Inspection

- Corns & Calluses, Thick Crusty or Curved Nails
- Ulceration, Infection, Intertrigo, Deformity

2. Palpation

- Pulses

3. Sensation testing

- Vibration
- Monofilament

Fundoscopy

- Initial examination by clinician
- Refer to Eye Health Services for baseline and annual dilated eye exam

Depression Screening Tool

If Section A > 1 and Section B = 3, a diagnosis of Major Depressive Disorder can be made and treatment initiated.

A. Screening Question	Yes	No
Have you been feeling down, depressed, or hopeless in the past month?	1	0
Are you bothered by little interest or pleasure in doing things?	1	0
Total (if >1 proceed below)	1	0
B. Confirmatory Questions	Yes	No
Have you had a change in appetite?	1	0
Have you had a change in sleeping pattern?	1	0
Have you been feeling guilty or worthless?	1	0

Total (if =3 treat for depression)

Based on HEARTS protocol, American Diabetes Association and NICE Guidelines