

## STANDARD TREATMENT WORKFLOW (STW)

### Diabetes Mellitus Type 1

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#### CITATION

Bhansali A, Bhatia E, Ganpathi B, Kotwal N, Rajput R, Goswami R, Choudhary S, Mohan V. Diabetes Mellitus Type 1. Journal of the Epidemiology Foundation of India. 2024;2(1Suppl):S107-S108.

DOI: <https://doi.org/10.56450/JEFI.2024.v2i1Suppl.054>

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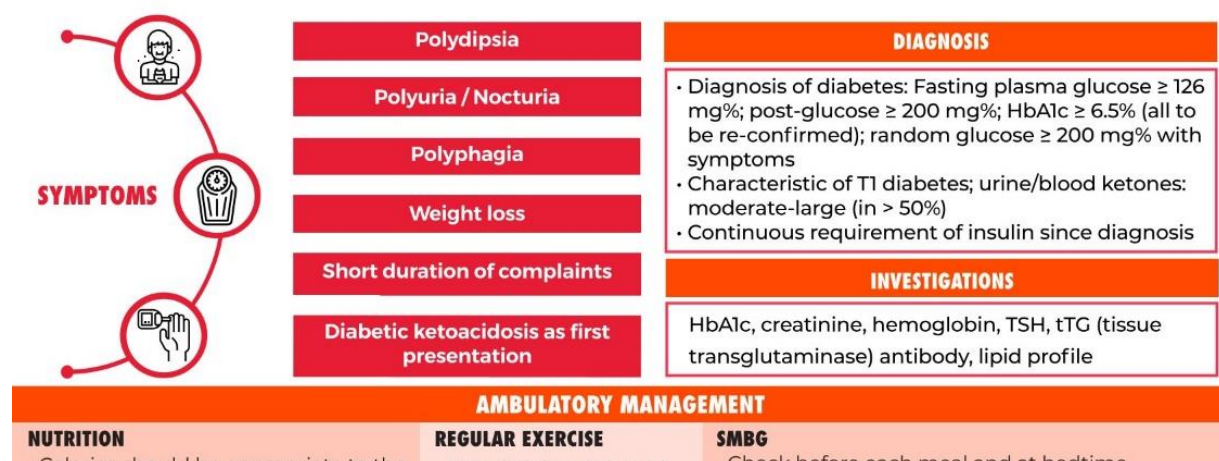
July 2024



### Standard Treatment Workflow (STW)

### DIABETES MELLITUS TYPE 1

#### ICD-10-E10



## Standard Treatment Workflow (STW) DIABETES MELLITUS TYPE 1 ICD-10-E10

 <b>SYMPTOMS</b>	<b>Polydipsia</b>	<b>DIAGNOSIS</b> <ul style="list-style-type: none"><li>• Diagnosis of diabetes: Fasting plasma glucose <math>\geq 126</math> mg%; post-glucose <math>\geq 200</math> mg%; HbA1c <math>\geq 6.5\%</math> (all to be re-confirmed); random glucose <math>\geq 200</math> mg% with symptoms</li><li>• Characteristic of T1 diabetes; urine/blood ketones: moderate-large (in <math>&gt; 50\%</math>)</li><li>• Continuous requirement of insulin since diagnosis</li></ul>
	<b>Polyuria / Nocturia</b>	
	<b>Polyphagia</b>	
	<b>Weight loss</b>	
	<b>Short duration of complaints</b>	
	<b>Diabetic ketoacidosis as first presentation</b>	<b>INVESTIGATIONS</b>  HbA1c, creatinine, hemoglobin, TSH, tTG (tissue transglutaminase) antibody, lipid profile
<b>AMBULATORY MANAGEMENT</b>		
<b>NUTRITION</b> <ul style="list-style-type: none"><li>• Calories should be appropriate to the expected body weight, pubertal status, activity</li><li>• Balanced diet including all food groups</li><li>• Simple sugars and excessive fats to be avoided</li><li>• Meals/snacks to be individualized and reflect insulin schedule (usually 3 meals, 2 snacks)</li></ul>	<b>REGULAR EXERCISE</b> <ul style="list-style-type: none"><li>• Beneficial and should be encouraged</li></ul> <b>EDUCATION</b> <ul style="list-style-type: none"><li>• Emphasize diabetes related education to patient and caregivers</li></ul>	<b>SMBG</b> <ul style="list-style-type: none"><li>• Check before each meal and at bedtime</li><li>• Should be checked more frequently in case A1c is not controlled, frequent hypoglycemia</li><li>• Glucose at midnight (12.00-2.00 am) occasionally to rule out nocturnal hypoglycemia</li><li>• Ketones should be checked if blood glucose is <math>&gt; 250</math> mg/dl</li></ul> <b>TARGET</b> <ul style="list-style-type: none"><li>• Pre-meal 80-130 mg%</li><li>• 2 hours post-meal: 120-180 mg%</li></ul>
<b>INSULIN TREATMENT</b>		
Insulin administration (0.25 to 1.0U/kg depending on age and pubertal status)	<b>Basal and bolus regimen</b> <ul style="list-style-type: none"><li>• Basal: glargine or detemir or NPH 40-50% of daily requirement</li><li>• Bolus: regular or rapid acting 50% of daily requirement/3 injections before each meal</li></ul>	Insulin doses can be adjusted depending upon <ol style="list-style-type: none"><li>1. Pre-meal and post-meal glucose level</li><li>2. Carbohydrates in the meal</li><li>3. Exercise pattern</li></ol>
<b>REASONS FOR REFERRAL TO HIGHER CENTRES</b>		
Uncontrolled hyperglycemia	For education of patient & family For insulin injection techniques/ SBGM/ identifying hypoglycemia s/s	Recurrent hypoglycemia
		Severe diabetic ketoacidosis (altered sensorium, rapid breathing)
		Chronic diabetes specific complications
<b>MONITORING</b>		
<b>AT EVERY VISIT</b> <ul style="list-style-type: none"><li>• Growth &amp; pubertal development (for children and adolescents)</li><li>• Dietary and medication compliance</li><li>• BP, Weight monitoring</li><li>• Insulin site and injection technique</li><li>• Review SMBG record</li><li>• Hypoglycemia</li></ul>	<b>EVERY THREE MONTHS</b> <ul style="list-style-type: none"><li>• Glycated hemoglobin (HbA1c)</li><li>• Target: <math>&lt;7\%</math> (should be individualized)</li></ul>	<b>COMPLICATIONS &amp; COMORBIDITIES (5 YEARS AFTER DIAGNOSIS, THEN ANNUALLY)</b> <ul style="list-style-type: none"><li>• Fundus examination (Retinopathy)</li><li>• Foot examination (Neuropathy)</li><li>• Urine albumin/creatinine ratio</li><li>• Other investigations (S-creatinine, TSH), lipid profile</li></ul>
<b>SICK DAY RULES/DKA</b>		
<b>IN CASE OF SICKNESS / INFECTION</b> <ul style="list-style-type: none"><li>• Measure glucose frequently, check for urine ketones if glucose <math>&gt;250</math> mg%</li><li>• Drink plenty of fluids, monitor urine output</li><li>• Eat small light meals 4-5 times/day</li><li>• In addition to usual insulin doses, take extra regular insulin s.c. every 6 hourly (10-15% of total daily insulin dose)</li><li>• If glucose not falling, excess vomiting, low urine output, high or rising ketone, admit the patient</li></ul>	<b>HYPOGLYCAEMIA</b> <ul style="list-style-type: none"><li>• <b>Symptoms and signs:</b> Sweating, hunger, tremors, irritability, weakness, drowsiness / seizures / unconsciousness (late stage)</li><li>• <b>Diagnosis:</b> Mild / moderate: glucose <math>&lt;70</math> mg% with or without symptoms</li><li>• <b>Severe hypoglycemia:</b> coma / seizures / inability to treat oneself</li><li>• <b>Treatment:</b> If glucose <math>&lt;70</math> mg% take 3 tsf glucose powder or sugar; if severe: caregiver should give inj. glucagon 1 mg s.c./ i.m. OTHERWISE IMMEDIATELY take to hospital for intravenous glucose injection (1-2 ml/kg of 25% dextrose)</li><li>• <b>Prevention:</b> Identify mismatch of food, exercise, insulin</li></ul>	
<b>DKA MANAGEMENT</b> <ul style="list-style-type: none"><li>• As per STW on Diabetic Ketoacidosis (DKA)</li></ul>		
<b>ABBREVIATIONS</b>		
<b>BP:</b> Blood pressure <b>DKA:</b> Diabetic ketoacidosis	<b>SBMG:</b> Self-monitoring of blood glucose <b>TSH:</b> Thyroid-stimulating hormone <b>tTG:</b> Tissue transglutaminase	