CCHCS Care Guide: Diabetes

SUMMARY | **DECISION SUPPORT** | **PATIENT EDUCATION / SELF MANAGEMENT**

GOALS

- Hemoglobin A1C < 8%*
- Blood Sugar Fix the fasting first (glucose 70-130 mg/dl)
  then fix pre prandial (glucose 70-130 mg/dl)
  then fix post prandial (glucose ≤ 160 mg/dl)
- Blood Pressure < 140/80**
- LDL < 100 mg/dl or
- LDL < 70 mg/dl with overt cardiovascular disease, age > 40, ≥ 1 cardiac risk factor
- Regular exercise

ALERTS

- ♦ **BLOOD SUGAR < 60 mg/dl**
- ♦ **BLOOD SUGAR > 400 mg/dl**
- ♦ **ALTERED LEVEL OF CONSCIOUSNESS**

2011 NCQA standards A1C < 8%; 2013 ADA recommendation A1C < 7% with caveat that less stringent A1C goal may be appropriate for patients with reduced life expectancy, comorbid conditions, or more complications. In some cases more stringent control may be appropriate.
****2013 ADA recommendation. Lower systolic target (< 130) may be appropriate in certain individuals, such as younger patients, if it can be achieved without undue treatment burden.***

DIAGNOSTIC CRITERIA / EVALUATION

- Complete clinical history including: medications, fingerstick blood sugar logs, prior A1C, symptoms of hypoglycemia.
- Physical exam including funduscopic and/or referral for retinal evaluation, neurologic, cardiovascular exams (including BP and peripheral pulses), skin exam, thyroid palpation, motor and sensory exam including reflexes, foot exam, and monofilament testing if indicated.
- Baseline labs – A1C, fasting lipid panel, serum electrolytes, LFTs, creatinine, TSH, ECG, urine microalbumin (abnormal result repeated at least 2-3 times over 3-6 months to confirm diagnosis, see urine microalbumin discussion page 4).

Pre-Diabetes	Fasting (> 8 hrs) Glucose of 100 -125 mg/dl = Impaired Fasting Glucose (IFG)
Diabetes	Fasting (> 8 hrs) Glucose ≥ 126 mg/dl, or two measurements of random blood glucose ≥ 200 mg/dl, or two measurements of A1C > 6.5%
Gestational Diabetes	50 gm Oral Glucose Tolerance Test (OGTT): diagnostic if one hour glucose > 140 75 gm OGTT: diagnostic if glucose at one hour ≥ 180 mg/dl; two hour > 153 mg/dl; Fasting ≥ 92 mg/dl (See page 3)

TREATMENT OPTIONS

- **Therapeutic lifestyle changes (TLC):** Dietary education, exercise, weight loss if BMI ≥ 25 for patient-inmates with prediabetes or diabetes. Starting medications immediately is an option for all patient-inmates with diabetes.
- Oral agents: If A1C is < 10%, it is generally recommended to begin with metformin (500 mg daily or twice daily) unless contraindicated. (See table page 6) If goal is not reached with full dose of metformin, add a second oral agent if A1C < 10 mg/dl (usually the sulfonylurea glipizide (glyburide no longer recommended). Three oral agents are not usually indicated.
- **Insulin:** If A1C is ≥ 10%, consider basal insulin as first line therapy instead of, or in addition to, metformin (insulin also indicated if diabetes symptomatic or ketonuria present). After establishing control with insulin, oral agents may be added and insulin possibly withdrawn.
- **Cardiovascular Disease Prevention**
  - Aspirin (ASA) 81 mg: Consider if increased cardiovascular risk AND when the benefits of ASA use are judged to exceed the risks of ASA, especially men 45-79 years of age or women 55-79 with at least one additional major risk factor, other than DM, e.g., hyperlipidemia, hypertension, smoking, low HDL (< 40 mg/dl), family history of premature coronary heart disease.
  - Lipids: If LDL > 100 mg/dl, start low cholesterol diet. Consider simvastatin 20 mg initially or after 3-6 month diet trial if unsuccessful unless contraindicated. Increase statin dose as needed to get LDL < 100 mg/dl, goal < 70 mg/dl in higher risk patients. All diabetics with overt cardiovascular disease or over 40 years of age with one or more risk factors should receive a statin, regardless of baseline lipid levels.
- **Renal Protection**
  - ACE-inhibitor (ACEI) (lisinopril): Indicated for significant microalbuminuria (or hypertension) if no contraindications. If intolerant to ACEI, may use Angiotensin Receptor Blocker (ARB) (losartan) if no contraindications.
- **KOP Glucometer:** Consider offering glucometer per CCHCS policy, and/or insulin pump to carefully selected patient-inmates with difficult to treat diabetes requiring pre and postprandial and bedtime glucose monitoring and insulin injections.

MONITORING

► **Not at goal**: **A1C** at least every 90 days; **BP** checks between visits if BP not at goal; **lipids** check every 90-180 days.

► **At goal**: If a patient has achieved treatment goals and is clinically stable on at least two consecutive clinical encounters, the patient-inmate may be reevaluated every 180 days unless the PCP determines the patient-inmate needs more frequent monitoring.

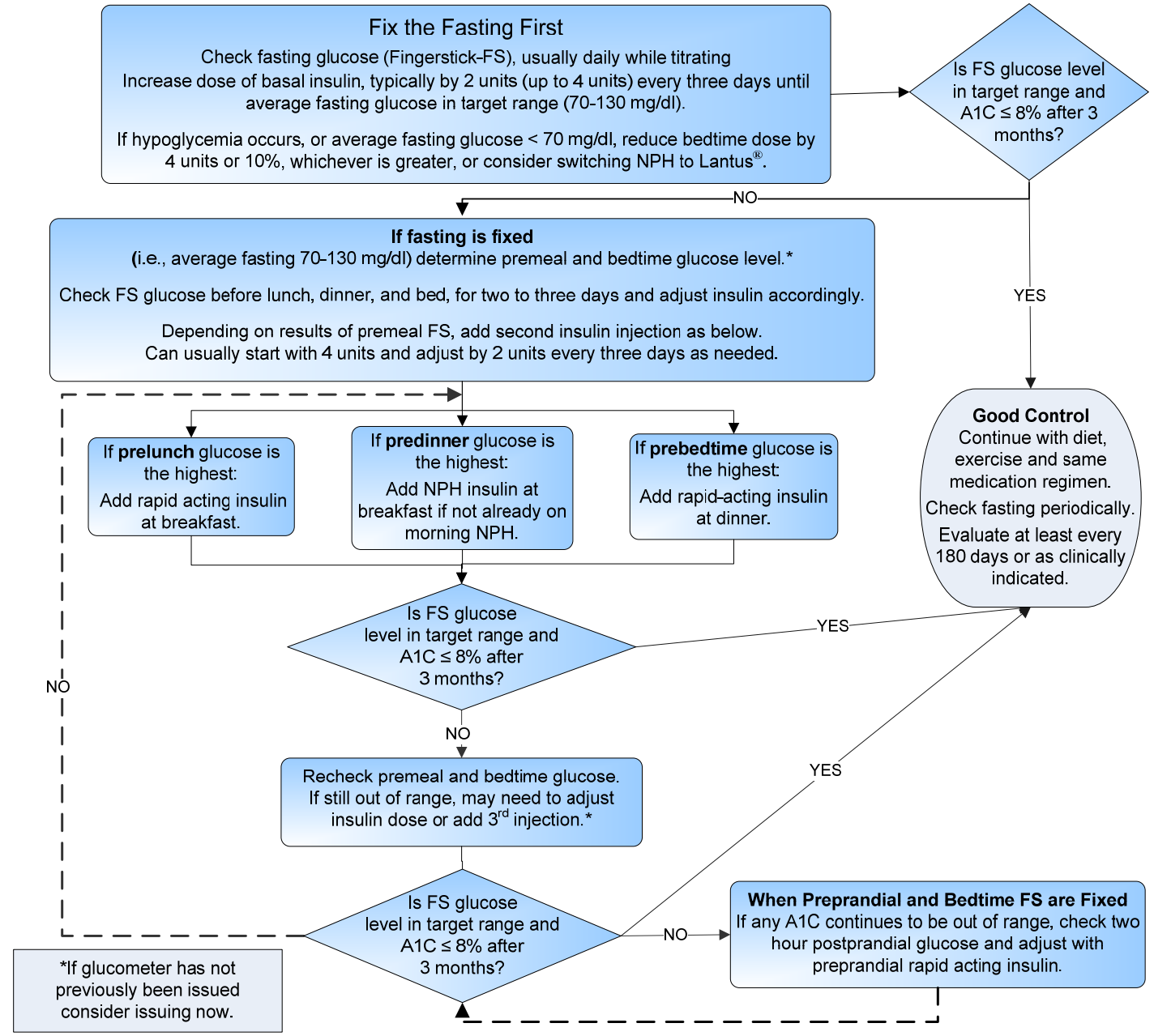
Routine monitoring (when clinically stable or at goal)			
Every visit and/or between visits	**Annually**		
• Blood pressure • Fingerstick glucose (unless glucose log available)	• A1C • Lipid panel • Urine microalbumin • Creatinine	• Complete PCP foot exam (see page 4) • Dilated retinal exam • Dental exam, at least annually • Consider ECG	• Offer influenza vaccine • Offer pneumovax if not already given • Offer hepatitis B vaccine ages 19-59 • Consider hepatitis B vaccine age >59

Standards of Medical Care in Diabetes- 2013 American Diabetic Association

INSULIN DOSING *Initiation and adjustment of insulin regimens*

Initiation of Insulin Treatment: start 10 units or 0.1 - 0.2 units/kg

May use long acting insulin (glargine-Lantus®) once a day, every morning or at bedtime (morning preferred if concern for hypoglycemia). Intermediate-acting insulin (NPH) once or twice daily may be used (PM preferred).



Fingerstick Glucose Monitoring (FS)

- This can be very burdensome to both the patient and nursing staff.
- Daily testing is generally needed while titrating insulin dose.
- Once patient stable on basal insulin FS may be done less frequently.
- If patient has fasting or premeal FS glucose ordered and eats before testing the result has little value so defer the test.
- If, because of meal schedule, there is difficulty obtaining fasting or premeal reading strongly consider issuing patient glucometer for KOP use.

Correlation between A 1C and mean plasma glucose on multiple testing

A1C	mg/dl
6	126
7	154
8	183
9	212
10	240
11	269
12	298

HYPOGLYCEMIA IN THE CORRECTIONAL SETTING

Hypoglycemia (blood glucose level < 70 mg/dl)

Identification:

- Severe hypoglycemia is a medical emergency and is defined as hypoglycemia requiring assistance of a third party.
- Severe hypoglycemia is often associated with mental status changes that may include confusion, incoherence, combativeness, somnolence, lethargy, seizures, or coma. These symptoms can be confused with intoxication or drug/alcohol withdrawal.
- Diabetics exhibiting signs and symptoms of hypoglycemia, particularly altered mental status, agitation, and diaphoresis, should have fingerstick (FS) level checked immediately.
- Every attempt should be made to document FS before treatment.

Treatment:

- Patients who are prone to hypoglycemia should have access to glucose tablets, glucose gel, or a diabetic snack.
    - ◊ Hypoglycemia can generally be treated by the patient with oral carbohydrates.
    - ◊ If the patient cannot be relied upon to keep hypoglycemia treatment on his/her person, staff members should have ready access to glucose tablets or equivalent.
    - ◊ In general, 15 - 20 gm oral glucose is adequate to treat hypoglycemic events. (Glucose is preferred but any form of carbohydrate that contains glucose can be used, added fat will retard, then prolong, the acute glycemic response).
    - ◊ FS measurements and treatment should be repeated at 15 minute intervals until blood glucose levels return to normal (> 70 mg/dl). Patient should then consume a snack or meal to prevent recurrence of hypoglycemia.
- Severe hypoglycemia, where the individual requires the assistance of another person, and cannot be treated with oral carbohydrate due to confusion or unconsciousness, should be treated using glucagon.
    - ◊ Staff should have glucagon for intramuscular injection or glucose for intravenous infusion available to treat severe hypoglycemia, without requiring transport of the hypoglycemic patient to an outside facility.
- Any episode of severe hypoglycemia or recurrent episodes of mild to moderate hypoglycemia require reevaluation of the diabetes management plan by the medical staff.
- In certain cases of unexplained or recurrent severe hypoglycemia, or for patients on long-acting oral hypoglycemic agents or insulin who have poor oral intake, admission to a medical unit for observation and stabilization may be indicated.

DETECTION AND DIAGNOSIS OF GESTATIONAL DIABETES MELLITUS (GDM)

- Screen for undiagnosed type 2 diabetes at the first prenatal visit in those with risk factors, using standard diagnostic criteria.
- In pregnant women not known to have diabetes, screen for GDM at 24 - 28 weeks of gestation. The diagnosis of GDM is made when any of the following plasma glucose values are exceeded:
    - ◊ Fasting glucose ≥ 92 mg/dl (5.1 mmol/l)
    - ◊ a 50 gm Oral Glucose Tolerance Test (OGTT): One hour glucose > 140 mg/dl
    - ◊ a 75 gm two hour OGTT:
        - One hour ≥ 180 mg/dl (10.0 mmol/l)
        - Two hour ≥ 153 mg/dl (8.5 mmol/l)
- Postpartum: screen women with GDM for persistent diabetes 6 - 12 weeks after delivery.
- Women with a history of GDM should have lifelong screening for the development of diabetes or prediabetes at least every three years.
- Target maternal FS concentrations in GDM**:**
    - ◊ Preprandial ≤ 95 mg/dl (5.3 mmol/l), and either
    - ◊ One hour post meal ≤ 140 mg/dl (7.8 mmol/l) or two hour post meal ≤ 120 mg/dl (6.7 mmol/l).
- Patients with gestational diabetes are considered higher risk and should be referred for specialty management.

PREGNANCY AND DIABETES

According to the American Diabetes Association, pregnancy in a woman with diabetes is by definition a high-risk pregnancy. Glycemic standards are more stringent and the details of dietary management are more complex. Insulin is the only antidiabetic agent approved for use in pregnancy and a number of medications used in the management of diabetes comorbidities (e.g. ACE inhibitors) are teratogenic and must be discontinued in pregnancy.
This Care Guide does not address the specific needs of pregnant patients with diabetes.
In general these patients should be followed as high risk pregnancies with appropriate obstetrical and medical management.

URINE MICROALBUMIN

Annual measurement of urine albumin excretion is recommended for all type 2 diabetics starting at diagnosis. (For type 1 diabetes, testing recommended annually starting five years after diagnosis.) Increased urinary protein excretion may be an early finding of diabetic nephropathy. Normal urinary albumin excretion is < 30 mg/day, albumin excretion above 30 and below 300 mg/day is considered microalbuminuria, urinary albumin above 300 mg/day is macroalbuminuria. The diagnosis of microalbuminuria requires a persistent elevation of albumin excretion (30-300 mg/day) that persists over a three to six month period.

The recommended screening test for microalbuminuria in all diabetics is a measurement of the **urine albumin-to-creatinine ratio (ACR)** in an untimed urine sample. (Measurement of spot urine for albumin only is not recommended.) A value of 30-300 mg albumin/g of creatinine suggests microalbuminuria. This test correlates with 24 hour urine values over a wide range of protein excretion, it is simple and inexpensive, and repeat values are easy to obtain. Repeat testing for confirmation is important because fever, exercise, heart failure, and poor glycemic control may cause transient microalbuminuria. Avoidance of vigorous exercise for 24 hours before the test is recommended. Albumin excretion will be underestimated in a muscular man with a high rate of creatinine excretion and overestimated in a cachectic patient with reduced muscle mass and creatinine excretion.

DIABETIC FOOT EXAM

SUGGESTED FOOT EXAM ELEMENTS

History	Record history of prior foot ulceration or amputation, neuropathic symptoms, vascular symptoms (e.g., claudication), vision impairment, tobacco use, usual foot care practices.
Inspection	Document skin lesions or changes, nail exam, deformities, edema.
Vascular Exam	Record dorsalis pedis and posterior tibial pulses. [Absent pulses may suggest peripheral arterial disease (PAD), especially with dependent rubor and capillary filling time of > 3 seconds.] Consider Ankle Brachial Index (ABI) measurement in patients with signs and/or symptoms of PAD. (See Wound and Skin Ulcer Management Care Guide, page 16.)
Neurologic Sensory Exam	Loss of protective sensation (LOPS) is suggested with one or more abnormal results on: ♦ The 10 g monofilament test, (see page 5) ♦ AND at least one of the other tests listed below. • Vibration using 128 Hz tuning fork tested at tip of great toe bilaterally. • Pinprick sensation, using a disposable pin applied just proximal to the toenail on the dorsal surface of hallux using just enough pressure to deform skin. Inability to perceive pinprick over either hallux is an abnormal test result. • Ankle reflexes.

HIGH RISK FEET

♦ Risk for ulcers or amputations are increased in the following diabetic patients with any of the following:
- Previous amputation.
- Past foot ulcer.
- Peripheral neuropathy (LOPS).
- Foot deformity.
- Peripheral vascular disease.

♦ Diabetic foot care education recommended at least annually for all patient-inmates with high risk feet.

♦ Consider specialist referral for diabetic patient-inmates with high risk feet. See InterQual® criteria for details.

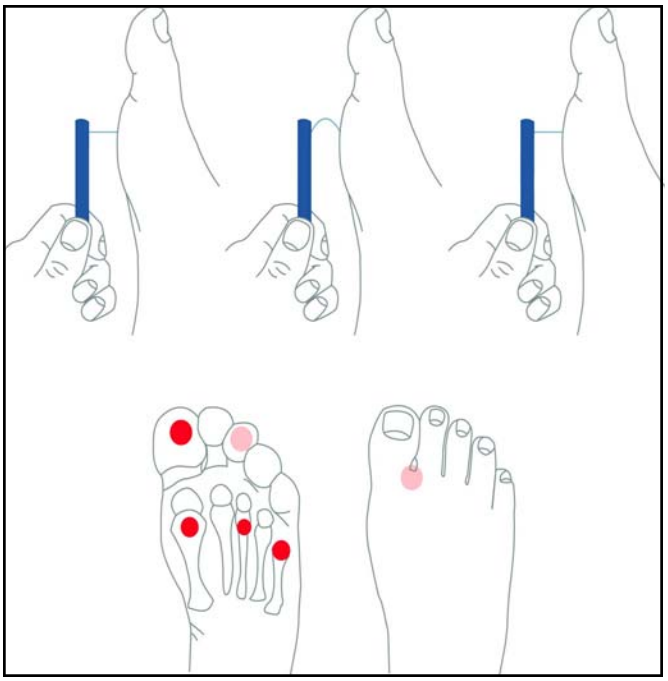
INDICATIONS FOR DIABETIC FOOTWEAR

Indications for referral of diabetic patient-inmates for medical footwear and/or orthotics include:

- Foot deformity.
- History of pre-ulcerative calluses.
- History of previous ulceration.
- Documented peripheral neuropathy (LOPS) with evidence of callus formation.
- Poor circulation (PAD).
- Previous amputation of the foot or part of the foot.

MONOFILAMENT TESTING (SINGLE USE DISPOSABLE MONOFILAMENTS ARE RECOMMENDED)

1. Place patient-inmate in supine or sitting position with shoes and socks removed.
2. Touch the monofilament wire to patient-inmate's skin on his/her arm or hand to demonstrate what the touch feels like.
3. Instruct patient-inmate to respond "yes" each time he/she feel the pressure of the monofilament on his/her foot during the exam.
4. Instruct patient-inmate to close his/her eyes with toes pointing straight up during the exam.
5. Hold the monofilament perpendicular to the patient-inmate's foot. (See top panel of diagram)
6. Press it against the foot, increasing the pressure until the monofilament bends into a C-shape. Do not apply over ulcer, callus, scar, or necrotic tissue. Do not slide monofilament over the skin.
7. Inform the patient-inmate you will test each location twice, one touch will be real and one will not. Press the filament to the skin such that it buckles (and hold in place for about one second) at one of two times you test each site as you say "time one" or "time two." Have patient-inmates identify at which time they were touched.
8. It is recommended to test at least four sites on each foot (See lower panel of diagram: 1st, 3rd, and 5th metatarsal heads and plantar surface of distal hallux, other spots are optional).
9. Randomize the sequence of applying the filament or not throughout the examination.
10. Record response with "+" for yes if it was felt and "-" for no. The patient-inmate should recognize the perception of pressure and identify the correct site.
11. When the monofilament is not felt, protective sensation is absent, placing the person at high risk for development of a neuropathic ulcer.



ORAL HYPOGLYCEMIC MEDICATIONS:

NOTE: Insulin is generally recommended after failure to respond to trial of metformin with or without sulfonylurea. Consider consultation if a trial of a third oral agent is contemplated.

MEDICATION CLASS	MEDICATION	DOSE	SIDE EFFECTS / CONTRAINDICATIONS	COMMENTS
SULFONYLUREAS $	**glipizide (Glucotrol®) 5 mg, 10 mg**	Usual dose: 5 – 10 mg once or twice daily. Maximum once daily dose is 15 mg, divide higher doses and give twice daily. Maximum daily dose (divided) 20 - 40 mg/ day.	Hypoglycemia, weight gain.	Usual A1C reduction 1 - 2%. Due to hypoglycemic risk, glyburide is no longer recommended. Titrate dose in 2.5 - 5 mg increments no more than every few days. Best given before a meal, preferably breakfast (if once daily dosing). Possible cross reaction in those allergic to sulfonamides. Pregnancy: Category C risk cannot be ruled out. Lactation: Unknown effect, not recommended.
BIGUANIDES $	**metformin (Glucophage®) 500 mg, 850 mg, 1000 mg tabs** (Metformin ER 500/750)	Initial dose 500 mg twice daily or 850 mg once daily, increase dose by 500 mg weekly or to 850 mg twice daily every other week, usual minimum required dose 1500 mg/day. Doses up to 2000 mg/day be given twice daily, higher doses better three times daily. Maximum recommended dose: 2550 mg/day.	GI: Nausea, diarrhea, cramping, flatulence (GI side effects reduced with slow dose increase). Do not use with renal insufficiency (Cr > 1.4 mg/dl in women or ≥ 1.5 mg/dl in men); Avoid age > 80. May cause Vitamin B12 deficiency with anemia and neuropathy which may be confused with diabetic neuropathy. Black box warning: Rare but potentially severe lactic acidosis. Risk increases with degree of renal impairment. Discontinue during acute illness where dehydration may occur or during hunger strikes. Modest weight loss may occur.	Usual A1C reduction 1 - 2%. Temporarily discontinue metformin prior to or at time of IV iodinated contrast administration and withhold for 48 hours thereafter. Restart upon confirmation of normal renal function. Suspend therapy for surgical procedures and resume with confirmation of normal renal function. Risk of lactic acidosis increased in those with CHF or impaired liver function. Pregnancy: Category B: no evidence of risk but no controlled studies in pregnant women. Lactation: Enters breast milk, not recommended.
THIAZOLIDINE-DIONES TZD $$$$	pioglitazone (Actos®) Tablets: 15 mg, 30 mg, 45 mg	Usual dose (mono or combination therapy): 15 - 30 mg once daily. Maximum recommended dose: 45 mg once daily.	Black box warning: may cause or exacerbate heart failure. Closely monitor for signs and symptoms of heart failure, especially after initiation or dose increase. If heart failure occurs treat accordingly and consider reduction or discontinuation of pioglitazone. Not recommended in patients with symptomatic CHF. Contraindicated in New York Heart Association (NYHA) class III or IV CHF. Weight gain, edema, CHF, possible hepatic injury; possible increased risk bladder cancer. Monitor LFTs, avoid if ALT > 2.5 times normal before starting therapy, discontinue if ALT > 3 times normal during therapy.	0.5 - 1.4% usual A1C reduction. Use not well supported- often better to initiate insulin after metformin and sulfonylurea. Association between rosiglitazone and cardiovascular events. Pregnancy: Category C risk cannot be ruled out. Lactation: avoid use.
ALPHA GLUCOSIDASE INHIBITORS $$	acarbose (Precose®) miglitol (Glyset®) Tablets: 25 mg, 50mg, 100 mg	Initial: 25 mg three times daily with first bite of each main meal. Maintenance: 50 - 100 mg three times daily. Maximum dose: ≤ 60 kg: 50 mg three times daily, > 60 kg: 100 mg three times daily	Flatulence, abdominal pain, diarrhea. All tend to abate with time. May cause significant transaminase elevations. Contraindicated in cirrhosis, irritable bowel syndrome.	0.5 - 0.8% usual A1C reduction. Avoid when Clcr < 25 ml/min. Pregnancy: Category B: no evidence of risk but no controlled studies in pregnant women. Lactation: Unknown effect, not recommended.
INCRETIN ENHANCERS $	saxagliptin (Onglyza®) Tablets: 2.5mg, 5 mg sitagliptin (Januvia®) Tablets: 25 mg, 50mg, 100 mg	Saxagliptin: 2.5 - 5 mg once daily. Sitagliptin: 100 mg once daily. Administer with or without food. Swallow whole, do not crush, chew, or split.	Nausea and vomiting, rare severe hypersensitivity reactions including exfoliative dermatitis, especially within first three months of therapy. Cases of acute pancreatitis observed.	0.5 - 0.8% usual A1C reduction. Adjust dosage in patients with renal impairment. Pregnancy: Category B: no evidence of risk but no controlled studies in pregnant women. Lactation: Unknown effect, use caution.

The cost scale $-$$$$ represents the relative cost of acquisition of medication only. Frequency and complexity of medication administration (institution workload, effect on adherence) should be considered when determining overall cost-effectiveness of treatment.

TITRATION OF METFORMIN

1. Begin with low dose metformin (500 mg) once or twice per day with meals (breakfast and/or dinner) or 850 mg once per day.
2. After five to seven days, if gastrointestinal side effects have not occurred, advance dose to 850 mg twice daily or two 500 mg tablets twice per day (medication to be taken before breakfast and/or dinner).
3. If gastrointestinal side effects appear as dose is advanced, decrease to previous lower dose and try to advance the dose at a later time.
4. The maximum effective dose can be up to 1,000 mg twice per day but is often 850 mg twice per day.
5. Modestly greater effectiveness has been observed with doses up to about 2,500 mg/day. Gastrointestinal side effects may limit the dose that can be used.

ORAL HYPOGLYCEMIC MEDICATION RECOMMENDATIONS WHEN STARTING INSULIN

► **CONTINUE** metformin (biguanide) which helps prevent weight gain in patients on insulin or insulin secretagogues (sulfonylureas).
► **CONTINUE** glipizide (sulfonylurea) when using basal insulin only.
► **STOP** sulfonylureas when using basal and prandial insulin together.
► **STOP** pioglitazone (TZD) due to possible increase MI risk and increase risk of edema from TZD when on insulin.

SWITCHING FROM NPH TO GLARGINE INSULIN

- On NPH once daily – may switch unit-for-unit (1:1).
- On NPH twice daily – glargine dose should be 80% of total NPH dose.

INJECTABLE HYPOGLCEMIC MEDICATIONS- NONINSULINS

MEDICATION CLASS	MEDICATION	DOSE	SIDE EFFECTS / CONTRAINDICATIONS	COMMENTS
INCRETIN MIMETICS $$$$$	exenatide (Byetta®) Injectable 250 mcg/ml (Bydureon®) 2 mg	SQ: IR 5 mcg twice daily within 60 minutes prior to a meal, may increase to 10 mcg twice daily after one month (based on response). SQ: 2 mg once weekly	GI: Nausea and vomiting, diarrhea, dizziness observed. Black box warning: Dose and duration dependent thyroid C cell tumors have developed in animal studies. Human relevance unknown.	Not recommended in patients with severe renal disease, (creatinine clearance < 30 ml per minute) 0.5 - 1% usual A1C reduction. Pregnancy category C: risk cannot be ruled out. Lactation: Unknown effect, use caution.
AMYLIN ANALOGUES $$	pramlintide (Symlin®) Injection: 1000 mcg/ml	Initial: 15 mcg SQ immediately before meals. Titrate in 15 mcg increments every three days to target dose of 30-60 mcg.	Nausea and vomiting, anorexia, headache. Gastroparesis, lack of awareness of hypoglycemia, A1C > 9%. Black box warning: Coadministration with insulin may induce severe hypoglycemia, usually within three hours. Causes weight loss.	Titrate dose up if no significant nausea occurs. If intolerant of 30 mcg dose consider discontinuation. Do not mix with other insulins. Avoid use in poorly adherent patients. Do not use if A1C > 9%. Pregnancy Category C: risk cannot be ruled out. Lactation: Unknown effect, use caution.

INJECTABLE HYPOGLYCEMIC MEDICATIONS- INSULINS

INSULIN CLASS *Please see treatment algorithm on page 2*	SPECIFIC INSULIN	ONSET	PEAK	DURATION	COST*
Insulin- Rapid Acting	Regular-Humulin-R®	30-60 minutes	2 to 4 hours	8 to 10 hours	$
Every effort should be made to administer rapid acting insulin before meals. However, in rare circumstances when patient-inmate movement may be disrupted and risk of hypoglycemia is high, rapid acting insulin may be administered shortly after meals.					
Insulin- Intermediate Acting	NPH- Humulin-N®	1 to 2 hours	4 to 8 hours	10 to 20 hours	$
Insulin- Mixed	Humulin 70/30®	30 minutes	Dual peak	Up to 24 hours	$
Insulin- Long acting	glargine/Lantus®	1 to 2 hours	Relatively flat	20 to 24 hours	$$

*The cost scale $-$$$ represents the relative cost of acquisition of medication only. Frequency and complexity of medication administration (institution workload, effect on adherence) should be considered when determining overall cost-effectiveness of treatment.

ROLE OF SLIDING SCALE

- Sliding scale insulin dosing has limited indications outside of a hospital setting.
- May use temporarily for insulin dose adjustments.
- Temporary use when patient-inmate is ill or NPO for any reason.

PATIENT EDUCATION/SELF MANAGEMENT

DIABETES: WHAT YOU SHOULD KNOW

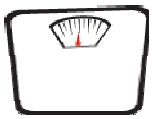
A1C test (pronounced A-one-C) shows your average blood glucose level over the last three months. You and your health care team should talk about the A1C goal that is right for you. For most people with diabetes, the A1C goal is less than 8%.

Fingerstick blood sugar will be checked by you or the nurse, especially when you are taking insulin. The goal for fingerstick blood sugar is less than 130 mg/dl before eating.

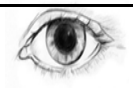
Blood pressure in people with diabetes should be less than 140/80. This helps keep your kidneys healthy and prevents heart attacks and strokes.

LDL Cholesterol is the "Bad" cholesterol.
The LDL goal is less than 100. This helps prevent heart attacks and strokes in people with diabetes.

Too much protein in the urine is a sign of kidney damage from diabetes. Your health care provider may give you medicine to help prevent more kidney damage.

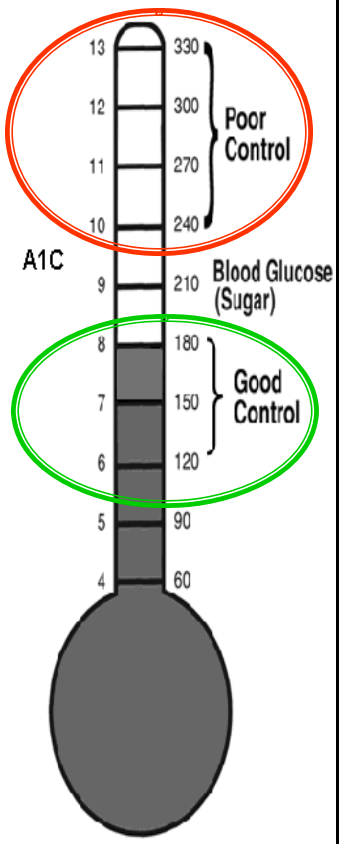


Control your weight. The Body Mass Index (BMI) helps you know what a good weight is for you depending on how tall you are. A good BMI helps control diabetes and prevents complications. An ideal BMI is under 25. The best way to maintain a good weight is to eat a healthy diet and exercise more.



Eyes should be checked at least once a year. Diabetes can cause damage to the back part of your eye. This can cause blindness if it is not caught early.

Feet should be checked by your health care provider at least once a year. You should check your feet every day and tell your health care team if you have cuts that do not heal, blisters, sores, swelling, redness, or sore toenails.



WHAT CAUSES DIABETES?

TYPE 1 DIABETES

Cells in the pancreas can be damaged which leads to:

- Less insulin being made.
  OR
- No insulin being made.

TYPE 2 DIABETES

Insulin is not used well by the body, so sugar in the blood is not absorbed.

Insulin may not be secreted by the pancreas.

HYPOGLYCEMIA

LOW BLOOD SUGAR (LESS THAN 70)

YOU CAN FEEL: Shaky, nauseated, drowsy, hungry, and have a headache. This can also happen at night when you are asleep.

CAUSES: Too little food, extra exercise, or too much diabetes medicine or insulin.

If this happens: Eat or drink something that has sugar in it. Tell the nurse if you don't feel better in 15 minutes.

HYPERGLYCEMIA

HIGH BLOOD SUGAR (MORE THAN 200)

YOU CAN: Feel thirsty, urinate often, have blurred vision.

CAUSES: Too much food, illness, stress, too little insulin or diabetes medicine.

If this happens: You may need more medication or less food. You should tell your health care team if you think you have high blood sugar.

HOW CAN I HELP CONTROL MY DIABETES?

- Do not smoke.
- Take your medications as directed.
- Control your weight:
  - Be active at least 30 minutes on most days. You can walk, jog, or do exercises in your cell, even during lockdowns.
  - Eat a healthy diet: limit breads and pastas, canteen-junk foods, candy and ice cream.
- Check your blood sugar with a meter as directed by your health care team.