BHICCI

Diabetes Mellitus II CPG

Candidates for Screening

Integrated Complex Care Patients: Check Yearly

Prediabetes: Check Yearly

No Diabetes Mellitus (DM) Risk Factors: Check at Age 45, Repeat Every 3 Years

Patients with BMI ≥ 25 and Additional Risk Factors: Check Every 3 Years

Additional Risk Factors:

- Physical inactivity
- First-degree relative with DM
- High-risk ethnicity (e.g. African American, Latino, Native American, Asian American, Pacific Islander)
- HDL < 35 mg/dL or TG > 250 mg/dL
- Hypertension
- History of Gestational Diabetes
- History of Cardiovascular Disease (CVD)
- Conditions associated with insulin resistance: acanthosis nigricans, polycycstic ovary syndrome

Diagnosis: Four Options

Fasting Plasma Glucose ≥ 126 mg/dL	• Fasting defined as no caloric intake ≥ 8 hours
Random Plasma Glucose ≥ 200 mg/dL	• In individuals with symptoms of hyperglycemia
2 Hour OGTT (75g) Plasma Glucose ≥ 200 mg/dL	• Requires a fasting glucose test, consuming a 75 gram glucose drink, then repeating the glucose test in 2 hours.
HgA1c ≥ 6.5%	• Point of Care/rapid HgA1c testing can be used to monitor diabetes but not to make initial diagnosis

Prediabetes defined as:

- Fasting Plasma Glucose 100-125 mg/dL
- 2 Hour OGTT (75g) Plasma Glucose 140-199 mg/dL
- HgA1c 5.7-6.4%

Initial Labs

- Comprehensive Metabolic Panel
- Lipid Panel
- Random Urine Microalbumin to Creatinine Ratio

Glycemic Targets in Patients with DM

HgA1c < 7%

- Goal for most patients. More or less stringent targets may be appropriate for individual patients if achieved without significant hypoglycemia or adverse events

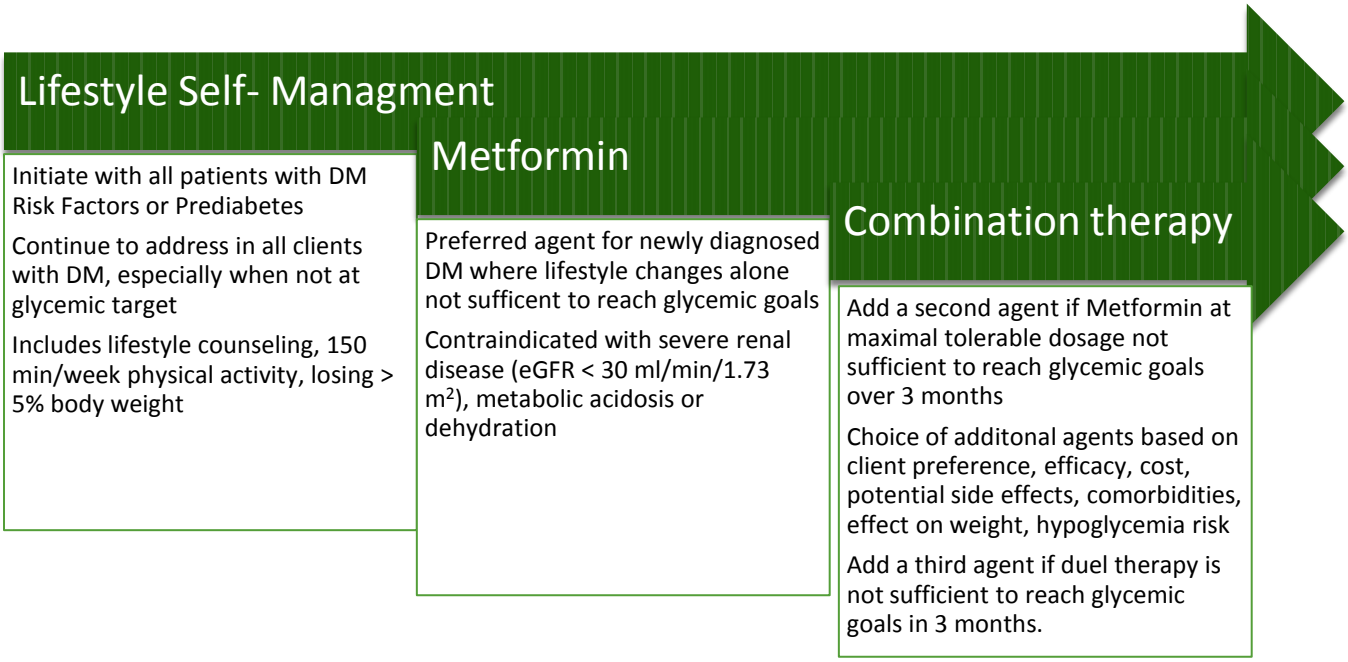
HgA1c < 6.5%

- Short DM duration
- Long life expectancy
- DM II treated with lifestyle or metformin only
- No significant CVD/vascular complications

HgA1c < 8%

- Severe hypoglycemia history
- Limited life expectancy
- Advanced microvascular or macrovascular complications
- Extensive comorbidities

Management of DM



Each new class of noninsulin agents added to initial therapy lowers HgA1c around 0.9-1.1%.

If initial HgA1c ≥ 9%, consider starting with dual therapy of metformin + a 2nd oral agent, GLP-1 RA or basal insulin. Adding basal insulin preferred if patient is having symptoms of hyperglycemia or if there are catabolic features (e.g. weight loss, ketosis)

If initial HgA1c ≥ 10% and or fasting blood glucose ≥ 300 mg/dL, consider starting with combination of metformin + basal insulin + mealtime Insulin or GLP-1-RA

In patients with long-standing suboptimally controlled type 2 diabetes and established atherosclerotic cardiovascular disease, empagliflozin or liraglutide should be considered as they have been shown to reduce cardiovascular and all-cause mortality when added to standard care. Ongoing studies are investigating the cardiovascular benefits of other agent sin these drug classes.

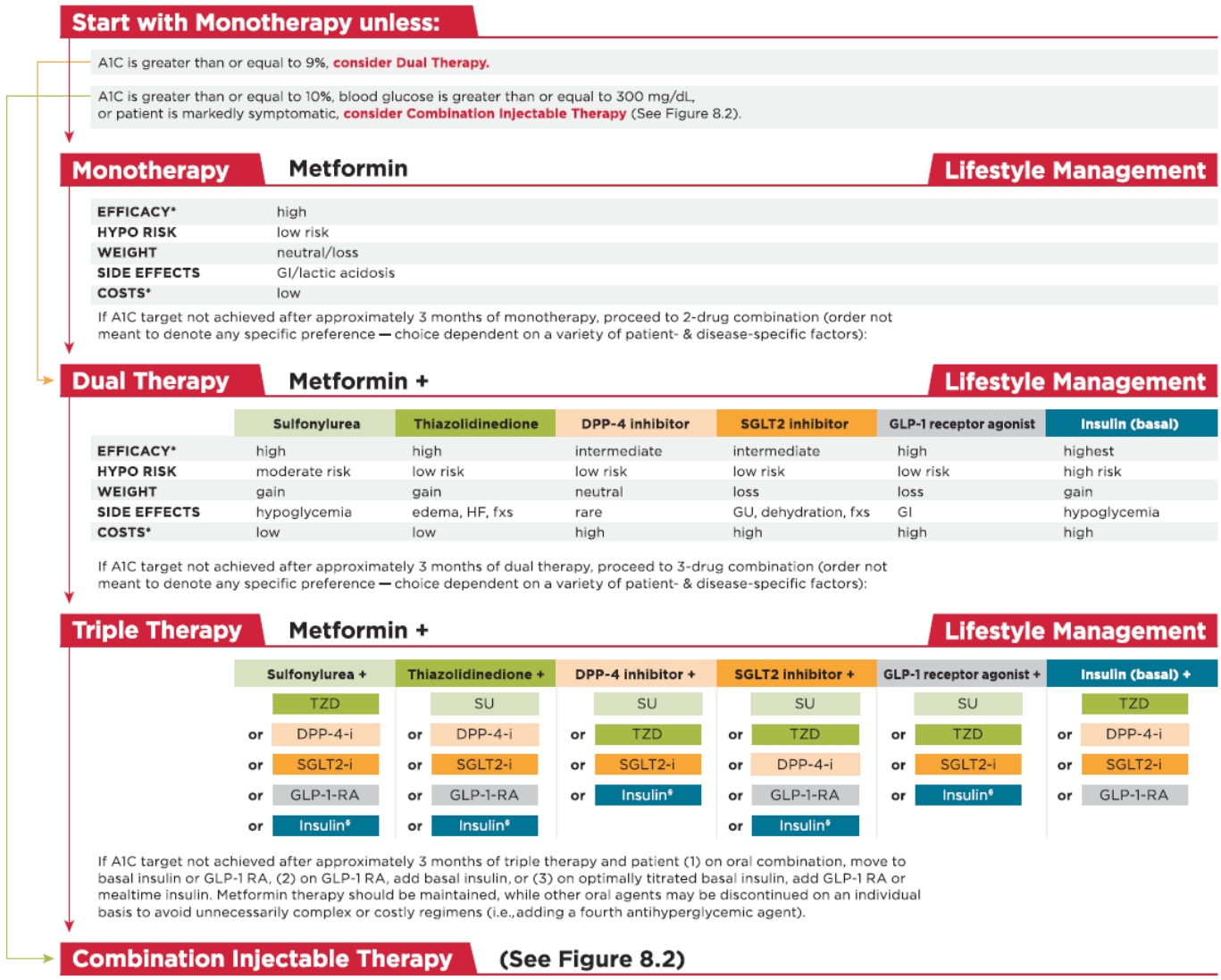


Figure 8.1—Antihyperglycemic therapy in type 2 diabetes: general recommendations. The order in the chart was determined by historical availability and the route of administration, with injectables to the right; it is not meant to denote any specific preference. Potential sequences of antihyperglycemic therapy for patients with type 2 diabetes are displayed, with the usual transition moving vertically from top to bottom (although horizontal movement within therapy stages is also possible, depending on the circumstances). DPP-4-i, DPP-4 inhibitor; fxs, fractures; GI, gastrointestinal; GLP-1 RA, GLP-1 receptor agonist; GU, genitourinary; HF, heart failure; Hypo, hypoglycemia; SGLT2-i, SGLT2 inhibitor; SU, sulfonylurea; TZD, thiazolidinedione. *See ref. 21 for description of efficacy and cost categorization. §Usually a basal insulin (NPH, glargine, detemir, degludec). Adapted with permission from Inzucchi et al. (21).

Diabetes Care 2017

Pharmacologic Options Avaiable on IEHP Formulary

Biguanide	
Mechanism	Decreases hepatic glucose production, increases peripheral glucose sensitivity
Covered options	Metformin (Glucophage)

Cautions	Contraindicated with eGFR < 30, metabolic acidosis or dehydration
Sulfonylurea (SU)	
Mechanism	Increases endogenous insulin secretion, effect not durable as diease progresses
Covered options	Glimepiride Glipizide Glipizide ER
Cautions	Hypoglycemia, weight gain. Glipizide and glimepiride preferred with renal disease
Thiazolidinedione (TZD)	
Mechanism	Insulin sensitizer
Covered options	Pioglitazone (Actos)
Cautions	Avoid with liver disease, congestive heart failure or history of bladder cancer
Dipeptidyl Peptidase 4 Inhibitor (DPP-4 Inhibitor)	
Mechanism	Enhances incretin activity which increases glucose dependent increase in insulin secretion
Covered options	Alogliptin (Nesina) ± Linagliptin (Tradjenta)¥ Sitagliptin (Januvia) ± Saxagliptin (Onglyza)¥ Jentadueto (linagliptin, metformin)¥ Janumet (sitagliptin, metformin) and Janumet XR (sitagliptin, metformin XR) ±
Cautions	Caution with eGFR < 50, avoid in patients at risk for pancreatitis
Soidium-Glucose Cotransportor 2 Inhibitor (SGLT-2)	
Mechanism	Inhibits SGLT-2 in kidney, results in glycosuria
Covered options	Canagliflozin (Invokana) ± Dapagliflozin (Farxiga)¥ Empagliflozin (Jardiance)¥ Invokamet (canagliflozain, metformin) ±
Cautions	Genitourinary infections, dehydration, risk of diabetic ketoacidosis
Glucogon-like Peptide-1 Receptor Agonist (GLP-1-RA)	

Mechanism	Enhances incretin activity which increases glucose dependent increase in insulin secretion, slows gastric emptying and increases satiety.
Covered options	Albiglutide (Tanzeum)¥ Exenatide (Byetta)¥ Liraglutaide (Victoza)¥ Dulaglutide (Trulicity)¥
Cautions	Caution witn eGFR < 50. Nausea, vomiting, diarrhea in the first month. Avoid in patients with history of pancreatitis or family history of medulary thyroid cancer or Multiple Endocrine Neoplasia (MEN).
Insulin	
Mechanism	Corrects insulin deficiency, increases peripheral glucose uptake and decreases hepatic glucose output
Covered options	**Short-acting Insulin (Regular)** • Insulin Regular (Humulin R) U-100 vial, U-500 vial • Insulin Regular (Novolin R) U-100 vial **Rapid-acting Insulin** • Glulisine (Apidra) U-100 vial, prefilled syringe** and pen* • Lispro (Humalog) U-100 vial, cartridge* and pen* • Aspart (Novolog) U-100 vial, penfill*, and pen* **Intermediate-acting Insulin** (NPH) • Isophane Insulin (Humulin N) U-100 vial and pen* • Isophane Insulin (Novolon N) U-100 vial **Long-acting Insulin Treatments** • Glargine Insulin (Lantus) U-100 vial and pen **Combo Insulin (Mix)** • Lispro protamine + Lispro (Humalog Mix 50-50) 100-U vial and pen * • Lispro protamine + Lispro (Humalog Mix 75-25) 100-U vial and pen* • Aspart protamine + Aspart (Novolog Mix 70-30) 100-U vial and pen* • Isophane Insulin + Regular Insulin (Humulin Mix 70/30) 100-U vial and pen* • Isophane Insulin + Regular Insulin (Novolin Mix 70/30) 100-U vial
Cautions	Hypoglycemia, especially the shorter and rapid acting formulations. Weight gain.

± available with step therapy; ¥ available with PA, click "Medi-Cal PA Drug Criteria Summary Table" on the following IEHP webpage for specific requirements: https://ww3.iehp.org/en/providers/pharmaceutical-services/clinical-information/pa-drug-treatment-criteria/

* only available on MCAL formulary	** only available on MCR formulary

Preventing Complications of DM	
Hyperlipidemia	• See separate Clinical Practice Guideline
Hypertension	• See separate Clinical Practice Guideline
Aspirin 76-162 mg/day	• Consider aspirin therapy (75-162mg/day) as a primary prevention strategy in those with type 1 or type 2 diabetes who are at increased cardiovascular risk. This includes most men and women with diabetes aged ≥50 years who have at least one additional major risk factor (family history of premature atherosclerotic cardiovascular disease, hypertension, dyslipidemia, smoking or albuminuria) and are not at increased risk of bleeding.
Nephropathy Screening	• Annual random urine Microalbumin to Creatinine ratio and eGFR
Retinopathy Screening	• Biannual retinal scanning
Neuropathy Screening	• Annual foot exam including 10-g monofilament + pinprick, temperature or vibration sensation testing

American Diabetes Association. Standards of medical care in diabetes—2017. Diabetes Care. 2017;40(suppl 1): S1-S132.