Medications/Pathways for Type 2 Diabetes

GLP-1 RAgonists w **CV benefit** includes Liraglutide, semaglutide, and dulaglutide

SGLT2-i all reduce HF admits

With A1c still up, need both

Add low dose TZD as well but if HF avoid

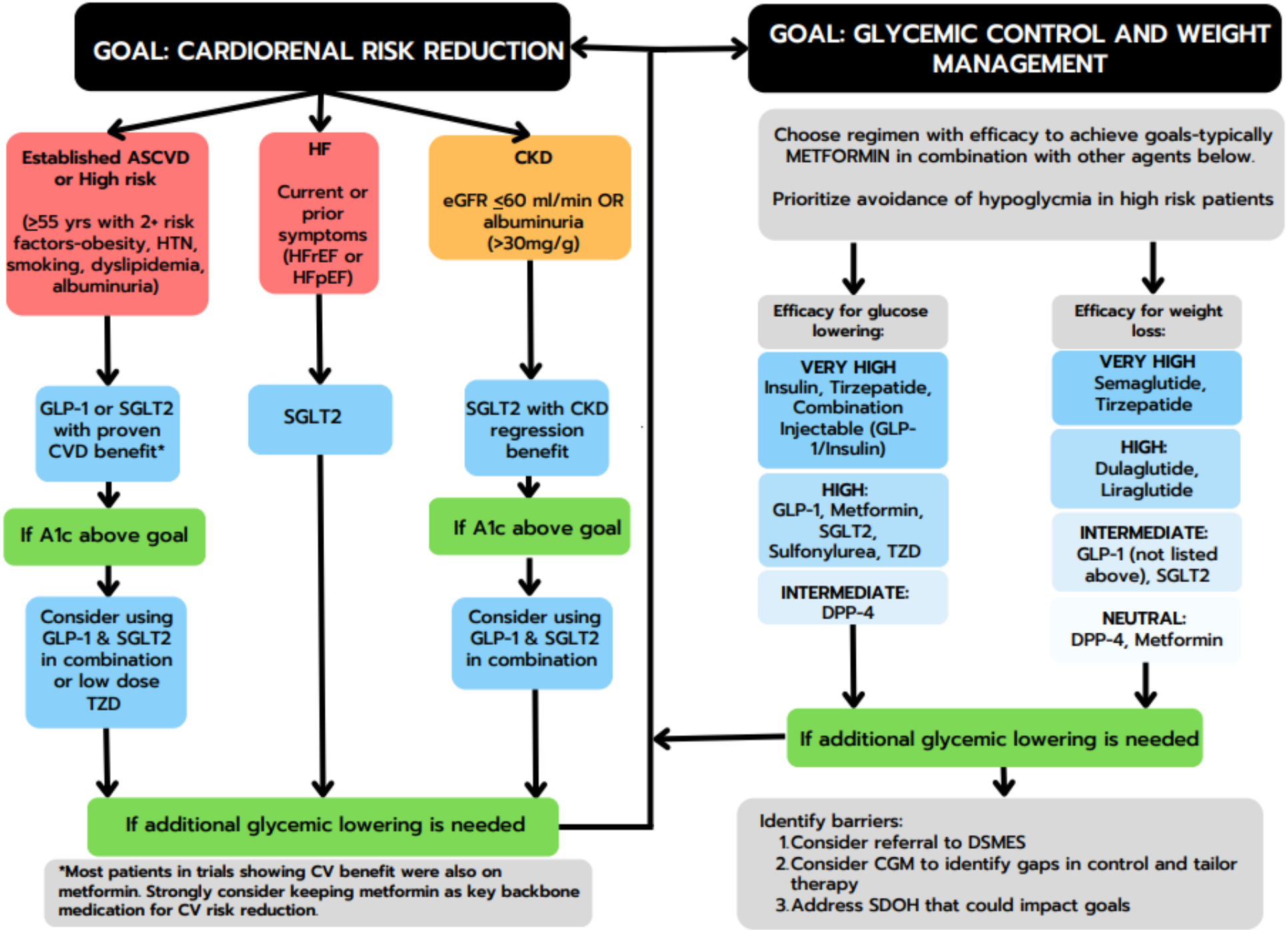
With HF: SGLT2-inhibitors

Renal Concerns

SGLT2i first choice; (Canagliflozin, Dapa-, Empa-) eGFR <60ml/min or albuminuria (>30mg.g), reduce dose of SGLT2i

Consider combination GLP-1 RAg and SGLT2-inhib if A1c elevated

Don't forget Metformin as baseline medication (**use generic XR formulation - specify**)



Metformin & TZDs

Product	Dosing	eFGR Dose Adjustment
Metformin	500mg once or twice daily, titrate weekly to 1000mg twice daily	eGFR 45-60 ml/min: monitor kidney function closely eGFR 30-45: Max dose 500mg twice daily, use caution initiating new therapy eGFR <30: use contraindicated

Adverse Effects:

- **Diarrhea, gas/bloating, nausea/vomiting, reflux**

Pearls

- **Typically considered first line treatment and *should* be used in combination with other classes (GLP-1/SGLT-2) for optimal outcomes**
- **Slow dose titration can decrease GI adverse effects (increase by 500mg/day once every 1-2 weeks)**
- **Using extended-release product can decrease lower GI adverse effects, but does not decrease bloating/reflux. Take all metformin with food to minimize.**
- **Use caution when selecting ER products-some formulations (Glumetza) may be more expensive**
- **Monitor B12-can cause deficiency**

Product	Dosing	eFGR Dose Adjustment
Pioglitazone	15-30mg daily (max dose 45mg/day)	none

Adverse Effects:

- **New onset or exacerbation of heart failure (do not use in patients with symptomatic HF)**
- **Edema, headache, increase risk of fractures (greater in females)**

Pearls

- **Can also decrease TG and increase HDL**
- **May be beneficial in patients with prediabetes and history of stroke (without heart failure)**

GLP-1 Receptor Agonists

Product	Dosing	eGFR Dose Adjustment
Exenatide (Byetta®)	5 mcg BID given 1 hour before meal, may titrate to 10 mcg BID after 4 weeks (Max dose 20 mcg/day)	CrCl <30 ml/min: Do not use
Exenatide ER (Bydureon®)	2mg once weekly (no titration)	eGFR <45 ml/min: Do not use
Dulaglutide (Trulicity®)	0.75mg weekly x 4-8 weeks, may increase dose no more often than every 4 weeks (Max dose 4.5mg)	none
Liraglutide (Victoza®)	0.6 mg daily x 1 week then increase to 1.2 mg (minimally effective dose). May increase up to 1.8mg after 1 week	none
Semaglutide (Ozempic®)	0.25 mg x 4 weeks, then increase to 0.5 mg weekly (minimally effective dose). May increase to next pen strength no more often than every 4 weeks (Max dose 2 mg)	none
Semaglutide (Rybelsus®)	3 mg daily x 4 weeks, then increase to 7mg (minimally effective dose). May increase to 14mg daily after 30 days (Max dose 14mg daily)	none
Tirzepatide (Mounjaro®) (GLP-1/GIP agonist, CV trials in progress)	2.5 mg weekly x 4 weeks, then increase to 5mg weekly (minimally effective dose). May increase in 2.5mg/week increments every 4 weeks to max 15mg/week.	none

Adverse Effects:

- Nausea, vomiting, diarrhea
- black box warning against use in patients with family history of medullary thyroid cancer or multiple endocrine neoplasia-2

Pearls:

- Eating smaller meals with lower fat content (avoid greasy foods) increases GI tolerability
- Be sure to optimize dosing beyond starting doses after 4 weeks. Continue to increase dose every 4 weeks if BG remain above goals
- May require lower doses of insulin to avoid hypoglycemia
- Discontinue if pancreatitis is suspected
- Avoid use with DPP-4 (no added glucose benefit with increased cost)

*__Bolded__ products have proven CVD benefit

SGLT-2 Receptor Antagonists/Inhibitors

Product	Dosing	eGFR Dose Adjustment	Additional Benefits in Co-morbidities
Canagliflozin (Invokana®)	100mg daily 300mg daily	eGFR 30-60 ml/min: 100mg/d eGFR <30 ml/min + >300 mg/d urine albumin: 100mg/d eGFR <30 ml/min + <300 mg/d urine albumin: do not use (likely ineffective)	• Decrease HF hospitalization • Reduction in CKD Progression • Cardiovascular endpoints
Dapagliflozin (Farxiga®)	5mg daily 10mg daily	eGFR 25-45 ml/min: likely ineffective for DM, however safe to continue for diabetic kidney disease or HF eGFR <25 ml/min: do not use	• Heart Decrease HF hospitalization • Reduction in CKD Progression
Empagliflozin (Jardiance®)	10mg daily 25mg daily	eGFR< 30 ml/min: likely ineffective for DM eGFR 20-30 ml/min: safely used for HF/CKD eGFR <20 ml/min : do not use	• Decrease HF hospitalization • Reduction in CKD Progression • Cardiovascular endpoints
Ertugliflozin (Steglatro®)	5mg daily 15mg daily	eGFR <45 ml/min: do not use	• Decrease HF hospitalization

Adverse Effects:

- Genital mycotic infections, urinary tract infections, hypotension, volume depletion

Pearls:

- Encourage appropriate hygiene and hydration to minimize adverse effects
- May need dose reduction in other diuretic therapies
- Discontinue 3-4 days prior to surgery or any prolonged fasting state (minimize euglycemic DKA)

*__Bolded__ products have proven CVD benefit

DPP-4 Inhibitors

Product	Dosing	eGFR Dose Adjustment
Alogliptin (Nesina®)	25mg daily	CrCl ≥30-60: 12.5mg daily CrCl <30: 6.25mg daily
Linagliptin (Tradjenta®)	5mg daily	None
Saxagliptin (Onglyza®)	5mg daily	eGFR <45: 2.5mg daily
Sitagliptin (Januvia®)	100mg daily	eGFR ≥30-45: 50mg daily eGFR <30: 25mg daily

Adverse Effects:

- Nasopharyngitis, pancreatitis (rare)

Pearls:

- Starting at max dose is recommended (titration not necessary)
- Avoid use with GLP-1 agonist (no added glucose control at increased cost)
- Saxagliptin associated with increased hospitalizations for HF in patients with CV disease or CV risk factors
- Less A1c lowering and no added CV or renal benefit seen with other classes

Insulin Regimen

- "Fix Fastings First"
  - Begin with Basal/long-acting insulin
    - Lantus (Basaglar), Levemir, Toujeo, Tresiba
    - Dosing options:
      - 0.1-0.2 units/kg/day OR 10 units daily
      - Titrations: increase 2 units every 3 days until fasting BG at goal (90-130)
      - Consider adding meal-time insulin when dose is ~0.5 units/kg
- Add Meal-time/rapid-acting insulin if goals not met
  - Novolog (insulin aspart), Humalog, Lyumjev, Ademelog
  - Dosing options:
    - Initiate 4-5 units before largest meal of the day
      - Titrate by 1-2 units as needed to goal post-prandial BG (<180)
    - Further intensify by adding to each meal if needed

2025 Stars/ACO Quality Metrics (updated 11.2024)

Measure	Program		Star Category & Weight		Thresholds 10/23/2024	
	Stars	ACO	Part C or D?	Weight	4 Star	5 Star
Care for Older Adults - Functional Status Assessment	✓		C	1	77%	91%
Care for Older Adults - Medication Review	✓		C	1	92%	98%
Care for Older Adults - Pain Screening	✓		C	1	92%	96%
Medication Adherence for Diabetes	✓		D	3	87%	91%
Medication Adherence for Hypertension (RAS)	✓		D	3	90%	92%
Medication Adherence for Cholesterol (Statins)	✓		D	3	89%	93%
TRC: Medication Reconciliation Post-Discharge	✓		C	0.5	73%	87%
TRC: Patient Engagement After Inpatient Discharge	✓		C	0.5	63%	77%
Follow-Up After ED Visit for MCC	✓		C	1	60%	69%
Plan All-Cause Readmissions*	✓		C	3	10%	8%
Osteoporosis Management in Women w/ Fracture	✓		C	1	52%	71%
Kidney Health Evaluation for Patients with Diabetes	✓		C	1	52%	67%
Statin Use in Persons with Diabetes	✓		D	1	89%	93%
Eye Exam for Patients with Diabetes	✓		C	1	77%	83%
Glycemic Status Assessment for Patients with Diabetes (<=9%): HbA1c Control	✓	✓	C	3	84%	90%
Breast Cancer Screening	✓	✓	C	1	75%	82%
Colorectal Cancer Screening	✓	✓	C	1	75%	83%
Controlling Blood Pressure	✓	✓	C	3	80%	85%
Statin Therapy for Cardiovascular Disease	✓	✓	C	1	88%	92%
Falls: Screening for Future Fall Risk		✓				
Depression Screening		✓				
Depression Remission at Twelve Months		✓				
Influenza Immunization		✓				
Tobacco Screening and Cessation Intervention		✓				