Anti-hyperglycemic drugs

eGFR (mL/min/1.73m^2)	Safe	Caution	Stop
> 60	All agents		
30–59	Acarbose Dulaglutide Linagliptin Repaglinide Insulin Liraglutide Semaglutide injection Semaglutide oral Empagliflozin	Metformin (reduce dose <45-≥30 mL/min) Saxagliptin (2.5mg at <45 mL/min) Sitagliptin (50mg at <45 mL/min) Alogliptin (12.5mg) Gliclazide Glimepiride Thiazoladinediones Canagliflozin (100mg) Dapagliflozin (≤45 mL/min, only continue for heart failure or kidney benefits)	Glyburide Dapagliflozin (stop at <45 mL/min; unless used for heart failure or kidney benefits, then may continue until dialysis)
15–29	Linagliptin Dulaglutide Liraglutide	Saxagliptin (2.5 mg) Sitagliptin (25 mg) Alogliptin (6.25mg) Canagliflozin (100mg, but do not initiate at <30 mL/min) Thiazolidinediones Repaglinide Insulin Dapagliflozin (do not initiate <25 mL/min for heart failure or kidney benefits) Empagliflozin (10mg, do not initiate <20 mL/min) Semaglutide injection Semaglutide oral	Metformin Gliclazide Glimepiride Acarbose
< 15		Linagliptin Sitagliptin (25 mg) Alogliptin (6.25mg) Dulaglutide Repaglinide Thiazolidinediones Insulin Empagliflozin (10mg, do not initiate <20 mL/min) Semaglutide injection Semaglutide oral	Saxagliptin Liraglutide Canagliflozin (stop at dialysis) Dapagliflozin (stop at dialysis if still on for heart failure or kidney benefits)

Anti-hyperglycemic drugs

Biguanide

Use with caution in patients with eGFR <60 mL/min/1.73m^2

Avoid in patients with eGFR <30 mL/min/1.73m^2

- Metformin may be used in certain circumstances if eGFR is 20–29 mL/min/1.73m^2, but requires very close monitoring of serum bicarbonate levels to detect acidosis

When deciding which agent to add to metformin, consideration should be given to a number of factors including effectiveness in blood glucose lowering, degree of hyperglycemia, kidney function, and risk of hypoglycemia.

	Normal dose range	eGFR (mL/min/1.73m^2)		
		≥60	**≥30 – <60**	**<30**
Metformin (Glucophage®)	1000 mg bid or 850 mg tid	No dose adjustment required	If initiating, start at 250 -500 mg daily titrate based on patient effect maximum dose: 1000 mg bid NOTE: eGFR closer to 30 mL/min, consider lowering dose (500-1000 mg/day) If already on Metformin, maintain current dose	Consider discontinuing; May consult Nephrology

Anti-hyperglycemic drugs

Insulin Secretagogues

	Normal dose range	eGFR (mL/min/1.73m^2)		
		≥60	**≥30 – <60**	**<30**
Glyburide (Diabeta®)	2.5–20 mg/day PO in 1-2 divided doses	No dose adjustment required	Use alternative agent	Contraindicated; use alternative agent
Gliclazide regular release (Diamicron®)	80–160 mg PO BID	No dose adjustment required	Caution; dose reductions may be necessary	Contraindicated; use alternative agent
Gliclazide modified-release (Diamicron MR®)	30–120 mg PO daily	No dose adjustment required	Caution; dose reductions may be necessary	Contraindicated; use alternative agent
Glimepiride (Amaryl®)	Initial 1–2 mg PO daily; may increase by 1–2 mg daily every 1–2 weeks up to 8 mg PO daily	No dose adjustment required	Initial: 1 mg PO daily; may increase cautiously based on fasting blood glucose	Contraindicated; use alternative agent
Repaglinide (Gluconorm®)	0.5-4 mg PO BID-QID before meals	No dose adjustment required	No dose adjustment required	No dose adjustment required; use with caution

Anti-hyperglycemic drugs

DPP-4 Inhibitors

	Normal dose range	eGFR (mL/min/1.73m^2)		
		≥60	**≥30 – <60**	**<30**
Alogliptin (Nesina®)	25 mg PO daily	No dose adjustment required	12.5 mg PO daily	6.25 mg PO daily
Linagliptin (Trajenta®)	5 mg PO daily	No dose adjustment required	No dose adjustment required	No dose adjustment required; use with caution at <15 mL/min
Saxagliptin (Onglyza®)	5 mg PO daily	No dose adjustment required	2.5 mg PO daily at <45 mL/min	2.5 mg PO daily; d/c at <15 mL/min
Sitagliptin (Januvia®)	100 mg PO daily	No dose adjustment required	50 mg PO daily at <45 mL/min	25 mg PO daily

Anti-hyperglycemic drugs

GLP-1 Receptor Agonists

	Normal dose range	eGFR (mL/min/1.73m^2)		
		≥60	**≥30 – <60**	**<30**
Dulaglutide (Trulicity®)	0.75 mg SC weekly; may increase to 1.5mg SC weekly, then by 1.5mg/week at 4 week intervals up to 4.5mg SC weekly for additional A1C control	No dose adjustment required	No dose adjustment required	No dose adjustment required; use with caution at <15 mL/min
Liraglutide (Victoza®)	0.6 mg SC daily for 1 week, then 1.2 mg SC daily; may increase up to 1.8 mg SC daily	No dose adjustment required	No dose adjustment required	No dose adjustment required; use not recommended <15 mL/min due to limited clinical experience
Semaglutide (Ozempic®)	0.25 mg SC weekly for 4 weeks, then 0.5 mg SC weekly; may increase by 0.5mg/week at 4 week intervals up to 2 mg SC weekly for additional A1C control	No dose adjustment required	No dose adjustment required	No dose adjustment required; use with caution <30 mL/min and use not recommended in patients with end-stage renal disease Consult Nephrology
Semaglutide (Rybelsus®)	3 mg PO daily for 30 days, then 7 mg PO daily; may increase up to 14 mg PO daily	No dose adjustment required	No dose adjustment required	No dose adjustment required; use with caution <30 mL/min

Anti-hyperglycemic drugs

Insulin

Normal dose range	eGFR (mL/min/1.73m^2)	
	≥60	**≥30 – <60**
No dose adjustment required	No dose adjustment required	Insulin requirements may be reduced due to changes in insulin clearance or metabolism; monitor blood glucose closely especially in those with GFR <15 mL/min

SGLT2 Inhibitors

	Normal dose range	eGFR (mL/min/1.73m^2)		
		≥60	**≥30 – <60**	**<30**
Canagliflozin (Invokana®)	100 mg PO daily; may increase up to 300mg PO daily for additional A1C control	No dose adjustment required	100 mg PO daily	Do not initiate at GFR <30, but may continue 100 mg PO daily for heart failure or CKD Not indicated once on dialysis Consult Nephrology
Dapagliflozin (Forxiga®)	5 mg PO daily; may increase to 10 mg PO daily Use 10 mg PO daily in heart failure or CKD	No dose adjustment required	No dose adjustment required; may continue for heart failure or CKD, but d/c at GFR <45 mL/min if only for A1C control due to lack of glycemic efficacy	Do not initiate at GFR <25 mL/min, but may continue for heart failure or CKD at 10 mg PO daily Not indicated once on dialysis Consult Nephrology
Empagliflozin (Jardiance®)	10 mg PO daily; may increase to 25 mg PO daily for additional A1C control	No dose adjustment required	No dose adjustment required	10 mg PO daily Do not initiate at GFR <20, but may continue for heart failure or CKD May continue on dialysis, but there is limited data Consult Nephrology