Goal	Suggested Strategy or Resource				
	Populatio	n		Frequency	
Screening	Overweight or obese (BMI>25 kg/m2 or>23 kg/m2 in Asian Americans) adults with one or more risk factors* (See Page 5)		Every 3 years		
	After age 4	! 5		Ev	ery 3 years
	Those with	prediak	oetes	E	every year
			Tue same professions		
				Il for annual dilated ey women of reproducti	
Referrals for initial				d dietitian for MNT	ive age
Care Management		DSME/D	OSMS-Diabetes and Nut		Vell with Diabetes
			tist for comprehensive		
				orofessional, if indicat	
	< 7%	Many non-pregnant adults			
	< 8% Long duration of diabetes, known history of hypoglycemia, advanced atherosclerosis, or advanced age/frailty				lycemia, advanced
A1C Target	< 6.5%	metformin only, long life expectancy, or no significant cardiovascular			· ·
		uiseasi	e, low risk of hypoglyce	erriid	
	A1C Result	ts	Initial Therapy	Not at goal after 3 months	Not at goal after 6 months of initial therapy
Choose the most appropriate agent(s) to achieve A1C target	A1C< 9% A1C≥9%		Monotherapy	Dual combination therapy • metformin + sulfonylurea • metformin + basal insulin • metformin + GLP-1 agonist Triple combination therapy • metformin +sulfonylurea + basal	Triple combination therapy • metformin +sulfonylurea + basal insulin • metformin + GLP- 1 agonist + basal insulin Proceed to or intensify insulin therapy

		insulin • metformin + GLP-1 agonist	insulin • metformin + GLP-1 agonist + basal insulin	
	A1C Results	Initial Therapy	Not at goal after 3 r	nonths
Choose the most appropriate agent(s) to achieve A1C target	and/or blood	Basal insulin +/- metformin	Intensify insulin reg	imen
Start basal insulin	• 10 units per i.e. 0.2-0.3u	•	kg/day (if severe insu	lin resistance suspected
	Fixed regimen	Adjustable regimer	1	
		Preceding 3 Days of (mg/dL)	FPG Values	Change in Units/Day by
		<56		-4
Dana Tituatian		<80		-2
Dose Titration	Increase TDD by 2	109-126		+1
	U every 3 to 4 days	127-144		+3
		145-162		+4
		163-180		+6
		<u>></u> 180	2//	+10
	.6.1			s Care 2003;26(11): 3080-3086
Intensify insulin		control not at goal afte pitor or DPP4- inhibito		adding GLP-1 agonist or
regimen	Add prandial insulin per algorithm bellow			
Use Statin therapy when appropriate	See primary and secondary cardiovascular disease prevention guideline			vention guideline
	Goal BP <14 risk	0/90 mmHg in most p	atients. Consider goa	I of <130/80 if high CV
Blood Pressure Control	No albuminuria		te diuretic (HCTZ or C ine calcium channel b nifedipine ER)	-
	Microalbuminuria	ACE inhibitors and ARBs first line		ARBs first line

Low dose ASA		revention >50 years old who are not at increased risk of		ast one additional major risk
	Vaccine		Recomme	endation
		Flu		th DM 6 months of age and older
Up to date on vaccines	Р	neumococcal	≤64 yo ≥65 yo	PPSV23 PCV13 at least a year after last PPSV23 then PPSV23 at least a year after PCV 13 and 5 years after first PPSV23
		Hepatitis B	All unvaco are 10-59	cinated adults with diabetes, who yo
	•	Eye exam		
Prevent and manage	•	nephropathy screen		
complications		neuropathy screen and foo		podiatry
	• Abbre	viated foot exam at every v	ISIL	
	What to ask?	 History of leg/foot ulc History of angioplasty Burning, tingling or pa Loss of lower extremit 	, stent, or le in in legs	
Abbreviated foot exam	What to look for?	calluses, corns Neurologic exam Responsive to Musculoskeletal exam Full range of r Deformities pr Is midfoot hot Vascular exam Palpable dorse	Ipswich too Ipswich too I motion? resent, if ye c, red or infl ir growth or alis pedis ar	The state of the s

Author: Alejandro Enriquez Zamalloa, PharmD, MS Endorsed by: Dr. Elias Lemoine, Dr. Erin Lichtenstein, Dr. Rokshana Thanadar

	 Consider nephrology consult if Persistent proteinuria Worsening microalbuminuria despite ACE or ARB Increasing Cr/BUN GFR<30
	 Consider endocrine consult if Goals not met after adequate titration Recurrent hypoglycemia Basal insulin dose >1 unit/kg/day
Referrals	 Consider pharmacy consult if Goals not met Adherence is a concern Patient needs additional tailored education on medication management During care transitions Polypharmacy
	 Consider yearly Podiatry consult for all diabetic patients Consider more frequent referrals to podiatry for patients with ADA risk category 1-3 and those with active pathology (see algorithm below)

Diabetes Care 2017;40 Endocrine Practice. 2016; 22 Pharamacist Letter. 2017;33(2):330202

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*Risk factors for screening

- A1C >5.7%, IGT, or IFG on previous testing
- First-degree relative with diabetes
- High-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
- Women who were diagnosed with GDM
- History of CVD
- Hypertension (>140/90 mmHg or on therapy for hypertension)
- HDL cholesterol level ,35 mg/dL and/or a triglyceride level >250 mg/dL
- Women with polycystic ovary syndrome
- Physical inactivity
- Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)

Diabetes Care 2011; 34, Supp 1 562-569

Referral to Podiatry

Priority	Indications	Timeline	Suggested follow-up by specialist
Urgent (active pathology)	Open wound or ulcerative area, with or without signs of infection New neuropathic pain at rest Signs of active Charcot neuropathy Vascular compromise	Immediate referral/con sult	As determined by specialist
High (ADA risk category 3)	Previous history of ulcer, Charcot neuropathy or lower extremity amputation	Immediate or "next	Every 1-2 months

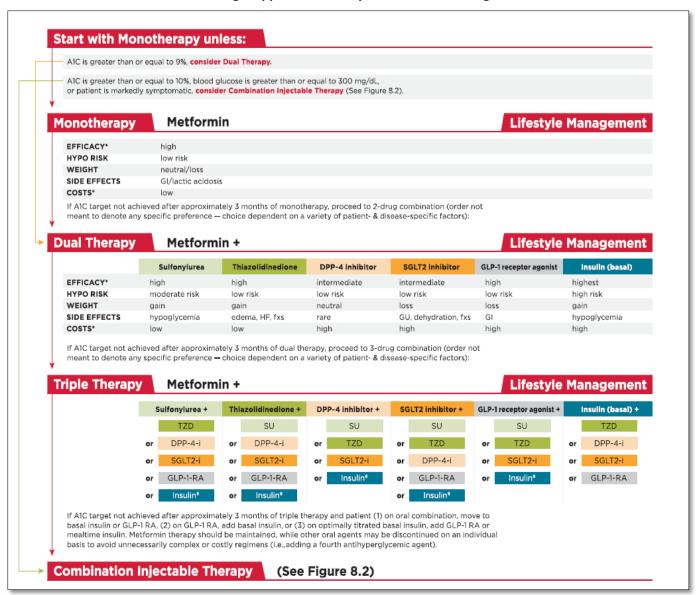
Author: Alejandro Enriquez Zamalloa, PharmD, MS Endorsed by: Dr. Elias Lemoine, Dr. Erin Lichtenstein, Dr. Rokshana Thanadar

		available	
		outpatient	
		referral	
Moderate (ADA	PAD +/-LOPS	Referral	Every 2-3 months
risk category 2)	Diminished pulses	within 1-3	
	Presence of swelling or edema	weeks	
Low (ADA risk	LOPS +/- longstanding, nonchanging deformity	Referral	Every 4-6 months
category 1)	Prescriptive or accommodative footwear required	within 1	
		month	
Very low (ADA	No LOPS or PAD	Referral	Annually at
risk category 0)	Patient seeks education regarding foot care	within 1-3	minimum
		months	

Family practice 2014; 63, 11, 646-656

Author: Alejandro Enriquez Zamalloa, PharmD, MS Endorsed by: Dr. Elias Lemoine, Dr. Erin Lichtenstein, Dr. Rokshana Thanadar

2017 ADA Pharmacologic Approaches to Glycemic Treatment Algorithm



Diabetes Care 2017;40 Sup 1

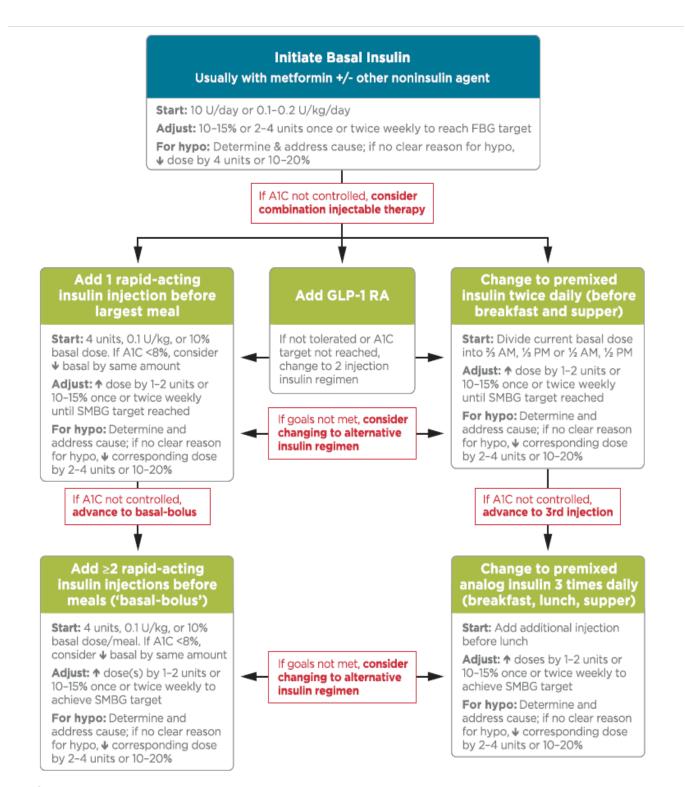


Figure 8.2—Combination injectable therapy for type 2 diabetes. FBG, fasting blood glucose; GLP-1 RA, GLP-1 receptor agonist; hypo, hypoglycemia. Adapted with permission from Inzucchi et al. (21).

Author: Alejandro Enriquez Zamalloa, PharmD, MS Endorsed by: Dr. Elias Lemoine, Dr. Erin Lichtenstein, Dr. Rokshana Thanadar

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Medications for Type 2 DM

Metformin (Glucophage XR) Metformin (Glucophage XR) Motal Inhibits	Class/Estimated A1C reduction (monotherapy)	Specific Agent	Initial dose (approx cost for 30 day supply)	Advantages	Disadvantages
1% to 1.5% MOA: Inhibits hepatic glycogenolysis and gluconeogenesis. Enhances insulin sensitivity in muscle and fat Dipeptidyl peptidase-4 (DPP-4) inhibitor ("gliptins") O.5% to 1% Linagliptin (Nosina) peptidase-4 (DPP-4) inhibitor ("gliptins") O.5% to 1% Linagliptin (Nosina) peptidase-4 (DPP-4) inhibitor ("gliptins") O.5% to 1% Linagliptin (Nosina) peptidase-4 (DPP-4) inhibitor ("gliptins") O.5% to 1% Linagliptin (Nosina) peptidase-diagnation of endogenous incretins resulting in increased insulin secretion in response to elevated blood Saagliptin (Onglyza) BID or 850 mg PO once daily (less than s20/month) Likely reduces CVD events Beneficial in the treatment of prediabetes Netformin can be initiated if eGFR is > 45 mL/min/1.73. (Discontinue if eGFR later falls below 30 mL/min/1.73 m².) Alogliptin (Nesina) proceedially (s330) Mohatin the treatment of prediabetes No hypoglycemia when used as monotherapy monotherapy Weight neutral B12 deficiency Lactic acidosis (rare) in patients with treatment of prediabetes Netformin can be initiated if eGFR is > 45 mL/min/1.73. (Discontinue if eGFR later falls below 30 mL/min/1.73 m².) No hypoglycemia when used as monotherapy monotherapy Sayagliptin (S310) Weight neutral Dosage modification with streatment of prediabetes No hypoglycemia when used as monotherapy monotherapy Sayagliptin (S330) Weight neutral No hypoglycemia when used as monotherapy monotherapy Sayagliptin (S330) Weight neutral B12 deficiency Lactic acidosis (rare) in patients with treatment of prediabetes No hypoglycemia when used as monotherapy Sayagliptin (S330) Weight neutral B12 deficiency Lactic acidosis (rare) in patients with treatment of prediabetes No hypoglycemia when used as monotherapy Sayagliptin, saxagliptin, saxagl	Biguanide				Diarrhea
MOA: Inhibits hepatic glycogenolysis and gluconeogenesis. Enhances insulin sensitivity in muscle and fat peptidage-4 (DPP-4) inhibitor ("gliptins") (Kazano) (Kazano) (Kozani) (Kradjenta) (Kozano) (Kozani) (Kradjenta) (Kozano) (Kradjenta) (Kozano)	1% to 1.5%	•	BID or 850 mg PO		Abdominal cramping
hepatic glycogenolysis and gluconeogenesis. Enhances insulin sensitivity in muscle and fat Dipeptidyl peptidase-4 (DPP-4) inhibitor ("gliptins") O.5% to 1% Linagliptin (Nosina) With metformin (Oseni) O.5% to 1% Linagliptin (Tradjenta) Gegradation of endogenous incretins resulting in increased insulin secretion in response to elevated blood Dipeptidyl gliptase (Osynabi) O.5% to 1% Combination with alogliptin, glipizide, glyburide, glipizin, proglibates Metformin can be initiated if eGFR is > 45 mL/min/1.73. (Discontinue if eGFR later falls below 30 mL/min/1.73 m².) No hypoglycemia when used as monotherapy with renal impairment needed (sitagliptin, saxagliptin, alogliptin) Weight neutral CYP3A4 interactions (saxagliptin, linagliptin) May be associated with pancreatitis New or worsening heart failure (saxagliptin alogliptin)	MOA: Inhibits	Available in	•		B12 deficiency
gluconeogenesis. Enhances insulin sensitivity in muscle and fat pioglitazone, rosiglitazone, saxagliptin, sitagliptin, repaglinide, and canagliflozin. See specific agents. Dipeptidyl peptidase-4 (DPP-4) inhibitor ("gliptins") With pioglitazone (Oseni) 0.5% to 1% Linagliptin (Nosina) With metformin (Oseni) MOA: Inhibits degradation of endogenous in response to elevated blood Saxagliptin (Glyxambi) Metformin can be initiated if eGFR is > 45 mL/min/1.73. (Discontinue if eGFR later falls below 30 mL/min/1.73 m².) Motormin can be initiated if eGFR is > 45 mL/min/1.73. (Discontinue if eGFR later falls below 30 mL/min/1.73 m².) Motormin can be initiated if eGFR is > 45 mL/min/1.73. (Discontinue if eGFR later falls below 30 mL/min/1.73 m².) No hypoglycemia when used as when used as monotherapy monotherapy monotherapy saxagliptin, alogliptin) Weight neutral CYP3A4 interactions (saxagliptin, linagliptin) CYP3A4 interactions (saxagliptin, linagliptin) May be associated with pancreatitis May be associated with pancreatitis New or worsening heart failure (saxagliptin alogliptin)	hepatic	combination with	\$20/month)	Likely reduces	,
sensitivity in muscle and fat piolitic prosigitazone, rosiglitazone, saxagliptin, sitagliptin, repaglinide, and canagliflozin. See specific agents. Dipeptidyl peptidase-4 (DPP-4) inhibitor ("gliptins") With pioglitazone (Oseni) Uinagliptin (Nesina) With metformin (Nosenia) (Saxagliptin) Uinagliptin (Nosenia) With metformin (Sazano) (Osenia) Uinagliptin (Intradjenta) With metformin (Intradjenta) (Sasagliptin) Saxagliptin (Sasagliptin) Intradjenta (Glyxambi) Saxagliptin (Intradjenta) (Sasagliptin) Saxagliptin (Intradjenta) (Sasagliptin) Saxagliptin (Intradjenta) (Sasagliptin) Saxagliptin (Intradjenta) (Sasagliptin) Vith metformin (Jentadueto) (Glyxambi) Saxagliptin (Intradjenta) (Sasagliptin) Saxagliptin (Intradjenta) (Sasagliptin) Saxagliptin (Intradjenta) (Sasagliptin) New or worsening heart failure (saxagliptin alogliptin)		glimepiride,		CVD events	
muscle and fat pioglitazone, rosiglitazone, saxagliptin, repaglinide, and canagliflozin. See specific agents. Dipeptidyl peptidase-4 (DPP- 4) inhibitor ("gliptins") 0.5% to 1% Linagliptin (Oseni) Linagliptin (Tradjenta) degradation of endogenous incretins resulting in increased in response to elevated blood (Onglyza) pioglitazone, rosiglitazone, saxagliptin, repaglinide, and canagliflozin, See specific agents. Alogliptin (Nesina) Nolgliptin (Nolgliptin (Nolgliptin (Nolgliptin) Nolgliptin (Nolgliptin) Nolgliptin (Nolgliptin) Nolgliptin (Nolgliptin) Noned aily when used as monotherapy with renal impairment needed (sitagliptin, saxagliptin, alogliptin) CYP3A4 interactions (saxagliptin, linagliptin) CYP3A4 interactions (saxagliptin, linagliptin) May be associated with pancreatitis New or worsening heart failure (saxagliptin alogliptin)					
saxagliptin, sitagliptin, repaglinide, and canagliflozin. See specific agents. Dipeptidyl peptidase-4 (DPP-4) inhibitor ("gliptins") With pioglitazone (Oseni) MOA: Inhibits degradation of endogenous incretins resulting in increased insulin secretion in response to elevated blood Saxagliptin, repaglinide, and canagliflozin sitagliptin, repaglinide, and canagliflozin sitagliptin, repaglinide, and canagliflozin sitagliptin, repaglinide, and canagliflozin sitagliptin, repaglinide, and canagliflozin sitagliptin (Nesina) when used as with renal impairment needed (sitagliptin, saxagliptin, alogliptin) MOA: Inhibits (Tradjenta) (S310) (S310) (Saxagliptin) (Saxaglipt	•	pioglitazone,			or hepatic dysfunction
sitagliptin, repaglinide, and canagliflozin. See specific agents. Dipeptidyl peptidase-4 (DPP-4) inhibitor (Vazano) (Vigliptins'') (Vish pioglitazone (Oseni) (Vish metformin (Intralenta) (Vazano) (Vigliptins'') (Vish pioglitazone (Oseni) (Vish metformin (Intralenta) (Vish pioglitazone (Oseni) (Vish metformin (Intralenta) (Vish pioglitazone (Oseni) (Vish pioglitazone (O					
repaglinide, and canagliflozin. See specific agents. Dipeptidyl peptidase-4 (DPP-4) inhibitor ("gliptins") With pioglitazone (Oseni) Linagliptin (Tradjenta) degradation of endogenous incretins resulting in increased insulin secretion in response to elevated blood Poipeptidyl Alogliptin (Nesina) peptidase-4 (DPP-4) inhibitor (Kazano) with metformin (Saxagliptin (Saxagliptin)) Linagliptin (Initial: 5 mg PO once daily (\$330) Saxagliptin (Saxagliptin) No hypoglycemia when used as monotherapy needed (sitagliptin, saxagliptin, alogliptin) Weight neutral (Saxagliptin, linagliptin) CYP3A4 interactions (saxagliptin, linagliptin) CYP3A4 interactions (saxagliptin, linagliptin) May be associated with pancreatitis New or worsening heart failure (saxagliptin alogliptin)		- · · · · · · · · · · · · · · · · · · ·			
canagliflozin. See specific agents. Dipeptidyl peptidase-4 (DPP-4) inhibitor (Vazano) (Oseni) 0.5% to 1% Linagliptin (Vasina) (Oseni) MOA: Inhibits degradation of endogenous incretins resulting in increased in sulin secretion in response to elevated blood Dipeptidyl peptidase-4 (DPP-4) inhibitor (Vazano) (Saxagliptin (Saxagliptin) (Osgliptin) (Osgliptin) (Osgliptin) (Saxagliptin) (Osgliptin) (Osglipt		<u> </u>			
Specific agents. eGFR later falls below 30 mL/min/1.73 m².)					
Dipeptidyl peptidase-4 (DPP- 4) inhibitor ("gliptins")Alogliptin (Nesina) With metformin ((Seni))Alogliptin INITIAL 25 mg PO once daily (\$310)No hypoglycemia when used as monotherapyDosage modification with renal impairment needed (sitagliptin, saxagliptin, alogliptin)0.5% to 1%Linagliptin (Oseni)Linagliptin INITIAL: 5 mg PO once dailyCYP3A4 interactions (saxagliptin, linagliptin)MOA: Inhibits degradation of endogenous incretins resulting in increased insulin secretion in response to elevated bloodWith empagliflozin (Gnylyza)(\$330)Generally well toleratedMay be associated with pancreatitisSaxagliptin (\$330)May be associated with pancreatitisNew or worsening heart failure (saxagliptin alogliptin)		specific agents.			
Dipeptidyl peptidase-4 (DPP- 4) inhibitor ("gliptins")Alogliptin (Nesina) With metformin (Saxagliptin)Alogliptin INITIAL 25 mg PO once daily (\$310)No hypoglycemia when used as monotherapyDosage modification with renal impairment needed (sitagliptin, saxagliptin, alogliptin)0.5% to 1%Linagliptin (Oseni)Weight neutralCYP3A4 interactions (saxagliptin, linagliptin)MOA: Inhibits degradation of endogenous incretins resulting in increased insulin secretion in response to elevated bloodWith metformin (Glyxambi)(\$330)Generally well toleratedMay be associated with pancreatitisSaxagliptin (S325) elevated bloodNew or worsening heart failure (saxagliptin alogliptin)				_	
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(Oseni) Linagliptin Linagliptin MOA: Inhibits degradation of endogenous in increased in sulin secretion in response to elevated blood (Oseni) Linagliptin INITIAL: 5 mg PO once daily (\$330) Saxagliptin INITIAL: 5 mg PO once daily (\$330) Saxagliptin INITIAL: 2.5 or 5 mg PO once daily (\$325) Weight neutral CYP3A4 interactions (saxagliptin, linagliptin) May be associated with pancreatitis New or worsening heart failure (saxagliptin alogliptin)	•	· ·	•	Попошегару	
0.5% to 1% Linagliptin MOA: Inhibits degradation of endogenous incretins resulting in secretion in response to elevated blood Linagliptin Linagliptin INITIAL: 5 mg PO once daily (\$330) CYP3A4 interactions (saxagliptin, linagliptin) May be associated with tolerated May be associated with pancreatitis Saxagliptin INITIAL: 2.5 or 5 mg PO once daily (\$325) Linagliptin INITIAL: 5 mg PO once daily (\$330) May be associated with pancreatitis New or worsening heart failure (saxagliptin alogliptin)	(Bubanis)		(9310)	Weight neutral	Suxugiiptiii, alogiiptiii)
Linagliptin (Tradjenta) degradation of endogenous incretins resulting in increased insulin secretion in response to elevated blood Linagliptin (Tradjenta) (Tradjenta) (Saxagliptin (Saxagliptin) (Saxagliptin (Saxagliptin)	0.5% to 1%	(222)	Linagliptin	Treading means	CYP3A4 interactions
degradation of endogenous (Jentadueto) incretins resulting in increased insulin secretion in response to elevated blood With metformin (Jentadueto) With empagliflozin (Glyxambi) Saxagliptin INITIAL: 2.5 or 5 mg PO once daily (\$330) May be associated with pancreatitis New or worsening heart failure (saxagliptin alogliptin)		Linagliptin		Generally well	(saxagliptin, linagliptin)
endogenous incretins resulting in increased insulin secretion in response to elevated blood (Jentadueto) With empagliflozin (Glyxambi) Saxagliptin INITIAL: 2.5 or 5 mg PO once daily (\$325) Rew or worsening heart failure (saxagliptin alogliptin)	MOA: Inhibits		•	tolerated	
incretins resulting in increased (Glyxambi) Saxagliptin INITIAL: 2.5 or 5 mg PO once daily in response to elevated blood With empagliflozin (Glyxambi) New or worsening heart failure (saxagliptin alogliptin)	•		(\$330)		
in increased (Glyxambi) INITIAL: 2.5 or 5 mg PO once daily in response to elevated blood (Gnglyza) INITIAL: 2.5 or 5 mg PO once daily (\$325) (saxagliptin alogliptin)	~				pancreatitis
insulin secretion in response to elevated blood PO once daily (\$325) PO once daily (\$325) (\$325) PO once daily (\$325)	_	, —	= -		November
in response to elevated blood (\$325) (\$325) (\$325) (\$325)		(Glyxullibi)			_
elevated blood (Onglyza)		Saxagliptin	,		
	•		(+3=3)		(JanaSubtill alogibtill)
decreased	glucose,		Sitagliptin		May cause severe joint

glucagon secretion, slowed gastric emptying, and increased satiety	(Kombiglyze XR) Sitagliptin (Januvia) With metformin (Janumet, Janumet XR)	INITIAL: 100 mg PO once daily (\$330)		pain
Class/Estimated	Specific Agent	Initial dose	Advantages	Disadvantages
A1C reduction (monotherapy)		(approx cost for 30 day supply)		
Glucagon-like,	Albiglutide	Albiglutide	Lack of	Nausea (often
peptide-1 (GLP-1)	(Tanzeum)	INTIAL 30 mg SC	hypoglycemia	transient)
agonist or incretin	(Tanzeam)	once weekly	when used as	transient
mimetic	Dulaglutide	(\$325)	monotherapy	Diarrhea
	(Trulicity)	. ,	, ,	
1% to 1.5%		Dulaglutide	Weight loss	Dosage modification
	Exenatide (Byetta)	INITIAL 0.75 mg SC		with renal dysfunction
MOA: Stimulation		once weekly	Reduces	needed (albiglutide,
of GLP-1 receptors	Exenatide	(\$490)	postprandial	dulaglutide)
results in increased insulin	extended-release	Exenatide	glucose values	Avoid in severe renal
secretion in	(Bydureon)	INITIAL: 5 mcg SC	In patients who	impairment (exenatide)
response to	Liraglutide (Victoza)	BID	need more than	impairment (excitation)
elevated blood	- Lind Grande (Victoral)	(\$480)	one or two	May be associated with
glucose,			antidiabetes	pancreatitis
decreased		Exenatide	agents,	
glucagon		extended-release	combination	Associated with thyroid
secretion, slowed		INITIAL: 2 mg SC	injectable	cell cancer in rodents
gastric emptying, and increased		once weekly	therapies of basal insulin and a GLP-	
satiety. (GLP-1 is		(\$475)	1 agonist is an	May be associated with renal insufficiency
an incretin		Liraglutide	efficient,	Terial insufficiency
hormone.)		INITIAL: 0.6 mg SC	emerging	May be associated with
		once daily x 1 week,	strategy.	gallbladder disease
		then increase to 1.2		(liraglutide, exenatide)
		mg SC once daily	Liraglutide may	
		(\$430)	reduce cardiovascular	Injectable
			(CV) death	
			(NNT=77 for four	
			years) and overall	
			mortality (NNT=71	
			for four years) in	

			patients with high CV risk or CV disease	
Class/Estimated A1C reduction (monotherapy)	Specific Agent	Initial dose (approx cost for 30 day supply)	Advantages	Disadvantages
Sodium-glucose co-transporter 2 (SGLT2) inhibitor or "flozins" 0.5% to 1% MOA: Blocks glucose reabsorption in kidney, increases glucosuria.	Canagliflozin (Invokana) With metformin (Invokamet) Dapagliflozin (Farxiga) Empagliflozin (Jardiance) With linagliptin (Glyxambi) With metformin (Synjardy)	Canagliflozin INITIAL: 100 mg PO once daily (\$340) Dapagliflozin INITIAL: 5 mg PO once daily (\$340) Empagliflozin INITIAL 10 mg PO once daily (\$340)	Lack of hypoglycemia Weight loss May reduce blood pressure Empagliflozin reduces cardiovascular (CV) mortality (NNT=45 for three years), overall mortality (NNT=39 for three years), and hospitalization due to heart failure (NNT=71 for three years) in type 2 diabetes patients with CV disease ²⁰	Genital fungal infections (male and female) Urinary tract infection (may be severe) Increased urination Hypotension Increase LDL Do not use if eGFR <45 mL/min/1.73m (canagliflozin, empagliflozin) or <60 mL/min/1.73m (dapagliflozin) Fractures (rare, in susceptible patients) Decrease in BMD (canagliflozin). May be associated with

				bladder cancer (dapagliflozin) Association with ketoacidosis (rare) Acute kidney injury reported with canagliflozin or dapagliflozin (may require dialysis)
Class/Estimated A1C reduction (monotherapy)	Specific Agent	Initial dose (approx cost for 30 day supply)	Advantages	Disadvantages
Sulfonylurea 1% to 1.5% MOA: Stimulates pancreatic insulin secretion.	Glyburide (Diabeta, Glynase, Micronase, others) With metformin (Glucovance) Glipizide (Glucotrol, Glucotrol XL, others) With metformin (Metaglip) Glimepiride (Amaryl, others) With metformin (Amaryl M) With pioglitazone (Duetact) With rosiglitazone (Avandaryl)	Glyburide INITIAL: 2.5 mg PO once daily (less than \$10/month) Glipizide INITIAL: 5 mg PO once daily (less than \$10/month) Glimepiride INITIAL: 1 mg PO once daily (less than \$10/month)	Initially, good efficacy Inexpensive	Hypoglycemia, especially with renal dysfunction (less with glimepiride versus glyburide) ⁵ Weight gain (glyburide more than glipizide, glimepiride) Reduced efficacy over time For the elderly and those with hepatic or renal dysfunction, start with low doses and titrate up Discontinue when more complex insulin regimens (e.g., basal plus prandial insulins)

				are started
Thiazolidinedione (TZD) 1% to 1.5% MOA: Increases insulin sensitivity in muscle and fat.	Pioglitazone (Actos) With metformin (Actoplus Met or Actoplus Met XR) With glimepiride (Duetact) With alogliptin (Oseni) Rosiglitazone (Avandia) With metformin (Avandamet) With glimepiride (Avandaryl)	Pioglitazone INITIAL: 15 mg PO once daily (less than \$20) Rosiglitazone INITIAL: 4 mg PO once daily (\$115)	Lack of hypoglycemia when used as monotherapy Improves HDL cholesterol Reduced triglycerides (pioglitazone) May reduce CVD (pioglitazone)	Volume retention, congestive heart failure Increased fracture risk Increases LDL (rosiglitazone) May possibly increase the risk of bladder cancer (pioglitazone)
Class/Estimated A1C reduction (monotherapy) Insulins	Specific Agent Rapid-acting	Initial dose (approx cost for 30 day supply) Lispro	Advantages Nearly universal	Disadvantages Hypoglycemia

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analogs	\$202.60/10 mL vial,	response	
- Lispro (Humalog)	\$60.78/3 mL vial	Theoretically	Weight gain
- Aspart (Novolog)	\$376.65/5 of 3 mL	unlimited efficacy	
- Glulisine (Apidra)	cartridge, \$391.50/5		Training requirements
- Inhaled insulin	of 3 mL KwikPen	↓ Microvascular	
Short-acting		risk	Patient and provider
- Human Regular	Aspart		reluctance
Intermediate-acting	\$203.24/10 mL vial		
- Human NPH	\$377.56/5 of 3 mL		Injectable (except
Basal insulin	PenFill cartridge		inhaled insulin)
analogs	\$392.63/5 of 3 mL		
- Glargine	FlexPen		Pulmonary toxicity
- Detemir			(inhaled insulin)
- Degludec	Glulisine		
Premixed insulin	\$203.15/10 mL vial		
products	\$392.45/5 of 3 mL		
- NPH/Regular	<i>SoloStar</i> pen		
70/30			
270/30 aspart mix	Human Regular		
275/25 lispro mix	\$109.70/10 mL vial		
250/50 lispro mix	(U-100); \$32.91/3		
	mL vial (U-100)		
	Human NPH		
	\$109.70/10 mL vial,		
	\$32.91/3 mL vial		
	Glargine		
	\$248.51/10 mL vial		
	\$372.76/5 of 3 mL		
	<i>SoloStar</i> pen		
	Detemir		
	\$248.51/10 mL vial		
	\$372.76/5 of 3 mL		
	FlexTouch		
	Degludec		
	\$443.85/5 of 3 mL		
	FlexTouch (100 unit/mL)		
	\$532.62/3 of 3 mL		
	FlexTouch (200 unit/mL)		

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Pharmacist Letter. 2015; 31(6):310601

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Additional Resources

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- American Diabetes Association. Diagnosis and Classification of Diabetes Mellitus. Diabetes Care 2011; 34, Supp 1 562-569

Practice Guidelines and Standard Processes Disclaimer

To promote the provision of efficient and effective healthcare services, Kennebec Region Health Alliance helps develop and disseminates practice guidelines for use by its member practices. Such guidelines are based upon various sources that KRHA believes to be reliable, which may include but is not limited to, guidelines from widely recognized professional societies, boards and colleges such as the American Medical Association (AMA). Practice guidelines are reviewed at least every two years and updated as necessary to reflect changes in medical practice.

These practice guidelines are not meant to express standards of care and should not be regarded as evidence of such standards. These Guidelines describe criteria for general operating practice and procedure and are for voluntary use. Guidelines are not a substitute for a physician's or healthcare professional's independent judgment.

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