

# Update on Diabetes Medications

## California Area Office

### May 24, 2018

CAPT Christopher Lamer, PharmD, MHS, BCPS, CDE  
Division of Diabetes Treatment and Prevention/Office of Information Technology

# Objectives

- Introduce the Glucose Management in Type 2 Diabetes treatment algorithm.
- Synthesize treatment recommendations for major glucose lowering therapies.
- Transform medication knowledge into clinical practice.

# Glucose Management in Type 2 Diabetes

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## Division of Diabetes Treatment and Prevention

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## Diabetes Treatment Algorithms

The Diabetes Treatment Algorithms were developed to provide clinicians with a quick reference to treatment algorithms based on national guidelines and the [Standards of Care and Clinical Practice Recommendations: Type 2 Diabetes](#).

The algorithms are a collaborative effort between Indian health system professionals and have been reviewed by the [IHS Division of Diabetes](#).

The algorithms provide the clinician with basic information needed at the point of patient care and also provide:

- Step-by-step management of the associated condition.
- Dosing, common adverse reactions and contraindications for medications on the IHS National Core Formulary.
- Treatment targets and goals.
- Recommended monitoring parameters.

The Diabetes Treatment Algorithms are intended to serve as a tool to enhance the information required in treating patients with type 2 diabetes. It is not a substitute for the knowledge and information provided by complete national guidelines or the *IHS Diabetes Standards of Care for Patients with Type 2 Diabetes*. The algorithms will be updated periodically but changes in national practice may occur more quickly—users are advised to stay abreast of current clinical practice recommendations.



### Chronic Kidney Disease in Type 2 Diabetes

[Download Algorithm](#) [PDF – 229 KB]

[Front](#) | [Back](#)

### Foot Care in Type 2 Diabetes

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[Front](#)

### Hypertension Management in Type 2 Diabetes

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### Insulin in Type 2 Diabetes

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### Lipid and Aspirin Therapy in Type 2 Diabetes

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### Urine Albumin Screening and Monitoring in Type 2 Diabetes

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<https://www.ihs.gov/diabetes/clinician-resources/dm-treatment-algorithms/>

**Please Note:** This algorithm is **not** intended for treatment and target selection in children or in women who are or could become pregnant.



# Diabetes Medications work best with...

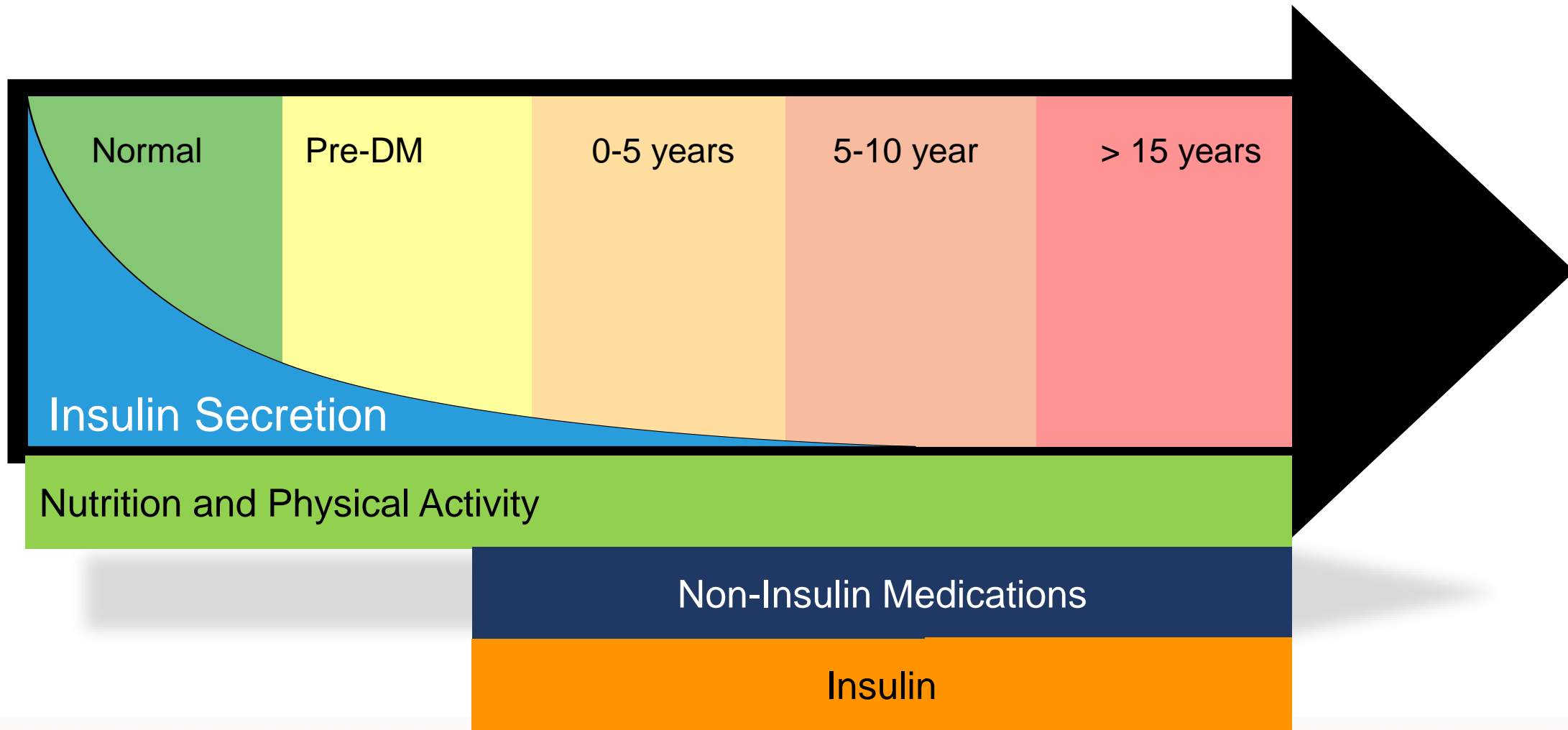


...good nutrition and physical activity

Nutrition and physical activity are life-long interventions

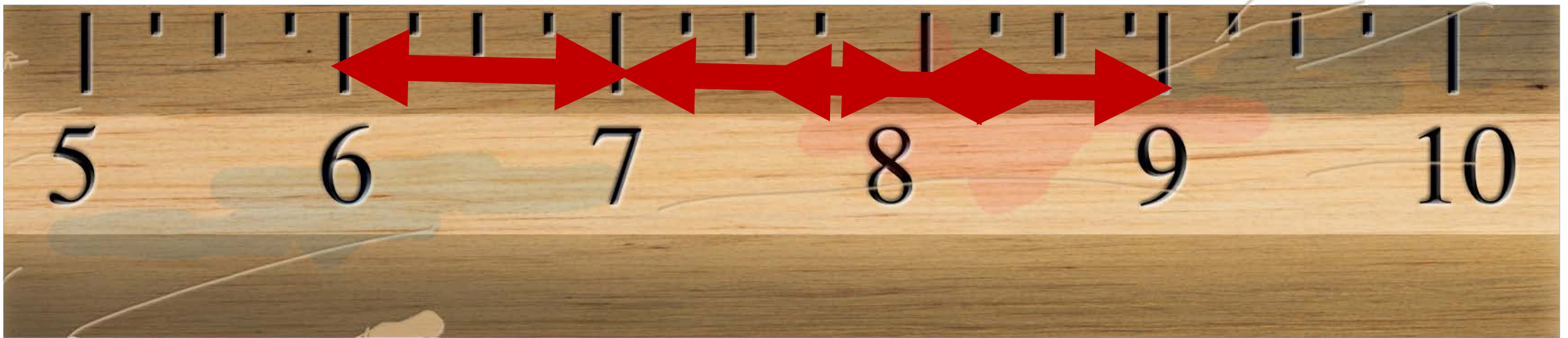


# Diabetes is a Progressive Disease



# Step 1: Determine Individualized Glycemic Target

- A1C Target Range: select based on age, duration of diabetes, patient preference, comorbidities, hypoglycemia risk, and other factors.



# Step 1: Determine Individualized Glycemic Target

| Major Comorbidity                               | Microvascular Complications |          |          |
|---|-----------------------------|----------|----------|
|   | Absent or Mild              | Moderate | Advanced |
| Absent (and/or >10-15 years of life expectancy) | 6.0-7.0%                    | 7.0-8.0% | 7.5-8.5% |
| Present (and/or 5-10 years of life expectancy)  | 7.0-8.0%                    | 7.5-8.5% | 7.5-8.5% |
| Marked (and/or <5 years of life expectancy)     | 8.0-9.0%                    | 8.0-9.0% | 8.0-9.0% |

**Major comorbidity** includes but is not limited to significant CVD, severe CKD, severe COPD, severe chronic liver disease, recent stroke, and life-threatening malignancy.

**Microvascular disease** includes retinopathy, neuropathy, or CKD.

Adapted from the [VA/DoD Management of Diabetes Mellitus Guideline](#).

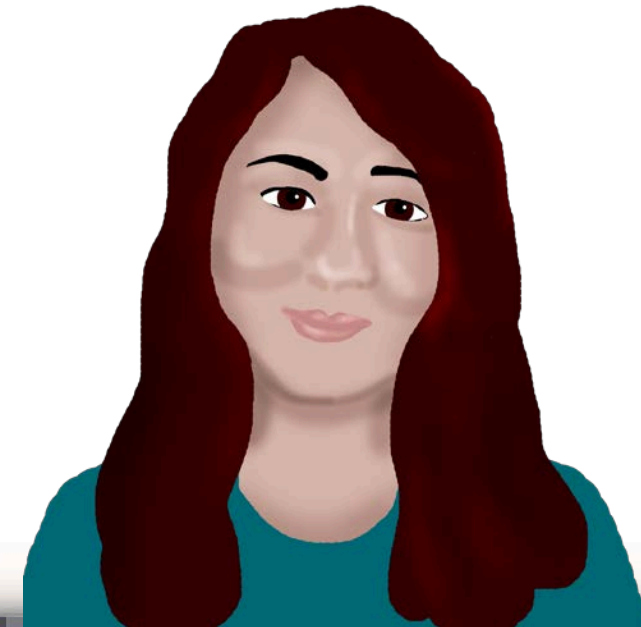


# Updates to GPRA

- GPRAMA: Diabetes Good Glycemic Control
  - Current: Good control: A1c less than (<) 8
  - Future: Poor control: A1c greater than (>) 9



- Lisa is a 28 year old female who was diagnosed with type 2 diabetes three months ago. She is taking metformin XR 1500mg daily. She has no other medical problems.
- What is a reasonable A1C target for Lisa?



- 25 years later, Lisa has developed hypertension, rheumatoid arthritis, congestive heart failure, and chronic kidney disease. She is now taking detemir insulin BID and regular insulin before breakfast and supper.
- Is a target A1C range of 6-7 still appropriate?



# Step 2: Initiate Medication Therapy

- If significant weight loss or ketonuria, use **insulin**
  - Hospitalize if acidotic



- Otherwise:
  - Start **metformin** if A1C above patient's target but  $<9\%$ .
  - Start metformin **and** a second medication if A1C  $\geq 9\%$  (see Step 3).



# Metformin Dosing

- Start with 500mg once a day with largest meal of the day.
- 

- Regular Release

- Increase to 1 tablet 2 times a day for at least 1 week.
- Increase by 1 tablet weekly if able.
- Maximum dose 2550mg per day (5 tablets)



- XR (Extended Release)

- Increase to 2 tablets with largest meal for at least 1 week.
- Increase by 1 tablet weekly if able.
- Maximum dose 2000mg per day (4 tablets)
- Do not cut, break, or crush XR tables



# Metformin Benefits

A1C

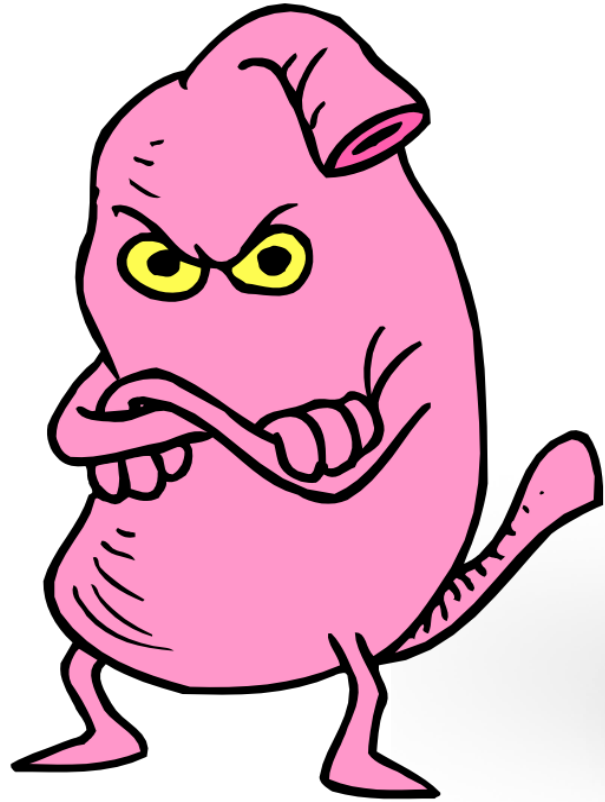
1-1.5%

No hypoglycemia



Triglycerides

# Metformin Side Effects



- Marge is a 28 year old female who was diagnosed with type 2 diabetes 3 months ago. She wanted to try lifestyle management to lower her A1C before starting medications. She has no other medical problems and her eGFR >60ml/min. Her target A1C is 6-7%.
- Today her A1C is 7.8%. She decided that she would like to start medication therapy.
- What medication is the best first choice?





# 6 weeks later...

- Marge is involved in a serious automobile accident. The accident caused some physical trauma to her kidneys but the surgeons feel that she will fully recover with time.
- Her eGFR is currently 48ml/min. What recommendations do you have regarding her metformin therapy?



# Metformin Lactic Acidosis Risk

The screenshot shows the FDA website interface. At the top, it says "U.S. Department of Health and Human Services" and "U.S. FOOD & DRUG ADMINISTRATION". There is a search bar and navigation links for "A to Z Index", "Follow FDA", and "En Español". Below the navigation bar, there are tabs for "Home", "Food", "Drugs", "Medical Devices", "Radiation-Emitting Products", "Vaccines, Blood & Biologics", "Animal & Veterinary", "Cosmetics", and "Tobacco Products". The "Drugs" tab is selected.

The main content area is titled "Drugs" and has a breadcrumb trail: "Home > Drugs > Drug Safety and Availability". On the left, there is a sidebar menu with the following items: "Drug Safety and Availability", "Drug Alerts and Statements", "Medication Guides", "Drug Safety Communications", "Drug Shortages", "Postmarket Drug Safety Information for Patients and Providers", "Information by Drug Class", "Medication Errors", "Drug Safety Podcasts", "Safe Use Initiative", "Drug Recalls", and "Drug Supply Chain Integrity".

The main article is titled "FDA Drug Safety Communication: FDA revises warnings regarding use of the diabetes medicine metformin in certain patients with reduced kidney function". Below the title are social media sharing options: "SHARE", "TWEET", "LINKEDIN", "PIN IT", "EMAIL", and "PRINT".

A blue callout box contains the following text: "4/2017 Update: The issues described below have been addressed in product labeling. Health care professionals and patients can access the approval letters and latest prescribing information by searching for metformin at: [Drugs@FDA](mailto:Drugs@FDA)".

Below the callout box is a "Safety Announcement" section with a dropdown arrow. The text in this section reads: "[ 4-8-2016 ] The U.S. Food and Drug Administration (FDA) is requiring labeling changes regarding the recommendations for metformin-containing medicines for diabetes to expand metformin's use in certain patients with reduced kidney function. The current labeling strongly recommends against use of metformin in some patients whose kidneys do not work normally. We were asked<sup>1,2</sup> to review numerous medical studies regarding the safety of metformin use in patients with mild to moderate impairment in kidney function,<sup>3-14</sup> and to change the measure of kidney function in the metformin drug labeling that is used to determine whether a patient can receive metformin. We have concluded our review, and are requiring changes to the labeling of all metformin-containing medicines to reflect this new information."

# Metformin Lactic Acidosis Risk

- **Contraindications**

- Severe renal impairment: eGFR < 30 mL/min
- Acute or chronic metabolic acidosis

- **Temporarily discontinue**

- Radiologic studies using iodinated contrast media
- Hold for non-minor surgery – restart when eating and renal function normal

- **Cautions**

- Hypoxia (shock, CHF, AMI)
- Hepatic dysfunction
- Excessive alcohol intake
- Severe renal impairment: eGFR 30-45 mL/min

# Step 3: Intensify Therapy

**If A1C above patient's target range, increase dosage(s) and/or add another medication**

- Select additional medication(s) based on:
  - Formulary options
  - Side effects
  - Comorbidities
  - Cost
  - Medication regimen complexity
  - Patient preference

# Medication Options: National Core Formulary

The screenshot shows the website for the Indian Health Service (IHS) National Pharmacy & Therapeutics Committee. The header includes the IHS logo and the text "Indian Health Service The Federal Health Program for American Indians and Alaska Natives". A search bar and navigation links like "A to Z Index", "Employee Resources", and "Feedback" are present. The main content area is titled "National Pharmacy & Therapeutics Committee" and features three columns: "National Core Formulary" with an image of pills, "Clinical Guidance" with an image of arrows, and "Meeting Updates" with an image of people in a meeting. A "STAY CONNECTED" box encourages signing up for the "NPTC LISTSERV".

- The NPTC Identifies the minimal drugs that must be stocked in federal IHS facilities.
- Local P&T Committee identifies the medications that will be stocked locally based upon resources and needs.



# Medication Options: Effects and Cost

| Medication                  | A1C | Weight | Risk of Hypoglycemia | Cost |
|-----------------------------|-----|--------|----------------------|------|
| Metformin                   | ↓↓  | -/↓    | -                    | ↑    |
| Alpha Glucosidase Inhibitor | ↓   | -      | -                    | ↑    |
| Amylin Analog               | ↓   | -      | -                    | ↑↑   |
| DPP-4 Inhibitor             | ↓   | -      | -                    | ↑↑   |
| GLP-1 Receptor Agonist      | ↓↓  | ↓↓     | -                    | ↑↑↑  |
| Insulin                     | ↓↓↓ | ↑↑/↑↑↑ | ↑↑↑                  | ↑↑   |
| SLGT2 Inhibitor             | ↓   | -/↓    | -                    | ↑↑↑  |
| Sulfonylurea                | ↓↓  | ↑↑     | ↑↑                   | ↑    |
| Thiazolidinedione           | ↓↓  | ↑      | -                    | ↑↑   |

# Medication Options: Comorbidities (sample)

- Cardiovascular disease: empagliflozin, liraglutide
- Polycystic Ovary Syndrome (PCOS): metformin
- Liraglutide: weight loss (Marketed as Saxenda)
  - Same as Victoza but dosed higher at 0.6-3mg/day



- Heart Failure: avoid Thiazolidinediones
- Osteoporosis/fracture risk: avoid Thiazolidinediones and SGLT2 Inhibitors
- Liver disease: avoid metformin
- Pancreatitis: avoid GLP-1 Receptor Agonists

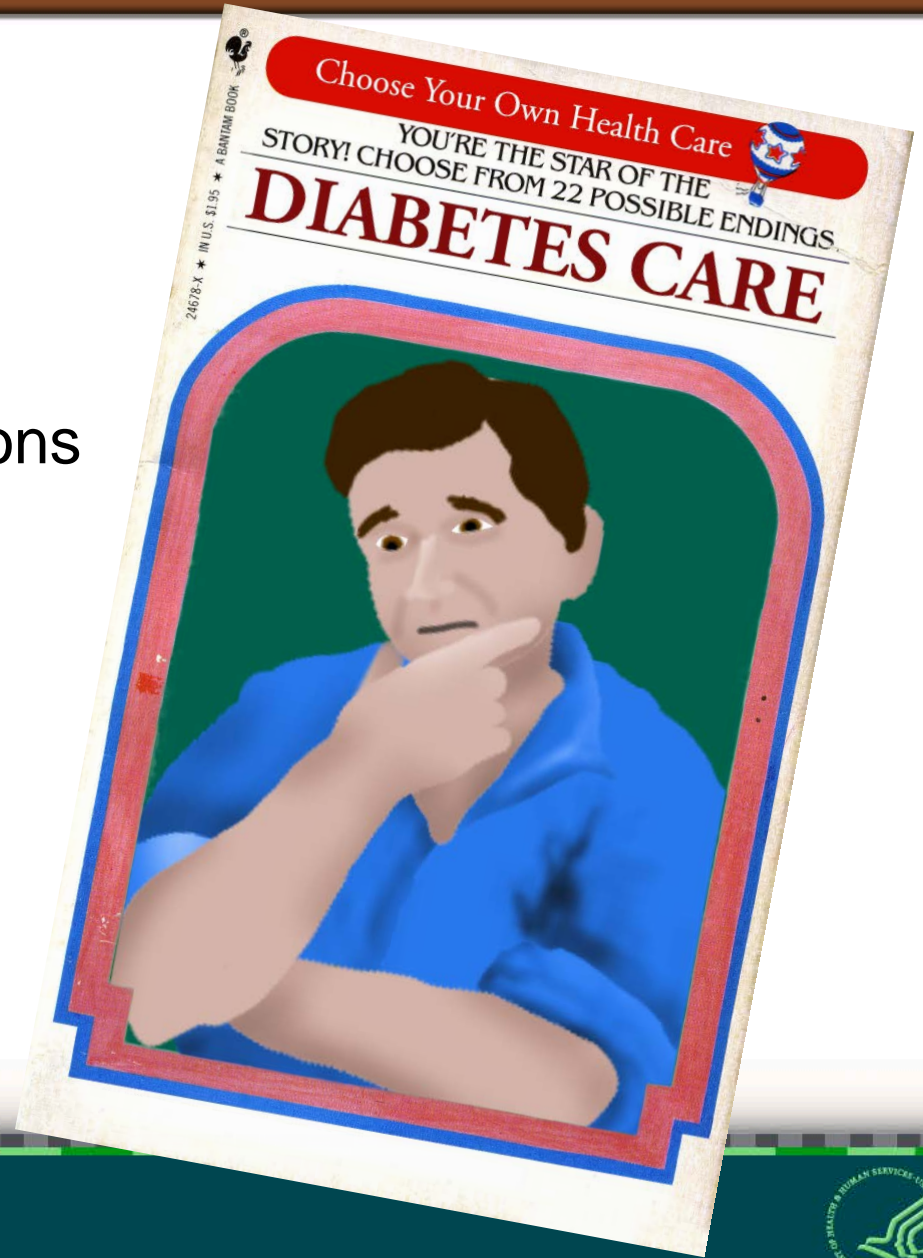
# Medication Options: Pregnancy

| Medication                  | Pregnancy Category   | Breastfeeding             |
|-----------------------------|--|---------------------------|
| Metformin                   | B  | Enters breast milk        |
| Alpha Glucosidase Inhibitor | B  | Unknown; avoid            |
| Amylin Analog               | C  | Unknown; use caution      |
| DPP-4 Inhibitor             | Unknown/B for saxagliptin  | Unknown                   |
| GLP-1 Receptor Agonist      | C may cause fetal harm   | Unknown; use caution      |
| Insulin                     | B/C  | Generally safe/Unknown    |
| SLGT2 Inhibitor             | C/Ertugliflozin & Empagliflozin not recommended during 2 <sup>nd</sup> and 3 <sup>rd</sup> trimester | Unknown                   |
| Sulfonylurea                | C  | Unknown                   |
| Thiazolidinedione           | C; Limited Data  | Limited Data; discontinue |



# Medication Options: Patient Preference

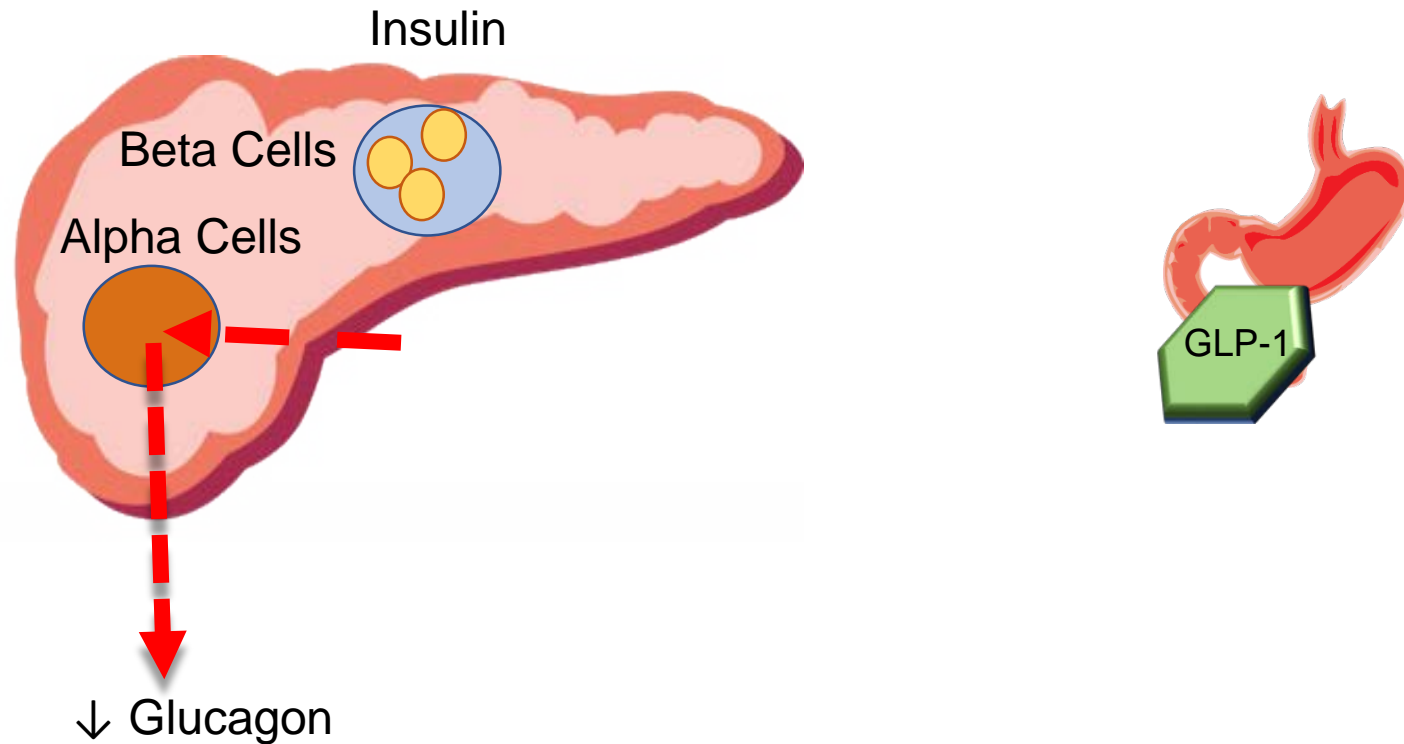
- Patient Engagement
  - Clear Communication
  - Health Literacy Universal Precautions
  - Explain risks & benefits of therapeutic options



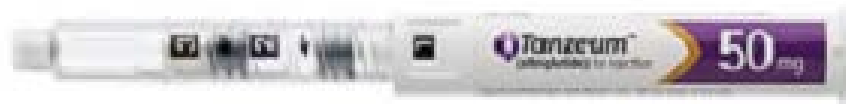
# Medications

- GLP-1 Receptor Agonists
- DPP-4 Inhibitors
- SGLT2 Inhibitors
- Sulfonylureas
- Thiazolidinediones
- Newer Basal Insulins

# Glucagon Like Peptide-1 Receptor Agonist



# Glucagon Like Peptide-1 (GLP-1) Receptor Agonist



Albiglutide (Tanzeum®) – withdrawn



Dulaglutide (Trulicity®)



Exenatide (Byetta®)



Exenatide (Bydureon®)



Liraglutide (Victoza®)



Lixisenatide (Adlyxin®)



Semaglutide (Ozempic®)

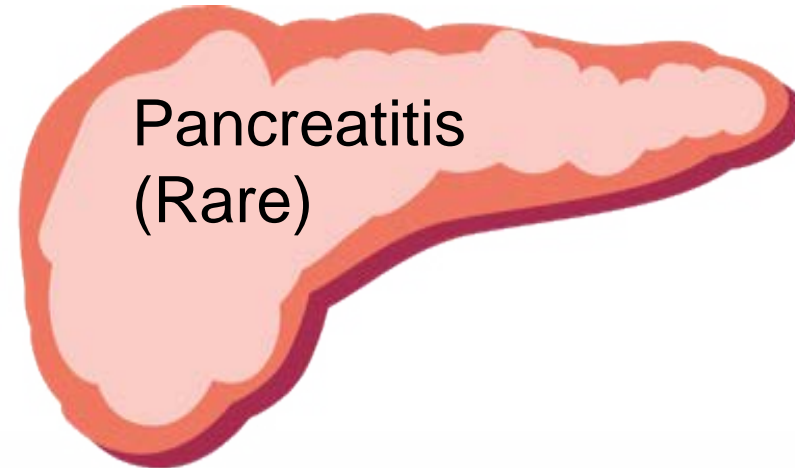
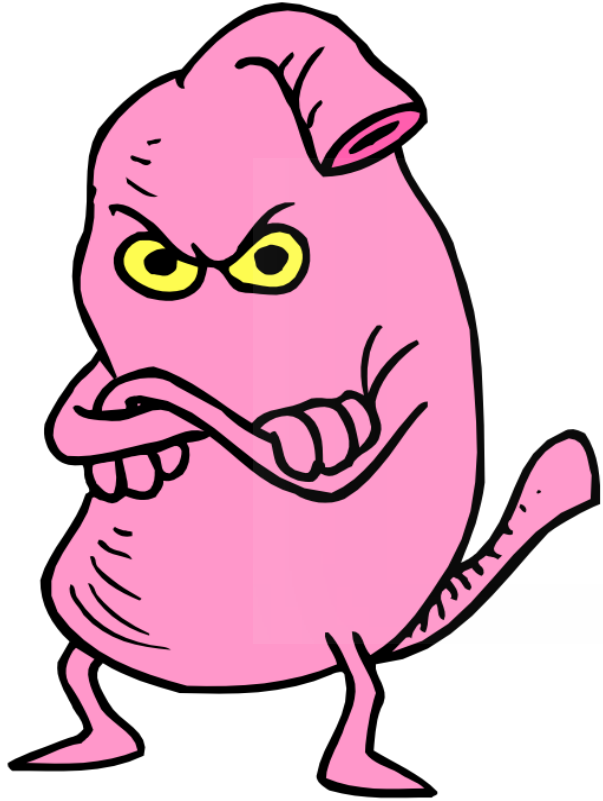
# GLP-1 Receptor Agonist Benefits

A1C  
1%

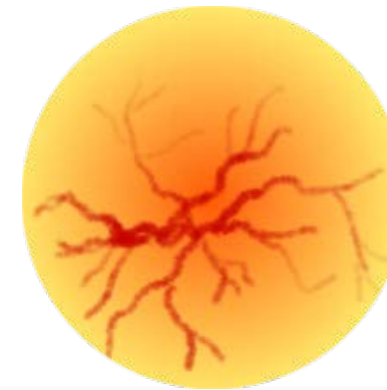
No hypoglycemia



# GLP-1 Receptor Side Effects



Gallbladder:  
Exenatide &  
Liraglutide



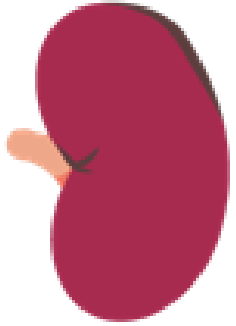
Retinopathy  
Complications:  
Semaglutide

# GLP-1 Receptor Agonist Dosing

| Medication       | Starting Dose                             | Maximum Dose                    |
|------------------|---|---------------------------------|
| Albiglutide      | 30mg weekly                               | Increase to 50mg weekly         |
| Dulaglutide      | 0.75mg weekly                             | Increase to 1.5mg weekly        |
| Exenatide        | 5mcg Q12 hours<br>60 minutes before meals | Increase to 10mcg after 1 month |
| Exenatide weekly | 2mcg weekly                               |                                 |
| Liraglutide      | 0.6mg daily x 7 days                      | 1.8mg daily                     |
| Lixisenatide     | 10mcg daily                               | 20mcg daily after 14 days       |
| Semaglutide      | 0.25mg weekly                             | 1mg weekly                      |

Avoid using with patients who have family or personal history of medullary thyroid carcinoma or multiple endocrine neoplasia syndrome type 2.

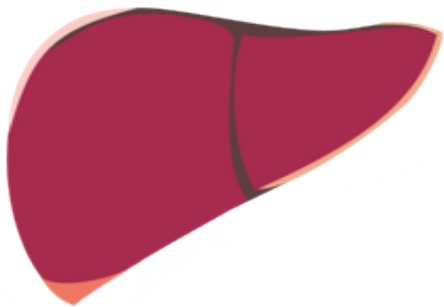
# GLP-1 Receptor Agonist Dosing



Exenatide:                      CrCl 30-50: Use caution  
   CrCl <30: Not recommended

Lixisenatide:                  CrCl <15: Not recommended

No change for other GLP-1 Receptor Agonists



No dose adjustment



# Weekly Doses

Bob is a 48 year old man with type 2 diabetes for six years. He is taking glipizide 10mg BID, metformin 1000mg BID, and exenatide 2mg weekly every Monday.

He calls on Thursday and tells you that he forgot to take his exenatide and wants to know what he should do?

Should he take it now or just wait until Monday?



# GLP-1 Agonists

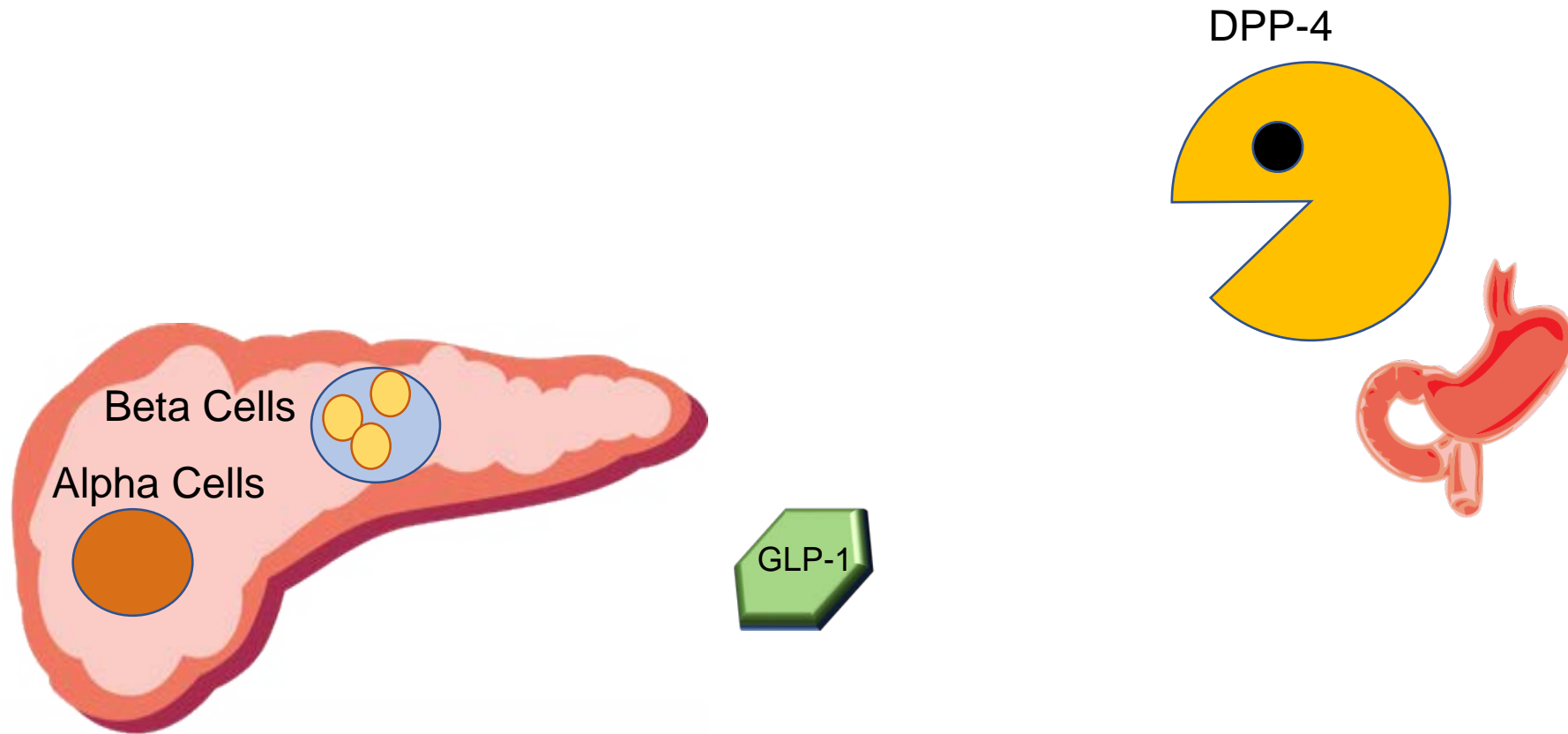
- Missed weekly doses: take when remembered if  $\leq 3$  days of the next dose (semaglutide may be administered within 5 days)



- Switching days: after at least 4 days of last dose

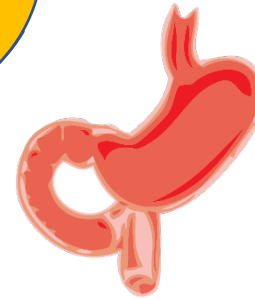
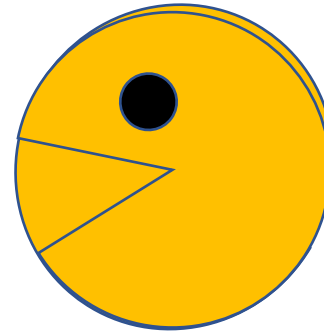
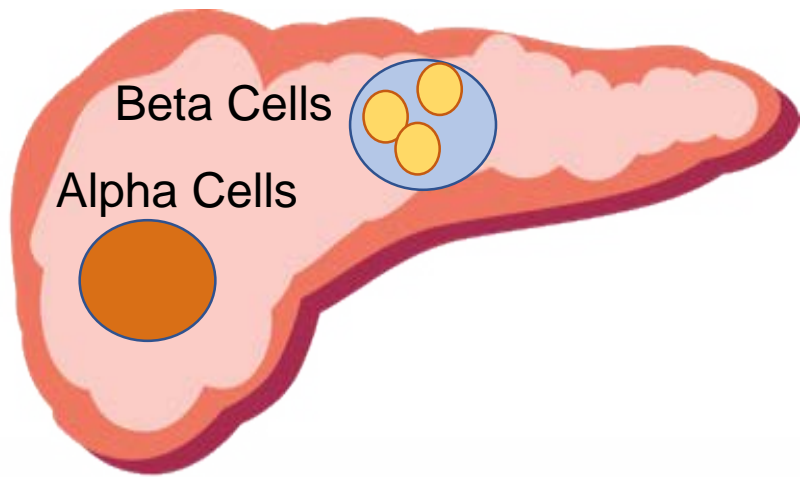


# DPP-4 Inhibitors



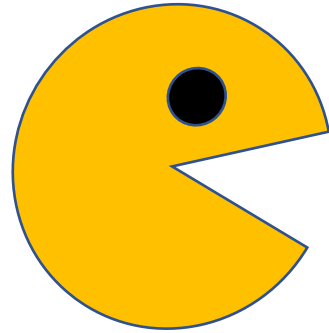
# GDPP-4 Inhibitors

DPP-4 Inhibitor



# GDPP-4 Inhibitors

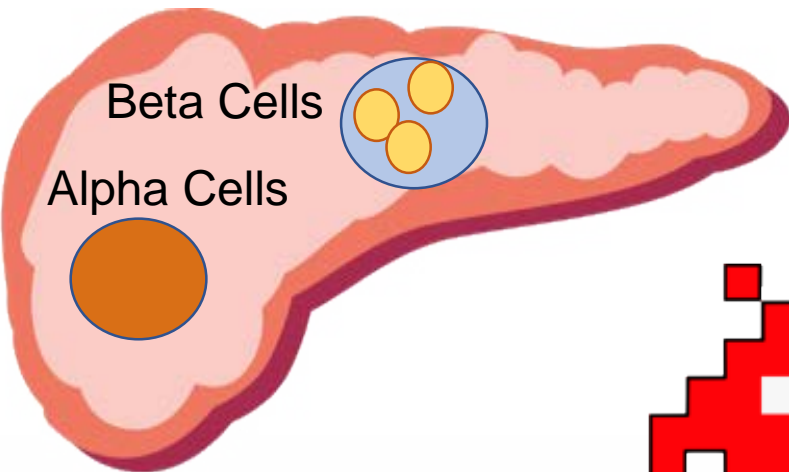
## DPP-4 Inhibitor



Do not use GLP-1 Receptor Agonists and DPP-4 inhibitors together.

GLP-1 Receptor Agonists are not affected by DPP-4.

Combining DPP-4 Inhibitors and GLP-1 Receptor Agonists do not provide additional A1C lowering, but does increase the risk of side effects.



## GLP-1 Receptor Agonist

# Dipeptidyl Peptidase-4 (DPP-4) Inhibitors



**Saxagliptin (Onglyza®)**



**Alogliptin (Nesina®)**



**Linagliptin (Tradjenta®)**



**Sitagliptin (Januvia®)**

# DPP-4 Inhibitors Benefits and Risks

A1C  
0.5%

No hypoglycemia



## Increased Risk of Heart Failure with Saxagliptin and Alogliptin

**FDA Drug Safety Communication: FDA adds warnings about heart failure risk to labels of type 2 diabetes medicines containing saxagliptin and alogliptin**

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This is an update to the FDA Drug Safety Communication: FDA to review heart failure risk with diabetes drug saxagliptin (marketed as Onglyza and Kombiglyze XR) issued on [February 11, 2014](#).

### Safety Announcement

**[ 4-5-2016 ]** A U.S. Food and Drug Administration (FDA) safety review has found that type 2 diabetes medicines containing saxagliptin and alogliptin may increase the risk of heart failure, particularly in patients who already have heart or kidney disease. Heart failure can result in the heart not being able to pump enough blood to meet the body's needs. As a result, we are adding new warnings to the drug labels about this safety issue.

# DPP-4 Inhibitors Dosing

| Medication  | Starting/Usual Dose | Modify Dose if:  |
|-------------|---------------------|--|
| Saxagliptin | 2.5-5mg daily       | GFR $\leq$ 45 – 2.5mg daily<br>Strong CP450 3A4/5 inhibitors – 2.5mg daily |
| Alogliptin  | 25mg daily          | CrCl $\geq$ 30 but < 60 - 12.5mg daily<br>CrCl <30 - 6.25mg daily          |
| Linagliptin | 5mg daily           |  |
| Sitagliptin | 100mg daily         | CrCl $\geq$ 30 but <50 - 50mg daily<br>CrCl <30 - 25mg daily               |



- Robert is a 52 year old man with type 2 diabetes for 11 years and hypertension. He had an MI two years ago. He is taking metformin 1,000mg BID, glipizide 10mg BID, and saxagliptin 5mg daily.
- A1C is 8.4% (Target A1C is 7-8)
- Refuses to use an injectable medication
- What treatment options does Robert have?



# Sodium Glucose Co Transporter 2 Inhibitors



Canagliflozin (Invokana®)



Dapagliflozin (Farxiga®)



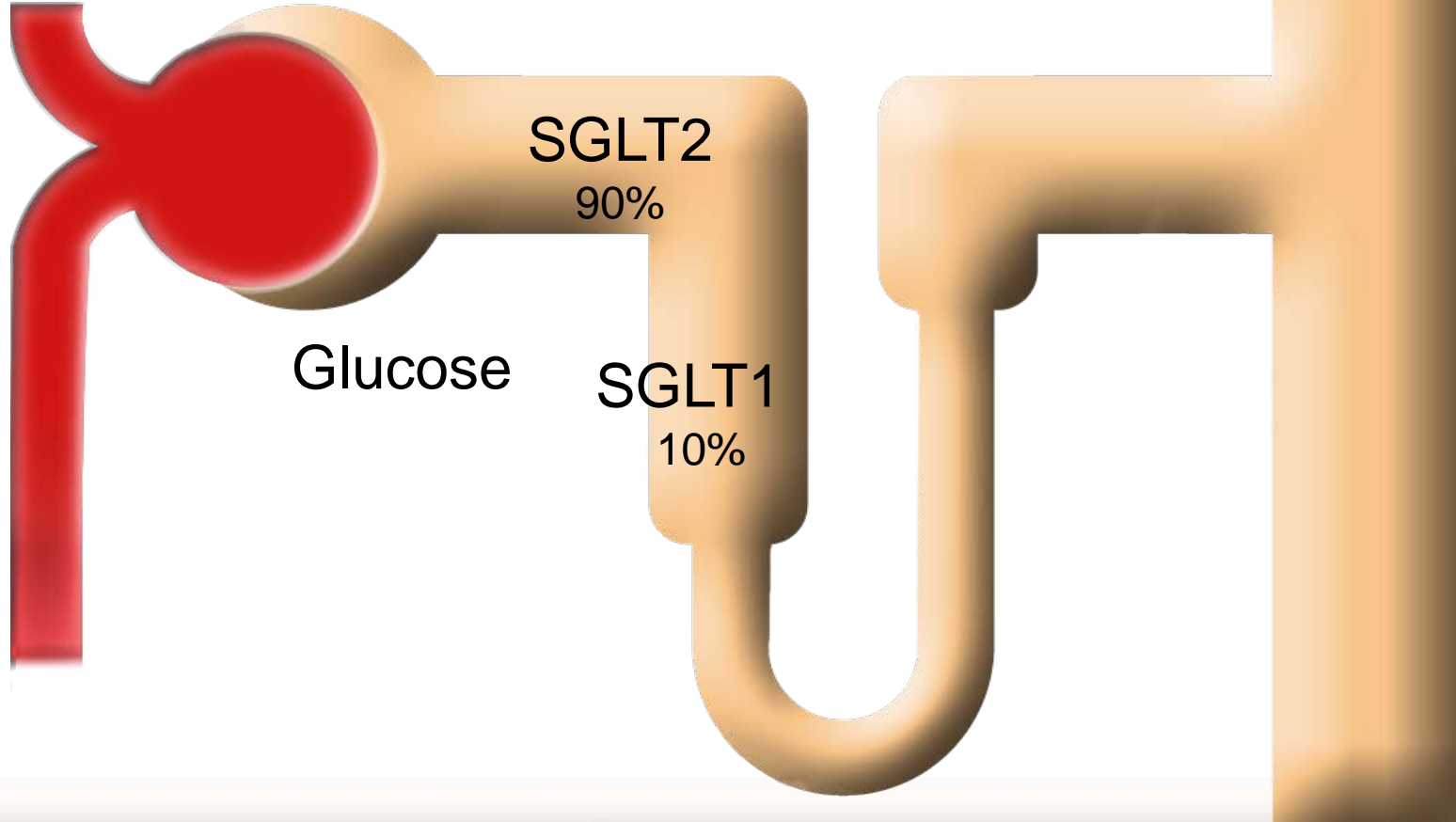
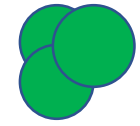
Empagliflozin (Jardiance®)



Ertugliflozen (Steglatro®)

# SGLT2 Inhibitors

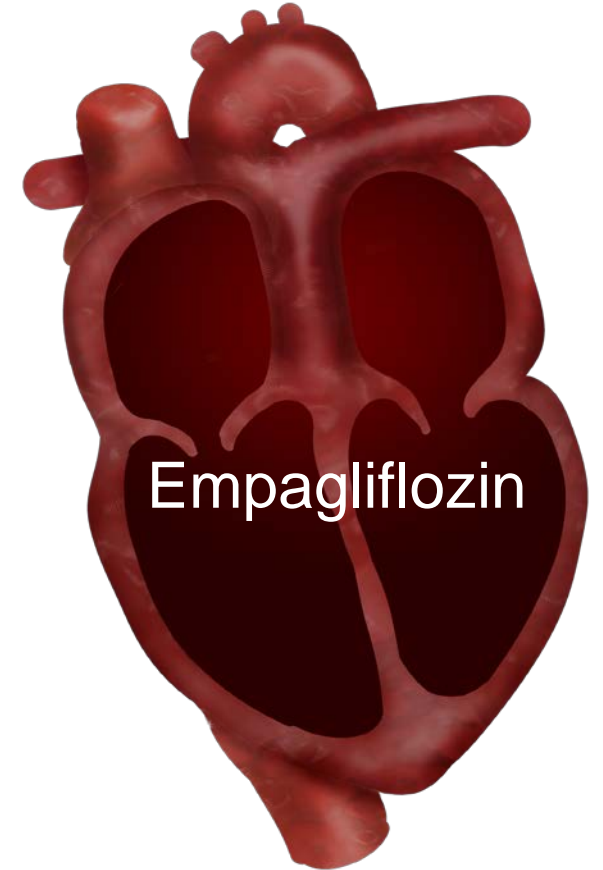
Glucose



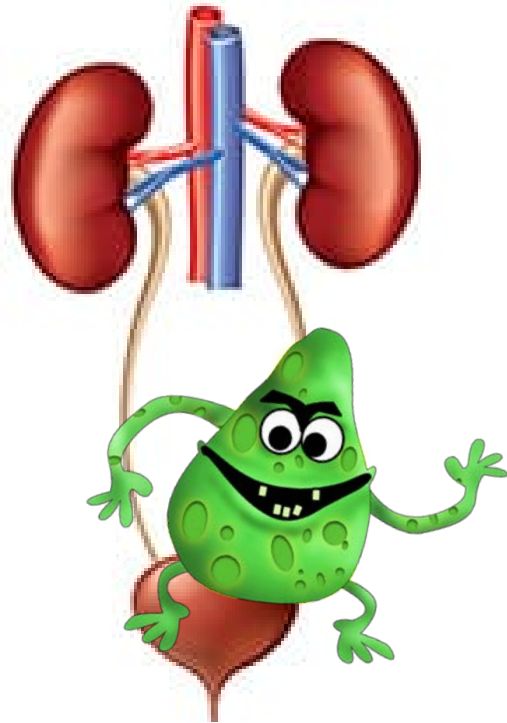
# SGLT2 Inhibitors Benefits

A1C  
0.5%

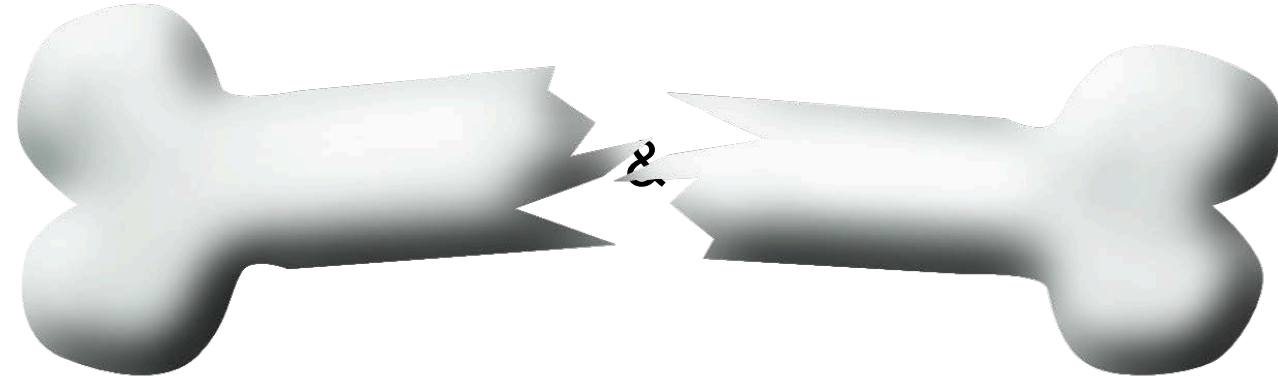
No hypoglycemia



# SGLT2 Inhibitors Risks



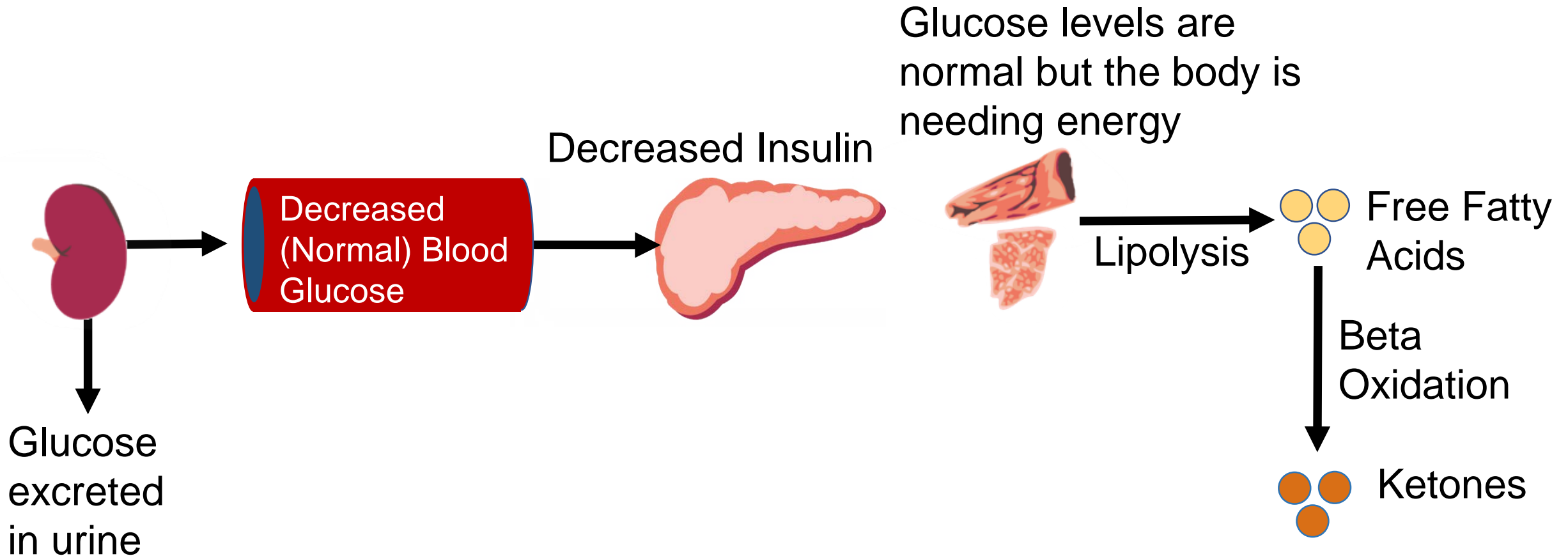
And Bladder Cancer:  
dapagliflozin



Canagliflozin



# SGLT2 Inhibitors Risks: Ketoacidosis



# SGLT2 Inhibitors

| Medication    | Starting/Usual Dose               | Max Dose    |
|---------------|-----------------------------------|-------------|
| Canagliflozin | 100mg daily before the first meal | 300mg daily |
| Dapagliflozin | 5mg daily with or without food    | 10mg daily  |
| Empagliflozin | 10mg daily with or without food   | 25mg daily  |
| Ertugliflozin | 5mg daily                         | 15mg daily  |

# SGLT2 Inhibitors

| Medication    | Renal Dosing   |
|---------------|--|
| Canagliflozin | GFR 45-60: max dose 100mg/day<br>GFR <45: do not initiate<br>GFR <30: do not use |
| Dapagliflozin | GFR <60: do not initiate<br>GFR 30-60: not recommended<br>GFR <30: do not use    |
| Empagliflozin | GFR <45: do not use  |
| Ertugliflozin | GFR <30: do not use  |



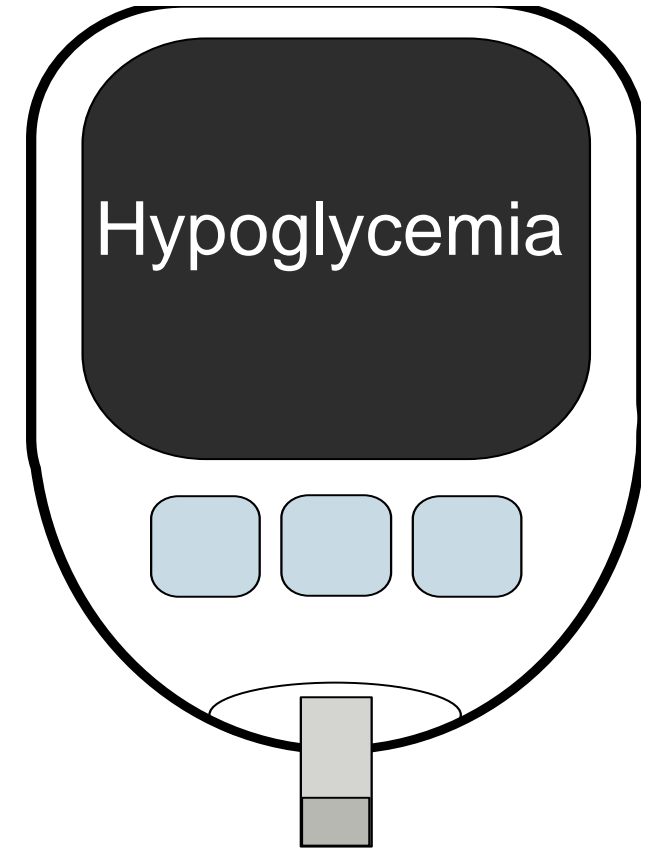
# Sulfonylureas/Meglitinides

| Sulfonylurea                                    | Starting Dose                            | Max Dose               | Duration    |
|---|--|------------------------|-------------|
| Tolbutamide                                     | 0.25-3g divided doses                    | 2-3g                   | 6-12 hours  |
| Tolazamide (Tolinase®)                          | 0.1-1g single or divided doses           | 0.75-1g<br>(500mg BID) | 10-14 hours |
| Chlorpropamide                                  | 0.1-0.5g single dose                     | 0.5g                   | 72 hours    |
| Tolbutamide                                     | 0.25-3g divided doses                    | 2-3g                   | 6-12 hours  |
| Glyburide (Diabeta®,<br>Micronase®)             | 1.25-10mg daily (single or divided dose) | 20mg daily             | 24 hours    |
| Glyburide (Glynase®)                            | 0.75-12mg daily                          | 12mg daily             |             |
| <b>Glipizide (Glucotrol®<br/>Glucotrol XL®)</b> | 2.5-20mg daily (single or divided dose)  | 40mg<br>(20mg if XL)   | 12-16 hours |
| Glimepiride (Amaryl®)                           | 1-4mg daily                              | 8mg daily              | 24 hours    |
| Repaglinide (Prandin®)                          | 0.5-4mg before meals                     | 16mg per day           | 2-3 hours   |
| Nateglinide (Starlix®)                          | 120mg before meals                       | 120mg                  | 2-3 hours   |

# Sulfonylurea Effects



A1C  
1-2%



# Thiazolidinediones (TZD)



**Pioglitazone (Actos®)**



**Rosiglitazone (Avandia®)**

| Medication    | Starting/Usual Dose | Max Dose      |
|---------------|---------------------|---------------|
| Pioglitazone  | 15mg daily          | 30-45mg daily |
| Rosiglitazone | 4mg daily           | 8mg daily     |

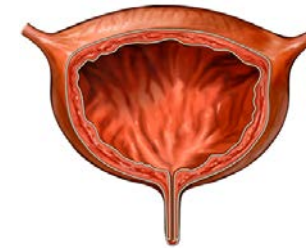
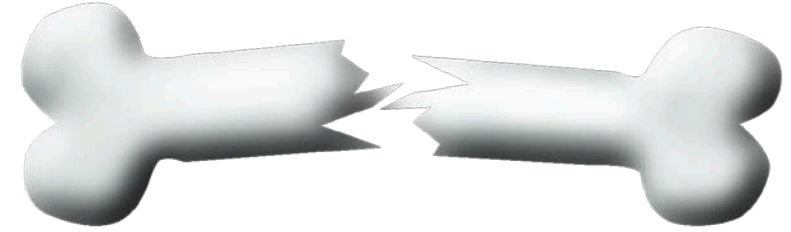
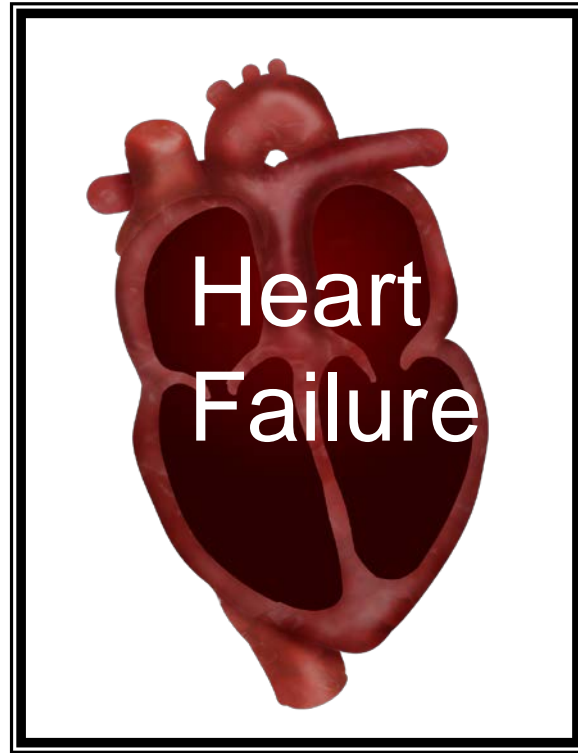
May take up to 12 weeks for maximal A1C lowering to occur

# Thiazolidinedione Benefits

A1C  
1-2%

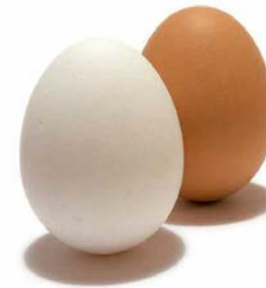
No hypoglycemia

# Thiazolidinedione Risks



Bladder Cancer  
(pioglitazone)

May stimulate ovulation in  
premenopausal  
anovulatory women



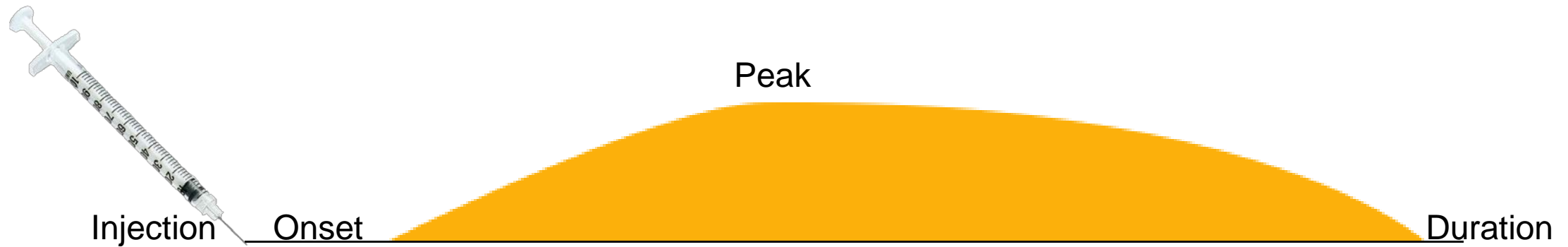
# Basal Insulin

- Intermediate Acting
  - NPH
- Long Acting
  - Glargine (Lantus®, Basaglar®)
  - Detemir (Levemir®)
- Ultra Long Acting
  - Glargine U300 (Toujeo®)
  - Degludec (Tresiba®)



# What makes insulin different?

- How long it takes to work (onset)?
- When (if) the insulin spikes (peak)?
- How long it works (duration)?



- How concentrated is the insulin?

# Insulin Concentrations

**U-100**

**U-200**

**U-300**

**U-500**



1mL U-100 contains 100 units of insulin  
1mL U-200 contains 200 units of insulin  
1mL U-300 contains 300 units of insulin  
1mL U-500 contains 500 units of insulin



# Intermediate Acting Insulin



| Type of Insulin | Onset     | Peak       | Duration    |
|-----------------|-----------|------------|-------------|
| NPH             | 1-2 hours | 4-12 hours | 12-16 hours |

# Long-Acting Insulin



| Type of Insulin                | Onset     | Peak      | Duration    |
|--------------------------------|-----------|-----------|-------------|
| Glargine (Basaglar®, Lantus ®) | 1-2 hours | None      | 20-26 hours |
| Detemir (Levemir®)             | 1-2 hours | 6-8 hours | 18-24 hours |

# Ultra-Long-Acting insulin

- Steady insulin levels for over 24 hours
- Injected once daily
- May be combined with short-acting insulin to cover meals

| Type of Insulin            | Onset     | Peak | Duration       |
|----------------------------|-----------|------|----------------|
| Glargine U300<br>(Toujeo®) | 1-2 hours | None | Up to 36 hours |
| Degludec<br>(Tresiba®)     | 30-90 min | None | >42 hours      |

# Insulin Glargine U300 (Toujeo®)

- 1ml of Glarine U100 contains 100 units
- 1ml of Glargine U300 contains 300 units



# Insulin Degludec (Tresiba®)

- Available as:
  - U100 (100 units/mL)
  - U200 (200 units/mL)
- Good for 8 weeks after opening



# What to do with other medications when starting Insulin?



# What to do with other medications when starting Insulin?

- **Metformin:** Recommend that it be continued
- **Sulfonylureas:** questionable benefit
- **TZD:** May increase risk of edema and weight gain; may reduce insulin resistance
- **SGLT2 Inhibitors:** Lower risk of hypoglycemia compared with other agents and less weight gain
- **DPP4 Inhibitors:** Modest A1C lowering; may be weight neutral
- **GLP-1 Agonist:** Can reduce A1c and body weight; longer acting have more effect than shorter acting; low risk of hypoglycemia

- Patricia is a 63 year old woman with type 2 diabetes for eight years.
- She is taking metformin 1000mg BID and glipizide 10mg BID.
- She was started on saxagliptin 5mg 3 months ago with no change in A1C.
- Her doctor started insulin detemir 10 units at bedtime.
- Her last A1C is 8.6
- Today her A1C is 8.7
- What is the next step?





**Drugs don't work if.....  
.....people don't take them!**



# Medication Adherence



100 Prescriptions written

88 are filled at the pharmacy

76 are taken by the patient

49 are refilled after the prescription runs out

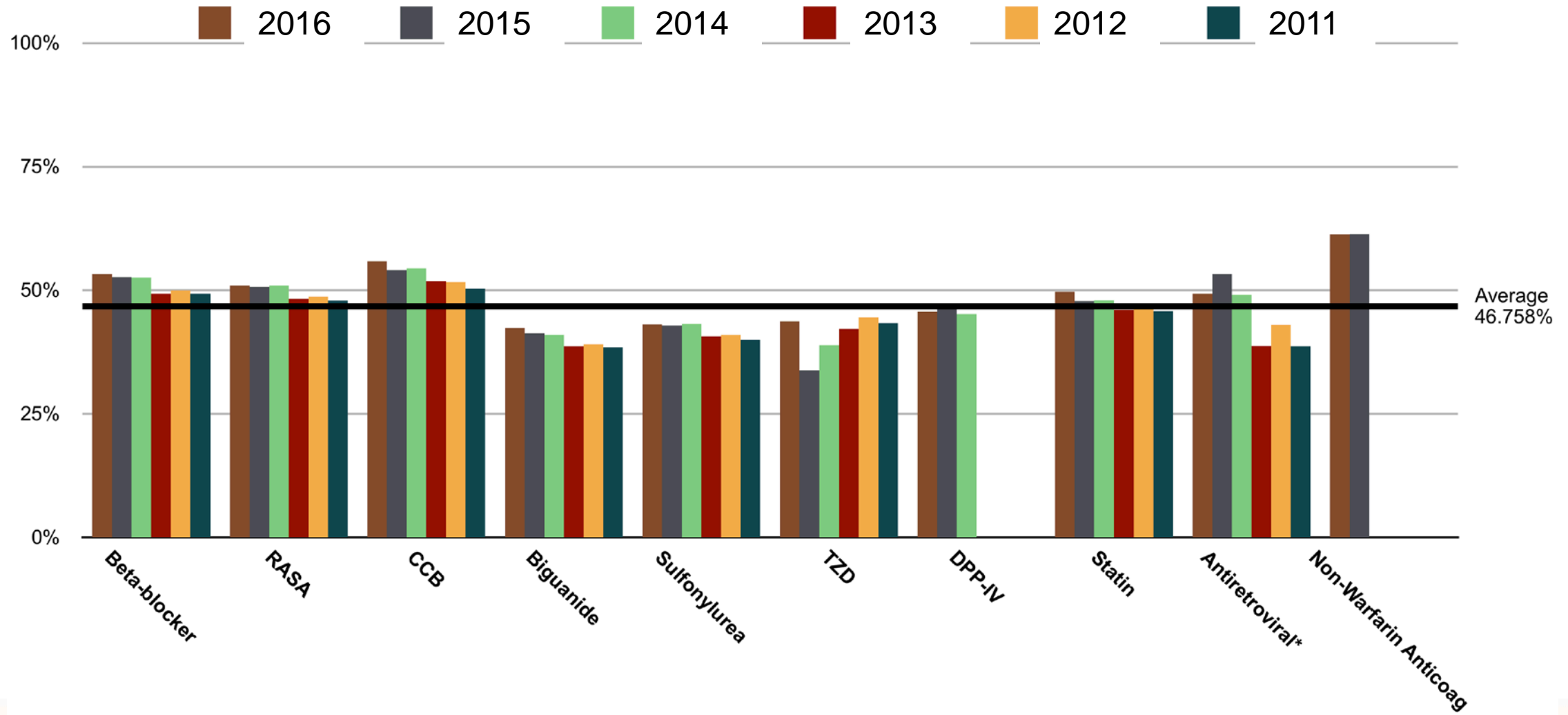
# Medication Adherence

- Proportion of Days Covered (PDC)

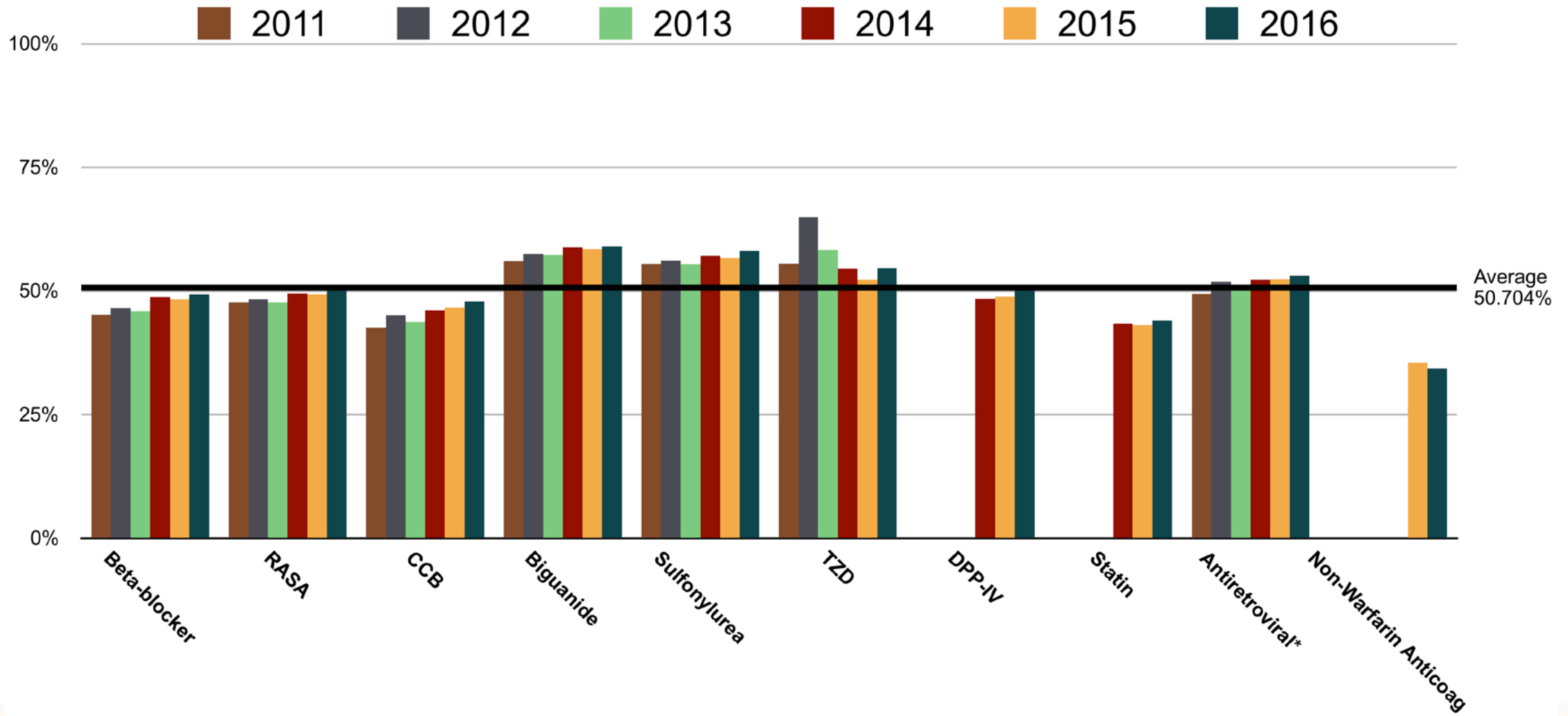


Total days must be  $\geq 80\%$  ( $> 292$  days supply)

# Proportion of Days Covered

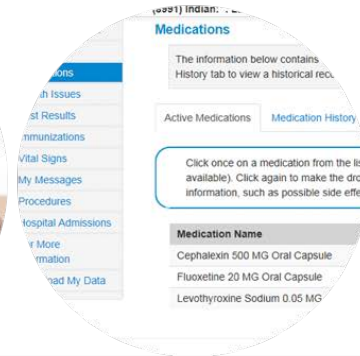


# Gaps in Therapy



# Addressing Adherence

- Simplify the regimen
- Impart knowledge
- Modify patient beliefs and human behavior
- Provide communication and trust
- Leave the bias
- Evaluate adherence



# Thank you!



CAPT Christopher Lamer, PharmD, MHS, BCPS, CDE  
Division of Diabetes Treatment and Prevention/  
Office of Information Technology  
[chris.lamer@ihs.gov](mailto:chris.lamer@ihs.gov)  
Phone: 615-669-2747

# Resources

- Division of Diabetes Treatment and Prevention  
<https://www.ihs.gov/diabetes/>
- Continuing Education <https://www.ihs.gov/diabetes/training/>
- Diabetes Listserv <https://www.ihs.gov/diabetes/ihs-diabetes-listserv/>