

# Diabetes Pathways Workshop

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The Leaders in Home Health and Hospice Care

# Program Objectives

- ▶ The participant will list 7 diabetes self-care behaviors
- ▶ The participant will explain procedure for A1C documentation
- ▶ The participant will teach back sharps disposal policy
- ▶ The participant will discuss the high risk medications
- ▶ The participant will describe awareness of the OASIS Foot questions and document risk
- ▶ The participant will identify the diabetes resources in the Clinician Tool Kit

# The toll diabetes takes...

- ▶ Leading cause of new cases of blindness
- ▶ Leading cause of kidney failure
- ▶ 80% of deaths from heart attack or stroke
- ▶ > 60% of people with diabetes (PWD) have neuropathy or gastroparesis
- ▶ Annually 70,000 PWD have non-traumatic amputation

# DIAGNOSING DIABETES

	DIABETES	PREDIABETES
Fasting glucose	$\geq 126$	100–125
Random glucose	$\geq 200$ w/symptoms	Not diagnostic
2-hour OGTT	$\geq 200$	140–199
A1C	$\geq 6.5\%$	5.7 – 6.4%

- Fasting= no calories for at least 8 hrs
- OGTT = oral glucose tolerance test
- A1C measures ave gluc over 2-3 mos, can be done anytime of day

# 7 Diabetes Self-Care Behaviors

- ▶ Monitoring
- ▶ Taking Medication
- ▶ Healthy Eating
- ▶ Being Active
- ▶ Problem Solving
- ▶ Reducing Risks – acute and chronic
- ▶ Healthy Coping

# MONITORING

- ▶ Self-monitoring blood glucose – role of OT with low vision or dexterity issues
- ▶ Hemoglobin A1C – document every 3 months; required for Medicare patients
- ▶ General Patient Monitoring – ADA Standards of Care



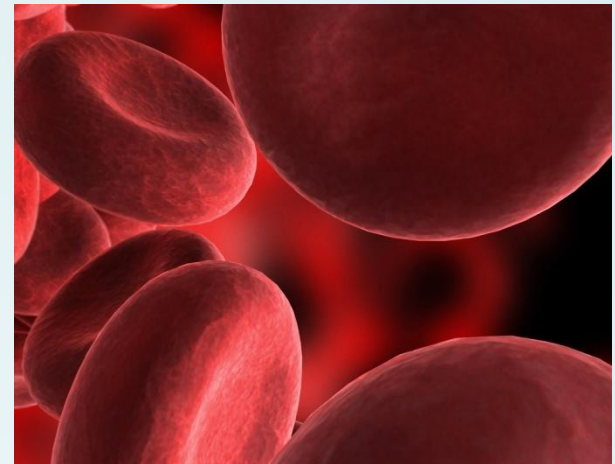
# Self-Monitoring Blood Glucose

- ▶ Prevent/detect hypoglycemia and hyperglycemia
- ▶ Determine needs for insulin (sliding scale)
- ▶ Fasting and pre-meal goal 80–130
- ▶ 2-hr postprandial goal < 180
- ▶ Goal higher in frail elderly

Note: It is important to assess ability to correctly use and READ meter accurately. Ask patient to demonstrate a blood glucose check: will reveal if patient familiar with which way to insert test strip, where to apply blood to test strip, and if they are able to read result displayed on screen.

# HEMOGLOBIN A1C

- ▶ % glucose attached to RBC
  - ▶ Average blood glucose over 2–3 months
  - ▶ Correlates to eAG (estimated Average Glucose)
  - ▶ A1C 7 % = eAG of 154
  - ▶ Target 7% or less for average pt\*
    - Target should be patient specific.
    - Some children and elders <8%
    - Speak with MD for specific goals.
- ‘What’s my A1C?’ handout in pathway  
Depicts blood sugars correlating with A1C





# SHARPS Disposal

- ▶ ALL Lancets, syringes, pen needles (including auto-shield needle tips, travel/safety lancets, auto shield pre filled syringes like lovenox)
- ▶ ALL patients that perform glucose monitoring/ blood sugar checks should have a sharps container. Recommend a hard, non clear plastic container with cap (for example, emptied detergent or bleach container).
- ▶ Container should be labeled 'SHARPS- NOT FOR RECYCLING'
- ▶ Teach patient proper container and disposal (drop-off sites)
- ▶ Teach patient risk to others if sharps exposure
  
- ▶ Handout "Syringe and Needle Disposal Sites in Massachusetts"
- ▶ <https://www.mass.gov/files/documents/2018/03/22/Proper%20Use%20and%20Disposal%20of%20Needles%20and%20Syringes%20March%202018.pdf>
  
- ▶ NH drop off sites – need to call local board of health for drop off sites.
- ▶ <https://www.des.nh.gov/organization/commissioner/pip/factsheets/sw/documents/sw-31.pdf>

# Medications – Oral Agents

CLASS	BRAND	GENERIC
Sulfonylureas	Diabeta, Micronase Glucotrol Amaryl	Glyburide Glipizide Glimepiride
Biguanides	Glucophage	Metformin
Thiazolidinediones (TZD's)	Actos, Avandia	Pioglitazone, Rosiglitazone
DPP 4 Inhibitors	Januvia, Onglyza Tadjenta	Sitagliptin, Saxagliptin, Linagliptin
SGLT-2 Inhibitors	Invokana, Farxiga Jardiance	Canagliflozin Dapagliflozin Empagliflozin

- ▶ **Sulfonylureas: stimulates insulin secretion.**
  - Can cause hypoglycemia, weight gain.
- ▶ **Biguanides: increases insulin sensitivity, reduces hepatic glucose release.**
  - Can cause GI upset, dose with caution if renal or liver impairment.
- ▶ **TZD's—decreases insulin resistance in tissues**
  - Can cause edema, weight gain, needs liver monitoring
- ▶ **DPP-4 inhibitors: increase insulin sensitivity, decrease post prandial glucose secretion from liver**
  - Increased risk for URIs, UTIs. No weight gain.
- ▶ **SGLT-2 inhibitors: increase glucose excretion via urine.**
  - Increased risk for UTIs, yeast infection, dehydration, should not be used with renal impairment.
- ▶ **GLP 1 analogs: increase insulin secretion, slow gastric emptying, improves satiety, reduces hepatic glucose (Byetta, Victoza, Trulicity)**
  - May cause nausea, diarrhea, vomiting; hypoglycemia if used with other meds, mild weight loss

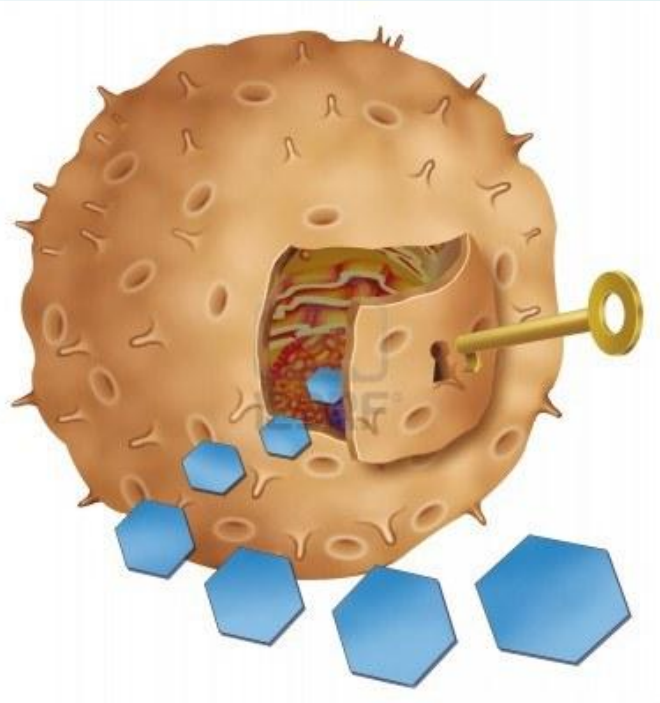
# NON-INSULIN INJECTABLES

INCRETIN MIMETICS	AMYLIN ANALOGUE
type 2 dm	type 1 and 2
BYETTA ,VICTOZA,BYDUREON	SYMLIN (Pramlintide)
Mimics incretin, a natural hormone that signals insulin secretion	Replaces hormone, amylin, deficient in people who make little or no insulin
Delays gastric emptying, reduces appetite, may assist weight loss, can cause hypoglycemia	Helps control amount and rate of sugar entering bloodstream
Byetta – 2x/d; Victoza – 1x/d; Bydureon – weekly	Take with each major meal

# High Risk Medication

- ▶ All insulin and oral hypoglycemics (such as sulfonylureas) can cause low blood sugar
- ▶ Hypoglycemia is one of the top reasons for re-hospitalization < 30 days
- ▶ Pt's should be able to teach back signs, symptoms, prevention and treatment
- ▶ Can find summary of Rule of 15s for hypoglycemia treatment in both DM pathway folder and Diabetes Tool Kit
  
- ▶ For detailed summary of diabetes medications, please refer to Joslin non-insulin Medication chart:
- ▶ [http://www.joslin.org/docs/Joslin\\_Diabetes\\_Center\\_Non\\_insulin\\_Diabetes\\_Medications\\_Summary\\_Chart.pdf](http://www.joslin.org/docs/Joslin_Diabetes_Center_Non_insulin_Diabetes_Medications_Summary_Chart.pdf)

# INSULIN = “The Key”



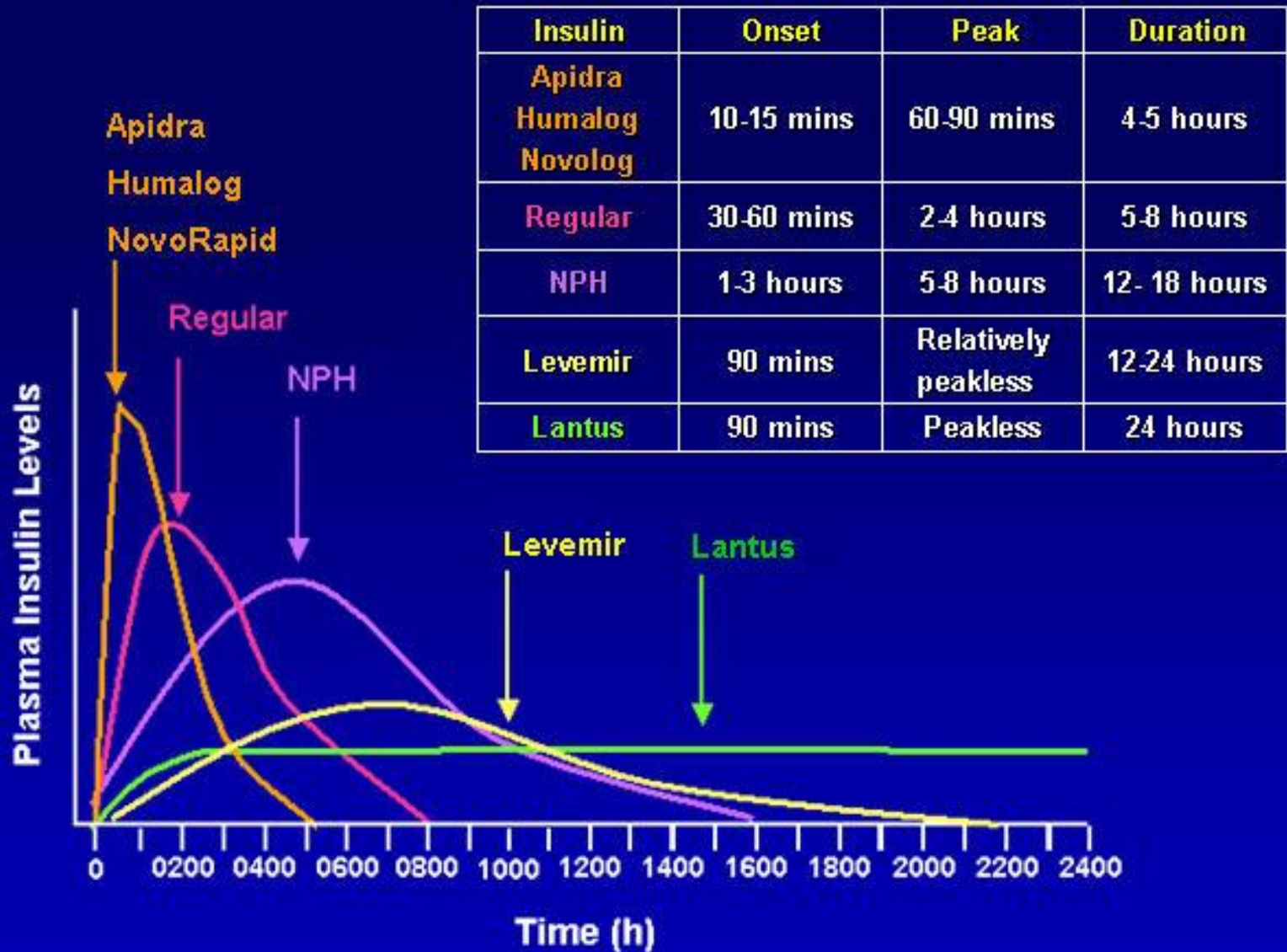
Picture a door on the cell with a keyhole; insulin is the key that unlocks the door and allows glucose to move into the cell to be used for energy; without enough insulin, the cell door stays locked and glucose accumulates in the blood, traveling through the entire body, and damaging organs and blood vessels.

Watch:

<https://www.youtube.com/watch?v=CuQMpN7rM-4>



# INSULIN



From: Dr. Ian Blumer's Practical Guide to Diabetes

# Newer insulins:

- ▶ Toujeo Solostar Pen – insulin glargine  
U-300; 450 units per pen
- ▶ Tresiba – insulin degludec:
  1. U-100 Flex Touch pen, 1 unit increments, dials up to 80 units, 300 units per pen
  2. U-200 FlexTouch pen, 2 unit increments, dials up to 160 units, 600 units per pen
- ▶ Humalog U-200
- ▶ Humulin R U-500 Kwikpen (new pen, not a new insulin)

## **Varying concentration pens adjust volume dispensed so that it is a 1:1 conversion.**

If a patient was taking 5 units of novolog (u-100) before meals and gets switched to a Humalog u-200, will continue with 5 units before meals.

If a patient was on 30 units of lantus (u-100) each night and gets switched to Toujeo pen (u-300), should continue to take 30 units daily.

**Although made from similar compounds, studies have shown some benefits from concentrated basal insulins, including reduced overnight hypoglycemia.**

**<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4790523/>**



# HEALTHY EATING

- ▶ Individualized; no single, mandatory eating prescription
- ▶ Improving food choices can decrease A1C 1%–2% and fasting glucose 50–100 mg/dl
- ▶ Meal planning tools in DM Pathway include: plate method, carbohydrate counting, label reading
- ▶ Encourage patient to follow Heart–healthy guidelines

# PLATE METHOD

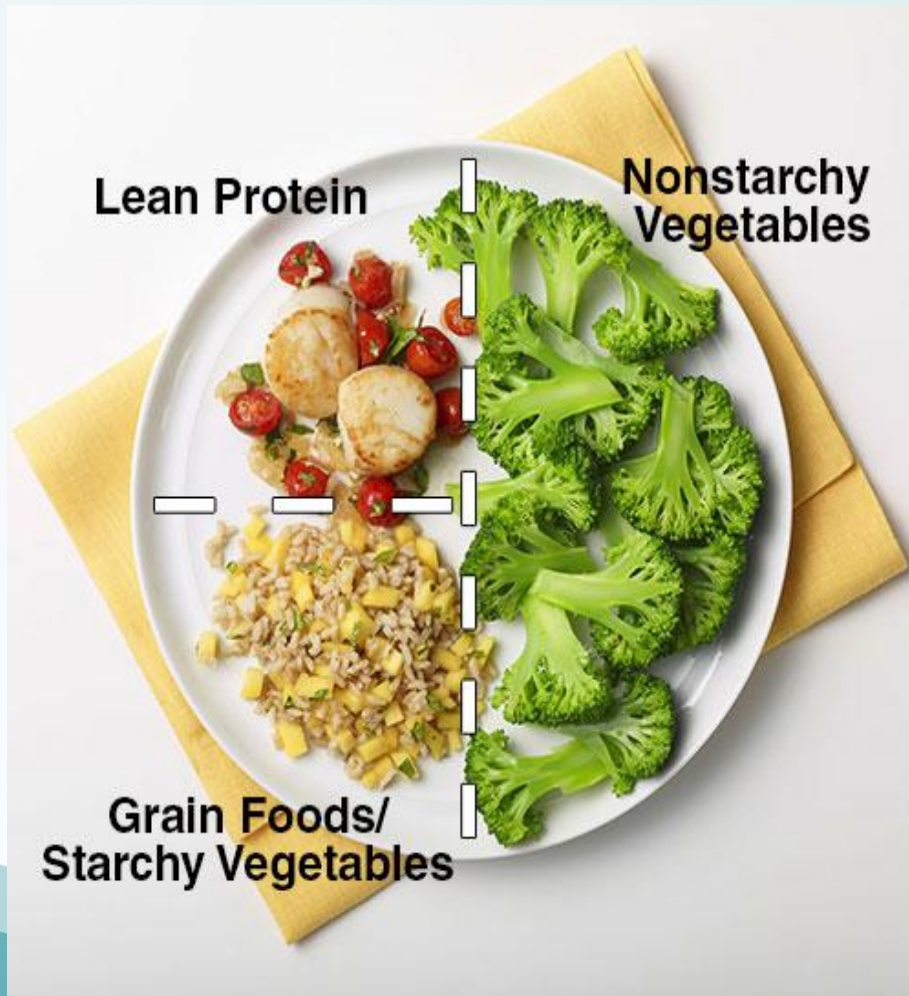


Plate method focuses on relative ratio of food types on plate, does require patient to be familiar with starchy vs non starchy veggies, as well as sources of protein.

For interactive practice and recipe ideas:

<http://www.diabetes.org/food-and-fitness/food/planning-meals/create-your-plate/>

<http://www.diabeticlivingonline.com/food-to-eat/what-to-eat/23-easy-plate-method-dinners>

# CARBOHYDRATE COUNTING

- ▶ Some people follow “carb choices” based on 1 portion = 15 grams of carbohydrate

Starting guidelines may be 3–4 carbohydrate portions per meal (45–60 grams) and 1–2 portions per snack (15–30 grams).

Many patients (for the sake of accuracy and flexibility with portions) prefer to count carbs (outside of 15g portions) and work with their endocrinologist to determine a ‘carb ratio’ (how many carbs does 1 unit of insulin cover).

For more on carb counting, please check out:

[http://www.lillydiabetes.com/\\_assets/pdf/ld90766\\_carbguide.pdf](http://www.lillydiabetes.com/_assets/pdf/ld90766_carbguide.pdf)

<http://www.upmc.com/patients-visitors/education/diabetes/Pages/basic-carb-counting.aspx>

<https://dtc.ucsf.edu/pdfs/1-day-sample-45-g-CHO-per-meal.pdf>

# LABEL READING

Nutrition Facts	
Serving Size 1 cup	
Serving Per Container 2	
Amount Per Serving	
Calories 90	Calories from Fat 30
% Daily Value*	
Total Fat 3g	5%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 13g	4%
Dietary Fiber 3g	12%
Sugars 3g	
Protein 3g	
Vitamin A 80% - Vitamin C 60%	
Calcium 4% - Iron 4%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Calories: 2,000 2,500	
Total Fat	Less Than 65g 80g
Sat Fat	Less Than 20g 25g
Cholesterol	Less Than 300mg 300mg
Sodium	Less Than 2,400mg 2,400mg
Total Carbohydrate	300mg 375mg
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 - Carbohydrate 4 - Protein 4	

The **serving size** for this food is 1 cup.


This is the product **weight**

There are 2 servings or 2 cups in this container.

The **total carbohydrate** tells how many grams of carbohydrate are in 1 serving.

Sugar is already included in the total carbohydrate amount. This value shows the amount of **natural** or added **sugar**.





# DIABETES BY THE NUMBERS



**2-3x**  
increased risk for  
heart disease



**30%**  
of coronary stents  
implanted in 2011



**280,000**  
heart attacks  
annually



**2-4x**  
higher heart disease  
morbidity and mortality  
rates



**60%**  
chance of dying  
from heart disease

According to the American Heart Association, there exist a relationship between cardiovascular disease and diabetes: 68% percent of people with diabetes who are aged 65 and older die from heart disease and 16% die of a stroke.

<https://www.thediabetescouncil.com/the-connection-between-diabetes-heart-disease-and-stroke/>

Diabetes causes chronic inflammation (an activation of the immune system) and high levels of blood sugar (glucose). Both conditions injure the walls of the arteries, making them more prone to developing atherosclerosis. Elevated blood sugar also stiffens the arteries so they don't expand as well, and makes blood platelets stickier and more likely to form blood clots. Diabetes can also cause scar tissue to form in the heart muscle. (Harvard Medical School, 2014).

<https://www.health.harvard.edu/heart-health/the-diabetes-heart-disease-connection-and-what-it-means-for-you>

## Heart Healthy Eating includes:

- Low cholesterol
- Low saturated Fats, minimal trans fat
- High fiber
- plant based healthy fats
- Reduced Sodium

For more recipe ideas and teaching tools, see:

<https://healthyforgood.heart.org/>

**PROTEIN PORTION**

Our bodies need protein to be healthy and strong, but a serving is probably smaller than you think. Here's what a healthy serving of some common protein foods looks like.

- FISH**  
3 ounces
- LEAN BEEF**  
3 ounces
- SKINLESS CHICKEN**  
3 ounces
- BEANS & LEGUMES**  
1/2 cup cooked
- EGGS**  
1 egg or 2 egg whites
- YOGURT (low-fat or fat-free)**  
6 ounces
- MILK (low-fat or fat-free)**  
1 cup

EAT SMART ADD COLOR MOVE MORE BE WELL

LEARN MORE AT [HEART.ORG/HEALTHYFORGOOD](https://heart.org/healthyforgood)

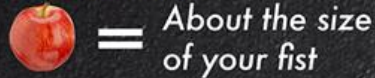
American Heart Association | Healthy For Good™

# WHAT'S A SERVING?

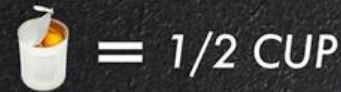
## FRUITS

4 servings per day

### ONE MEDIUM FRUIT



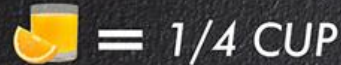
FRESH, FROZEN OR CANNED



DRIED



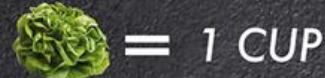
FRUIT JUICE



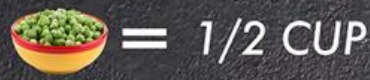
## VEGETABLES

5 servings per day

### RAW LEAFY VEGETABLE



FRESH, FROZEN OR CANNED



VEGETABLE JUICE



\*based on a 2,000 calorie eating pattern

The good news is eating the right amount of fruits and vegetables doesn't have to be complicated. Here are some examples of about one serving:

### FRUITS

Apple, pear, orange, peach or nectarine: 1 medium  
 Avocado: Half of a medium  
 Banana: 1 small (about 6" long)  
 Grapefruit: Half of a medium (4" across)  
 Grape: 16  
 Kiwifruit: 1 medium  
 Mango: Half of a medium  
 Melon: Half-inch thick wedge of sliced watermelon, honeydew, cantaloupe  
 Pineapple: 1/4 of a medium  
 Strawberry: 4 large

### VEGETABLES

Bell pepper: Half of a large  
 Broccoli or cauliflower: 5 to 8 florets  
 Carrot: 6 baby or 1 whole medium (6 to 7" long)  
 Corn: 1 small ear (6" long) or half of a large ear (8 to 9" long)  
 Leafy vegetable: 1 cup raw or 1/2 cup cooked (lettuce, kale, spinach, greens)  
 Potato: Half of a medium (2 1/2 to 3" across)  
 Squash, yellow: Half of a small  
 Sweet potato: Half of a large (2 1/4" across)  
 Zucchini: Half of a large (7 to 8" long)



# PHYSICAL ACTIVITY

- ▶ Positive impact on glucose and health– exercise improves blood glucose patterns, can help reduce blood pressure, lipid levels, risk of CV event, improves quality of life.
- ▶ Even without weight loss, all exercise helps lower blood sugar.
- ▶ Important to include both strength/ resistance and aerobic/ cardio activities.
- ▶ Goal: aerobic activity 150 min/week, strength training at least 2–3 days per week.
- ▶ <http://www.diabetes.org/food-and-fitness/fitness/types-of-activity/ways-to-burn-100-calories.html>
- ▶ <http://www.diabetes.org/food-and-fitness/fitness/types-of-activity/be-more-active-throughout-the-day.html>





# Problem Solving

- ▶ Problem solving skills are important for both the patient and caregivers/family to understand how to respond to unpleasant surprises!
- ▶ Using the Zone Tool (my Daily Check Up) can help reinforce teaching. Keeping in a highly visible area (such as on the refrigerator) is most helpful.
  - ▶ Teach the patient to self assess daily.
  - ▶ Patient –centered
  - ▶ Signs/symptoms/actions
  - ▶ Teach to self–assess
  - ▶ Did you do your daily check–up?
  - ▶ What zone are you in today?
  - ▶ Whom will you call and when?

# Hypoglycemia

- ▶ Or low blood sugar, can occur for many reasons, including excess medications, inadequate carb intake, increased activity, or illness.
- ▶ If not treated, can be life-threatening.
- ▶ Symptoms vary per person, but can include feeling sweaty, shaky, hungry, weak, irritable.
- ▶ Treatment of low blood sugar on DM pathway handout as well as zone tool.
- ▶ Rule of 15s can help moderate treatment and prevent rebound hyperglycemia from over-correcting:
  - have 15g rapid carbs (such as 15 jelly beans, 4–6 oz regular juice or soda). Wait 15 minutes. Then recheck blood sugar. Repeat treatment if blood sugar <80. If blood sugar does not respond after 2–3 rounds of treatment, seek emergency help.
  - <https://www.diabeteseducator.org/docs/default-source/living-with-diabetes/tip-sheets/Hypoglycemia/hypoglycemia-causes-and-prevention-tip-sheet.pdf?sfvrsn=0>

# Glucagon

- ▶ Glucagon is a hormone that triggers the liver to release glucose stores into the blood stream. Usually, this is reserved for hypoglycemia episodes in which the patient is not fully conscious or is unable to hold down PO treatment.
- ▶ Not all patients have glucagon for treatment of acute hypoglycemia. For those that do, it is important that a caregiver if familiar with how to administer it.



See links for step by step instructions:

<http://www.diabetesforecast.org/2017/sep-oct/how-to-administer-glucagon.html?loc=yml>  
<https://www.lillyglucagon.com/important-safety-information>

# Acute Life-Threatening Consequences of Hyperglycemia

- ▶ Diabetic Ketoacidosis (DKA) – type 1, blood glucose > 250, ketones (waste product of breakdown of fat for energy when glucose not available); fruity breath, abd pain
- ▶ Ketone testing important for type 1
- ▶ Hyperosmolar Hyperglycemic State (HHS) – in elderly, type 2, blood glucose > 600, severe dehydration, no ketones; higher mortality than DKA due to non specific symptoms (increased confusion or lethargy mistaken as symptoms of UTI or dementia).
- ▶ With hyperglycemia, continue to take medications as ordered. It is VERY important to stay well hydrated to prevent acute complications.
- ▶ Elevated blood sugar symptoms include: increased thirst, increased urination, headache, fatigue, irritability.
  - ▶ Symptoms of hypoglycemia vs hyperglycemia can mimic each other– important to check blood sugar if experiencing symptoms!

# Sick Day Guidelines

When feeling sick, the immune system's reaction can cause increase in stress hormones and increase in blood sugar levels. If patient is on insulin, they should continue to take their basal/long acting insulin. If able to eat, follow rapid insulin dosing as ordered, or ask MD for sick day correction guidelines.

- Most oral medications should be taken per usual. If experiencing GI symptoms and unable to eat, may consider holding PO medications (such as metformin, which can cause GI upset, or glipizide/sulfonureas that may cause hypoglycemia if patient cannot consume carbs).
- Its important that if vomiting, diarrhea, or fever are persistent, to call MD for instructions.

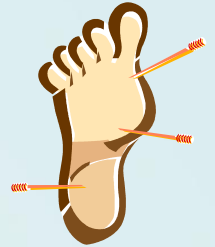
# Reducing Risks

- ▶ A1C –for Homecare, Medicare requires every 3 months. (ADA standards guidelines suggest every 6 months if <7%)
- ▶ Blood pressure – each routine visit; target for diabetes 130/90 or less
- ▶ Lipids –at least annually, if not q 6 months  
Due to increased cardiac risks
- ▶ Kidney function – annually
- ▶ See DM Pathway handout guides for helping patients stay up to date with exams



# Reducing Risks (cont)

- ▶ Ophthalmology – annual dilated eye exam
- ▶ Foot care – self check daily, VNA check at each visit  
high risk on monofilament, each visit by MD
  - Should NOT be barefoot during day, wear protective shoes and socks (even in home).
- ▶ Dental – 2x/year
- ▶ Encourage Immunizations – flu, pneumonia
- ▶ Encourage Smoking cessation





# HHVNA Diabetes Foot Procedure

- ▶ Visual and sensory exam (with monofilament) for all patients with diabetes within 1 week of admission
- ▶ Determine low or high risk and document in call log/quick note
- ▶ If high risk, feet must be checked at EVERY visit (this should be included in the careplan).
- ▶ Assessment may warrant further referrals, such as OT, PT, wound nurse, podiatry, Certified Diabetes Educator
  
- ▶ OASIS Questions asks about careplan items for footcare:
  - M2250 – start of care, resumption of care
  - M2400 – discharge, transfer



# OASIS FOOTCARE QUESTIONS

M2250 – Does the POC include the following?

- ▶ Diabetic foot care including monitoring for the presence of skin lesions on the lower extremities AND pt/caregiver education on proper foot care?

Answer options: yes – if done; no – if not done; n/a if not diabetic or bilateral LE amputations

# OASIS FOOTCARE QUESTIONS

## (cont)

M2400 – Were the following interventions BOTH included in the poc AND implemented?

- ▶ Diabetic foot care including monitoring for the presence of skin lesions on the lower extremities AND pt/caregiver education on proper foot care
- ▶ Answer options would be: yes – if BOTH were done; no – if one or both not done; n/a –if pt not diabetic or bilateral LE amputee

# Healthy Coping

- ▶ People with diabetes (and other chronic diseases) are at higher risk for depression and other mental health issues.
- ▶ Important to assess and address often, and establish support network and coping mechanisms.
- ▶ Physical and emotional stress can contribute to elevated blood sugars.
- ▶ Recommend: physical activity (natural stress reliever), hobby, spending time with family and friends, meditation, deep breathing, setting priorities, talking to counselor
- ▶ For more information:
- ▶ <http://www.diabetes.org/living-with-diabetes/complications/mental-health/diabetes-distress.html>
- ▶ <http://www.diabetes.org/living-with-diabetes/complications/mental-health/stress.html>

# Diabetes Care Pathway

- ▶ **Week 1 Goal: Patient understands red flags and emergency action plan**
  1. Reconcile meds; get A1C or orders to draw
  2. Establish bg monitoring goals and parameters
  3. Make referral to CDE if indicated – get order from PCP and document in call log; leave message on CDE referral line x 4418

# Diabetes Care Pathway (cont)

- ▶ Week 2 Goal: Patient has beginning understanding of self-management and long-term support plan
  1. SMART goals
  2. Yellow Zone management
  3. Teach back

# SMART GOALS

- ▶ **Specific:** I will limit my night snacks
- ▶ **Measurable:** I will only have 1 snack each night
- ▶ **Achievable:** I will only have 1 snack each night on weekends
- ▶ **Relevant:** Limiting night snacking will help me control my blood sugar and sleep better
- ▶ **Time-Limited:** I will evaluate my snacking patterns with my nurse or diabetes educator once per week

# Diabetes Care Pathway (cont)

- ▶ Week 3–6 Goal: Patient able to teach back zones tool, adheres to medication management and daily self-management
1. Complete pathway teaching
  2. Green Zone
  3. Additional SMART goals

# Diabetes Competencies

- ▶ Go to [www.hhvna.com](http://www.hhvna.com), Diabetes Tab, password “education”, take “Clinical Pathways Case Study” test
- ▶ Finish other quizzes: foot screen, glucometer, insulin pen, safety pen needle, Fastclix lancing device
- ▶ Watch Case Study videos # 1,2,3 (8–minutes each); notify x4440 when completed