Transitioning of Care

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Aim of this presentation

- Provide information and guidance on transition from pediatric to adult medical care for patients with Diabetes Mellitus (Pre-DM, Type 1, and Type 2), including specific focus on key areas of transition including: Basic knowledge, EOTH, pregnancy, driving, prescriptions, appointments, and insurance.

What is transition of care?

- “The purposeful, planned movement of young adults with chronic medical conditions from a child centered care to an adult oriented health care system”

(Blum et al, 1993)

Why is it important to plan for this transition?

- Awareness and Understanding
  - How much do you know about your diagnosis?
  - Can you define your type of diabetes?
  - Your medications? Their side effects?
  - Can you describe the short and long-term complications of your condition?

Why is it important to plan for this transition?

- Autonomy, Independence, Advocacy
  - How much do you know about your health insurance coverage?
  - Copay?
  - Deductible?
  - Cost of your medications/equipment?
  - Do you know enough to advocate for your health care needs?

Why is it important to plan for this transition?

- Safety
  - What do you do if you run out of insulin?
  - Your pump breaks?
  - What to know and do in an emergency?
  - Emergency contacts?
  - Your doctor’s emergency line?
  - Medical Alert Identifier?

When should we start planning for my Transition?

Factors to consider on when to start transition planning?

- When to begin transition process?
  - Age of patient?
    - 14 years up to 21 years of age

Factors to consider on when to start transition planning?

- When to begin transition process?
  - Age of patient?
    - 14 years up to 21 years of age
  - Age at the time of diagnosis?
    - Have you had your diabetes since infancy or were just diagnosed within the last few years?

Factors to consider on when to start transition planning?

- When to begin transition process?
  - Basic knowledge and Understanding of your diagnosis
    - Can you define key features of your condition and its management/treatments?

Factors to consider on when to start transition planning?

- When to begin transition process?
  - Basic knowledge and Understanding of your diagnosis
    - Can you define key features of your condition and its management/treatments?
  - Degree of diabetic care independence
    - What percentage of your diabetic regimen are you doing on your own?

Factors to consider on when to start transition planning?

- When to begin transition process?
  - Basic knowledge and Understanding of your diagnosis
    - Can you define key features of your condition and its management/treatments?
  - Degree of diabetic care independence
    - What percentage of your diabetic regimen are you doing on your own?
  - Basic knowledge and understanding of health care and insurance
    - Awareness of the cost of your diabetic supplies
    - Awareness of the importance of medical insurance
    - Understanding how to set up and manage your appointment

Let's Help get you Prepared!

Knowing the basics

- Know your type of diabetes and how it differs in terms of management from other types:
- Type 1 DM: insulin insufficiency/deficiency leading to life long insulin dependence
- Pre-DM and Type 2 DM: Insulin resistance which can ultimately devolve into insulin insufficiency/deficiency/dependency. Management varies significantly, from purely diet, exercise, and life style modification to oral/sub-q glycemic modulating medications, and possibly insulin dependency

Experience/Skills needed for Transition

- Monitor blood glucose
  - Glucometer vs continuous glucose monitor
  - Know how to log and download your blood sugar reports
  - Be aware of your target blood glucose levels/range and your HbA1c goal
- Monitor ketone levels (urine or blood) during illness, stressful times or when blood glucose levels are persistently elevated

Experience/Skills needed for Transition

- Independent carbohydrate counting
  - Be able to count/estimate carbohydrates, know how to read food labels and look up carbohydrate counts when needed
  - For those on fixed dosing, state number of carbs to eat at each meal/snack
- Be able to Calculate your correct dose of insulin according to both blood glucose level and carbohydrate intake
- Accurately dose and give yourself insulin injections (even if you are on a pump)
- Describe the reasons for changing/rotating injection/infusion sites
- Wear a medical alert identification

For Those on Insulin Pump/CGM

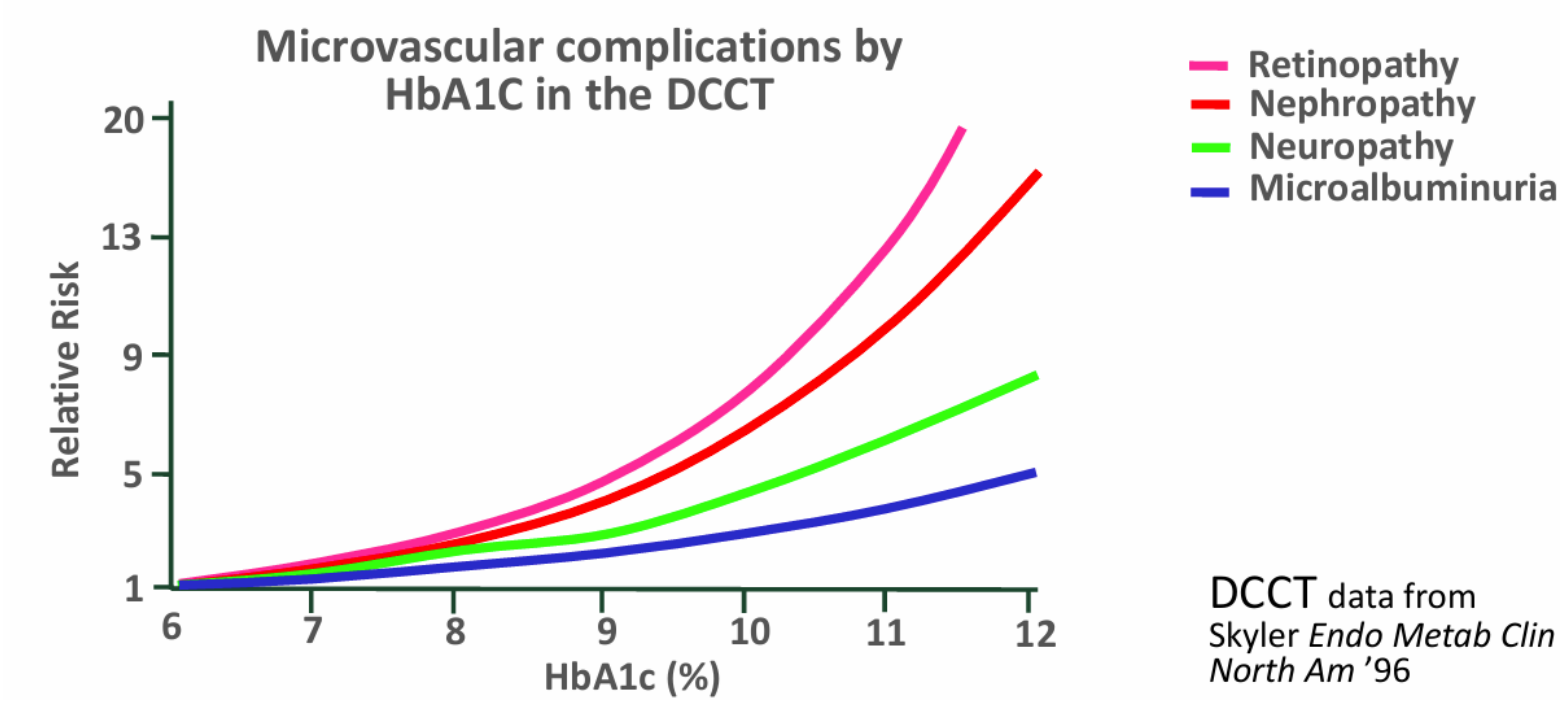
- Demonstrate how to insert infusion set/place POD
- Demonstrate how to check diabetes supplies and when it's time to order new supplies
- Demonstrate how to access insulin pump basal and bolus settings and how to alter them
- Demonstrate how to download pump/glucose monitor information
- Demonstrate how to share pump/glucose monitor information with the diabetes care provider
- Demonstrate how to program the pump (date, time, correction dose, insulin to carbohydrate ratio dose, insulin on board, basal rates, and temporary basal rates)
- Demonstrate when to use insulin injections and monitor for ketones to prevent diabetic ketoacidosis (DKA)

What is insulin and what happens if I need it, but do not take it?

- Insulin is the hormone produced by the beta cells of the pancreas that moves sugar from the bloodstream into the cells of the body to use as fuel
- Without insulin, most of our body cannot readily access/use the sugars in our blood, resorting instead to making alternative fuel sources including ketoacids
- In the absence of sufficient insulin, ketoacids build up and can lead to diabetic ketoacidosis, a potentially life-threatening condition

What is a HgA1C and why does it matter?

- HgA1C is a marker that is used to calculate your mean blood sugar over an ~ 3-month period.
- Your target hemoglobin A1c is 7% or less
- The higher your A1c is the higher the risk of long-term complications



DCCT data from Skyler *Endo Metab Clin North Am* '96

Diabetic Eye Disease: Retinopathy

- Long term elevation of blood sugars can result in damage to the small blood vessels in and around the retina, ultimately resulting in vision impairment and ultimately blindness
- Screening is recommended with a dilated eye exam every 1-2 years

Diabetic Kindey Disease: Nephropathy

- Prolonged/recurrent High blood sugars can cumulatively result in damage and scaring of the tiny blood vessels in the kidneys, resulting in diabetic nephropathy and hypertension
- This can ultimately result in the need for dialysis or kidney transplant
- Annual Screening for protein in the urine is recommended yearly to evaluate for this condition
- Early detection and interventions can be life changing

Diabetic Nerve Disease: Neuropathy

- Diabetic Neuropathy occurs as a result of non-enzymatic glycosylation of nerve cells, leading to dysfunction/impairment/neuropathy
- This can result in numbness, pain, and weakness in the hands, arms, feet, and legs
- Problems may also occur in nearly any innervated organ system, including the digestive tract, heart, and sex organs
- People with diabetes can develop nerve problems at any time, but the longer a person has diabetes and the worse their control, the greater the risk of earlier presentation
- Annual Pin-prick diabetic foot/nerve exam is recommended

Diabetes and your Heart

- High blood sugars can lead to early blood vessel disease, including those blood vessels of the heart, leading to greater risk for earlier onset coronary artery disease (heart disease) than the general population
- Heart attack is the leading cause of death in individuals with type 1 and type 2 diabetes, but heart disease is also the #1 cause of death in individuals who do not have diabetes
- Smoking dramatically increases and compounds these the risk factors, reinforcing the recommendation to avoid nicotine/tobacco related products

Autoimmune Disease Risk

- Type 1 DM is associated with an increased risk for other autoimmune conditions including
  - Autoimmune thyroiditis
  - Celiac disease
  - Primary autoimmune adrenal insufficiency
  - Alopecia areata (autoimmune hair loss)
  - Vitiligo (autoimmune skin discoloration)

Diabetes and your Immune System

- High blood sugar can impair your immune systems ability to fight off infections, heal from injuries, and recover from surgeries
- High sugars can result in increased inflammation and metabolic strain on organ systems
- Make the right choices before you get sick and it will pay dividends down the road!!!

High Risk Behaviors and Choices

Alcohol and Diabetes: Think before you Drink

- Alcohol blocks the ability of the liver to make new glucose, dramatically increasing your risk for significant and severe hypoglycemia!
- Low blood glucose can occur and last up to 8-12 hours after drinking
- Drinking impairs your ability to think clearly
- It is illegal to drink alcohol until 21 years of age in the United States
- The decision to drink is a CHOICE

If You Choose to Drink, HAVE A PLAN!

- Have a Designated Driver
- Make sure a friend knows how to treat a low blood sugar, and who is willing to monitor your sugars while you are under the influence
- Wear your medical ID
- Do not drink on an empty stomach, eat food before and while you are drinking
- Always eat a bedtime snack with carbohydrates and protein
- Don’t sleep in! Wake up and eat breakfast.
- NEVER drink and drive, and NEVER Drink alone

Tobacco/Nicotine

- Pro-Inflammatory, leading to higher risk for large and small blood vessel vascular disease
- Increased risk for heart attack, stroke, and kidney disease
- Reasons to quit (or never start)
  - Smoking a pack of cigarettes a day costs over $1,500 a year
  - Smoking ages you faster
    - Wrinkles
    - Stained fingers
    - Hair loss
    - Damaged teeth and gums
    - Cataracts

Drugs

- Avoid illicit/illegal substances
- Similar concerns to ETOH, impaired judgement, risk for hypoglycemia, et cetera

Tattoos/Piercings

- There are many considerations to think about when getting a tattoo or piercing
- Anytime one punctures the skin there is a risk for infection
- This risk increases if your diabetes is not well controlled
- Additional risks include:
  - Allergic reactions, skin infections, scars and keloids, and communicable/blood borne diseases/infections
- Understand your risks and do your research!

Driving with Diabetes

- Pass the test.
  - Check your BG before getting into the car. Every time. No exceptions.
- Stop for a diabetes red light.
  - Treat low BG and then recheck in 15 minutes. Do not get behind the wheel until BG is in the target range.
- Slow down.
  - Treat BG even if it means being late. It's never ok to drive with a low BG. Call whoever is waiting for you and explain why you'll be a little late. They'll understand.

Driving with Diabetes

- Always have enough fuel.
  - Stock the car with healthy, non-perishable snacks and fast-acting sugars. And keep your diabetes supplies within easy reach.
- Pull over.
  - Pull over immediately if you are feeling sick or low while driving. Check your BG, treat yourself, wait 15 minutes and then recheck.
- ID, please.
  - Don't leave home without a driver's license and medical ID bracelet or necklace. Always wear a medical ID.

DUI for hypoglycemia?!?!

- Depending on the laws in your state/county, driving while hypoglycemic can result in suspension or termination of your license, or even changes of driving under the influence (DUI) of hypoglycemia.
- Do not risk your life or the life of those around you:
  - Stop, Check, and Correct

Disordered Eating and Mental Health with DM

- Diabulimia
  - Deliberately skipping insulin dose to bring on ketosis to induce weight loss
  - Lack of insulin can impair muscle growth/repair, leading to loss of muscle in addition to adipose and place significant strain on your organ systems
- Warning Signs
  - Poor metabolic control despite appearance of compliance
  - Excessive thirst, urination and fatigue
  - Preoccupation with self image, weight and food intake
  - Anxiety, Depression, and Negative Self Image

Diabetes is hard, Burn out is real, reach out!

- Living with diabetes is hard, and requires constant attention, upkeep, and adjustments to maintain good control
- This can become exhausting and it is ok to feel frustrated and upset with your diabetes from time to time
- If your experiencing depression, lethargy, apathy, anhedonia, or thoughts of self harm, please reach out!!!
- Therapy can be life changing, and sometimes life saving!!!

Diabetes and Sex

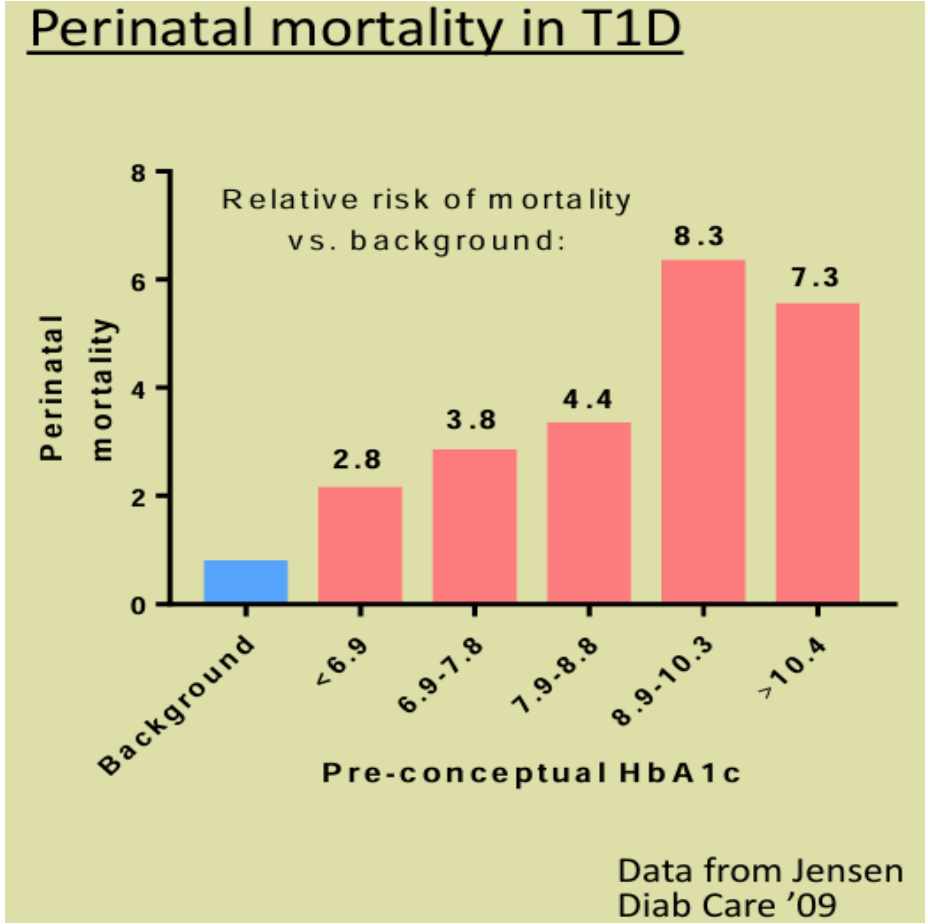
- The decision to start having sex is one of the most impactful choices you will make in your life and it is critical you understand the impact your diabetes control has on this decision
- Poor control of your diabetes can result in erectile dysfunction, difficulties in becoming pregnant, severe complications in pregnancy, and severe fetal/infant morbidity/mortality
- For these reasons, careful planning is needed!
- Maintaining tighter HgA1C and blood sugar levels is essential for healthy sex and pregnancy planning, and there are different target goals for individuals who may become pregnant
    - Pregnancy should be delayed until the HbA1c is <6.5% and folic acid has been taken for three months

Maternal complication of poorly controlled diabetes in pregnancy

- Preterm labor
- Pre-eclampsia/eclampsia
- Worsen underlying Nephropathy and Retinopathy
- Birth trauma
- Emergency or nonelective Cesarean section
- Increased insulin resistance in pregnancy, increasing risk for DKA in noncompliant insulin dependent diabetic mothers

Pregnancy and your diabetes control

- Poorly controlled diabetes prior to and during pregnancy can results in serious morbidity and mortality



Pregnancy and your diabetes control

- Fetal congenital abnormalities
  - Macrosomia (Rel risk ~3): Birth trauma
  - Congenital Heart disease (Rel risk ~3.5) VSD > TOF > TGA > Pulm stenosis
  - CNS malformations (Rel risk ~5) esp. neural tube defects e.g. renal agenesis
  - Urogenital anomalies (Rel risk ~3)
  - GI tract anomalies: gut atresia, diaphragmatic hernia
  - Sacral agenesis/caudal dysplasia: Rare in the general population, GDM causes 15-25% of cases (Rel risk 170)

Establishing Adult Medical Care

Arranging Medical Care

- Find your provider early on:
  - Call your insurance company, ask your current provider for a referral, ask friends/family who their providers are
  - Find out if your preferred provider is comfortable with managing your type of diabetes: multiple daily injections, insulin pumps, and/or carbohydrate counting
  - A certified adult endocrinologist/diabetic provider is recommended for insulin dependent patients
- Have your current health records faxed, electronically, or physically transferred to the new providers office. This may require you to complete a release of medical information form

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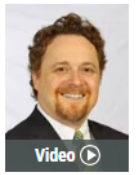

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Arranging Medical Care

- Be aware of how to confirm and set this appointment
  - Updated phone number, answer when they call, have a plan for how to get to your appointment
- Know what insurance you have/what insurance you will have at 18 years old
  - Be able to provide your insurance information at the time of your scheduling or at your first appointment
  - Understand that not all clinics may take your insurance and that it is your responsibility to check and verify your coverage
  - Understand that your plan may require a Co-Pay at this time of your appointment and that you will need to keep track of insurance claims and possibly your deductibles

Insurance and your Diabetes

- When seeking employment, check the benefits and ensure they offer good insurance plans/coverage
- Medicaid
  - Until you turn 19 years old
- Extended coverage under parents
  - Until the age of 26, if parents have a private group or non-group health coverage that began before March 23, 2010 and if you are not eligible for another employer-sponsored insurance plan
  - May face a pre-existing condition exclusion of up to 12 months if uninsured for 63 days or more prior to gaining coverage
  - Can be single or married – Spouses are not covered by your parents' plan

Arranging Medical Care

- Attend your appointments!
  - If you miss your appointments, you might be discharged from the clinic and not be able to see their providing moving forward.
  - Call ahead if you might be late or need to reschedule

What Should I Bring to My First Appointment?

- Insurance card
- What pharmacy I want to use
- What medications I am currently taking
- My glucometer/sensor/cell phone or receiver
- My pump
- My carbohydrate ratios, long acting dose, and correction factor dosing

Arranging Medical Care

- Ask questions and be an active participant in your care
  - Review your Blood sugar and pump reports ahead of time, have questions prepared, question your provider if things are confusing or you have concerns
  - This is your health, Advocate for it!
- Know your diabetic prescriptions/supplies and how to get them
  - Understand the process needed to request a refill and obtain medications/supplies before you run out
  - Understand your area may not have a 24-hour pharmacy, and you may not be able to get new supplies for hours/days at a time

Requesting a refill/supplies

- Know what pharmacy you use
- Call into the pharmacy and ask them to fill the certain medication for you
- You may be able to call the pharmacy and type in the prescription number on your telephone keypad and refill it without talking to a pharmacy tech
- You may need to schedule a follow up appointment to get a refill on certain medications

Arranging Medical Care

- Identify the name, phone number, and office location of your adult endocrinologist and their team
- Confirm contact information for urgent issues after office hours, weekends, and holidays
    - When in doubt, reach out!

Emergencies happen, be prepared!

- Create an emergency plan for managing high blood glucose, low blood glucose, ketones, and illness
- Happy back up supplies for if you get sick, including a long-acting insulin prescription available in the even your pump becomes unavailable/non-functional
- Be aware of the rule of 15 for treating lows, and when to get glucagon for severe lows
- Be aware of how to monitor and manage diabetes when sick (close and more frequent blood sugar monitoring, insulin adjustments, increased hydration, etc)
- Understand the significant of vomiting and dehydration, and the need to check glucose and ketone levels, give insulin, and when to call your healthcare team

Emergencies happen, be prepared!

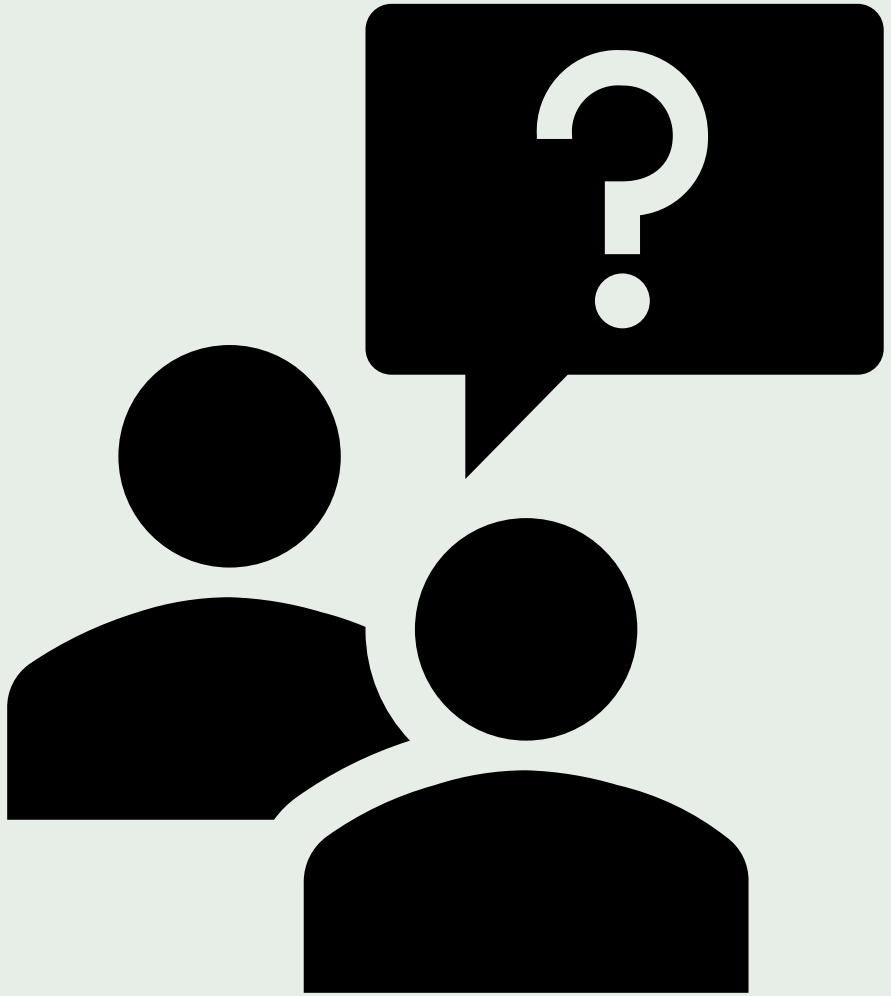
- Create a list with names and numbers of people who should be contacted
- Know how to reach your doctor's office, including during afterhours in the event of emergencies
- Be aware of the information you will need to tell the diabetes care provider
- Identify a nearby emergency room/hospital, if ever needed

College with Diabetes

- Before leaving home
  - Contact campus health clinic/local provider
  - Make sure you have all the supplies you will need
  - Find local pharmacy or change address for mail order[s]
  - Photocopy insurance and prescription cards
  - Buy/request fridge for your insulin and a sharps container for dorm room/housing
  - Obtain 3-month inventory of supplies alongside your Dr. Appointments

College with Diabetes

- After arriving at school
  - Inform roommate(s) and hall advisor of your diabetes
  - Make a trip to cafeteria to talk to staff about obtaining carbohydrate counts
  - Meet with the campus disability office
  - Public educational institutions are required to make accommodations for students with diabetes



Questions

You Can Do This!

Thank you!