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Disclosures

- I have no financial relationships pertinent to this presentation to disclose
Know your team

- Social worker
- CDE
- Nutritionist
- Psychologist
- Physician
- Student and their family
The Law is on your side

- American with Disabilities Act (ADA)
- Section 504 of the Rehabilitation Act (Section 504)
Americans with Disabilities Act (ADA) of 1990

- Prohibits non-religious affiliated institutions from treating individuals with disabilities unfairly
  - Disability – a “physical or mental impairment that substantially limits one or more major life activities.”
- Applies to all public (Title II) and private schools (Title III)
Section 504 of the Rehabilitation Act of 1973

- Protects the student if the school receives federal funding
- Applicable whether public or private unless the institution is run by a religious organization
  - Unless religious organization has federal funds, which most institutions have because of:
    - Meal programs
    - Scholarships
    - Grants
Initial Steps

- Inform anti-discrimination personnel, principal, or school nurse
- Provide consent so that they can talk with your medical team
- Provide all the supplies (ie equipment/supplies, snacks, insulin)
- Be a resource (you can provide training)
- Make sure at least one staff member is trained and available to give insulin or glucagon
- Keep a log of all relevant communications, conversations
Tests

- For standardized tests apply even 6 months in advance
  - www.collegeboard.com
  - www.act.org

- Can have more frequent or longer breaks, but not more test taking time

- For school exams can have more accommodations
  - Snacks during test
  - Check BG during exam
  - Consider CGM
Helpful contacts

- **College Board Services for Students with Disabilities (PSAT, SAT, and AP):**
  - (609) 771-7137
  - [professionals.collegeboard.com/testing/ssd/accommodations/breaks](http://professionals.collegeboard.com/testing/ssd/accommodations/breaks) (guidance on breaks)

- **ACT Services for Students with Disabilities:**
  - (319) 337-1000
  - [http://www.act.org/aap/disab](http://www.act.org/aap/disab)
Colleges vs K-12 schools

- Colleges have no requirement to identify those with a “disability”

- While elementary and secondary schools have to provide “a free and appropriate education” if they receive federal funding, colleges cannot discriminate once a student has “qualified” academically for admission to the school.

- Colleges are not required to provide modifications that would impose an undue burden or fundamentally alter a program.

- Colleges don’t have to help assist in providing health services.
Other things to do

- Apply through the disability services office
- Look at the colleges anti-discriminatory policies
- Consider informing roommate, professors, RA
- Consider a plan to take breaks for snacks or checking one’s BG’s
- **Consider priority housing and early registration**
- Know where the health clinic is or the local ER’s
- Colleges may not do a 504, but rather will provide an “accommodations letter”.
Can submit a formal request to get an “accommodation letter”

- Purpose of the request
- Limitations caused by the disability
- How the condition will affect the skills and abilities expected of the student – including both life and academic skills and abilities
- The types of accommodations requested
- Provide medical documentation of the disability
- Offer to participate in any needed evaluation or meeting to discuss accommodations
When there is a problem

- Designated personnel or Dean of Students
- Mediation
- Internal school or district grievance procedures
- Impartial hearings
- Lawsuits in state or federal court
Legal Recourses

- Complaints in re Section 504 and ADA
  - Dept. of Education - Office of Civil Rights (180 day statute aside from waiver) for Section 504
    - Mail, fax, on-line, in person (800-421-3481)
    - [www2.ed.gov/about/offices/list/ocr/complaintprocess.html](http://www2.ed.gov/about/offices/list/ocr/complaintprocess.html)
  - Dept. of Justice for ADA - 800-514-0301 (though for public schools through OCR)
    - [http://www.usdoj.gov/crt/ada/t3compfm.htm](http://www.usdoj.gov/crt/ada/t3compfm.htm)
  - Impartial hearing at district or state level
    - Applies to IDEA as well

- The Equal Employment Opportunity Commission (EEOC) investigates complaints of discrimination under the ADA by employees and applicants against employers.
Legal Resources

- Disability Rights Education and Defense Fund, Inc. (DREDF)
  - A national law and policy center dedicated to protecting and advocating for the civil rights of people with disabilities
  - Info: 510-644-2555
  - Web: www.dredf.org/diabetes

- www.diabetes.org (under advocacy)
More Resources...

- Council of Parent Attorneys and Advocates
  - http://www.copaa.net
- National Disability Rights Network -(202) 408-9514
  - http://www.ndrn.org
- National Dissemination Center for Children & Youth With Disabilities - 800-695-0285
  - http://www.nichcy.org
What can parents do...

- Help with prescriptions and supplies
- Help with setting up follow up appointments
- Consider getting HbA1c checks locally
- Care packages with carb snacks 😊
Scholarships!

- https://collegediabetesnetwork.org/content/scholarships
  - Diabetes Scholars Foundation Scholarships
  - Novo Nordisk Donnelly Awards
  - Scott and Kim Verplank Foundation
  - Frederick J. Krause Scholarship on Health and Disability
  - Team Type 1 Scholarships
  - Diabetes Incorporated
Going to College with Diabetes
A Self Advocacy Guide for Students (2011)

Katharine Gordon James A. Rapp
Brian L. Dimmick Crystal Jackson
Last pearls...

- You should do the following before you leave for college:
  - Make an appointment with your diabetes health care professional
  - Schedule follow-up visits ahead of time so you can be seen during semester breaks
  - Be sure to have prescriptions filled
  - Ask for a copy of important medical records
You should ask the student health clinic the following:

- When the clinic is open
- Whether there is a diabetes specialist on staff
- What to do in case of emergency

If you currently have health insurance, you should find out the following about your health insurance plan:

- How long you can expect to have coverage through this plan and under what conditions (for example, if it is dependent upon maintaining full-time student status)
- Whether your policy covers emergency services
- Whether your policy covers out-of-state check-ups
- Whether there is a waiting period for any services
- Whether there are pre-existing condition limitations
If you do not have health insurance, you should find out your coverage options, including:

- Whether there is a student health insurance plan available at your college
- Whether there are pre-existing condition limitations on any plan you are considering
- If you are turned down for a private health insurance plan, whether there is any state
- or high-risk plan available to you
Diabetes and Alcohol

Risky Business!
The Laws

- States that allow alcohol at 18 years old *with parental consent* on private property
  - Alaska, Colorado, Connecticut, Delaware, Georgia, Illinois, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, South Carolina, Texas, Virginia, Washington, Wisconsin, Wyoming

- States that allow alcohol at 18 years old *old without parental consent* on private property
  - Louisiana, Nebraska, Nevada, New Jersey, Oklahoma, South Carolina
Odds are against you

- Drinking below the age of 21 is illegal in most states including California
- One exception in Cali, calling 911 for assistance
Our defense against hypoglycemia

Pancreas Response

↓ Insulin  ↑ Glucagon

~ 72-108 mg/dL

Autonomic Response

- Shaky
- Palpitations
- Anxious
- Sweating
- Hunger
- Numbness

~ 65-70 mg/dL

Brain Alert

- Warmth
- Weakness
- Fatigue
- Confusion

~ 50-55 mg/dL
Our defense against hypoglycemia

- Glycogenolysis
  - Release of sugar stores from the liver and muscles
    - Decrease insulin
    - Increase glucagon
    - Increase of counter-regulatory hormones

- Gluconeogenesis
  - Formation of glucose from non-carbohydrate carbon precursors

- Ingesting glucose
The Problem with hypoglycemia and diabetes

- Can’t suppress insulin once it’s given
- Glucagon release may be impaired
- Insulin sensitivity increases with exercise
- Exercise can attenuate release of counter-regulatory hormones
- Alcohol intoxication may prevent you from eating
Alcohol 101
Gluconeogenesis vs. Glycogenolysis

Glycerol
Amino Acids
Lactate
Pyruvate

Gluconeogenesis
Glycogenolysis

Glucose
Gluconeogenesis vs. Glycogenolysis

- Glucose
- Glycogenolysis
- Glycerol
- Amino Acids
- Lactate
- Pyruvate

Glucose
To Drink or not to Drink…

- **The Good**
  - In moderation may have benefits to the heart
  - ADA recommendations
    - No more than one drink* for women/day
    - Up to two drinks for men/day

*One drink is equal to a 12 oz beer, 5 oz glass of wine or 1 ½ oz distilled spirits (vodka, whiskey, gin, etc.)
To Drink or not to Drink...

- The Bad
  - Worsens hypertriglyceridemia, neuropathy, hypertension
  - Can cause hypoglycemia
  - Can cause short term memory loss
    - Hangovers 😞
  - Teenage brains are less sensitive to the alcohol effects
  - The teenage brain changes
To Drink or not to Drink...

■ The Ugly
  ■ Regret, poor decisions, etc…
Alcohol and glucose metabolism

- Low BG vs “feeling tipsy”
- Alcohol prevents gluconeogenesis
- Alcohol doesn’t effect glycogenolysis, so make sure the liver is “all carbed up”
  - Eat before, during, and after
Into the Night...

- Effects of alcohol on glucose metabolism can last up to 16 hours
  - Decrease overnight basals by 20%, more if there was a lot of exercise
  - Take a carb snack without insulin if BG < 120 mg/dL at bedtime
- Exercise also makes insulin more sensitive
Effects of exercise on Type 1 n = 50 children and teens
Exercise: 4x15 min treadmill periods with 3 x 5 minute rest periods at VO$_{2\text{max}}$ of 60%

DirecNet, Diabetes Care, Vol 29, Number 1, January 2006
Check BG’s before the night…

Baseline BG level (mg/dl)  

- <120: 86%  
- 120-180: 13%  
- >180: 6%

Hypoglycemia risk (% of subjects)

Diabetes Care, Vol 29, Number 1, January 2006
How much is too much?

- Cocktails, mixers, lagers, ciders, and beer tend to have higher carb loads
  - May need to take insulin for these but at a lower dose
    - 25% less (this may include for food one is eating)
    - 50% less or more if dancing is going on etc…
  - Don’t bolus for more than 2 bottles of beer
  - If you give insulin for corrections would give 3 hours apart and correct by only 50%
## Carbs in alcohol

<table>
<thead>
<tr>
<th>Beer (1 can or bottle serving)</th>
<th>Total Carbs (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Beer</td>
<td>12</td>
</tr>
<tr>
<td>Lite Beer</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wine (5 fl oz serving)</th>
<th>Total Carbs (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Wine</td>
<td>4</td>
</tr>
<tr>
<td>White Wine</td>
<td>4</td>
</tr>
<tr>
<td>Table Wine</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spirits (1 shot)</th>
<th>Total Carbs (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bourbon</td>
<td>-</td>
</tr>
<tr>
<td>Brandy</td>
<td>-</td>
</tr>
<tr>
<td>Gin</td>
<td>-</td>
</tr>
<tr>
<td>Rum</td>
<td>-</td>
</tr>
<tr>
<td>Tequila</td>
<td>-</td>
</tr>
<tr>
<td>Vodka</td>
<td>-</td>
</tr>
<tr>
<td>Whiskey</td>
<td>-</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Popular Cocktails (1 cocktail serving)</th>
<th>Total Carbs (g)</th>
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<tbody>
<tr>
<td>Bloody Mary</td>
<td>5</td>
</tr>
<tr>
<td>Caipirinha</td>
<td>16</td>
</tr>
<tr>
<td>Cape Cod</td>
<td>13</td>
</tr>
<tr>
<td>Daquiri</td>
<td>4</td>
</tr>
<tr>
<td>Grasshopper</td>
<td>15</td>
</tr>
<tr>
<td>High Ball</td>
<td>-</td>
</tr>
<tr>
<td>Kamikaze</td>
<td>15</td>
</tr>
<tr>
<td>Long Island Iced Tea</td>
<td>10</td>
</tr>
<tr>
<td>Mai Tai</td>
<td>30</td>
</tr>
<tr>
<td>Manhattan</td>
<td>2</td>
</tr>
<tr>
<td>Margarita</td>
<td>10</td>
</tr>
<tr>
<td>Martini</td>
<td>-</td>
</tr>
<tr>
<td>Mint Julep</td>
<td>4</td>
</tr>
<tr>
<td>Mojito</td>
<td>25</td>
</tr>
<tr>
<td>Seabreeze</td>
<td>20</td>
</tr>
<tr>
<td>Screwdriver</td>
<td>18</td>
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<tr>
<td>Tequila Sunrise</td>
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<td>Rum and Cola</td>
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<td>Scotch and Soda</td>
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<th>Other Common Suggestions</th>
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<tbody>
<tr>
<td>1 glass Champagne</td>
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</tr>
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</tr>
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<td>1 punch cup Alcoholic Fruit Punch</td>
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<tr>
<td>Frozen Daiquiri</td>
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<td>Sangria</td>
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# Carbs and calories in alcohol

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<td>-</td>
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<td>-</td>
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</tr>
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<td>9</td>
<td>71</td>
</tr>
<tr>
<td>1 punch cup Alcoholic Fruit Punch</td>
<td>8</td>
<td>74</td>
</tr>
<tr>
<td>Frozen Daiquiri</td>
<td>17</td>
<td>196</td>
</tr>
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Some takeaways…

- Dry white wines, liquors, and spirits have a small amount of carbs
  - Low calorie mixers
  - Remember no carbs, but still high in calories
    - Vodka has almost a 100 calories/shot

- Watch out for Craft beers, can have twice the carbs
Other tips

- Have a designated buddy
  - To drive and/or get your back

- Have a cap…(and stick to it)

- Keep your glass half full; drink slow

- Mix one’s drink with a diet soda

- Make sure to hydrate with water

- Wear your Medi-alert bracelet, necklace, tattoo, etc…
The End...
Good Luck with all Your Future Endeavors! CHEERS!
But Wait....There’s more!

THC...

- Increased pulse rate
- Dry mouth
- Increased appetite
- Bloodshot eyes
- Light headedness
- Occasional dizzy spells
- Problems with memory, concentration, perception, and coordination
THC and diabetes

- There does not appear to be exacerbation of microvascular sequelae
  - May help neuropathic pain
  - Used in management of glaucoma
  - Generally has anti-inflammatory effects
- Can cause “munchies” leading to hyperglycemia
  - Promotes weight gain
  - Can cause insulin resistance
- Can impair cognitive functions and ability to sense hypoglycemia
Ecstasy and cocaine and diabetes

- An “upper”
  - Anxious, paranoid, panicked, confused
  - Decreases appetite
  - Decreases desire for rest
    - Increase hypoglycemia risk especially when dancing, etc...
  - May cause one to miss insulin doses
    - Leads to DKA

- Coming down
  - Lethargic, irritable, suppressed
Go home... and be safe!