“You might know your STAR ratings, now what are you going to do with them? A focus on Diabetes Medications and Management”

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Program Faculty

- Dr. Jonathan Marquess is the Vice-President of Professional and Clinical Affairs at the American Pharmacy Cooperative, Inc. (APCI) a leading Independent Pharmacy Buying Group. He is owner and diabetes educator at two AADE recognized Diabetes Education Centers in Atlanta. In addition, Dr. Marquess, and his Pharmacist wife, Pam, are the owners of seven Community Pharmacies in Georgia.

Faculty Disclosures

- Dr. Jonathan G. Marquess declares no conflicts of interest for this program.
Learning Objectives:
1. Outline the impact of Diabetes
2. Discuss the Pharmacy Quality Alliance (PQA) and measures related to Diabetes
3. Describe why Diabetes quality measures are important to your pharmacy
4. List and discuss the American Diabetes Association's (ADA) 2014 Standards of Medical Care in Diabetes
5. Review current management strategies and disadvantages of non-adherence and uncontrolled patients
6. Describe treatment algorithms for managing Type 2 Diabetes
7. Identify key interventions that will make a difference for patients with Diabetes

Ground Rules
- Be interactive
- Ask questions
- Think about the future of your Pharmacy
- Enjoy and learn!!

Personal Learning Objectives
Three things you would like to learn today:

1)____________________________________________________________________
2)____________________________________________________________________
3)____________________________________________________________________
Making a Case for Available and Emerging Insulin Analog Therapy

2.3

Cash Is Catalyst for Change

Unsustainable Growth in U.S. Healthcare Costs

Incentives Aligning to Support Adherence

Greater Focus on Outcomes

• Moving away from fee-for-service model
• Migrating to performance networks
• New and emerging payment models will shift risk from payers to providers
Partnering for Quality

- When looking at your own pharmacy, how do you define quality?
- What quality metrics is your pharmacy using today?
- What information do you need to help with conversations about quality of medication use?
- Will your pharmacy play a role in moving quality forward?

Why the Shift?

In 2010, health expenditures in the United States neared $2.6 trillion

- Almost 20% of gross domestic product (GDP)
- Over 10 times more than the $256 billion spent in 1980
Making a Case for Available and Emerging Insulin Analog Therapy

Impact of Increased Medication Utilization

The Congressional Budget Office estimates that a 1% increase in the number of prescriptions filled by beneficiaries would cause Medicare's spending on medical services to drop 0.2%.

Increase certain pieces of the pie (e.g., drug utilization) ...

... and you ultimately decrease the bigger pieces and total spend

If a patient takes their medication as prescribed, they don't end up in the hospital!


Audience Response

Many of you have known most of what we have discussed....What are you going to do about it?

Who has heard of Star Ratings for Medicare plans?
Ratings Matter

Centers for Medicare and Medicaid Services (CMS) Star Rating
- Annual rating system to grade Medicare plans
- CMS assigns an overall rating on a 1 to 5 star scale

<table>
<thead>
<tr>
<th>Star rating</th>
<th>Performance Level</th>
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<tbody>
<tr>
<td>★</td>
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<tr>
<td>★★</td>
<td>Below Average</td>
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<tr>
<td>★★★</td>
<td>Average</td>
</tr>
<tr>
<td>★★★★</td>
<td>Above Average</td>
</tr>
<tr>
<td>★★★★★</td>
<td>Excellent</td>
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Who Receives a Star Rating?
- Medicare Advantage or MA-PD plans (Part C), which often include a prescription drug benefit (Part D)
- Prescription Drug Plans (PDPs), which provide stand-alone Part D drug benefit
- Pharmacies do not receive a “Star Rating”: however, their performance related to the quality measures is evaluated by health plans
Making a Case for Available and Emerging Insulin Analog Therapy

Medication-Use-Related Measures from Pharmacy Quality Alliance (PQA)

- PQA was established in 2006 as a public-private partnership with CMS
- Consensus-based, non-profit alliance with >110 member organizations
- Work to improve the quality of medication management and use across healthcare settings
- PQA’s measures being used not just in star ratings

Mission: Improve the quality of medication management and use across health care settings with the goal of improving patients’ health through a collaborative process to develop and implement performance measures and recognize examples of exceptional pharmacy quality.

What Are Key Measures Pharmacists Impact?

- 3 measures of medication adherence (proportion of days covered or PDC)
  - For cholesterol (Statins)
  - For diabetes (4 classes of oral meds)
  - For hypertension (Renin-angiotensin system antagonists)

Part D STAR Ratings: Key Areas for Pharmacy Impact
Part D STAR Ratings: Key Areas for Pharmacy Impact

- 2 measures of medication safety
  - Avoiding high-risk medications in the elderly
  - Appropriate treatment of blood pressure in patients with diabetes (RAS antagonists)

INTERESTING FACT: Due to the higher weighting of clinically-relevant measures, the PQA measures account for 47% of Part D summary ratings in 2014

Where is this ALL going?

- As the pressure builds on Medicare plans to improve Star Ratings, they are looking to many different options for improving medication adherence and safety
- Health plans are used to rewarding top-performing physicians through Pay-for-Performance (P4P) models
- P4P is NOT payment for performing a service (FFS). It is typically an adjustment in overall payment to a provider based on achieving quality goals or being in the top 20% of providers
- Now is the time to start assessing whether your pharmacy is meeting quality goals and how you rank compared to peers

What is EQuIPP

- EQuIPP is a multi-plan, multi-pharmacy, collaborative to:
  - Enable faster, more-refined, benchmarking of Part D stars performance in key market areas
  - Create more robust assessment of retail pharmacy performance on Part D stars
  - Enhance engagement of retail pharmacies for stars improvement in regions where participating plans have significant opportunities for stars improvement
- EQuIPP provides a neutral assessment of quality for trusted performance assessment and benchmarking by all parties.
- EQuIPP lays the foundation for performance-based contracts and payment systems for pharmacy networks
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You Can Make a Difference

“Most Medicare Part D plans could move from 3 stars to 4 stars on each PDC measure if every pharmacy in its network helped just one more RASA patient, one more diabetes patient, and one more statin patient become highly adherent.”

— David Nau, PhD, RPh, CPHQ, FAPhA
President, Pharmacy Quality Solutions, Inc.

What is YOUR Action Plan ??
2.11

Traditional vs. Sync-based Model

Traditional Model
- Patients manage own medication therapy
- Inefficient and hinders pharmacist's ability to provide services that improve adherence and health

Sync-Based Model
- One monthly call from pharmacy to patient, prior to appointment date
- Customers don't manage their refills
- Pharmacy develops a “panel of patients”

Do you think we NEED to focus on STAR Ratings??

Three Questions at your Pharmacy...
- What % is DM?
- What is average A1C?
- How much $$ is being spent at your Pharmacy on DM??
We Have an Epidemic of Diabetes!!

Number of Persons With Diagnosed Diabetes

Why Diabetes???

2013

2.12

We Have an Epidemic of Diabetes!!

Diabetes: A Human Drama

- 25.8 million Americans have diabetes;
  - 44 million are obese
  - 7.6 million undiagnosed
  - 79 million pre-diabetes
- 25 million increase projected by 2020
- 1.9 million new cases yearly
- >231,404 deaths
- 65,700 amputations
- 202,290 chronic dialysis
- 24,000 become blind

Data from the 2011 National Diabetes Fact Sheet (released Jan. 26, 2013)

Diabetes IS Serious Business

- Only 55% of people with diabetes remain on therapy after 12 months
- There are significant knowledge deficits in 50-80% of individuals with diabetes
- Each $1 spent on outpatient diabetes education saves $2-3 in hospitalization costs
- Diabetes costs $245 billion/year*
  ~10% from medications and supplies
- After adjusting for population age and sex differences, average medical expenditures among people with diagnosed diabetes were 2.3 times higher than what expenditures would be in the absence of diabetes.

APHA Foundation Statistics *ADA March 2013
Audience Response

What is the percentage of patients with diabetes in the United States who are NOT achieving A1C goal?

1) 20 %
2) 40 %
3) 60 %
4) 90 %
5) Less than 20%

Proportion of Patients With Diabetes Achieving A1C <7%

Do you think there is a NEED to provide Diabetes Management??
Audience Response

According to the ADA, what is the recommended A1C for Patients with Diabetes?

1) below 10%
2) below 9%
3) below 8%
4) below 7%
5) below 6.5%

Recommendations for Patients With Diabetes

<table>
<thead>
<tr>
<th>A1C level</th>
<th>ADA</th>
<th>AACE</th>
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<tbody>
<tr>
<td>Fasting/preprandial glucose (mg/dL)</td>
<td>&lt; 7%*</td>
<td>&lt; 6.5%</td>
</tr>
<tr>
<td>Postprandial glucose (mg/dL)</td>
<td>70–130</td>
<td>&lt; 110</td>
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<td></td>
<td>&lt; 180</td>
<td>&lt; 140</td>
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*The A1C goal for patients in general is an A1C goal of 7%. The A1C goal for the individual patient is an A1C as close to normal (6%) as possible without significant hypoglycemia.

Goals for the Management of Diabetes

<table>
<thead>
<tr>
<th>Goals for the Management of Diabetes</th>
<th>American Medical Directors Association*</th>
<th>American Geriatrics Society (AGS)</th>
<th>American Diabetes Association (ADA)*</th>
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</thead>
<tbody>
<tr>
<td>A1C goal</td>
<td>Set target range appropriate for individual residents, staying close to ADA guidelines</td>
<td>&lt;7% for adults with good functional status</td>
<td>&lt;7%</td>
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<tr>
<td></td>
<td>More modest goals maybe set for those with a life expectancy &lt; 5 years</td>
<td>&lt;8% for frail older patients</td>
<td>≤6.5%</td>
</tr>
<tr>
<td>PPG Goal</td>
<td>Not specified</td>
<td>Not specified</td>
<td>&lt;180 mg/dL</td>
</tr>
<tr>
<td>FPG Goal</td>
<td>Not specified</td>
<td>Not specified</td>
<td>&lt;126 mg/dL</td>
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</table>

*American Medical Directors Association: Diabetes Management in the Long-Term Care Setting: Clinical Practice Guideline. Columbia, MD: American Medical Directors Association; 2008.


Making a Case for Available and Emerging Insulin Analog Therapy

UKPDS: 1% A1C Decrease and Reduced Risk of Complications

Other ADA 2014 Recommendations

Parameter | Goal
--- | ---
Blood pressure | <140/80 mm Hg
Lipids
LDL | <100 mg/dL
Triglycerides | <150 mg/dL
HDL | >40 mg/dL (men)
| >50 mg/dL (wm)

Other ADA 2014 Recommendations

Case 1 - Dorothy
- 62 year old female, 5’5”, newly diagnosed with T2DM, lives at ALF
- Has recently lost 10 pounds due to depression, weighs 150 pounds
- Patient has renal insufficiency (SCr 2.2)
- A1C 8.3%
- BP 145/82
- FLP WNL

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
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<tr>
<td>Crestor</td>
<td>20mg QD</td>
</tr>
<tr>
<td>Citalopram</td>
<td>40mg QD</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>10mg QD</td>
</tr>
</tbody>
</table>
Making a Case for Available and Emerging Insulin Analog Therapy

Audience Response
What agent would you NOT recommend for this patient?
1) Glimiperide
2) Basal Insulin
3) Pioglitazone
4) Metformin
5) None of the above

ADA/EASD Consensus Statement Recommendations
- Achievement and maintenance of normal glycemic goals
- Initial therapy with lifestyle intervention and metformin
- Rapid addition of insulin, and transition to new regimens, when target glycemic goals are not achieved or sustained

ADA=American Diabetes Association; EASD=European Association for the Study of Diabetes.

Audience Response
How many classes of drugs are currently available to treat Type 2 Diabetes?
1) Six
2) Eight
3) Nine
4) Ten
5) Twelve
6) Not sure
Making a Case for Available and Emerging Insulin Analog Therapy

**Ten Classes of Therapy**
- Insulins
  - Long and Short Analogs (aspart, detemir, glargine, glulisine, lispro)
- Secretagogues (can cause hypoglycemia)
  - Sulfonylureas (glimiperide, glipizide, glyburide)
  - Meglitinides (nateglinide, repaglinide)
- Biguanides (metformin)
- Insulin Sensitizers: Glitazones (pioglitazone, rosiglitazone)
- Carbohydrate Blockers (acarbose, miglitol)
- Incretin Mimetics (exenatide, liraglutide)
- Neuroendocrine Hormones (pramlintide)
- DPP-IV Inhibitors (sitagliptin, saxagliptin, linagliptin)
- Dopamine Agonist (bromocriptime)
- Sodium-glucose co-transporter 2 (SGLT2) - canaglifozin

**Initial drug monotherapy**
- Efficacy ($\Delta$ HbA1c)
- Hypoglycemia
- Weight
- Side effects
- Costs

Healthy eating, weight control, increased physical activity

- Metformin
  - high risk
  - neutral/loss
  - GI / lactic acidosis
  - low risk

If needed to reach individualized HbA1c target after ~3 months, proceed to 2-drug combination (order not meant to denote any specific preference):

- Metformin + Metformin + Metformin + Metformin + Metformin

Efficacy ($\Delta$ HbA1c)
- Hypoglycemia
- Weight
- Side effects
- Costs

- Thiazolidine-dione
  - intermediate risk
  - neutral
  - rare‡
  - high risk

- DPP-4 Inhibitor
  - highest risk
  - gain
  - hypoglycemia‡
  - variable

- Insulin (usually basal)
  - Two drug combinations*
  - high risk
  - loss
  - GI‡
  - high risk

GLP-1 receptor agonist
- Sulfonylurea†
  - high risk
  - moderate risk
  - gain
  - hypoglycemia‡
  - low risk

If needed to reach individualized HbA1c target after ~3 months, proceed to a more complex insulin strategy, usually in combination with 1-2 non-insulin agents:

- Insulin§ (multiple daily doses)
- Metformin Rosiglitazone Pioglitazone
- Insulin§
- SU† DPP-4-i GLP-1-RA
- GLP-1-RA
- Insulin§
- DPP-4-i
- GLP-1-RA
- Insulin§

If combination therapy that includes basal insulin has failed to achieve HbA1c target after 3-6 months, proceed to a more complex insulin strategy, usually in combination with 1-2 non-insulin agents:

- Insulin# (multiple daily doses)
- Metformin Rosiglitazone Pioglitazone
- Insulin§
- DPP-4-i
- GLP-1-RA
- Insulin§

**Oral Agents for Type 2 Diabetes: Primary Sites of Action**

- Pancreas
  - Insulin Deficiency
  - Insulin Resistance
- Liver
  - Hyperglycemia
- Muscle
  - Hypoglycemia
- Glut
  - Carbohydrate Metabolism

Hyperglycemia
- Sulfonylureas
- Metformin
- Acarbose
- Miglitol
- Nateglinide
- Repaglinide
- Insulin Deficiency
- Insulin Resistance
- Insulin Uptake
- Glucose Uptake
- Hepatic Glucose Production

Pancreas

Oral Agents for Type 2 Diabetes: Primary Sites of Action
Making a Case for Available and Emerging Insulin Analog Therapy

Some Adverse Effects Associated with Diabetes Therapies

- Sulfonylureas
  - Hypoglycemia, more frequent in the elderly\(^1\)
  - Weight gain\(^1\)
  - Arhythmias\(^2\)
- Metformin
  - GI symptoms\(^1,2\)
  - Lactic acidosis\(^1,2\)
  - α-Glucosidase inhibitors
    - GI symptoms\(^1\)
  - GI symptoms\(^1\)

- Thiazolidinediones
  - Weight gain\(^1\)
  - Edema\(^1,2\), Anemia\(^2\)
  - Possibly congestive heart failure\(^1,2\)
- Ginides
  - Weight gain\(^1\)
  - Insulin
  - Hypoglycemia\(^1\)
  - Weight gain\(^1\)


Why Metformin From The Start?

- Typical lowering of A1C by 1.5-2.0% according to dosage
- Absence of weight gain and hypoglycemia
- Relatively low level of side effects
- High level of acceptance by patients
- Relatively low cost

Why Metformin From The Start?

- Typical lowering of A1C by 1.5-2.0% according to dosage
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- Relatively low level of side effects
- High level of acceptance by patients
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Titration of Metformin

Begin with low dose (500 mg) taken once or twice per day with meals (at breakfast or dinner)

- After 5-7 days, if GI side effects appear, decrease to previous lower dose and try to advance dose at a later time
- The maximum effective dose is 2000 mg usually given 1000 mg BID. Max dose is 2550 mg.
- Based on cost considerations, generic metformin is the first choice of therapy
  - Longer-acting formulations are available and can be given once per day


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**Metformin (Glucophage®) Significant Contraindications**

- Renal dysfunction with SCr levels:
  - >1.5 mg/dL in males
  - >1.4 mg/dL in females
- Generally not indicated during pregnancy, for breast-feeding women, or children
- CHF requiring drug therapy
- Hepatic dysfunction
- History of alcoholism or binge drinking
- Age >80 years (without adequate renal function or creatinine clearance)

**Glitazones “Insulin Sensitizers”**

- Troglitazone (Rezulin®)
- Rosiglitazone (Avandia®) – restricted use
- Pioglitazone (Actos®)
- MOA: ↑ glucose uptake in skeletal muscle (1°)
- Novel class of antidiabetic agents
- Directly reduces insulin resistance by activating PPAR-gamma nuclear receptors
  - Increase glucose uptake in skeletal muscle and fat cells
  - Lower hepatic glucose output

**Audience Response**

Which of the following agent(s) is associated with weight loss?

A. Liraglutide  
B. Sitagliptin  
C. Saxagliptin  
D. Both A and B  
E. All of the above
Exenatide (Byetta®)

- FDA Approved in June 2005
- Developed as we have learned that other hormones are involved in blood glucose control
- Incretin is a hormone secreted by the GI tract after digestion of food. Acts on the beta cells in the pancreas to produce insulin.
- Byetta mimics the action of Incretin
- Indicated when oral meds are not giving the control that you need.
- Works by telling the pancreas to make the correct amount of insulin at meal time then stops when blood sugar returns to normal
  - Eat meal within 1 hour of injecting Byetta.
  - Dosed twice a day at morning and evening meals.

Liraglutide (Victoza®)

- Liraglutide is a once daily human GLP-1 analogue for the treatment of Type 2 Diabetes
- Half-life after subcutaneous injection is 13 hours making it suitable for once daily dosing
- 97% homology to human GLP-1
- Liraglutide is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes
- Lowers body weight and SBP

Liraglutide dosing

Starting once-daily liraglutide is easy

- Start with 0.6 mg, increase to 1.2 mg and, based on clinical response after at least 1 week, the dose can be increased to 1.8 mg to further improve glycaemic control

*Some patients may benefit from an increase in dose from 1.2 mg to 1.8 mg and, based on clinical response after at least 1 week, the dose can be increased to 1.8 mg to further improve glycaemic control
Making a Case for Available and Emerging Insulin Analog Therapy

**Exenatide extended release (Bydureon®)**

- **Place in therapy:** Adjunct therapy to diet and exercise, may be used alone or in combination but not recommended as first-line for patients without previous drug therapy for glycemic control
- **Dose:** 30 mg subQ once weekly. May increase to 50 mg subQ once weekly if additional glycemic control is required.
- **Expected A1C reduction:** Dose of 30 mg - 0.7% and dose of 50 mg - 0.9%

**Albiglutide (Tanzeum®)**

- **Mechanism of Action:** Glucagon-like peptide agonist that increases the release of insulin in the presence of elevated glucose concentrations, decreases glucagon secretion in a glucose-dependent manner, and delays gastric emptying, thereby reducing the rate at which postprandial glucose appears in circulation.
- **Common Side Effects:** injection site reaction, diarrhea, nausea, vomiting, headache.
- **Contraindications**
  - Hypersensitivity to albiglutide
  - Personal or family history of Medullary Thyroid Carcinoma (MTC)
  - Multiple endocrine neoplasia syndrome type 2 (MEN 2)
Pramlintide (Symlin®)
- Approved in 2005
- Synthetic analog of human amylin
- Used in patients with diabetes treated with insulin.
- Works to lower glucose by 3 ways
  - Slows the rate that food is released from the stomach (gastric emptying time)
  - Lowers glucagon concentrations after a meal.
  - Has been shown to reduce total caloric intake

DPP-IV Inhibitors
- Place in therapy: combination therapy
- Typical A1C reduction: 0.8-1%
- Mechanism of Action: inhibits dipeptidyl peptidase-4 enzyme inhibitor that prevents the breakdown of GLP-1 and GIP to increase insulin release and decrease glucagon levels in circulation in a glucose-dependent manner.
- Medications:
  - Sitagliptin (Januvia) - 2006
  - Saxagliptin (Onglyza) - 2009
  - Linagliptin (Tradjenta) - 2011
  - Alogliptin (NESINA) - 2013
- Common side effects: Headache, UTI, and sinusitis

Overview of SGLT-2 Inhibitors

In the News
### SGLT2 Inhibitors

- **Medication**: canagliflozin (Invokana®)
- **Expected A1c reduction**: 0.8-1.03%
- **Mechanism of Action**: Inhibits SGLT2 in the kidneys to prevent reabsorption of glucose
- **Dose**: 100-300mg po daily
  - Dose adjust for renal function:
    - GFR 45-60ml/min give max of 100mg
    - Contradicted in GFR <45 ml/min

### SGLT2 Inhibitors

- **Medication**: dapagliflozin (Farxiga®)
- **Expected A1c reduction**: 0.8-1.03%
- **Mechanism of Action**: Inhibits SGLT2 in the kidneys to prevent reabsorption of glucose
- **Dose**: 5mg PO QAM (may titrate to 10mg daily)
  - Discontinue if GFR ≤60mL/min
  - Reduce dose with concomitant use of insulin or secretagogues in order to decrease risk of hypoglycemia

### SGLT2 Inhibitors

- **Medication**: dapagliflozin (Farxiga®)
- **NEWEST diabetic medication on the market.**
- **Expected A1c reduction**: 0.8-1.03%
- **Mechanism of Action**: Inhibits SGLT2 in the kidneys to prevent reabsorption of glucose
- **Dose**: 5mg PO QAM (may titrate to 10mg daily)
  - Discontinue if GFR ≤60mL/min
  - Reduce dose with concomitant use of insulin or secretagogues in order to decrease risk of hypoglycemia
SGLT2 Inhibitors

- **Common adverse effects:**
  - Vaginal yeast infections
  - UTI
  - Polyuria
  - Increased Scr
  - Hyperkalemia
  - Dehydration
  - Hypotension

- **Drug Interactions**
  - Rifampin increases elimination
  - Monitor digoxin levels

- **Contradictions**
  - Patients on dialysis
  - End-stage renal disease

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**Case #2...Can Your Patient see the pattern?**

---

**Case 2: BG Interpretation**

**Who has the better control?**

- 10 Days of Fasting Readings

<table>
<thead>
<tr>
<th>Ruth (A)</th>
<th>Mary (B)</th>
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Interpretation: *We Know That A1Cs Are Not Created Equal*

**Sustained Hyperglycemia** (A1C=7.8%): blood glucose results that are always elevated regardless of time of day or meal time.

**Glycemic Variability** (A1C=7.8%): shows a pattern of blood glucose results that vary greatly in intensity with drastic highs.

*What the A1C Doesn’t Tell You…but BG Monitoring does*

- Identifies hypoglycemic events
- Dynamic relationship between insulin, carbohydrates, physical activity and resulting glucose level
- Effects of different meals and snacks
- Effects of physical activity
- Effects of medications

*Natural History of Type 2 Diabetes*

Adapted from International Diabetes Center (IDC) Minneapolis, Minnesota.
Over time, most patients will need insulin to control glucose

How comfortable are you in counseling patients on the use of insulin?

1. Very
2. Somewhat
3. Not at all

Normal Insulin Secretion

Making a Case for Available and Emerging Insulin Analog Therapy

**Audience Response**

Which insulin has the longest duration of action?

1) Regular
2) Aspart
3) Lispro
4) Detemir
5) NPH

**Insulin Analogs Closely Match the Physiologic Insulin Profile**

- **Bolus (meal-related) insulin analogs**
  - "Rapid-acting"
  - Rapid absorption
  - Peak actions coincide with peak carbohydrate absorption
  - Control PPG
- **Basal insulin analogs**
  - "Long-acting"
  - Slow and steady rate of absorption
  - Protracted actions
  - Low within-subject variability in actions
  - Control FPG

**All Insulins Are Not The Same**

Making a Case for Available and Emerging Insulin Analog Therapy

Activity Profile Comparison: Glargine vs NPH

<table>
<thead>
<tr>
<th>Time (hours)</th>
<th>Glucose Infusion Rate (mg/kg/min)</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
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Glargine vs NPH Activity Profile Comparison:

- Glucose Infusion Rate (mg/kg/min)

U-500 Insulin

- Unmodified regular insulin
- Does not contain any agent that may prolong its action
- Five times more potent than standard U-100
- Pharmacokinetics resemble basal rate delivery similar to NPH insulin
- Single doses are usually active for 8 hours, however activity may last up to 24 hours
- Onset of 30 minutes and peak effects within 1 to 3 hours
- Dosed similar to NPH with 2-3 injections per day

Audience Response

Are there any barriers to starting insulin?

???
Possible Barriers to the Initiation of Insulin

- Fear of self-injection
- Fear of needles
- Negative misconceptions about initiating insulin
- Inconvenience
- Fear of hypoglycemia
- Weight gain
- Cost

- Lack of available educational tools/resources
- Lack of familiarity with insulin
- Time constraints

Patient/Family

- Fear of self-injection
- Fear of needles
- Negative misconceptions about initiating insulin
- Inconvenience
- Fear of hypoglycemia
- Weight gain

Health care professional

- Lack of available educational tools/resources
- Lack of familiarity with insulin
- Time constraints

Possible Barriers to the Initiation of Insulin


Insulin Pens: A Simple Start to Insulin

Benefits of Insulin Pens

1. Easy to learn, to use and to teach
2. Less Medication errors
3. Less dosing errors/Better accuracy
4. Overcome dexterity issues
5. Does not require refrigeration
Making a Case for Available and Emerging Insulin Analog Therapy

Key Behaviors

AADE Self-Care Behaviors
- Healthy Eating
- Being Active
- Problem Solving
- Healthy coping
- Reducing risks
- Medication adherence
- BG monitoring

Healthy Eating
- Make better food choices
- Reduce Portion Size
- Follow individual dietary meal plan
- EVERY patient should visit a dietician annually

Counseling Tips:
- Obesity is a major contributing factor to insulin resistance (and hyperglycemia) in Type 2 Diabetes
- Modest weight reduction dramatically improves glycemic control and blood pressure
Control Portion Sizes

1 serving of raw vegetables
1 serving of meat
1 serving of cooked vegetables
1 serving of cheese
1 serving of pasta

Nutrition Facts
Serving Size 1 oz (65g)
Servings Per Container about 2
Amount Per Serving
Calories 120 Calories from Fat 10
Total Fat 1g 2%
Saturated Fat 0g 0%
Cholesterol 15mg 5%
Sodium 350mg 15%
Total Carbohydrate 11g 4%
Dietary Fiber 1g 4%
Sugars 1g
Protein 2g

Using a Food Label

Which breakfast has more carbohydrate?

A
1 cup oatmeal
1 slice toast
1 tsp margarine
8 oz apple juice

B
Two 4” pancakes
2 tsp margarine
2 Tbsp regular syrup
2 eggs
2 slices bacon
Which lunch has more carbohydrate?

A  
6" ham/cheese sub on wheat (Subway)
Baked Lays
Coke ZERO

B  
McDonalds Happy Meal
Hamburger
Small fries
Diet Coke

Which dinner has more carbohydrate?

A  
Tossed salad
2 Tbsp Ranch
8 oz steak
1 large baked potato
4 Tbsp sour cream
1 dinner roll w/butter
½ cup broccoli
½ cup ice cream

B  
Tossed salad
2 Tbsp FF Ranch
4 oz steak
1 small baked potato
2 Tbsp FF sour cream
1 dinner roll w/butter
1 cup broccoli
½ cup FF ice cream

Vaccinations

- People with diabetes are more likely to die from vaccine-preventable diseases
- Vaccination rate is less than 50%
- Influenza vaccine EVERY fall (Oct-Dec)
- Pneumococcal vaccine now and booster after 65
- Tetanus toxoid (Td) booster every 10 years or Tdap vaccine
Exercise and Diabetes

- Diabetic patients should perform at least 150 min/week of moderate-intensity aerobic physical activity at 50-70% of maximum heart rate

- Type 2 diabetics are encouraged to complete resistance training three times per week
  - Improves insulin sensitivity in older men with type 2 diabetes to the same or even a greater degree as aerobic exercise

Learn More About Diabetes and Diabetes Education

- Join professional organizations
  - American Diabetes Association (ADA)
  - American Association of Diabetes Educators (AADE)
  - Juvenile Diabetes Foundation (JDF)

- Read Journals
  - Diabetes Care (ADA)
  - Diabetes Forecast (ADA)
  - The Diabetes Educator (AADE)
  - Continuing Education in Diabetes
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Discussion

Comments? Questions?

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Thank You !!!