Make Every Shot Count!

Optimizing Injectable Therapies in Type 2 Diabetes

Jonathan Hughes, PharmD, BCPS, BCACP
Pharmacy Supervisor, AMG Tennessee
Residency Program Director, PGY-2 Ambulatory Care
Ambulatory Care Clinical Pharmacist Specialist

Ascension Rx

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Disclosure

- The speaker, contributors, and content reviewers have no relevant financial relationships with any ACPE-defined commercial interests to disclose

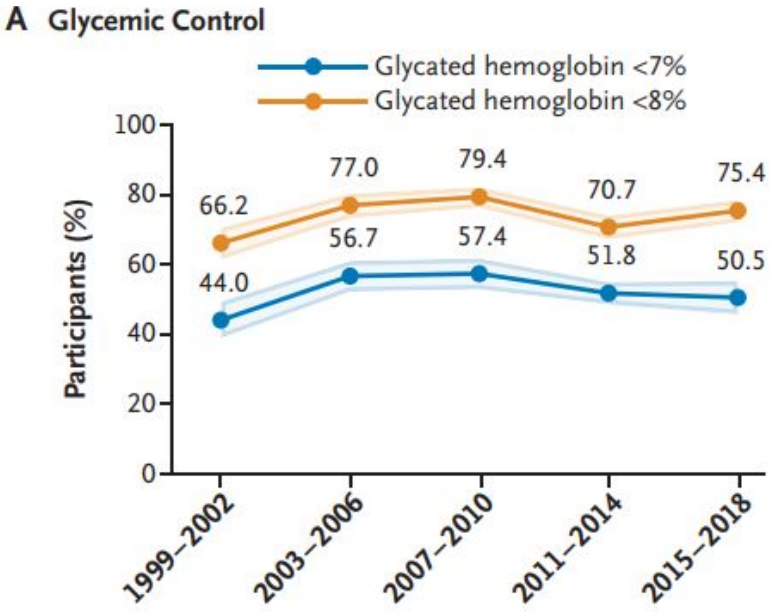
Objectives

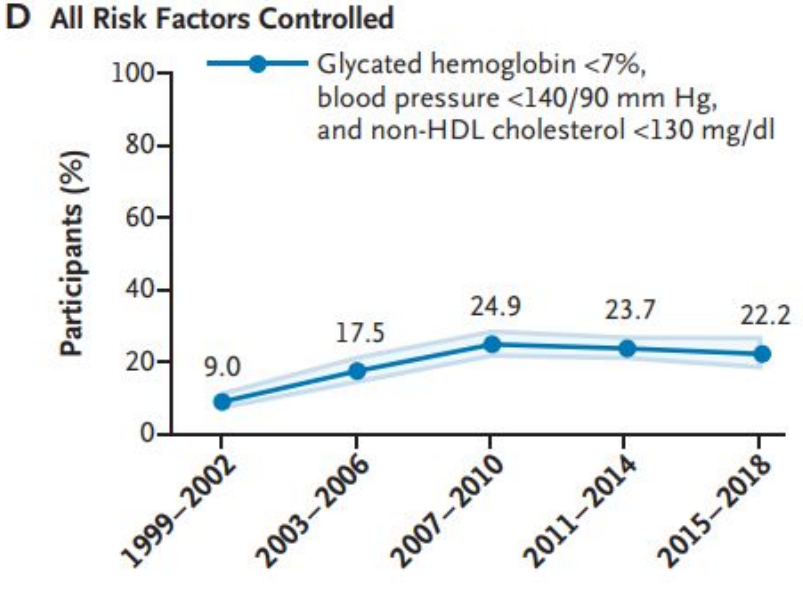
At the end of this presentation, pharmacists will be able to:

1. Identify appropriate indications for injectable therapies in type 2 diabetes
2. Recognize care plans that optimize the use of such injectable therapies
3. Identify solutions to overcome barriers to medication access

Holding Out for a Hero

Hot Off the Press: We're Losing Ground in Diabetes

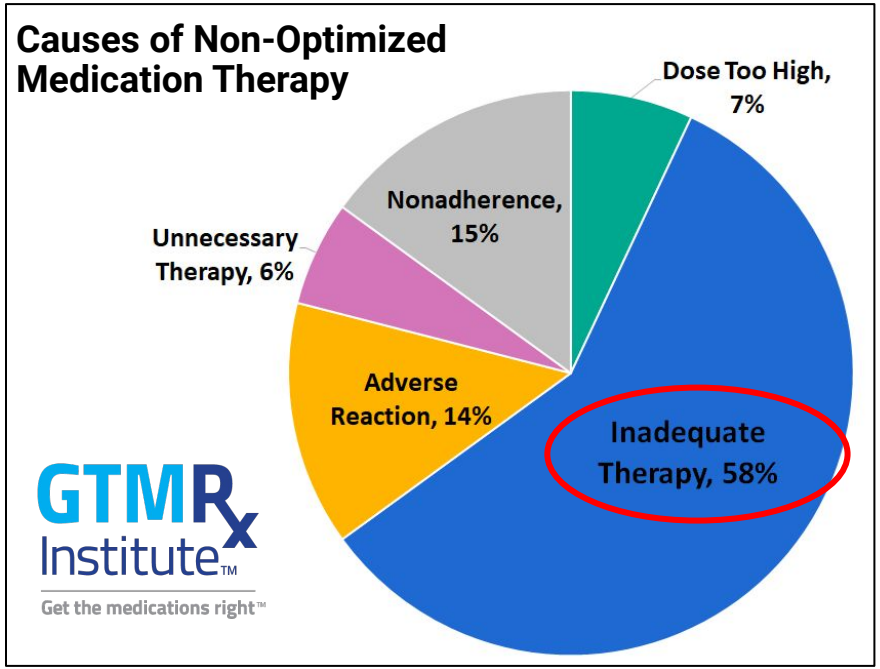




Fang et al. NEJM 2021

A Major Problem in Primary Care - Getting the Meds Right

- Medications are involved in 80% of treatments and nearly 30% of adults in the U.S. take 5+ medications; much of this use is not optimized
- The causes and cost of non-optimized medication therapy:
  - $528.4B annually - 16% of total U.S. health care expenditures
  - 275,689 deaths per year - from non-optimized medication therapy
  - $2,481-$2,610 - average cost of an individual experiencing treatment failure or new medical problems after initial prescription use



Watanabe et al. Ann Pharmacotherapy 2018

The Need for a Better Model of Medication Management

Patients with complex medication management needs require frequent adjustments to medications for optimal control of their chronic conditions.

Case Study: Ms. Johnson is a 72 year old female with a 10 year history of T2DM. After her A1c returns at 9.3%, her PCP decides to initiate insulin. *How long will it take for Ms. Johnson to get her insulin to the right dose?*

The Need for a Better Model of Medication Management

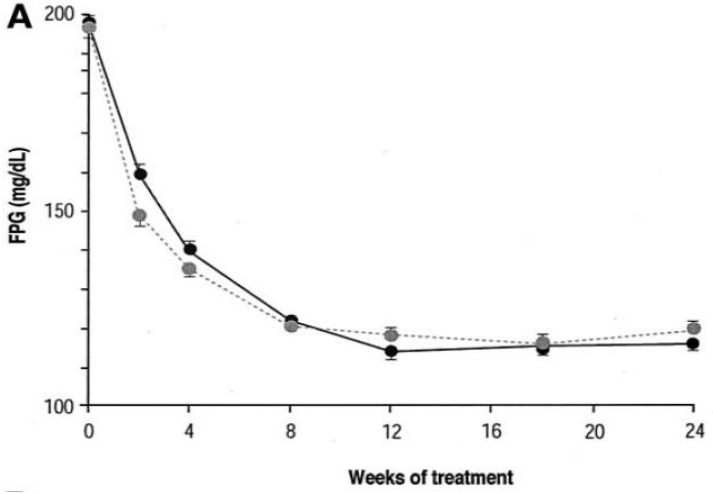
Under **ideal** conditions, primarily literature suggests at least **8-12 weeks**

Case Study: The Treat to Target Trial

Table 1—*Forced weekly insulin titration schedule*

Start with 10 IU/day bedtime basal insulin and adjust weekly	
Mean of self-monitored FPG values from preceding 2 days	Increase of insulin dosage (IU/day)
≥180 mg/dl (10 mmol/l)	8
140–180 mg/dl (7.8–10.0 mmol/l)	6
120–140 mg/dl (6.7–7.8 mmol/l)	4
100–120 mg/dl (5.6–6.7 mmol/l)	2

The treat-to-target FPG was ≤100 mg/dl. Exceptions to this algorithm were *1*) no increase in dosage if plasma-referenced glucose <72 mg/dl was documented at any time in the preceding week, and *2*) in addition to no increase, small insulin dose decreases (2–4 IU/day per adjustment) were allowed if severe hypoglycemia (requiring assistance) or plasma-referenced glucose <56 mg/dl were documented in the preceding week.



Riddle et al. Diabetes Care 2003

The Need for a Better Model of Medication Management

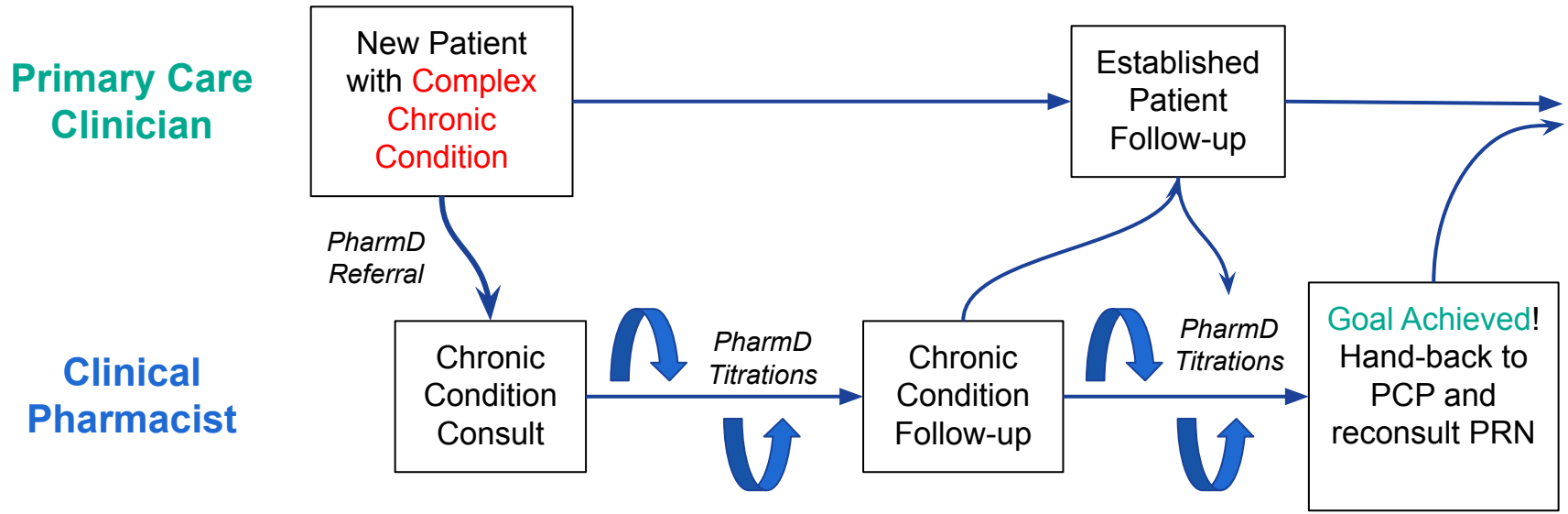
But what if conditions **aren't** ideal?

- PCP **next available appointment** is 2 months away
- Specialist **next available appointment** is 3 months away
- It took 15 minutes to convince Ms. Johnson she *needed* insulin, what time do I have to **teach her *how* to use the insulin?**
- **Insurance doesn't cover** my "go to" insulin
- Insurance covers insulin, but **co-pay is too high**
- Patient is having **low blood sugars** but A1c is still not controlled
- I'm worried the patient **isn't taking** their insulin and if I increase the dose I might cause a low blood sugar

Conclusion: No wonder **1 in 10** Americans with diabetes have an A1c >9%!

The Solution for a Better Model of Medication Management

Pharmacist Collaborative Care Model



Community pharmacists can #GetTheMedsRight

The RxING Study

- **Population:** 100 T2DM patients w A1c 7.5%-11% after self-testing in a community pharmacy
- **Intervention:** Community pharmacist started 10 units of insulin glargine and instructed patient to self-increase dose by 1 unit per day until fasting glucose was <100mg/dL. Contacted at 2, 4, 8, 14, 20, and 26 weeks after enrollment.
- **Comparison**: Pre-/post-intervention A1c
- **Outcome:** A1c decreased from 9.1% to 7.3%

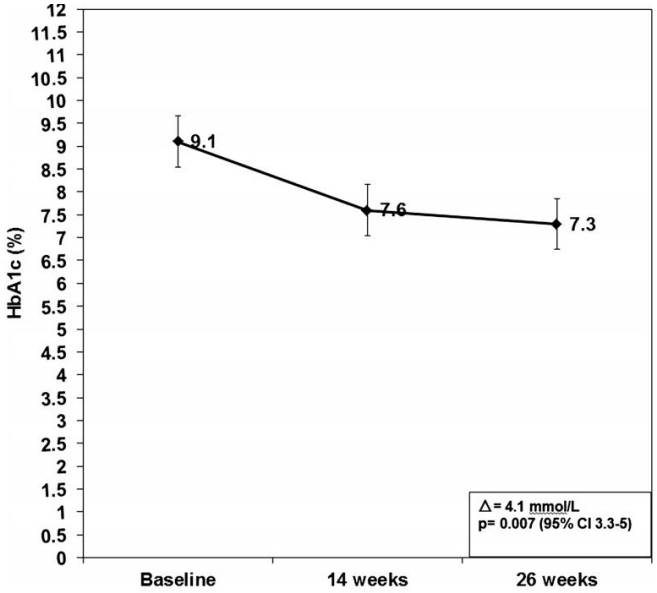


Figure 2 Intervention effect on glycated haemoglobin in patients with uncontrolled type 2 diabetes (n=100).

Al Hamarneh et al. BMJ Open 2013

Talk Back

Which of the following are barriers to medication optimization in Type 2 Diabetes that you encounter most frequently?

Time to Suit Up

Objectives → Questions To Answer

At the end of this presentation, pharmacists will be able to:

1. Identify appropriate indications for injectable therapies in type 2 diabetes
   → “How do I know when and which injectable therapy to select?”
2. Recognize care plans that optimize the use of such injectable therapies
   → “How do I start and adjust injectable therapies?”
3. Identify solutions to overcome barriers to medication access
   → “What do I do to help patients get the meds they need?”

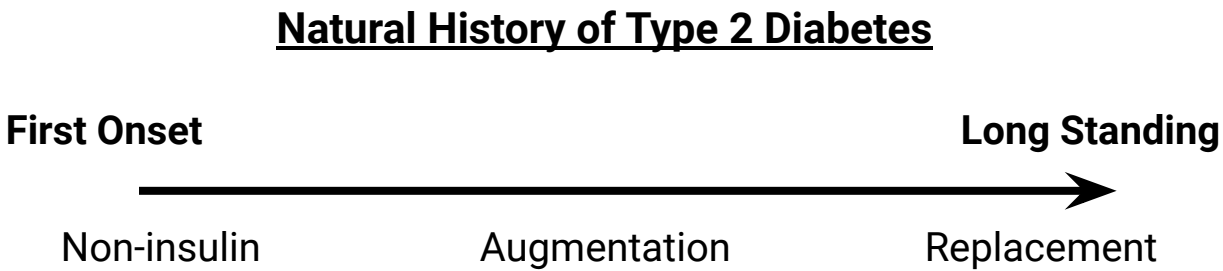
First, A Caveat of Exclusions

A comprehensive review of all antihyperglycemics--even all injectables--is beyond the scope of this presentation, so we'll be focusing on:

Competence over Mastery & Simplicity over Complexity

To that end, we will not be focusing on:

- Type 1 Diabetes
- Use of bolus insulin
- Oral agents



Time to Suit Up

"How Do I Know When and Which Injectable Therapy to Use?"

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When Is Insulin Appropriate?

For most patients, consider a GLP-1 RA prior to insulin; however, insulin may be preferred based on:

Signs

- The Three P’s: polyuria, polydipsia, polyphagia
- Ongoing metabolic catabolism
  - Weight loss
  - Ketosis
  - Very high triglycerides

Numbers

- HgbA1c > 10%
- Blood glucose > 300mg/dL
- HgbA1c is not at goal on other optimized therapies

Audience Assessment #1

Which of the following patients does not have a compelling indication for insulin therapy?

A. 54yo on metformin and sitagliptin and an A1c of 11%
B. 28yo on metformin with a random glucose of 250, unintentional weight loss, and a new prescription for fenofibrate
C. 82yo on metformin and empagliflozin with long standing diabetes over 20 years and an A1c of 7.2%.
D. 67yo newly diagnosed with a random glucose of 411mg/dL in office today without polyuria or polydipsia

Audience Assessment #1

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C. **82yo on metformin and empagliflozin with long standing diabetes over 20 years and an A1c of 7.2%.**
D. 67yo newly diagnosed with a random glucose of 411mg/dL in office today without polyuria or polydipsia

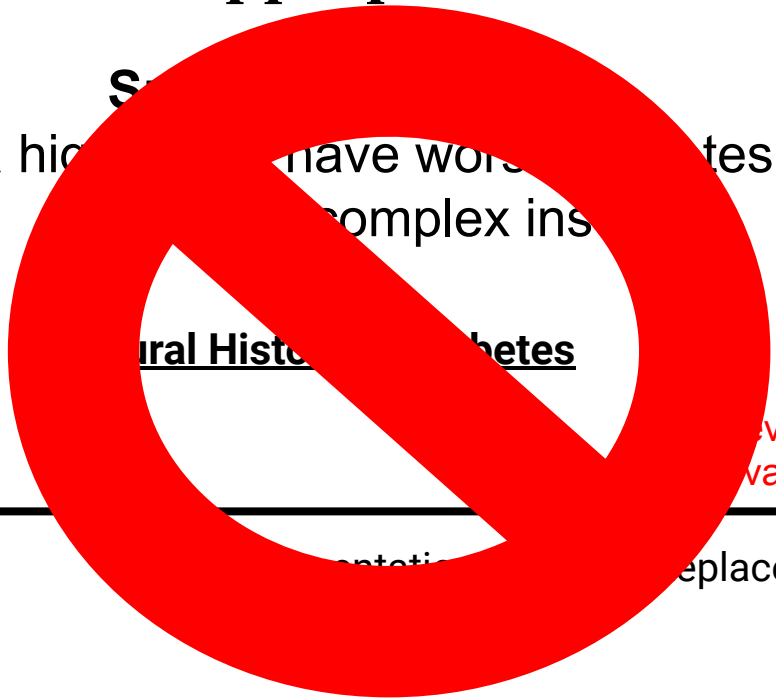
What Kind of Insulin Is Appropriate?

Subconscious Myth:

“Patients with a higher A1c have worse diabetes and therefore need more complex insulin (e.g. bolus, premixed insulin)”

Natural History of Type 2 Diabetes

What Kind of Insulin Is Appropriate?

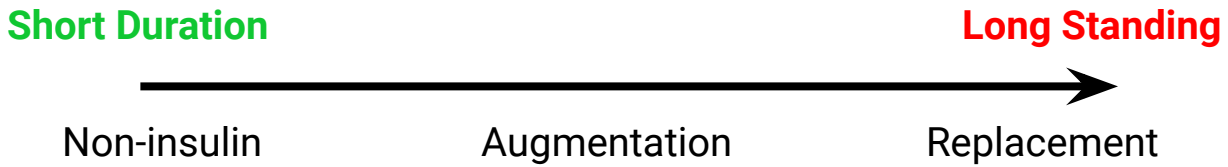


What Kind of Insulin Is Appropriate?

Truth:

- A1c is not a good predictor of diabetes stage
  - Duration of diabetes is the most cost-effective predictor
- Bolus insulin needs are determined by beta cell function, not A1c
- More complex regimen ≠ more potent regimen

Natural History of Type 2 Diabetes



What Kind of Insulin Is Appropriate?

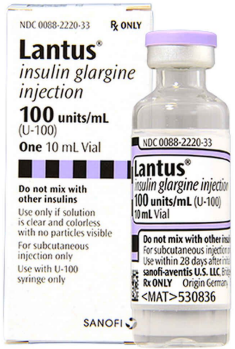
Conclusions:

- Basal insulins are the preferred choice for insulin-naive patients
- Premixed insulins are by definition non-physiologic and thus have a rare, specific niche
  - “A patient who does well on 70/30 doesn’t need 70/30”
- Adding injectable therapies is a **marathon**, not a **sprint**
  - Usually it is better to optimize one insulin before adding another dose (as opposed to sliding scale or basal-bolus)

What Kind of Insulin Is Appropriate?

Subconscious Myth:

“Newer insulins are better than older insulins”



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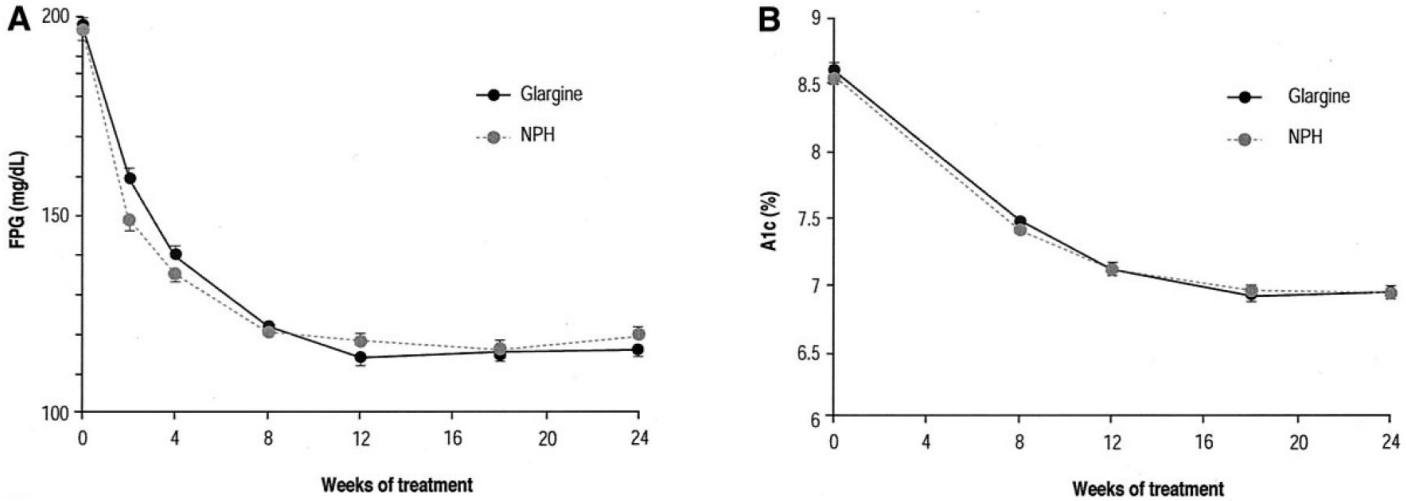
What Kind of Insulin Is Appropriate?

Truth:

- Newer basal insulins are **no more effective** than older basal insulins



Riddle et al. Diabetes Care 2003

What Kind of Insulin Is Appropriate?

Truth:

- Newer basal insulins cause less hypoglycemia than older basal insulins

Audience Assessment #2 (Trial Run)

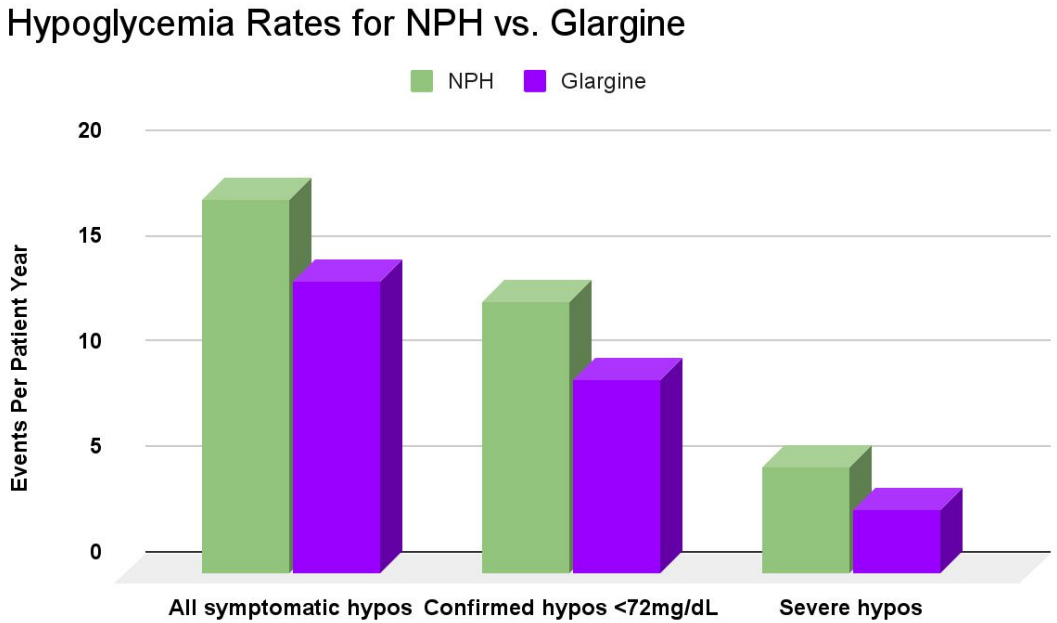
By how much does insulin glargine reduce the risk of hypoglycemia compared to insulin NPH?

A. 20%
B. 40%
C. 60%
D. 80%

What Kind of Insulin Is Appropriate?

Truth:

- Newer basal insulins do cause less hypoglycemia than older basal insulins



Riddle et al. Diabetes Care 2003

Audience Assessment #2

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Audience Assessment #2

By how much does insulin glargine reduce the risk of hypoglycemia compared to insulin NPH?

A. **20%**
B. 40%
C. 60%
D. 80%

What Kind of Insulin Is Appropriate?

Truth:

- Newer basal insulins cause less hypoglycemia than older basal insulins

- Lower risk of hypoglycemia is **more important** when:
  - Little residual beta cell function to buffer NPH’s kinetics
  - Fasting glucose average is close to target
  - High risk of hypoglycemia
  - Glucose is otherwise labile

- For many patients, a 20% reduction in hypoglycemia risk is not worth a 1000% increase in price (~$250 vs $25)

What Kind of Insulin Is Appropriate?

Conclusion:

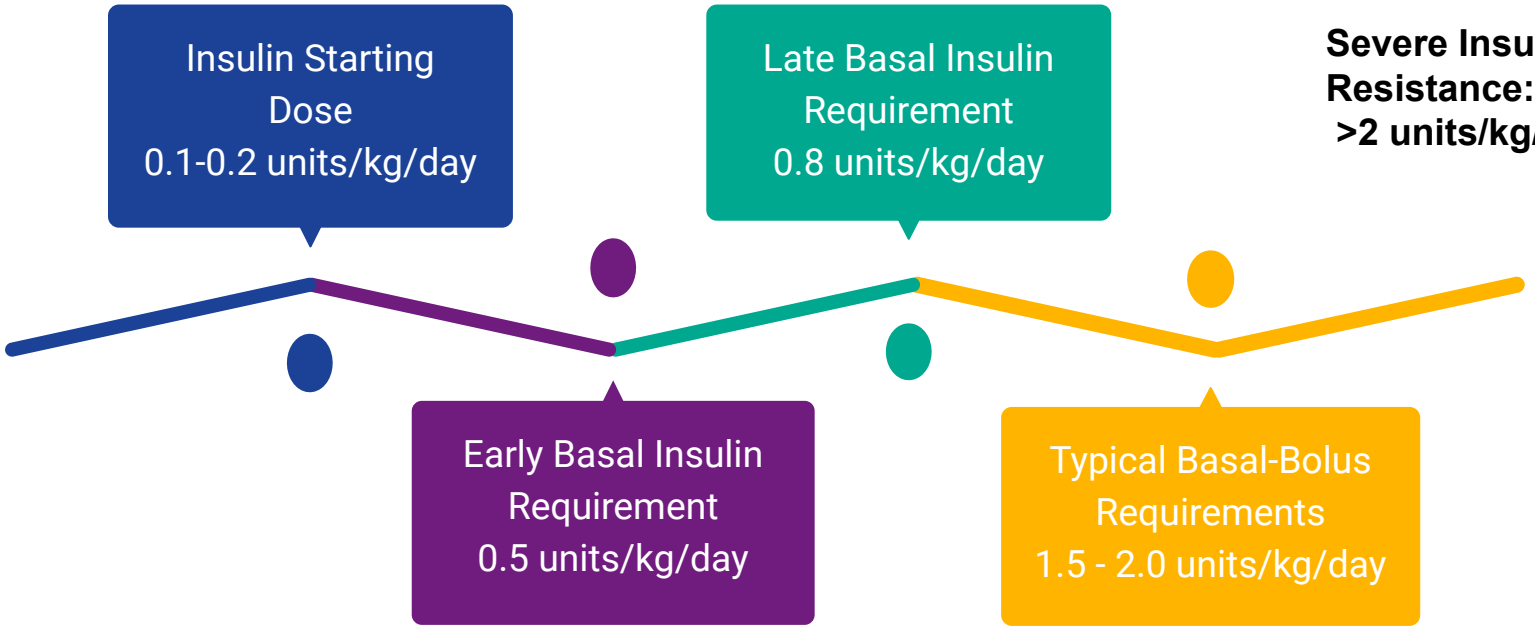
Newer insulins are better* than older insulins

>*

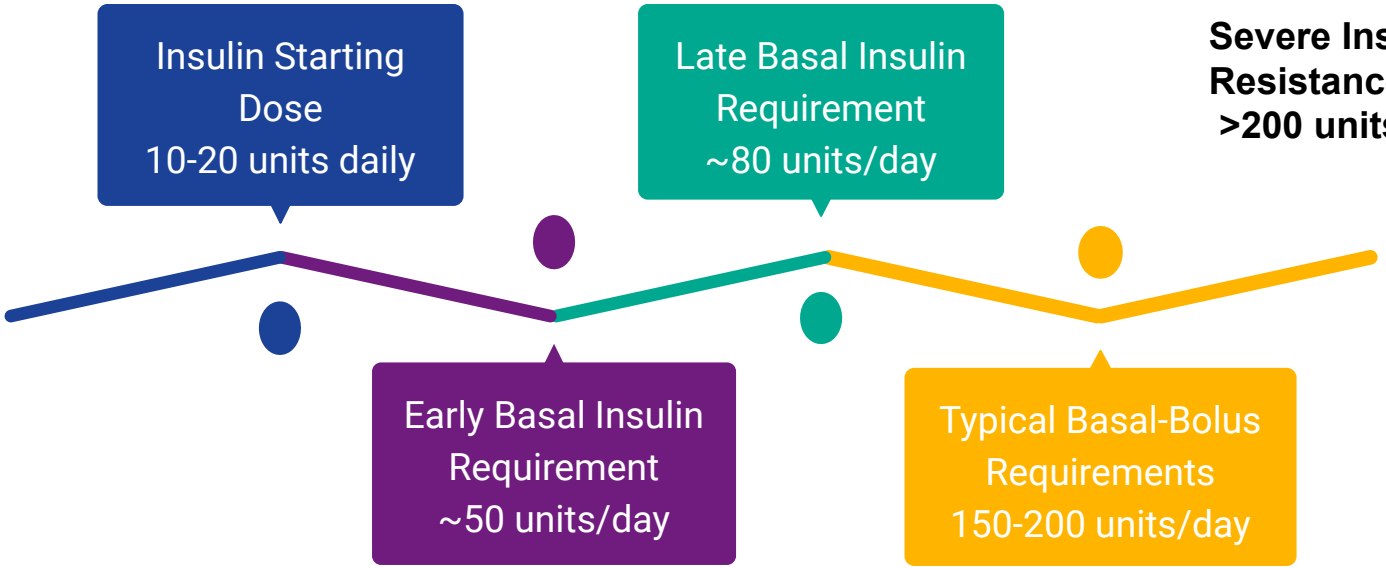
Time to Suit Up

"How Do I Start and Adjust Injectable Therapies?"

Defining What’s Normal (units/kg/day)



Defining What’s Normal - Typical 100 kg Patient



Use these “signposts” to set expectations for your patient!

Let’s Get It (Basal analog or NPH) Started

INITIATION: Start 10 units SC daily **or** 0.1-0.2 units/kg/day

TITRATION:

- Set fasting plasma glucose (FPG) target
  - For most patients, 80-130 mg/dL
  - Direct patient to SMBG at least once daily

- Choose evidence-based titration algorithm
  - Clinician directed
  - Patient directed

Audience Assessment #3

JB is a 51 year old, 100kg male who presents to your charitable pharmacy to apply for assistance. He reports his doctor told him he needed to start insulin but he declined it because he couldn’t afford the $300 his old pharmacy was charging him. He shares his A1c was 12.9% and his sugar was 352 mg/dL in this office this morning. Assuming both are affordably available at your charitable pharmacy, which of the following is an appropriate regimen to initiate?

A. Basaglar (insulin glargine) 15 units qdaily
B. Basaglar (insulin glargine) 30 units qdaily
C. Humulin N (insulin NPH) 5 units qdaily
D. Humulin N (insulin NPH) 4 units BID

Audience Assessment #3

JB is a 51 year old, 100kg male who presents to the Dispensary of Hope to apply for assistance. He reports his doctor told him he needed to start insulin but he declined it because he couldn’t afford the $300 his old pharmacy was charging him. He shares his A1c was 12.9% and his sugar was 352 mg/dL in this office this morning. Which of the following is an appropriate insulin regimen to initiate?

A. **Basaglar (insulin glargine) 15 units qdaily**
B. Basaglar (insulin glargine) 30 units qdaily
C. Humulin N (insulin NPH) 5 units qdaily
D. Humulin N (insulin NPH) 4 units BID

Clinician Directed Titrations

Treat to Target (2003)

If fasting average from last 2 days:	Increase Insulin By: (units/day)
>/= 180 mg/dL	+8
140-180 mg/dL	+6
120-140 mg/dL	+4
100-120 mg/dL	+2

ACCORD (2008) finds increased risk of CV death with strict A1c goals, presumed to be caused by hypoglycemic stress on the heart

Modified Treat to Target

If fasting average from last 2 days:	Increase Insulin By: (units/day)
>/= 180 mg/dL	+8
160-180 mg/dL	+6
140-160 mg/dL	+4
120-140 mg/dL	+2

Patient (Self) - Directed Titrations

	ADA 2021	“303” Algorithm	INSIGHT
How much to go up or down by	2 units	3 units	1 unit
How often	Every 3 Days	Every 3 Days	Every Day
Example	“Increase your insulin by 2 units every 3 days until your fasting average is <130mg/dL”	“Increase your insulin by 3 units every 3 days until your fasting average is <130mg/dL”	“Increase your insulin by 1 units every day until your fasting average is <130mg/dL”

I’ve Got Friends in Low Places - Managing Hypoglycemia

1. Look for a culprit to apprehend
    - Change in diet, activity, or health
    - Concomitant hypoglycemics
    - Murphy’s Law - if it can be taken wrong…

2. If no culprit, lower dose by 10-20%

Reaching Your Destination

- HgbA1c should be assessed q3months until at goal
- If A1c is still not at goal
    - **Fasting still elevated?** Remain calm and titrate on
    - **Fasting is at goal?** Assess for PM elevations
        - If not on GLP-1 agonist, consider adding
        - If on bedtime NPH, can add a morning dose
        - Add one dose of prandial insulin at largest meal

Audience Assessment #4

JB calls the pharmacy a week later, grateful that you were able to provide him insulin. JB’s physician wrote on the prescription to titrate to a max of 50 units/day per the Treat to Target algorithm at RPh discretion. JB reports that his BG was 210mg/dL this morning and 190mg/dL yesterday morning. He is currently taking Basaglar 15 units daily. Which of the following is an appropriate **clinician-directed** dose change for JB today?

A. 17 units qdaily
B. 20 units qdaily
C. 23 units qdaily
D. 30 units qdaily

Audience Assessment #4

JB calls the pharmacy a week later, grateful that you were able to provide him insulin. JB’s physician wrote on the prescription to titrate to a max of 50 units/day per the Treat to Target algorithm at RPh discretion. JB reports that his BG was 210mg/dL this morning and 190mg/dL yesterday morning. He is currently taking Basaglar 15 units daily. Which of the following is an appropriate new dose for JB?

A. 17 units qdaily
B. 20 units qdaily
C. 23 units qdaily
D. 30 units qdaily

Time to Suit Up

"What do I do to help patients get the meds they need?"

“Drugs don’t work in patient’s that don’t take them.”

Everett Koop, MD

“Patients don’t take medications they can’t afford.”

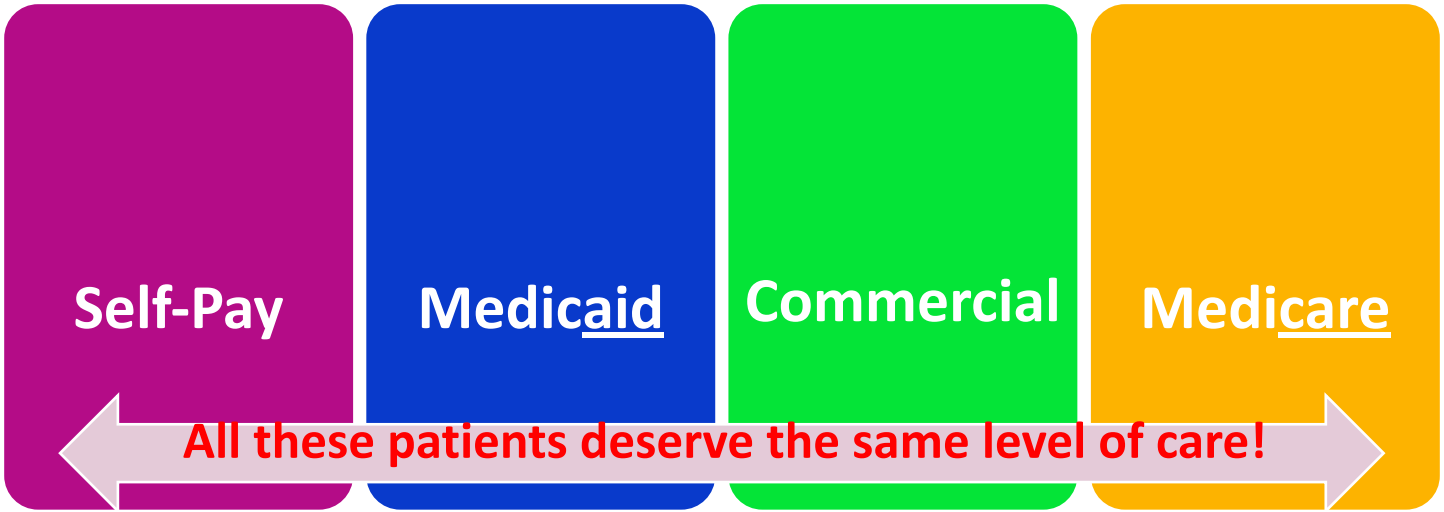
Jonathan Hughes, PharmD

Access is a Major Cause of Suboptimal Medication Therapy

- Insulin and branded antihyperglycemics among the most expensive medications used in primary care
- Since 2017, the ADA Standards of Care have explicitly addressed the cost of medications as a fundamental aspect of diabetes care

Table 9.3—Median cost of insulin products in the U.S. calculated as AWP (62) and NADAC (63) per 1,000 units of specified dosage form/product

The Medication Access Matrix



Resources to Support Medication Access

Medicine Assistance Tool (MAT)
Searchable database for patient assistance programs
Website: medicineassistancetool.org

Rx Assist Plus
Searchable database for manufacturer-based assistance programs
Website: rxassist.org
Email: info@rxassist.org

Needy Meds
Drug Discount Card App
Website: needymeds.org
Email: info@needymeds.org
Phone: 1-800-503-6897

Rx Outreach
Mail order pharmacy, generics at low/no cost for eligible patients
Website: rxoutreach.org
Phone: 1-800-769-3880

Dispensary of Hope
Direct patient access at point of care pharmacies and clinics. Over 200 sites and growing. Ascension's commitment includes nearly 50 sites - and we encourage others to join.
Website: www.Dispensaryofhope.org
Phone: 615-736-5075

World Medical Relief
Low cost prescription medication, medical supplies, and DME for eligible patients
Website: worldmedicalrelief.org
Phone: (313) 866- 5333

Resources to Support Medication Access

NovoCare
Patient assistance program for eligible diabetic patients
Website: novocare.com/diabetes-overview/let-us-help/pap
Phone: 1-866-310-7549

Lilly
Insulin affordability program
Website: lilly.com/resources/diabetes-solution-center
Phone: 833-808-1234

Sanofi
Various assistance programs for patients with diabetes
Website: teamingupfordiabetes.com/sanofidiabetes-savings-program
Phone: 855-984-6302

CoverRx
Tennessee Only – Government pharmacy assistance program for eligible patients
Website: tn.gov/tenncare/coverrx/coverrx-faq
Phone: 1-800-424-5815

BD
Insulin syringe assistance program for eligible patients
Website: bd.com/en-us/offerings/capabilities/diabetes-care/insulin-syringes
Phone: 1-888-367-8517

American Diabetes Association (ADA)
General resource for insulin assistance – consistent and comprehensive updates
Website: insulinhelp.org

Insulins Available at Dispensary of Hope Locations

- Humulin N vials
- Humulin R vials
- Humulin 70/30 vials
- Basaglar Kwikpen
- Humalog (vials and Kwikpen)
- Humalog Kwikpen Mix 75/25

Audience Assessment #5

Which of the following basal insulins are available at Dispensary of Hope locations?

A. Novolin N
B. Lantus
C. Humulin R
D. Basaglar

Audience Assessment #5

Which of the following basal insulins are available at Dispensary of Hope locations?

A. Novolin N
B. Lantus
C. Humulin R
D. Basaglar

References

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Questions?

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Jonathan Hughes, PharmD, BCPS, BCACP
Pharmacy Supervisor, AMG Tennessee
Residency Program Director, PGY-2 Ambulatory Care
Ambulatory Care Clinical Pharmacist Specialist

Ascension Rx