

# Diabetes and Hypertension Project ECHO\* Clinic

\*ECHO: Extension of Community Healthcare Outcomes

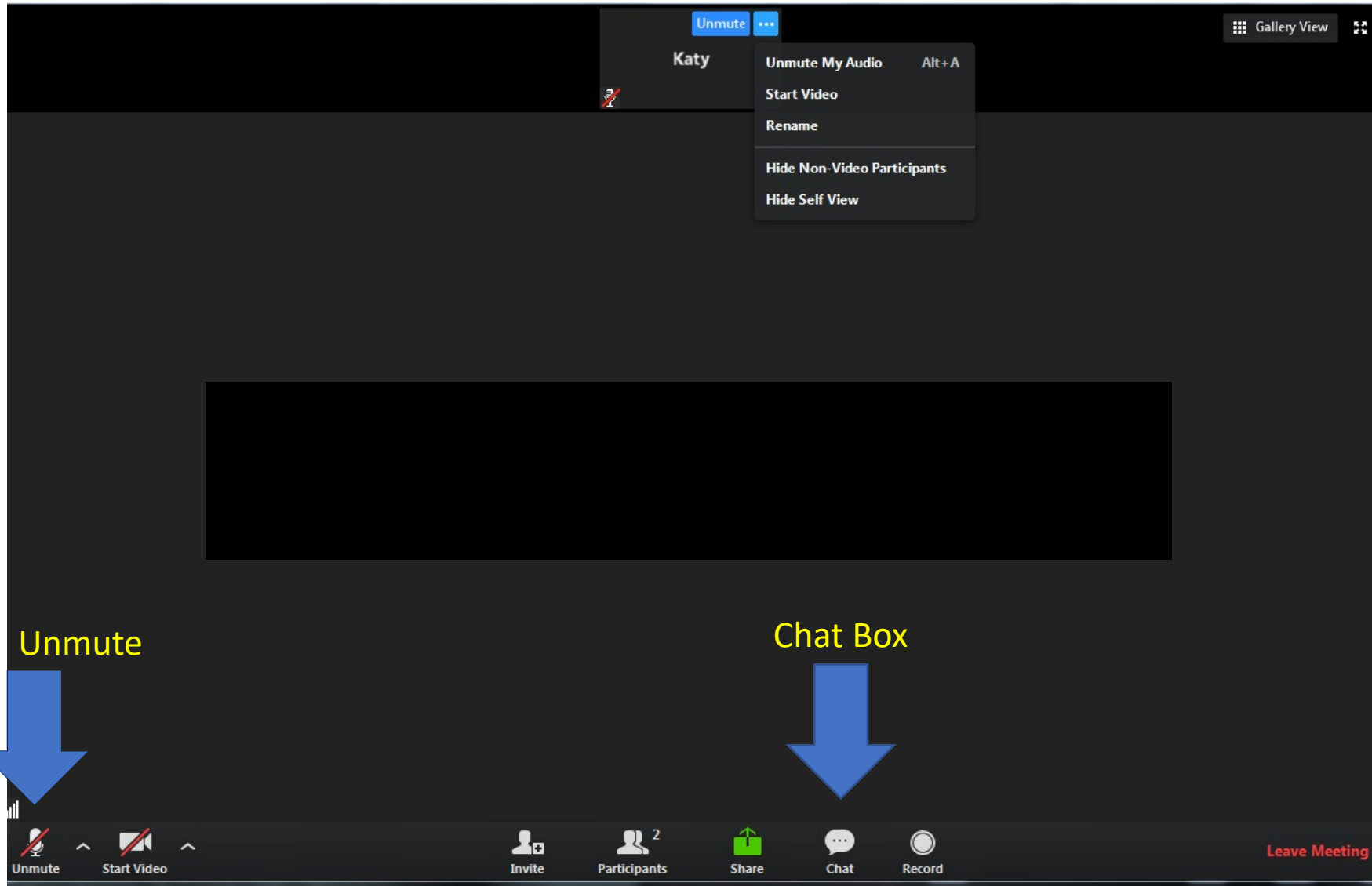
**May 13, 2021**

## Before we begin:

- Rename your Zoom screen with your name and organization
- Claim CE: text 19161-18817 to 804-625-4041
  - Go to [vcuhealth.org/echodmhtn](https://vcuhealth.org/echodmhtn) for instructions on creating your account

*The Diabetes and Hypertension ECHO is made possible by  
funding through CDC Cooperative Agreement  
NU58DP006620-InnoVAte.*

# Helpful Reminders



- You are all on **mute**. Please **unmute** to talk
- If joining by telephone audio only, press **\*6** to mute and unmute
- Use the chat function to speak with our team or ask questions

# ECHO is all teach, all learn



Interactive



Co-management  
of cases



Peer-to-peer  
learning



Collaborative  
problem solving



## Helpful Reminders

- Please feel free to eat your lunch or step away briefly if needed
- We are recording and can share sessions upon request
  - Each session's slides are available on [www.vcuhealth.org/echodmhtn](http://www.vcuhealth.org/echodmhtn)
  - We encourage you to keep your camera on, but if you are uncomfortable being recorded, feel free to turn it off
- Please **do not share any protected health information** in your discussion or the chat
- Project ECHO operates on the “All Teach, All Learn” model
  - Feel free to ask questions in the chat or unmute to ask questions at designated times
  - We're all here to learn from each other and value each person's input and expertise!

# VCU Health Diabetes & Hypertension ECHO Clinics

- Bimonthly, 1.5-hour tele-ECHO clinics on 2nd and 4th Thursdays
- Every tele-ECHO clinic includes a 30-minute didactic presentation followed by case discussions
- Didactic presentations are developed and delivered by interprofessional experts
- Website: [www.vcuhealth.org/echodmhtn](http://www.vcuhealth.org/echodmhtn)
  - Directions for creating an account and claiming CE can be found here also
  - You have up to six days after our session to claim CE by texting **19161-18817** to **804-625-4041**

# Hub and Participant Introductions



## VCU Team

Principal Investigator	Dave Dixon, PharmD
Administrative Medical Director ECHO Hub	Vimal Mishra, MD, MMCI
Clinical Experts	Niraj Kothari, MD Trang Le, MD
Project Coordinator/IT Support	Madeleine Wagner, BA

- Use **chat** function for introduction
  - Name
  - Organization

Reminder: **Mute** and **unmute** screen to talk or press **\*6** for phone audio

Share your name and organization in the chat.

# Disclosures

Alex Stolberg, RD, CDCES, has no financial conflicts of interest to disclose.

Trang Le, MD, has no financial conflicts of interest to disclose.

Niraj Kothari, MD, has no financial conflicts of interest to disclose.

There is no commercial or in-kind support for this activity.

# Practical Approaches to Injectable Agents

# Learning Objectives

- Guide patients through appropriate injection technique
- Identify common teaching mistakes
- Effectively troubleshoot patient injection issues



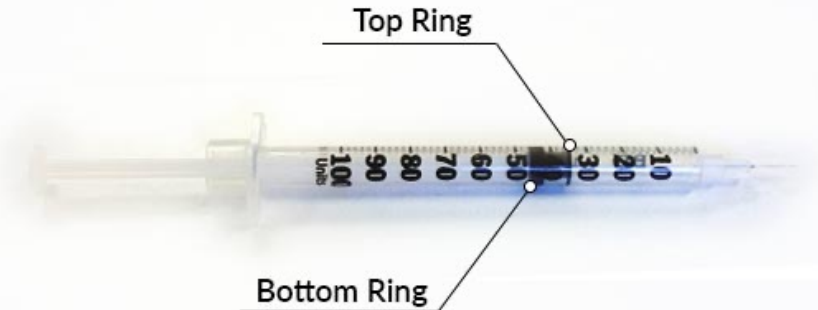
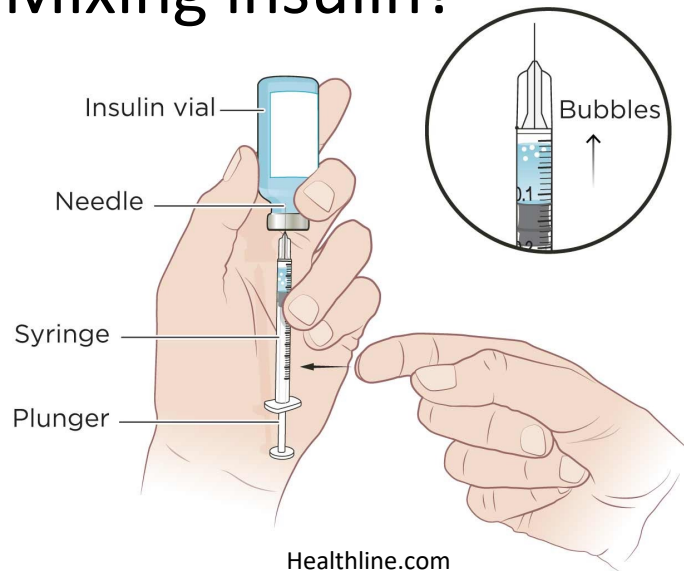
# Storage

- Unopened insulin stays in refrigerator
  - Good until expiration date
- Open insulin can stay at room temperature (<86F)
  - Out of direct sunlight
  - Good for ~28 days\*
  - Sharpie open date if it will last >4 weeks
  - NOT with pen needle on!



# Vial and syringe prep

- Clean rubber stopper with alcohol if not clean
- Fill syringe with air and inject into vial
- Draw up insulin and purge air bubbles
- Mixing insulin?



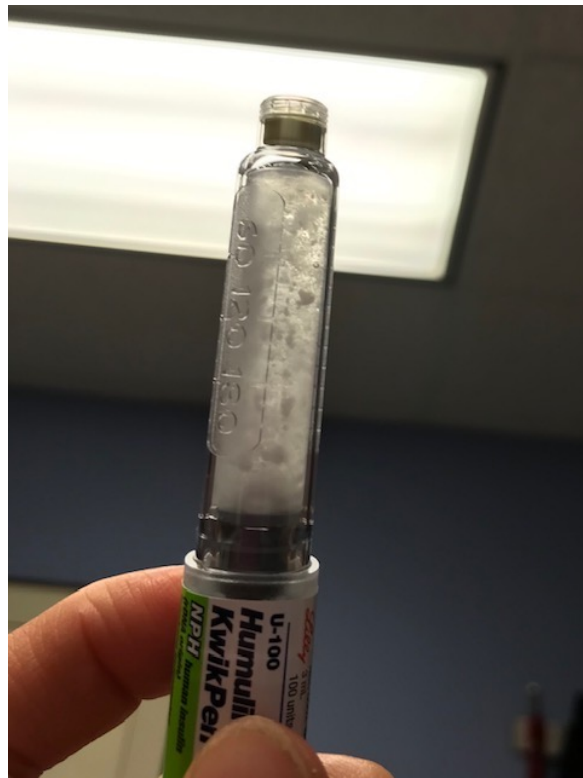
# Pen prep

- Screw on new pen needle
  - NOT at an angle
  - Remove BOTH caps
- Prime?
  - If no drop is visible on needle or for very small doses
- Dial to dose

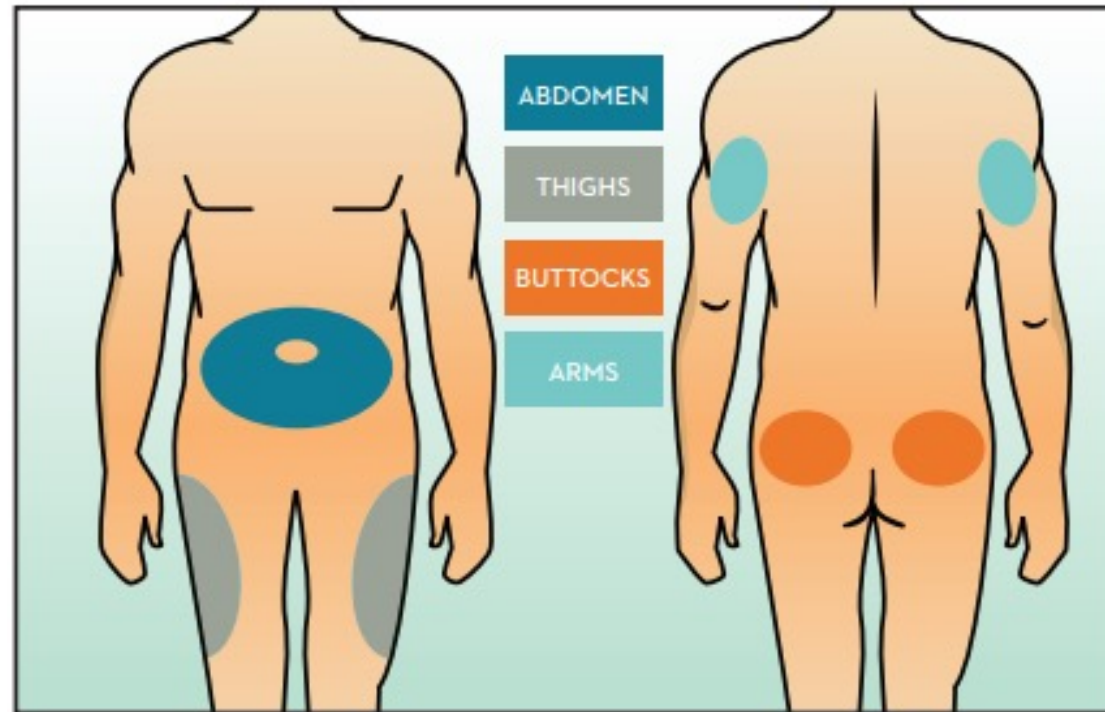


# Reconstituting NPH

- Invert ~20 times until uniformly cloudy. Do not shake



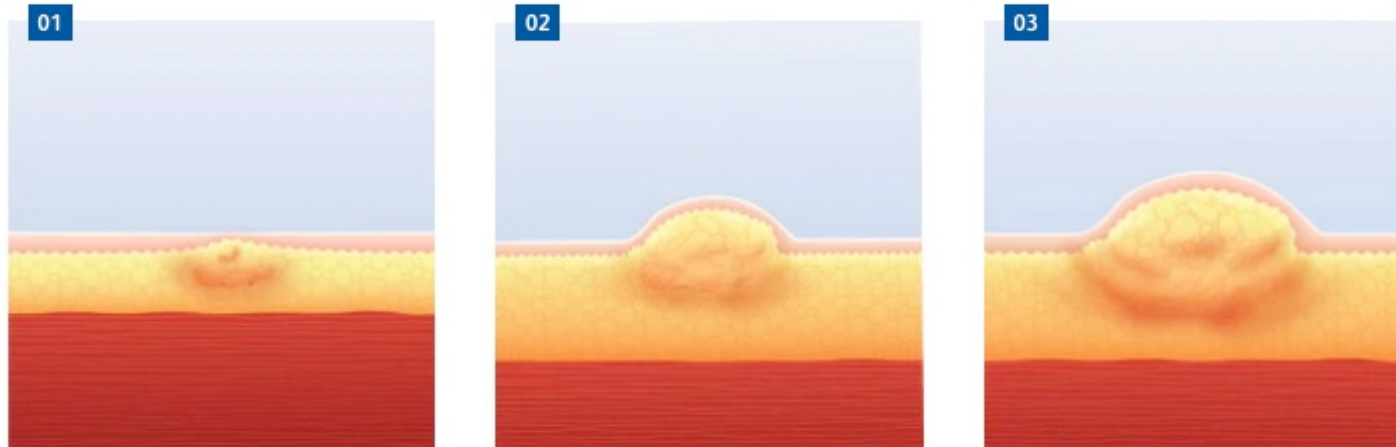
# Site Selection



[diabeteseducator.org](http://diabeteseducator.org)

# Lipohypertrophy

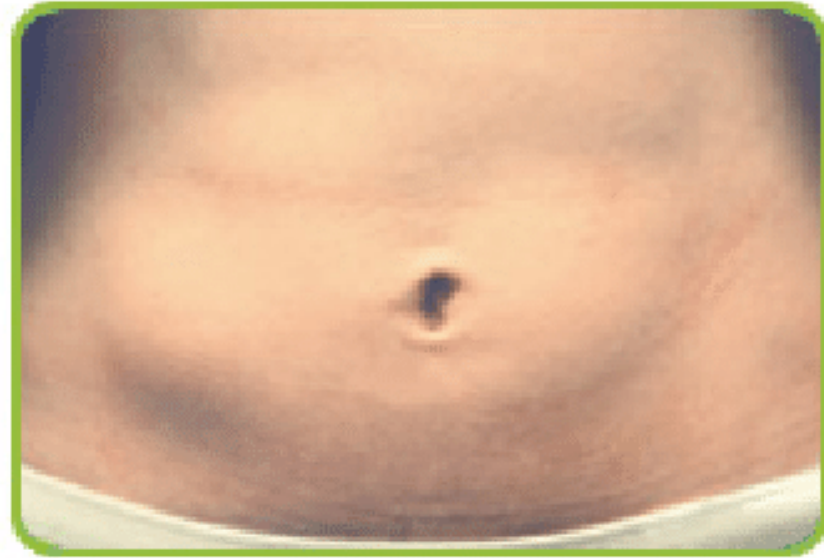
- Swelling of fatty tissue at injection site secondary to lipogenic effects of insulin
  - 30% to 60%
  - Reduced and/or erratic insulin absorption
- Not always visually obvious
  - Palpate



BD.com



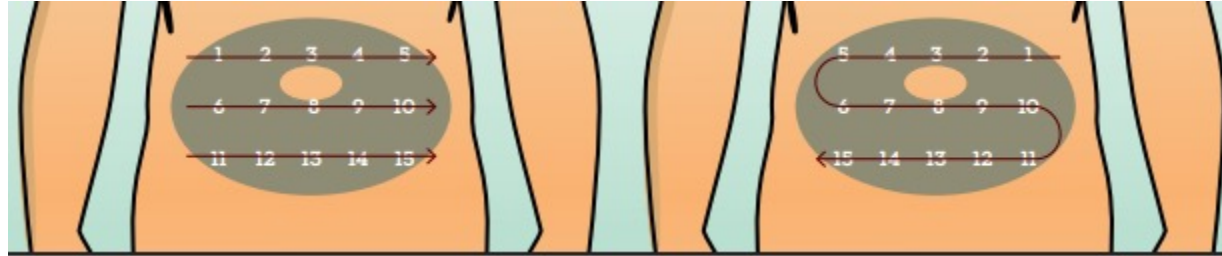
# Lipohypertrophy



researchgate.net

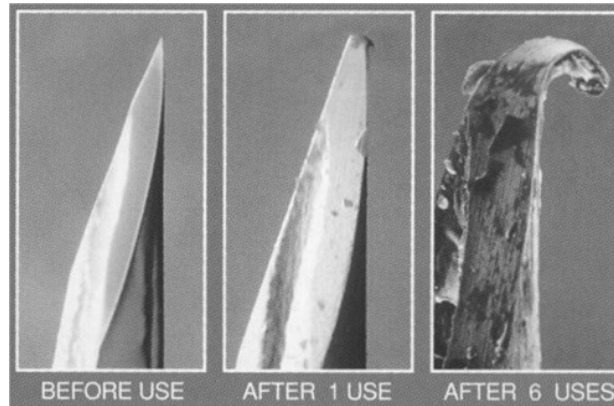
# Solutions

- Rotate!



Diabeteseducator.org

- Never reuse needles



Diabetesdaily.com

- Consider splitting large doses
  - >60 units?

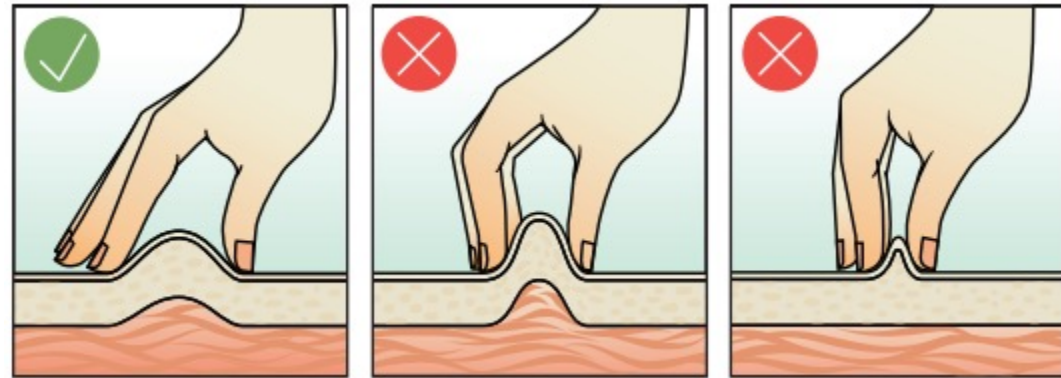


# Site preparation?

- “Generally not necessary to wipe skin with alcohol before injecting”.
- If using alcohol, let fully evaporate

# Pinch or No Pinch?

- ONLY if needle is longer than estimated depth of muscle
- Even lean people usually don't need to pinch with 4 mm needles



diabeteseducator.org

# Needle Length

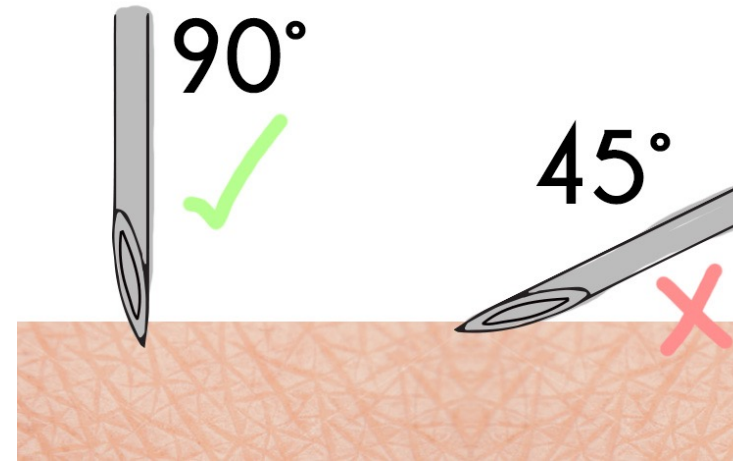
## Estimated IM injection risk by body site

Needle length (mm)	Thigh (%)	Abdomen (%)
4	1.6	0.3
6	10	2.8
8	25	9.7
12.7	63	38

Adopted from Frid et al., 2016

# Angle or No Angle?

- Only in extremely lean people
- NOT with 4 mm needles
- Skin thickness ~2 mm



t1dliving.com

# Time to inject

- One quick motion
  - Not slow and not jabbing
- Needle hub should be flush with skin
  - NOT making an indentation
    - May lead to IM injection and/or pain
- Count to 10 before removing



# Needle disposal

- No standardized home sharp collection in Virginia



Diabetesstrong.com

# Tips for Vision Impairment

- Prefilled syringes from pharmacy vs relying on caregivers
- Syringe magnifier
- Count the clicks on pens
- Separate different insulin pens
  - Rubber band for tactile difference
- Type of pen needle



amazon.com



bd.com

# Tips for low dexterity

- Type of pen needle
- Type of pen





# Set up for Success

- Don't make assumptions
- Demonstration tools
  - Pens
  - "Skins"
  - Videos
- Teach-back
- First injection at clinic?
- Routine "audits"



# Set up for Success

- Correct prescriptions!
  - Pens vs vials?
  - Forgot pen needles/ syringes, incorrect length?
  - Correct quantity?
  - Correct pharmacy?
  - Covered by insurance?

# Reducing pain

- Shortest needles (4 mm)
- Always new needle
- Let alcohol fully evaporate
- Insulin at room temperature
- Replace glargine?
- Consider concentrated insulin for large doses?
- Penetrate skin quickly
- Avoid hair roots or bruised sites
- Don't move needle around in skin

# Malfunction troubleshooting

- Putting needle on at an angle?
- Pen is empty?
- Pen is broken?
- Manufacturing defect?

# Questions?



# Helpful Resources

- Forum for Injection Technique and Therapy Expert Recommendations
- ADCES (Insulin Injection Know-How)
- ADA Standards of Care
- Frid et al., New Insulin Delivery Recommendations 2016

# Case Study #1:

61 yo patient with hypothyroidism, multiple myeloma, s/p 3 bone marrow transplants, h/o T2DM historically in 7% range on metformin only, with multiple myeloma relapse. Now on venetoclax (BCL2inhibitor) + dexamethasone 20mg, only 1 day per week.

PMH: as above, also hyperlipidemia, gout

Comes in for hypothyroidism follow up and incidentally noted to have A1c 8.8%

Not monitoring blood glucose at home

→ What would you do next?

# Case Study #1:

He is also followed at the VA hospital for primary care and is able to obtain a continuous glucose sensor



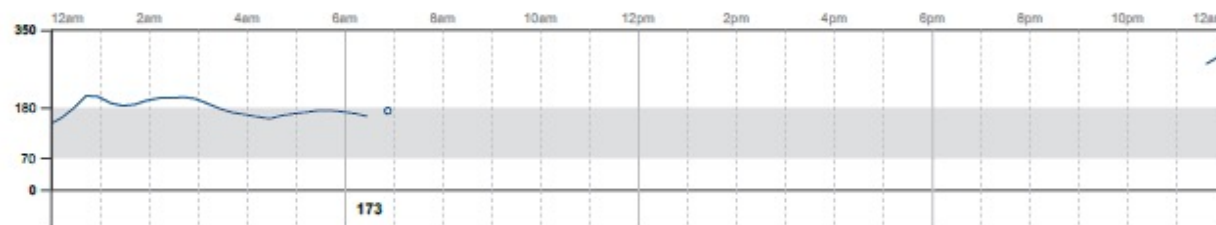
## Daily Log

January 15, 2021 - February 11, 2021 (28 Days)

LibreView

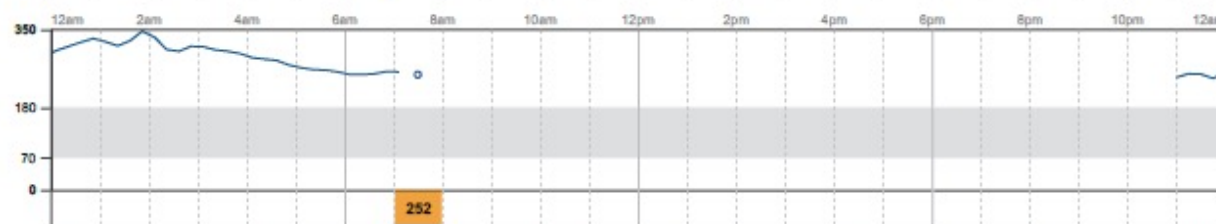
TUE Jan 19

Glucose mg/dL



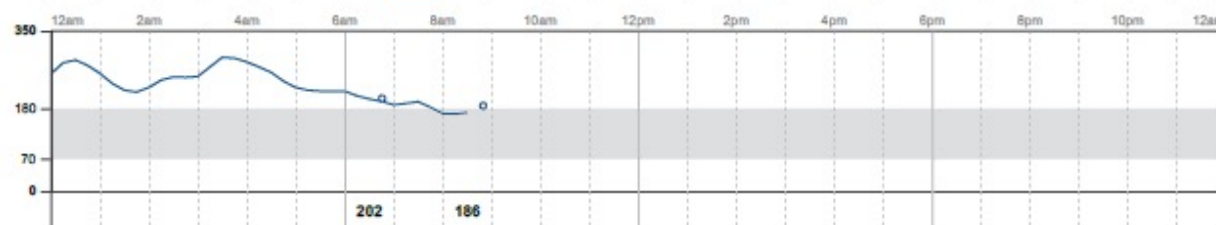
WED Jan 20

Glucose mg/dL



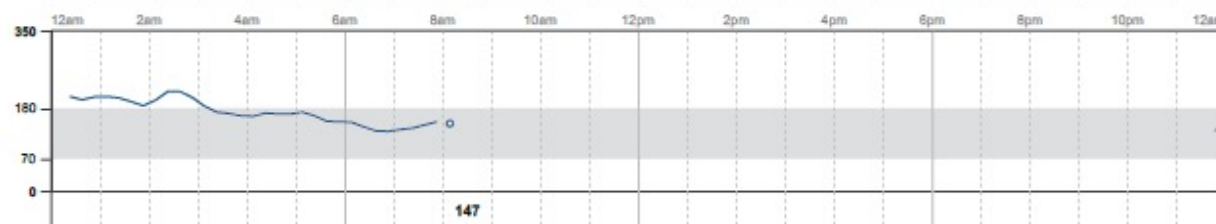
THU Jan 21

Glucose mg/dL




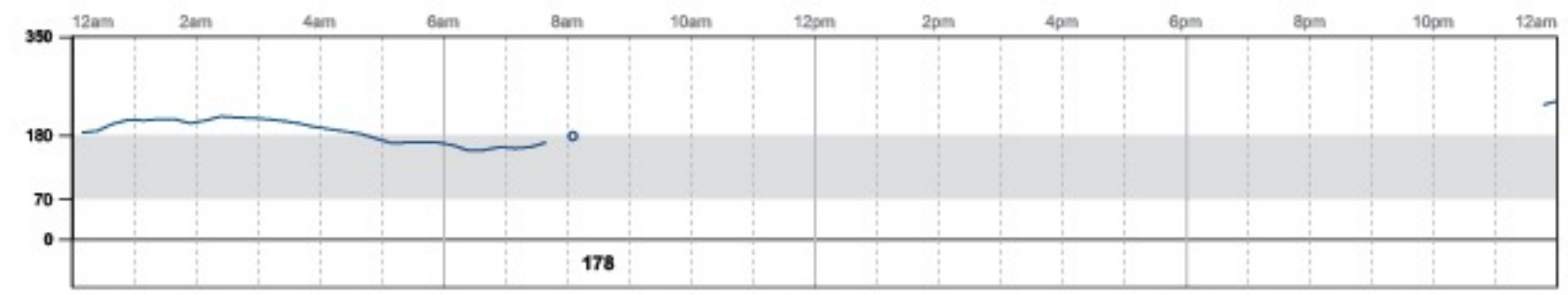
FRI Jan 22

Glucose mg/dL




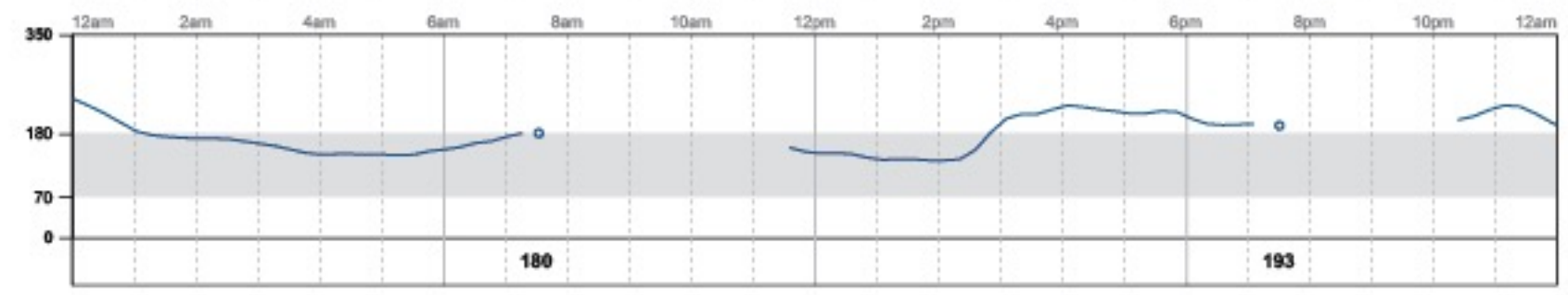
THU Feb 4

 Glucose mg/dL




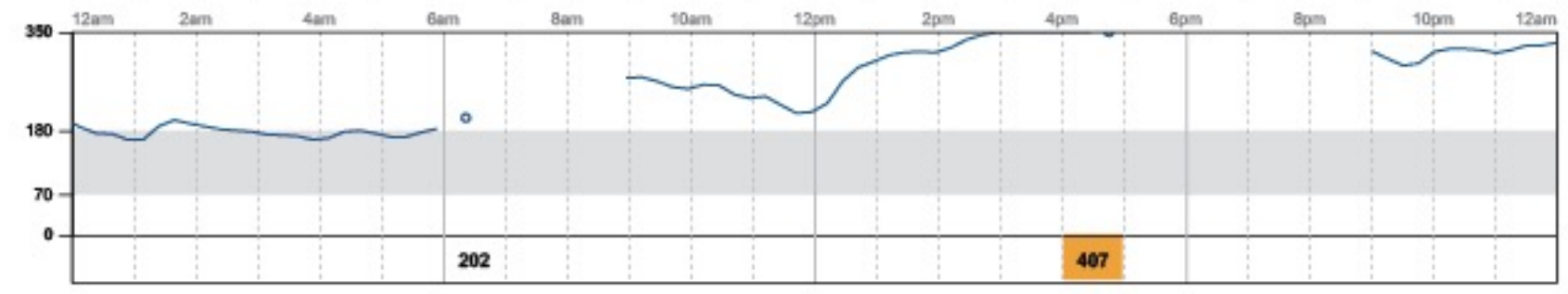
FRI Feb 5

 Glucose mg/dL




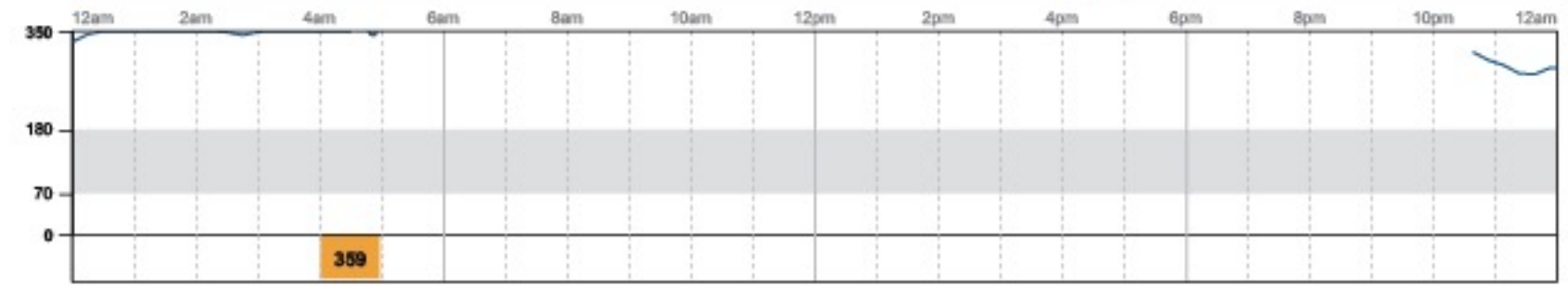
SAT Feb 6

 Glucose mg/dL



SUN Feb 7

 Glucose mg/dL



# Case Study #2

43 year old lady with T2DM, diagnosed in 2016, improved to diet-controlled with bariatric surgery.

- Developed alcohol dependence, followed by pancreatitis, requiring total pancreatectomy. Underwent Islet Cell Autotransplant in 2020. Frequent hypoglycemic seizures afterwards.
- Given a Medtronic 630G insulin pump with Medtronic glucose sensor in early 2021, with reduction in seizures and persistent though milder hyperglycemia.
- Admitted to VCU for sepsis in Spring of 2021; insulin pump therapy had been discontinued during that admission due to concerns of sufficiency of diabetes self-management skills

# Case Study #2

Returns to endocrine hospital follow up clinic

Continues on discharge regimen: Lantus 12 units nightly, Humalog 2-8 units with meals or for hyperglycemia, current weight is 61.6kg, BMI 23.3.

Patient's main question: can I restart my insulin pump?

What other questions would you ask her?

How would you explain to her your decision to resume / stay off the insulin pump?

# Case Studies

- Anyone can submit cases: [www.vcuhealth.org/echodmhtn](http://www.vcuhealth.org/echodmhtn)
- Receive feedback from participants and content experts
- Earn **\$150** for submitting and presenting

# Provide Feedback

[www.vcuhealth.org/echodmhtn](http://www.vcuhealth.org/echodmhtn)

- Feedback
  - Overall feedback related to session content and flow?
  - Ideas for guest speakers?

# Access Your Evaluation

vcuhealth.org/services/telehealth/for-providers/education/diabetes-and-hypertension-project-echo



## For Providers

Education -

**Diabetes and Hypertension Project ECHO -**

Our Team

Curriculum

Claiming CE Credit

Contact Us

VCU Nursing Home ECHO +

VCU Health Palliative Care ECHO +

Virginia Opioid Addiction ECHO +

Virginia Sickle Cell Disease ECHO +

# Diabetes and Hypertension Project ECHO

Welcome to the Diabetes and Hypertension Extension for Community Health Outcomes or ECHO, a virtual network of multidisciplinary diabetes and hypertension experts. An ECHO model connects professionals with each other in real-time collaborative virtual sessions on Zoom. Participants present de-identified cases to one another, share resources, connect to each other, and grow in their expertise. This ECHO will address practice level issues and solutions related to managing complex patients with difficult to control diabetes and hypertension. [Register now for an ECHO Session!](#)

## Network, Participate and Present

- Engage in a collaborative community with your peers.
- Listen, learn and discuss informational and case presentations in real-time.
- Take the opportunity to [submit your de-identified case study](#) for feedback from a team of specialists for diabetes and hypertension.
- [Provide valuable feedback.](#)
- Claim CE credit by [texting in attendance](#).

## Benefits

# VCU Diabetes & Hypertension Project ECHO Clinics

2<sup>nd</sup> and 4<sup>th</sup> Thursdays — 12-1:30 p.m.

## Mark Your Calendars — Upcoming Sessions

**May 27:** Team-based approaches to diabetes and hypertension care

**June 10:** Remote home blood pressure monitoring

Please register at [www.vcuhealth.org/echodmhtn](http://www.vcuhealth.org/echodmhtn)



Thank you, and see you in two weeks!



Text **19161-18817** to **804-625-4041** for CE credit

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