

Diabetes and Hypertension Project ECHO* Clinic

*ECHO: Extension of Community Healthcare Outcomes

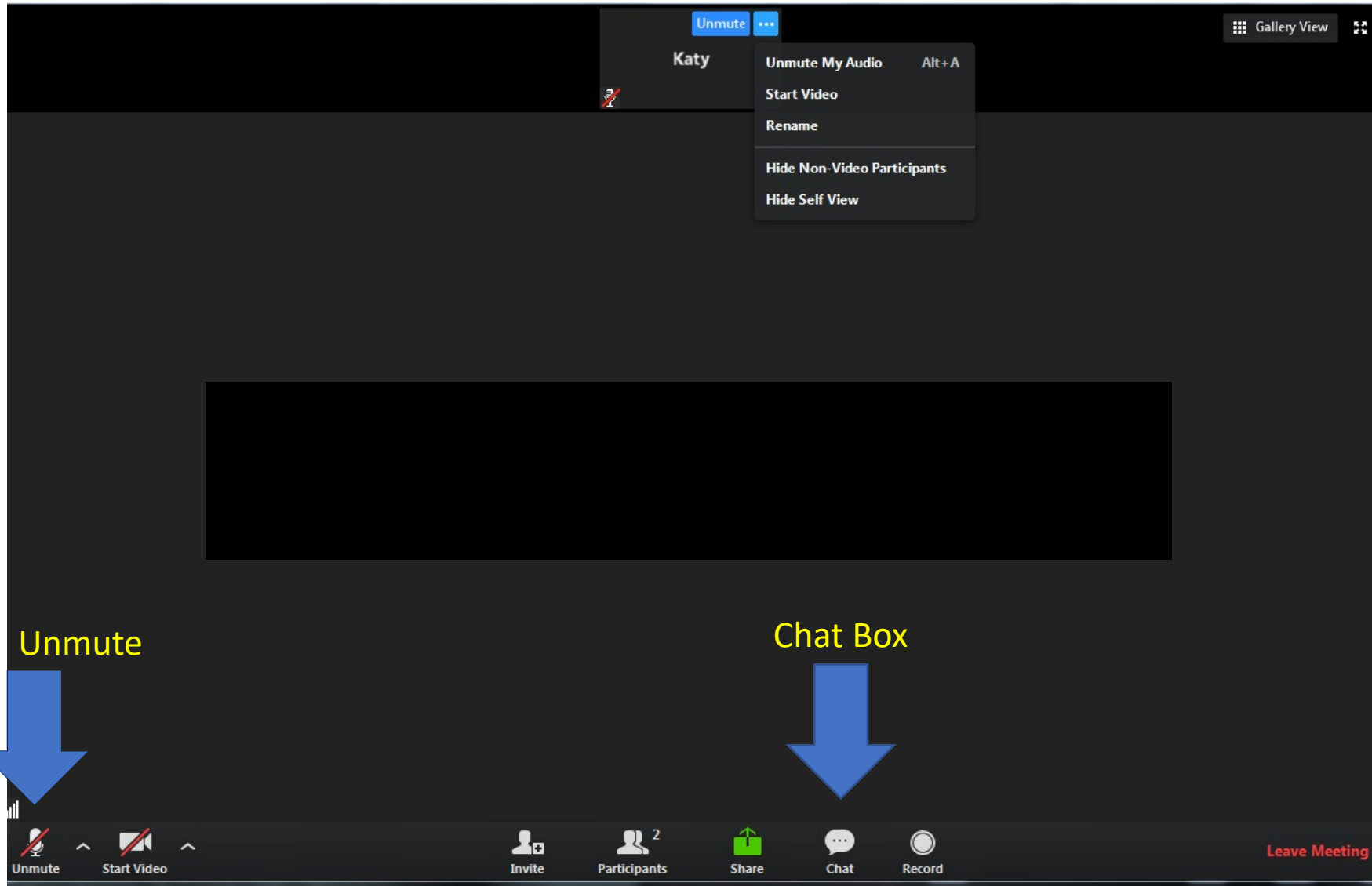
June 24, 2021

Before we begin:

- Rename your Zoom screen with your name and organization
- Claim CE: text 19168-18817 to 804-625-4041
 - Go to 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.*

Zoom 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
- Please **do not share any protected health information** in your discussion or the chat box
- 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

VCU Hub 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

- **NEW: 1-hour** ECHO clinics on 2nd and 4th Thursdays
- Every ECHO clinic includes a didactic presentation followed by case discussions
- Website: www.vcuhealth.org/echodmhtn
 - Directions for claiming CE can be found here
 - You have up to six days after our session to claim CE by texting **19168-18817** to **804-625-4041**

Disclosures

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

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

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

Remote Home Monitoring for Diabetes

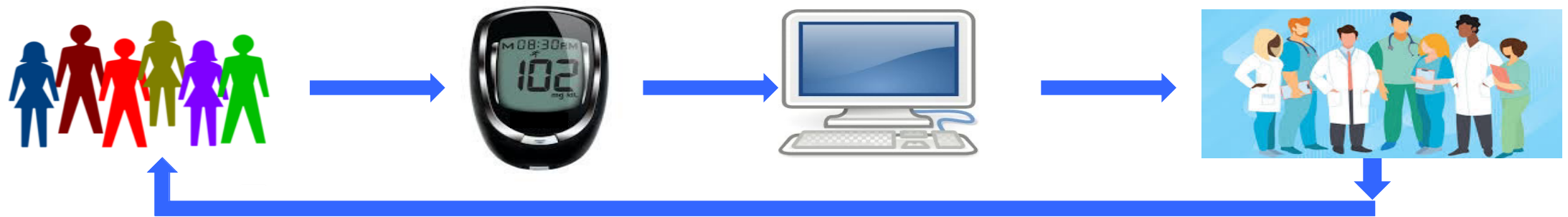
Objectives

- Define Remote Home Monitoring (RHM)
- Discuss the structure of the VCU Diabetes RHM program
- Review the impact of the VCU Diabetes RHM program on patient outcomes and provider capacity

What is remote home monitoring?

- Capture of clinically relevant data in patient's home / non-hospital / non-clinic setting
- Transmission of that data to central locations for review

Focuses on management rather than diagnosis



Why remote home monitoring?

- Reduce fragmentation of care between settings
 - Inpatient vs outpatient, primary care vs subspecialty
- Patients come from a wide geographic area
- Patient burnout from multiple coexisting conditions / medical visits
- Allows us to better leverage care teams for diabetes:

Care Teams for Diabetes

- The patient-centered care team should avoid therapeutic inertia
 - Example: medication adjustments weekly, instead of every 3 months
- Prioritize timely and appropriate intensification of lifestyle and/or pharmacologic therapy

VCU Remote Home Monitoring (RHM) for Diabetes

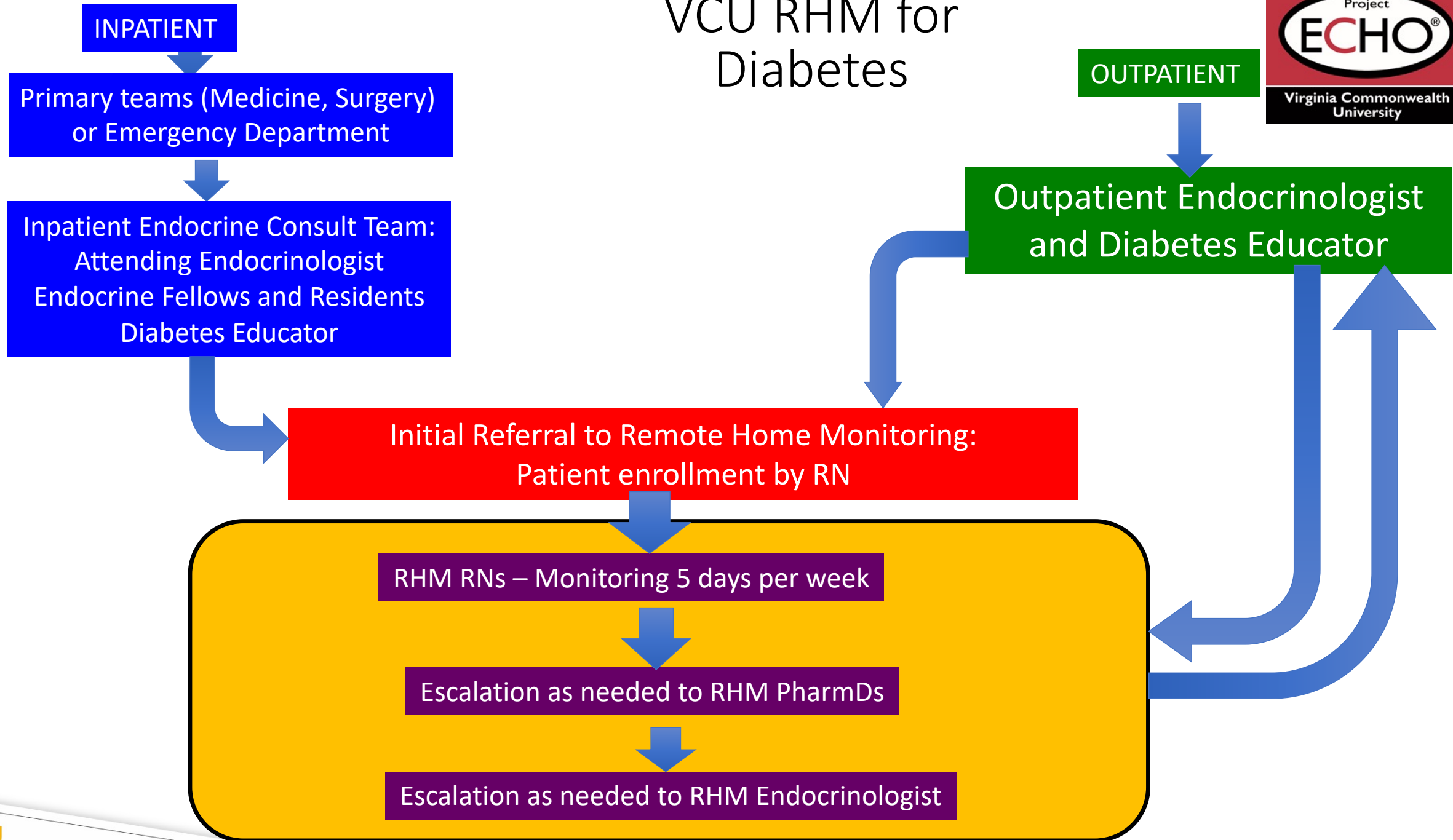
- 90 day program, with option for 1 additional re-enrollment
- RHM team includes:
 - RN (3-4)
 - PharmD (3)
 - MD (1)
- Goal: facilitate a proactive approach to continuity of diabetes care across patient transitions

VCU RHM for Diabetes
























Inclusion Criteria:

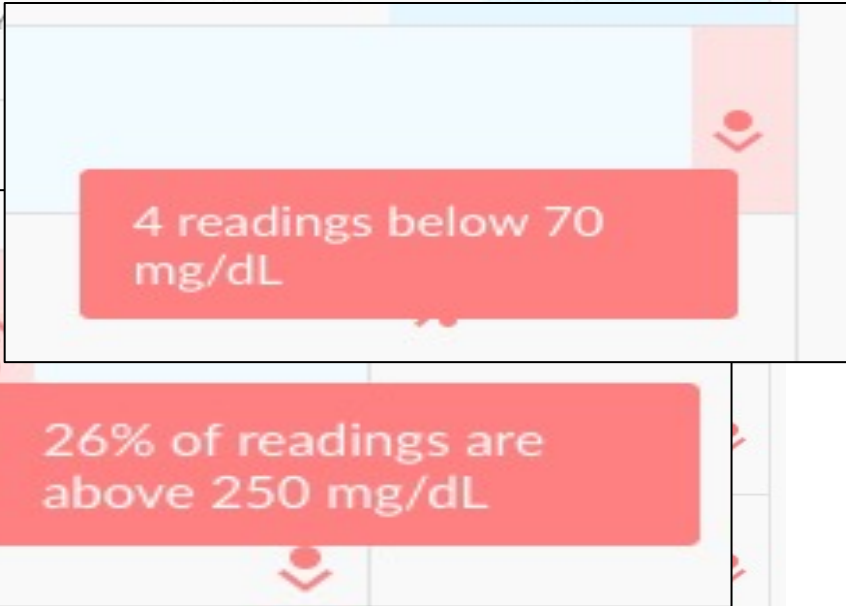
- age 18 years or older,
- literacy sufficient to participate in the consent process,
- resident of Virginia (due to state licensure restrictions for our providers engaging in telehealth),
- Diagnosis of type 1 or type 2 diabetes mellitus,
- hemoglobin A1c above 8%
- likelihood of benefit from intensive diabetes management coaching and education,
- agreement to continue follow up in VCU Endocrinology outpatient clinic
- device, such as a smartphone or tablet device, able to upload glucometer information, to a secure dashboard for monitoring by the RPM team

VCU RHM for Diabetes



Dashboard

		NAME	STATUS	LAST SYNC Device Type	AVERAGE BG READINGS/DAY	AVERAGE CGM	BG-FLAGS
							
			None	Today Meter	110 4.2		
			None	Today Meter	2 1.1		
			None	3 days ago Meter	1 1.1		
			None	7 days ago Meter	1 2.1		
			None	7 days ago Meter	216 0.8		
			None	12 days ago Meter	98 1.9		
			None	52 days ago Meter	317 0.9		



Dashboard

		MORNING											AFTERNOON											EVENING											NIGHT											DAILY TOTALS	
		12A	1	2	3	4	5	6A	7	8	9	10	11	12P	1	2	3	4	5	6P	7	8	9	10	11	12P	1	2	3	4	5	6P	7	8	9	10	11										
MON 5/31			92											120*																									BG (2):	106 mg/dL							
																																							Carbs:	0.0 g							
SUN 5/30				102									82						108*																				BG (4):	101 mg/dL							
			44	33										77						60		36																	Carbs:	367.0 g							
			4.0											6.0						5.0																			Bolus:	25 U (58%)							
																																							Basal:	18 U (42%)							
SAT 5/29					77								85*																											BG (3):	92 mg/dL						
		39			50									15					78	100																			Carbs:	282.0 g							
			3.0												1.0					7.0																				Bolus:	11 U (38%)						
																																							Basal:	18 U (62%)							
FRI 5/28				94										104*																										BG (4):	95 mg/dL						
															53			44																					Carbs:	220.0 g							
		8.0														4.0																								Bolus:	21 U (54%)						
																																							Basal:	18 U (46%)							
THU 5/27		104*			118									96*						85*																				BG (5):	101 mg/dL						
		31	51												36	29				41	82																		Carbs:	414.0 g							
			4.0																		7.0	7.0																	Bolus:	20 U (36%)							
		18.0																																					Basal:	36 U (64%)							
WED 5/26				99											114*						88*																			BG (3):	100 mg/dL						
		98													14	62						57																	Carbs:	231.0 g							
		8.0															5.0					5.0																		Bolus:	18 U						
																																								BG (4):	98 mg/dL						
TUE 5/25				97										111*						92																				Carbs:	203.0 g						
		65	36													27				42	24	9																	Bolus:	11 U (38%)							
		5.0														2.0						4.0																		Basal:	18 U (62%)						

Triggers for RN-initiated patient contact

- lack of uploaded glucose data, or
- glucose values falling outside the pre-specified criteria for hypoglycemia or hyperglycemia of 70-250mg/dL (can also be individualized for each patient)
- Out-of range glucose data → escalation to PharmD
- In case of more acute medical concerns, RNs ensure immediate patient safety and then escalate by pager to the PharmD or the endocrinologist
- RN's provide significant coaching and education on self-care skills (hypoglycemia prevention and treatment, basic nutrition education, goals-setting for glucose monitoring / medication administration)

Results:

- n=118 referred for screening,
- n=72 enrolled
 - Top reason for non-enrollment: incompatible phone
- n=37 did not complete initial monitoring and un-enrolled
 - Top reason for un-enrollment: insufficient number of glucose checks
 - 2 patients elected to unenroll due to overly frequent contact
- Mean A1c at baseline $11.8 \pm 1.9\%$

Results:

- For entire cohort:
 - Mean A1c $8.4 \pm 1.2\%$
 - Mean # RN contacts per patient = 27.6
 - Median # PharmD contacts per patient = 1
 - # MD contacts per patient: 0-4
- No significant further reduction in A1c for those completing a 2nd 90-day enrollment

Participants reported the following benefits:

- Felt more in control of diabetes and knowledgeable about self-care skills
- Technology use was “very easy” or “easy”
- If RHM had not been available during the enrollment period,
 - 56% would have reported to emergency room
 - 12% would have contacted 911

Future directions

- Scalability
- Addressing disparities (access to data plan / devices that can support monitoring)
- More advanced monitoring technology (continuous glucose sensor vs. glucometer)
- Reimbursement

Summary

- RHM can improve transitions of care between settings
- RHM can expand the capacity of multiple providers
- RHM can improve patients' diabetes self-care skills and provide clinically meaningful results
- RHM represents a paradigm shift from reactive to proactive patient care
- Ensuring equitable patient access, program scalability and sustainability for RHM in the future

Acknowledgements

- David Dixon, PharmD
- Evan Sisson, PharmD
- Kim Varney, Pharm D
- Lauren Grecheck Pamulapati, PharmD
- Francesco Celi, MD
- Vimal Mishra, MD
- Adan Casas, RN
- Ajita Gywali Sedai, RN
- Theresa Liverman, RN
- Laura Mechuta RN
- David Collins – VCU Telehealth Practice Administrator

Case Study #1:

37 yo patient with T2DM diagnosed mid-20s returning for follow up.

PMH: Class III obesity, BMI 45.56 kg/m², hyperlipidemia, hypertension, severe pneumonia in 2016 complicated by ARDS, needing ECMO

- Significant anxiety re: COVID exposure and has been housebound since 3/2020
- Has difficulty with nutrition choices, strong food aversions
- Previous GI intolerance to Victoza and Ozempic, but tolerating Trulicity
- Qualified for CGM therapy in January 2021

Current Medications:

- U500, 140 units ac T1D, sometimes takes and extra 10-50 units post meal if noting hyperglycemia on CGM
- Metformin 1000mg BID
- Trulicity 1.5mg once weekly

Case Study #1 (continued)

Labs:

- A1c range 9.5%-12.1% over previous 2 years, last pre-COVID A1c = 10.5%
- Normal renal function (2/2020)
- Tchol 264, HDL 58, LDL 82, nonHDL 106, TG 169 nonfasting (2/2020)

Glucose data

Glucose

Average Glucose

201 mg/dL

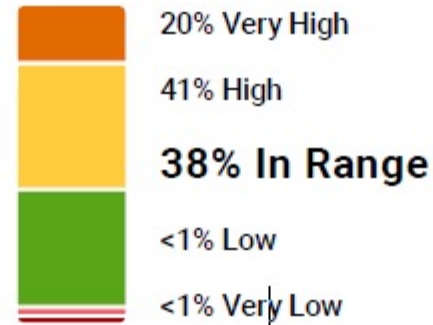
Standard Deviation

57 mg/dL

GMI

8.1 %

Time in Range



Target Range:
70-180 mg/dL

Sensor Usage

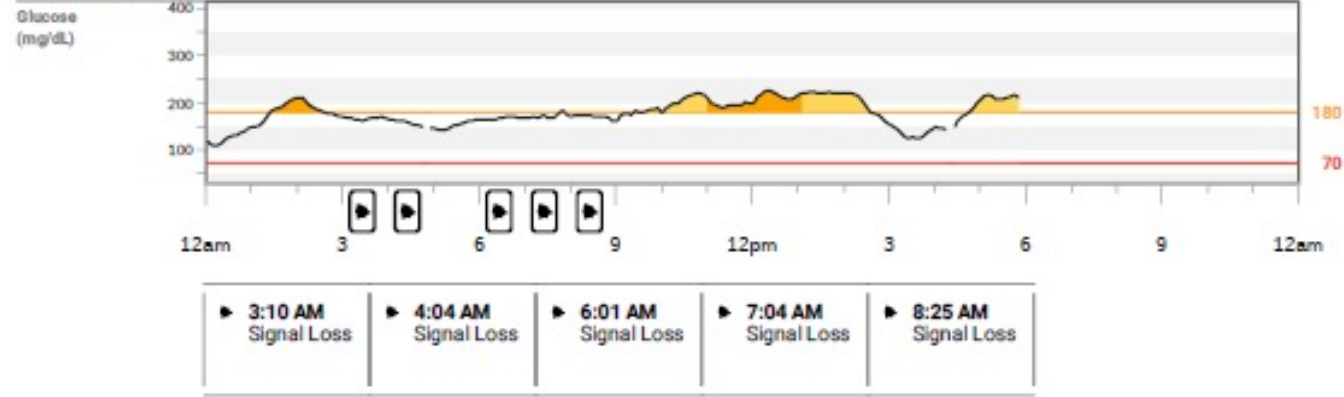
Days with CGM data

100 %
30/30

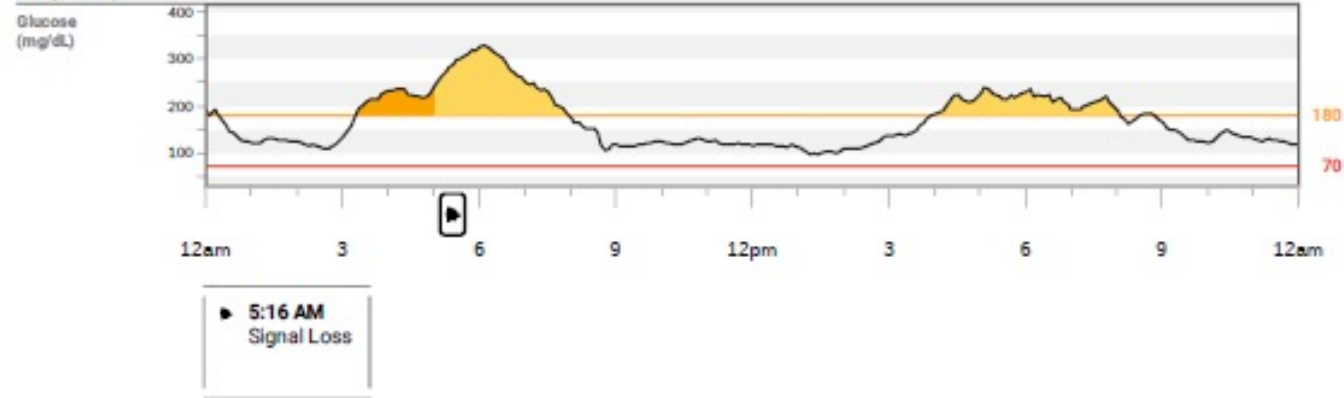
Avg. calibrations per day

0.0

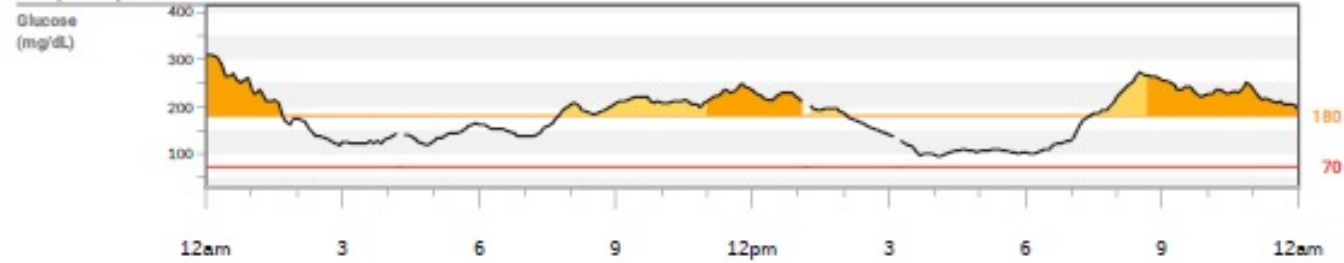
Wed, Jun 9, 2021



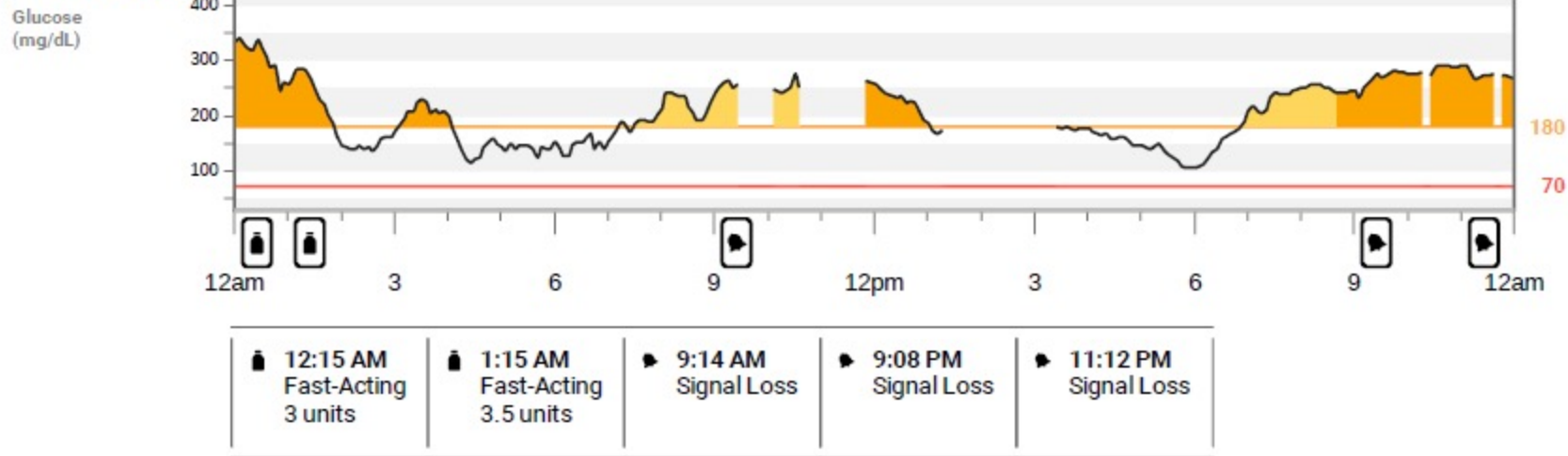
Tue, Jun 8, 2021



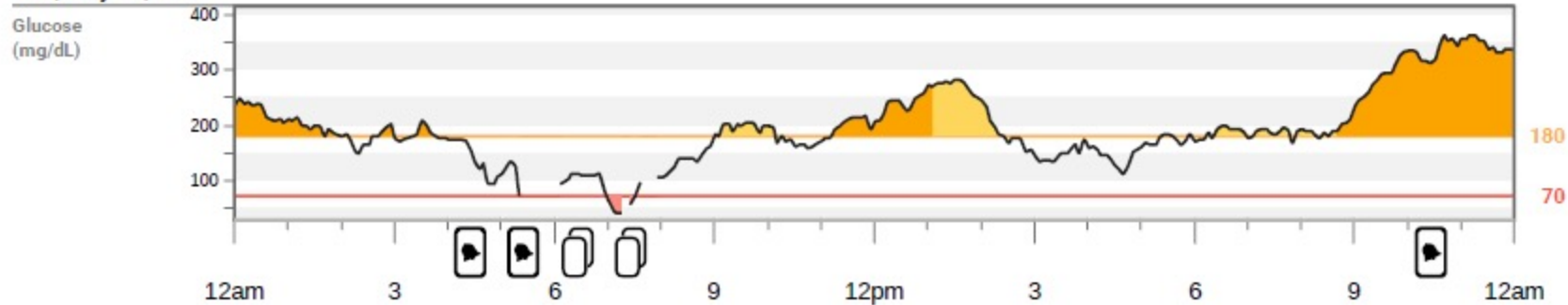
Mon, Jun 7, 2021



Fri, May 28, 2021



Thu, May 27, 2021



- *Any clarifying questions? Any recommendations?*

Case Study #2

- 73 year old lady with T1DM diagnosed as an adolescent, current A1c 12.8%
- Complications: retinopathy, neuropathy, no nephropathy
- Medications: Lantus 6 units in AM and 4 units in PM, Novolog 2 units breakfast / 4 units lunch / 6 units dinner, and prn correction for hyperglycemia
- Daughter has concerns about: memory, reliability of injections, visual acuity, ability to safely live independently.
- Patient doses insulin by counting clicks on the insulin pen and using a bright light and magnifying glass
- Patient states she retains hypoglycemia awareness but does not check glucose to confirm hypoglycemia before treating

Case Study #2

Date	Breakfast	Lunch	Dinner	HS	
31-Aug	216 (1138)->272 (1151)			503 (1942)	
1-Sep	492 (0655)	329(1539)		216 (1952)	
2-Sep	22 (0802)			261 (1945)	
3-Sep	148 (0656)->118 (1108)	347 (1422)		345 (1853)	366 (1947)
4-Sep	317 (0707)	224 (1448)			
5-Sep	594 (0632)	395 (1505)			
6-Sep	460 (1119)		571 (1633)	253 (1921)	
7-Sep	409 (0641)			374 (2140)	
8-Sep	316 (0527)		120 (1857)		
9-Sep	314 (0733)	293(13110			

Case Study #2

- What safety precautions can you recommend for this patient?
- What patient-centered diabetes self-care goals would be appropriate?
- What do you instruct the patient to do about unrecorded hypoglycemia?

Case Studies

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

Provide Feedback

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

2nd and 4th Thursdays — ***NEW: 12 p.m. to 1 p.m.***

Mark Your Calendars — Upcoming Sessions

No sessions in July — Have a great summer!

Aug. 12: Use of GLP1-RA for Weight Management

Aug. 26: SGLT2is for Chronic Kidney Disease Management

Please register at www.vcuhealth.org/echodmhtn

Thank you, and see you in August!



Text **19168-18817** to **804-625-4041** for CE credit

Reminder: **Mute** and **Unmute** to talk
Press ***6** for phone audio
Use **chat** function for questions