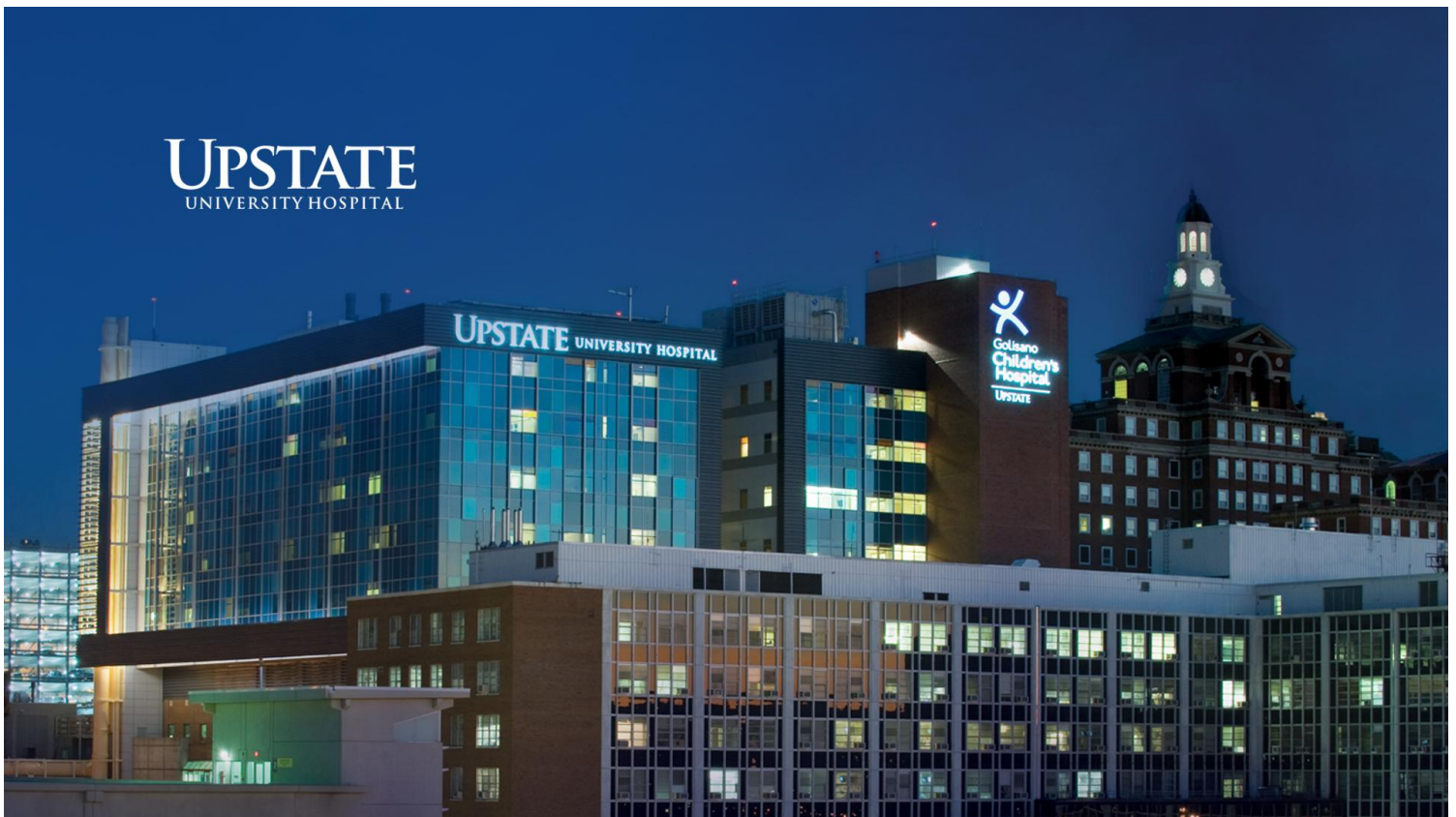


# INPATIENT DIABETES MANUAL

SUNY UPSTATE MEDICAL UNIVERSITY

SYRACUSE, NY

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## INPATIENT TEAM

**CALL FELLOW TO INFORM OF THE CONSULT: PLEASE SEE AMION OR CALL THE OPERATOR**

<b>ATTENDING NAME</b>		<b>PAGER/CELL</b>
<b>Runa Acharya, MD</b>	<b>Director of Inpatient Services</b>	315-424-4716
<b>Ruban Dhaliwal, MD</b>		917-238-0678
<b>Yanping Kong, MD</b>		603-716-6789
<b>Rachel Hopkins, MD</b>		315-467-0090
<b>Marisa Desimone, MD</b>		315-213-1168
<b>Roberto Izquierdo, MD</b>		315-559-0316
<b>Barbara Feuerstein, MD</b>		315-569-7684

## ANCILLARY TEAM CONTACT INFORMATION

<b>NAME</b>	<b>ROLE</b>	<b>PAGER</b>
<b>Dana Lonis, FNP-BC</b>	<b>Glycemic/Endocrine NP</b>	(315)441-0449p (315)727-9399c
<b>Peter Rosher, R-Ph</b>	<b>Inpatient Diabetes Pharmacist</b>	(315)464-4210
<b>Lori Gordon, RN</b>	<b>Diabetes Educator</b>	Vocera-1st please (315)464-2600

# CONSULTS

## Receiving Consults:

- New consults are sent via Upstate paging system (amion.com)
- Consults go to personal pager for the fellow listed on amion
  - To find fellow on-call: go to amion.com → search “UPSTATE” → “ENDOCRINOLOGY ADULT”
- Consults for pregnant patients should be deferred to the high-risk OB-GYN service
- Consults for diabetic education only should be deferred to the clinical diabetes educator

## How consults appear in EPIC:

The screenshot shows the EPIC 'Order and Order Set Search' window. The search term 'consult endo' is entered in the search bar. The results are displayed under the 'Preference List' tab. The 'Procedures' section is expanded, showing two results:

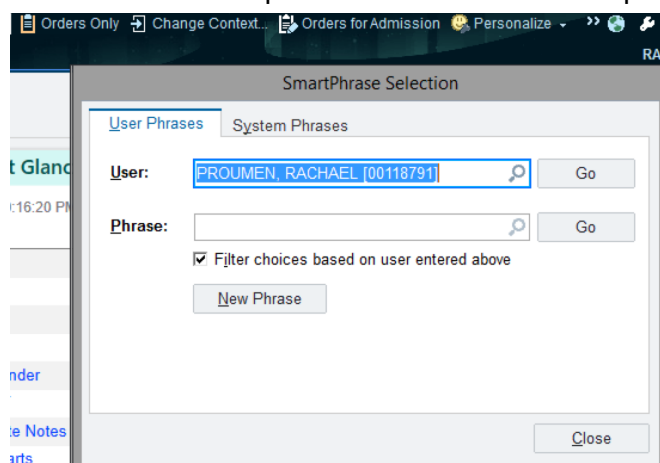
Subtype	Name	Type	Code	Frequency	Pref List	Phase of Care
Consults	Consult to Endocrinology Inpatient	Consult	CON60	ONCE	IP UMU CONSULTS...	
Consults	Consult to Pediatric Endocrinology In...	Consult	CON81	ONCE	IP UMU CONSULTS...	

At the bottom of the window, there is a message: 'There are matching results on your preference list. Displaying preference list search results.' and three buttons: 'Select And Stay', 'Accept', and 'Cancel'.

## DOCUMENTATION

### Epic smartphrases for documentation:

- To obtain a colleague's smartphrase, go the "PERSONALIZE" tab on the epic toolbar at the top of the screen → select "Smartphrase manager" → in the search bar, type the user name of the person who owns the smartphrase (i.e. endocrine fellow, etc.)



### Note Templates:

- NEW NON-DIABETES ENDOCRINE CONSULT:**
  - .IPENDOCONSULT
- ENDOCRINE FOLLOW-UP:**
  - No specific note template; typically use new endocrine consult template and edit as desired
- NEW DIABETES CONSULT:**
  - .IPDMCONSULT
- DIABETES FOLLOW-UP:**
  - .IPDMFOLLOWUP

### Key HPI Components for the evaluation of the patient with diabetes:

- See below an example of key information that should be included in the presentation/evaluation of patient with Diabetes

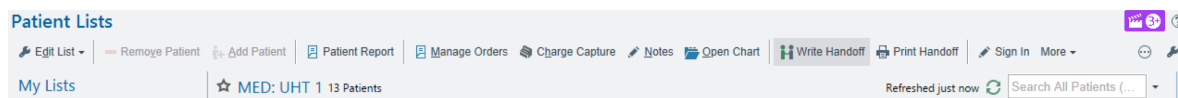
Name \_\_\_\_\_ Age \_\_\_\_\_ T1 \_\_\_\_\_ T2 \_\_\_\_\_ DxDate \_\_\_\_\_ Admission date \_\_\_\_\_ Days in Hospital \_\_\_\_\_  
 Followed by \_\_\_\_\_ A1C \_\_\_\_\_ Date \_\_\_\_\_  
 GFR \_\_\_\_\_ BMI \_\_\_\_\_ WT KG \_\_\_\_\_ Beta Hydroxybutyrate \_\_\_\_\_ Gap \_\_\_\_\_ FS \_\_\_\_\_ GLUC B \_\_\_\_\_ L \_\_\_\_\_ D \_\_\_\_\_ BT \_\_\_\_\_  
 Reason for admission and hospital course: Brief \_\_\_\_\_

---

Current insulin regimen: Basal \_\_\_\_\_ SS @ 130 \_\_\_\_\_ + \_\_\_\_\_ Oral Medications \_\_\_\_\_  
 HDSS/MDSS/LDSS \_\_\_\_\_ NPO/EATING/TF/TPN \_\_\_\_\_ Correction Scale \_\_\_\_\_ Time \_\_\_\_\_  
 Blood Sugar monitor at home \_\_\_\_\_ Pump Y/N Settings Basal \_\_\_\_\_ Bolus \_\_\_\_\_ Carb Ratio \_\_\_\_\_  
 On insulin drip: Time Date started \_\_\_\_\_ Past 3H \_\_\_\_\_ 6H \_\_\_\_\_ 8H \_\_\_\_\_ 24H \_\_\_\_\_  
 Steroids: Y \_\_\_\_\_ TYPE \_\_\_\_\_ DOSE \_\_\_\_\_ Taper? \_\_\_\_\_  
 Hypo/Hyper Glycemic Events \_\_\_\_\_ Threshold \_\_\_\_\_ Symptoms \_\_\_\_\_  
 Diet \_\_\_\_\_ CARB CONST or \_\_\_\_\_ Home Diet \_\_\_\_\_  
 Snacks \_\_\_\_\_ Additional notes \_\_\_\_\_  
 Appetite \_\_\_\_\_  
 IV fluids with D5 \_\_\_\_\_  
 Tube feed-Type \_\_\_\_\_ Cyclical (Time) \_\_\_\_\_ /Cont rate \_\_\_\_\_  
 Trends: Fasting \_\_\_\_\_ mealtimes \_\_\_\_\_ Bedtime \_\_\_\_\_  
 Other Endocrine: TSH \_\_\_\_\_ T4 \_\_\_\_\_  
 Assessment: \_\_\_\_\_  
 Patient's sugars are well controlled fasting but mealtime sugars are high \_\_\_\_\_  
 Although the sugars are good right now, concerned about the insulin regimen as it is off from the recommended 50/50 basal bolus regimen. Under excellent control. Patient on a reasonable regimen-continue it.  
 Plan: \_\_\_\_\_  
 If changing regimen, \_\_\_\_\_  
 Justify Your plan for basal: I want to give \_\_\_\_\_ for basal because \_\_\_\_\_  
 Justify your plan for bolus: I want to change bolus to \_\_\_\_\_ because \_\_\_\_\_  
 Modified plan after discussing with attending if different: \_\_\_\_\_

## Sign-out:

- Navigate to the “HANDOFF” page to locate sign out:
  - On the “PATIENT LIST” page, select the patient of interest → select “WRIGHT HANDOFF”
  - The handoff tab will populate on the sidebar → in the search bar, type “DIABETES/ENDOCRINOLOGY”



- On the handoff, ensure to include the following:
  - **Summary:** Brief description of the patient and reason for consult
  - **Action items:** Patient's home medication regimen, current regimen, A1c, glucose log
    - To include glucose log, use the following smart phrase: **.glucose** (you may have to obtain this smartphrase from another user as above)
    - On the glucose log you can chart the patient's blood glucose values throughout their inpatient stay.
  - **Contingency Planning:**

- List the date and the changes made to regimen that day
- Items to follow overnight; this will be signed out to overnight fellow

## Endocrinology Service Patient List:

- Patient list is a private, shared list (“Hospital Consults”) amongst the attendings and fellows
- To obtain access to the list, you must be invited by the fellows or attendings
- ICD-10 codes for diagnoses are listed on each patient's chart in the Clinical Overview

**Summary**

**Clinical Overview** | Index | Current Meds Report | Adult Flowsheet | Labs | Glucose | Vitals | Wt

**Patient Admission Status Report**

Has ADT Order?	Home Meds Reviewed?	Home Meds Reconciled?	Current Orders Reconciled?
Yes	No	Yes	No

Select Font Size

**Medical Problems** | Comment

**Hospital Problem List** | Date Reviewed: 2/8/2021

ICD-10-CM	Priority	Class	Noted	PCA
Type 2 diabetes mellitus	E11.9		10/28/2020	Yes
Necrotizing soft tissue infection	M79.89		2/23/2021	Yes
HTN (hypertension)	I10		2/27/2021	Yes
Breast abscess	N61.1		2/27/2021	Yes
Leukocytosis	D72.829		2/27/2021	Yes
Left buttock abscess	L02.31		2/27/2021	Yes
Abscess of hip	L02.419		2/27/2021	Yes
Hypothyroidism	E03.9		2/27/2021	Yes

**Non-Hospital Problem List** | Date Reviewed: 2/8/2021

ICD-10-CM	Priority	Class	Noted
DKA (diabetic ketoacidosis)	E11.10		10/26/2020
Acute cystitis without hematuria	N30.00		10/28/2020
Gram-negative bacteremia	R78.81		10/28/2020
AKI (acute kidney injury)	N17.9		10/28/2020
Hyponatremia	E87.1		10/28/2020
High anion gap metabolic acidosis	E87.2		10/28/2020
Spinal cord ischemia	G95.11		10/28/2020
Central stenosis of spinal canal	M48.00		10/28/2020
Thrombocytopenia	D69.6		10/28/2020
Obesity	E66.9		11/3/2020

**Write Handoff** | Write Handoff

**View Handoff Reports** | Physician Handoff

**Sticky Notes to Physicians** | Comment

Please make sure the pt's wound care orders and insulin sliding scale are on the AVS. Thank you  
Last edited by Deborah L Hurst, RN on 02/26/21 at 0916

**Treatment Team Sticky Notes** | Comment

Nursing : Please send patient home with a weeks worth of dressing change supplies. Home care will order the supplies through a mail order company but that takes time to be ordered and mailed to the patient so they need some supplies to get started with. Thank you. KH Also-Please make sure the pt's wound care orders and insulin sliding scale are on the AVS. Thank you

2/26 tx from ODS  
2/23- Necrotizing soft tissue infection of left hip and left breast OR for debridement x2  
2/28 OR for debridement

RA/adlib  
CC diet  
FS ACHS  
Bathroom voids

Plan: BID packed dressing change- ACS to change in AM, RN in PM

**DVT Assessment Last Completed** | Comment

Ordered  
02/23/21 2036 High Risk of VTE CONTINUOUS 02/2/21

**DVT Risk Assessment** | Open DVT Risk Assessment

**Vital Signs** | View Table

Time	Temp (°F)	Pulse	Resp	BP (mmHg)	SpO2 (%)
0700	98.6	78	18	110/70	98
1300	98.8	80	18	110/70	98
1900	99.0	82	18	110/70	98
0100	98.8	80	18	110/70	98
0700	98.6	78	18	110/70	98

# RESIDENT AND NP RESPONSIBILITIES

## Resident Responsibilities:

- The day prior to your rotation, page the endocrine fellow scheduled for your rotation period to discuss rotation expectations including meeting time and location.
- You are expected to be present during rounds (virtual via Webex/Zoom) and in-person, if indicated by attending
- The fellow will contact you daily with new consults
- Residents should round on patients prior to rounds with attending
- Previous patients should be seen daily and a progress note should be written according to plan as discussed on rounds with attending. Do not sign the note until after discussion with attending during rounds.

## Mid-level (NP/PA) Responsibilities:

- NP will provide inpatient follow-up care to patients (primarily diabetes consults) who are assigned. NP will round on the inpatient service with the team Monday through Friday.
- Patients covered by the NP service will be seen everyday or every other day as medically appropriate.
- On weekends, the **fellow and rounding attending will be responsible for covering NP service patients on both Saturday AND Sunday**. Chart review for blood glucose data should be done both days. Patients may be seen at the discretion of the attending if needed.
- NP will provide an updated sign-out to the on-call fellow for phone coverage overnight (including weekdays and weekends) via email
- On holidays, the on-call attending will cover NP service patients with the fellow. This includes when a holiday falls on a weekday or weekend.
- NP will be involved in educating other services and residents regarding diabetes through “Diabetes Pearl of the day” along with the endocrine fellows. She will also be responsible for QI projects under inpatient endocrine med safety team’s guidance.
- NP will do inpatient consults for patients with diabetes that are not already being followed by the Endocrine consult service.

## Transfers To NP Service:

- To prevent fellow services from becoming overloaded with diabetes follow ups, appropriate patients may be transferred to NP.
- Patients can be transferred on Monday through Thursday.

- New transfers should be emailed to NP preferably at the end of the work day but no later than 8am the next day. Please include the patient's name and medical record number. Sign-out should be provided if there are any unusual circumstances, otherwise, generally handoff will be adequate.
- NP can call the endocrine attending on call if they have any questions.

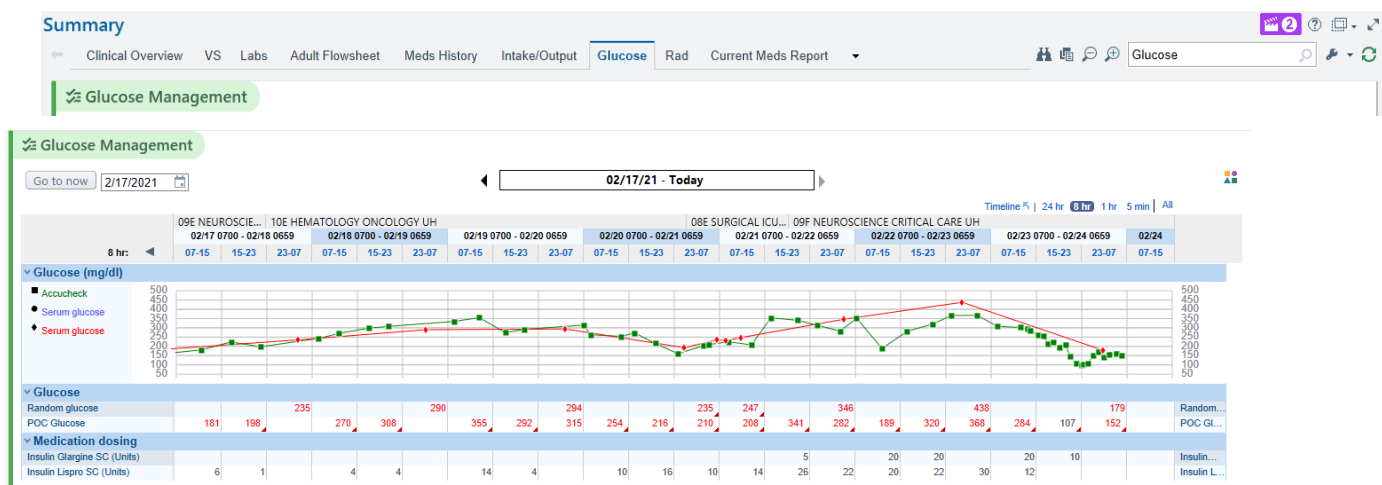
**Rounding:**

-Contact the fellow on call for time/location of rounds

# INPATIENT DIABETES CHART REVIEW

## VIEWING INPATIENT BLOOD GLUCOSE VALUES/SUBCUTANEOUS INSULIN DOSE:

- There are several ways in EPIC to view point-of-care (POC) glucose values and subcutaneous (SQ) insulin dosing, but an easy, efficient way is via the “GLUCOSE” section on the “SUMMARY” tab, seen below.



- On this view, the POC glucose value and SQ insulin given (at a specified time) is shown, with a graph to visualize the glucose trend; you can view the values over a variety of time periods (24 hours, 8 hours, 1 hour)
- Hovering over the dots in the graph provides a specific glucose value for that time
- If you want to see specific time of insulin coverage, you can adjust to the table view to 1,4,8 or 24-hour view or you can hover over insulin dose and it will show the specific time when the insulin was administered
- Below the POC glucose levels, you will also find the amount of insulin given to the patient at that time, both long-acting (lantus, detemir) and short acting (lispro or aspart)
- Changing the table view to 24-hours allows you to visualize the total daily dose (TDD) of insulin.

## IV INSULIN (FOR USE IN ICU):

- At UUH, IV insulin is only given in the ICU (MICU, SICU, CCU)
- If the patient is on an insulin drip, the coverage should be viewed under “ADULT FLOWSHEET” on the summary tab as seen below
- For the best viewing, ensure that the table view is set to ‘1 hour’
- The ‘1 hour’ view allows you to see the current hourly insulin drip rate and calculate total IV insulin dose.

**Summary**

Clinical Overview VS Labs **Adult Flowsheet** Meds History Intake/Output Diabetes (Glu & meds) Rad Current Meds Report

**Comprehensive Flowsheet**

Go to now: 2/23/2021 Yesterday 1701 - Today 0700

Timeline % | 24 Hrs 8 Hrs 4 Hrs **1 Hr** 15 Min All

09F NEUROSCIENCE CRITICAL CARE UH

02/23 0701 - 02/24 0700

1 Hr	1701	1801	1901	2001	2101	2201	2301	0001	0101	0201	0301	0401	0501	0601
<b>Infusions</b>														
Dexmedetomidin...	0.4 mcg/kg...	0.4 mcg/kg...	0.4 mcg/kg...	0.3 mcg/kg...	0.3 mcg/kg...	0.3 mcg/kg...	0.3 mcg/kg...	0.2 mcg/kg...	0.2 mcg/kg...	0.5 mcg/kg...	0.3 mcg/kg...	0.3 mcg/kg...	0.3 mcg/kg...	Dexmedetomid...
Insulin(units/hr)	10 Units/hr	11 Units/hr	11 Units/hr	12 Units/hr	10 Units/hr	9.5 Units...	0 Units/hr	5 Units/hr	5 Units/hr	5 Units/hr	5 Units/hr	5 Units/hr	5 Units/hr	Insulin(units/hr)
Norepinephrine(...)	5 mcg/min	5 mcg/min	3 mcg/min	4 mcg/min	3 mcg/min	0 mcg/min	4 mcg/min	3 mcg/min	2.5 mcg/min	0 mcg/min			2 mcg/min	Norepinephrine...

## Transitioning from IV to SQ insulin:

- Utilize the order set in Epic to calculate the dose of basal insulin to be given to the patient(see below).
- Give the basal insulin 1 hour prior to stopping insulin drip so that there is enough time for transition.

**Order Sets**

Orders

Comprehensive Insulin Subcutaneous Regimen IP

Manage User Versions

**Select Your Patient Type**

- For Patients who are Eating
- For Patients who are NPO
- For Patients Receiving Tube Feedings
- For TPN Patients
- For Patients Transitioning from IV Insulin to Subcutaneous Insulin**

Following characteristics favor successful transition from IV to subcutaneous insulin:

- Stable blood glucose <250 mg% for at least 4-6 hrs
- Stable clinical / hemodynamic status
- Not on vasopressors
- Stable nutrition plan or patient tolerating PO meals
- Stable IV Insulin/Glucose drip rates

For patients transitioning from IV insulin to subcutaneous insulin (Total daily dose) TDD may be estimated using one of the following methods:

- If patient is on TPN or tube feed or eating well, take average hourly insulin drip rate for previous 4-6 hrs and multiply by 20 (i.e. 80% of 24) to get TDD

If patient is not receiving any adequate nutrition including IV dextrose (DSW) up to 100 mL/hr, take average hourly insulin drip rate for previous 4-6 hrs and multiply by 20 (i.e. 80% of 24) to get basal insulin dose – Double the basal insulin dose to get TDD

☐ Nursing, Lab, Consult, POCT Orders

☐ Basal Insulin (Glargine):

☐ Lispro Insulin (For Patients Transitioning / Eating Meals):

**For Patients on Clear Liquid Diet**

**Medications**

**Hypoglycemia PRN Medication Orders**

- ☒ dextrose 50 % IV solution 25 mL
- 25 mL, Intravenous, PRN, Other, blood glucose <55, Starting Today at 0933, For 30 days
- Not for midline administration.
- ☒ glucagon (human recombinant) (GLUCAGEN) injection 1 mg
- 1 mg, Intramuscular, PRN, for glucose <55 without IV access, Starting Today at 0933, For 30 days
- ☒ glucose (GLUCOSE) 40 % oral gel 15 g

## Oral Anti-Hyperglycemic Agents:

- Upon admission, oral agents and non-insulin injectables are discontinued per hospital policy, and patients are transitioned to basal-bolus therapy.
- Upon discharge or upon transfer to rehabilitation services, patients can be resumed on their previous oral agents if appropriate.

- If a non-endocrine service orders oral hypoglycemic agents, they are first informed by the pharmacy that this is not recommended. If the primary team still wants to order, they are directed by pharmacists to call an endocrine fellow on call for approval.

## Other Helpful Information:

- To view the patient's previous endocrinology notes, if they are followed at UUH, this can be viewed under CHART REVIEW→ NOTES→ FILTERS--> DEPARTMENT SPECIALTY--> ENDOCRINOLOGY
- To view outside records, please go to the “CARE EVERYWHERE” tab which can be found on the main EPIC facesheet page. It may be under your “RARELY USED.”

The screenshot shows the EPIC Chart Review interface. The top navigation bar includes 'Snapshot', 'Chart Review', 'Review Flowsheets', 'Results', and 'Synopsis'. The 'Chart Review' tab is active, and the 'Encounters' sub-tab is selected. Below the sub-tabs, there are options for 'Preview', 'Refresh (9:07 AM)', 'Select All', 'Deselect All', and 'Re'. A 'Filters' dropdown menu is open, showing a list of filter categories. 'Department Specialty' is highlighted. Below the menu, a table displays the results of the filter:

Department Specialty	Count	Last Date
<input type="checkbox"/> Emergency Medicine	1	02/10/2021
<input type="checkbox"/> Endocrinology	3	02/23/2021
<input type="checkbox"/> <Unknown>	3	02/11/2021

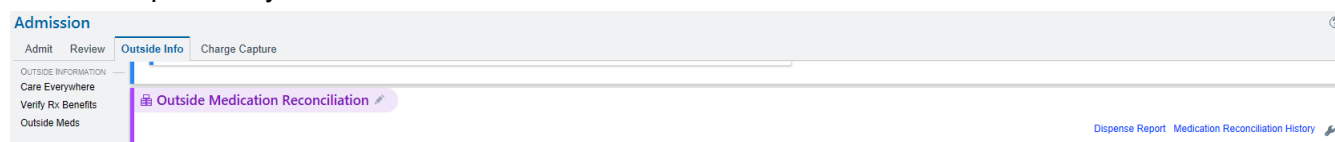
At the bottom of the filter panel, there is a green checkmark icon and the text: 'Save this Filter for Quick Access Later'. Below this, it says: 'Select filter criteria or apply a quick filter for options to save.'

- Viewing labs can be done several ways: Under the “RESULTS REVIEW” tab, or under CHART REVIEW→ LABS. This view is helpful to see if labs have been drawn, with results in process.

- To view the patients current inpatient diabetes regimen, select “MANAGE ORDERS” under the main page, click view by “THERAPEUTIC CLASS”, then scroll to “ENDOCRINE AND METABOLIC DRUGS.”
  - This section lists all the endocrinology-related medications including insulin & prn glucagon.
- Home medications/regimen can be viewed under ‘MANAGE ORDERS’ → Home meds. *Please keep in mind that often this may not be accurate or up-to-date.*
- It is always best to obtain an accurate medication reconciliation from the patient and via pharmacy dispense report.

## VIEWING THE PHARMACY DISPENSE REPORT:

- Select the “ADMISSION” tab on the main page. If it is not here, it will be found on the right side of the page under “RARELY USED.”
- From the “Admission” tab, select “OUTSIDE INFORMATION” → then “DISPENSE REPORT” under “OUTSIDE MEDICATION RECONCILIATION”
- This will provide the medication fill history for the past year; if there are further questions, the pharmacy can be contacted for additional assistance.



Medication Dispense History (from 2/25/2020 to 2/23/2021) Expand All Collapse All

Medication	Dispensed	Days Supply	Quantity	Provider	Pharmacy
ALPRAZolam	01/19/2021	30	60 tablet	QUINN,JENNIFER	Walmart Pharmacy 2234 ...
ALPRAZOLAM 0.25 MG TABLET					
Acetone (Urine) Test					
Albuterol Sulfate					
Amoxicillin-Pot Clavulanate					
Aspirin					
Blood Glucose Monitoring Suppl					
Collagenase					
Continuous Blood Gluc Receiver					
Continuous Blood Gluc Sensor					
Continuous Blood Gluc Transmit					
DULoxetine HCl					
Doxycycline Hyclate					
Famotidine					
Fluconazole					
Fluticasone Propionate					
Furosemide					
Gabapentin					
Glucagon					
Glucose Blood					
Insulin Glargine					
Insulin Lispro					
Insulin Pen Needle					
Lancets					
Lidocaine-Prilocaine					

# HYPOGLYCEMIA MANAGEMENT

- Definition of HYPOGLYCEMIA: blood glucose <70 mg/dL;
  - Level 1: blood glucose 54-70mg/dL (3.0-3.9mmol/L)
  - Level 2\*: blood glucose <54mg/dL (3 mmol/L)- threshold for neuroglycopenic symptoms
  - Level 3\*: altered mental status and/or physical functioning requiring assistance from another person

*\*Both require IMMEDIATE correction.*

## UUH HYPOGLYCEMIA PROTOCOL:

- This protocol for adults with diabetes, among others (with the most updated versions) can be found online in the Upstate policy database (off the Upstate Ipage)

### Hypoglycemia Treatment -- Adult (continued)

**PROC CM H-09A**

Page 2 of 4

**\*For patients with Orders for Hypoglycemia Treatment**

For patients with Orders for Hypoglycemia Treatment					
Patient Condition	Patients with severe hypoglycemia (NPO, taking PO, responsive, unresponsive or Gastric tube)		Responsive, Able to Eat	NPO or Unresponsive (Gastric Tube see last row)	
TIME FRAME	< 55		55-69	55-69	
POCT Blood Glucose					
IV Access	Has IV Access (not Midline)	No IV or has Midline only	With or without IV access	Has IV Access (not Midline)	No IV or has Midline only
Medications/ Treatment	25 ml D50 IV-push *if able to eat wait to give food until glucose >70 (see appendix)	Glucagon 1 mg IM *if able to eat wait to give food until glucose >70 (see appendix)	15 grams CHO (see appendix) or glucose gel/solution *wait to give food until glucose >70 (see appendix)	25 ml D50 IV-push	Glucagon 1 mg IM
Additional Intervention		Turn patient on side (may induce vomiting)			Turn patient on side (may induce vomiting)
Repeat POCT glucose: 15 minutes	If glucose is <70 after treatment, repeat treatment. Once blood glucose is >70: Repeat POCT again in 15 minutes and then at least every hour x2 to ensure blood glucose is maintained >70. If blood sugar cannot be maintained >70, notify medical provider. Continue to monitor patient's POCT blood glucose as ordered.				
After treatment	Always notify provider. Give snack or meal if patient is able to eat once blood glucose is >70 (see snacks appendix A below)			Always notify provider and collaborate for further instructions or orders.	
If mealtime is <1 hour away	If eating meal, administer insulin in the 71-90 row of scale according to grams of CHO consumed. Do NOT administer insulin based on the recheck POCT blood glucose level after treatment for hypoglycemia.			For unresponsive patient, if patient is able to eat & has recovered, call provider for instruction regarding patient's ability to eat meal and insulin coverage	
If mealtime is >1 hour away	Provide a follow-up snack to conscious patient if able to eat. Snack should contain 15grams of carbohydrate with protein. See Appendix A for snacks. At next meal, perform new POCT blood glucose check and follow scale as written.				
Patients with Gastric Tube	Blood glucose level <55: see above all patients with severe hypoglycemia. Blood glucose level 55-69: Glucose solution/gel administered via tube with 30 mLs of water flush. Do NOT give feeding as treatment and do NOT give juice, milk, or soda down tube.			After treatment, always notify provider. If patient is scheduled for feeding, this may be started after treatment.	

## INPATIENT DIABETES ORDER SETS

- UUH utilizes standard order sets to apply best practice as well as prevent medication errors related to insulin dosing
- There are individual order sets for many patient situations (see screenshot below).
- While hospitalized, the preferred SQ long-acting insulin is glargine (Lantus) and the preferred short-acting insulin is lispro (Humalog). NPH and regular insulin are available for SQ use, but not preferred due to increased incidence of hypoglycemia with these formulations.
- To navigate to the order sets, click the “MANAGE ORDERS” tab → type “INSULIN” in the search bar → then select “Comprehensive Insulin Subcutaneous order set”
- Once in the order set, you can select the long-acting and short-acting insulin depending on patient’s diet status
- In the order set, you can also specify fingerstick frequency and emergency medications in case of hypoglycemia

INSULIN

Browse Preference List Facility List

Order Sets & Panels

Search order sets by user

Name	User Version Name	Type	Pref List	Code	ID
Comprehensive Insulin Subcut...		Order Set			30400009635
Insulin Infusion Adult IP		Order Set			30400008906
Insulin Sliding Scale IP Endocri...		Order Set			30400008937

Orders

Clear All Orders

Comprehensive Insulin Subcutaneous Regimen IP

Manage User Versions

Select Your Patient Type

- For Patients who are Eating Click for more
- For Patients who are NPO Click for more
- For Patients Receiving Tube Feedings Click for more
- For TPN Patients Click for more
- For Patients Transitioning from IV Insulin to Subcutaneous Insulin Click for more
- For Patients on Clear Liquid Diet Click for more

Medications

Hypoglycemia PRN Medication Orders

- ☒ dextrose 50 % IV solution 25 mL  
25 mL, Intravenous, PRN, Other, blood glucose <55, Starting Today at 1230, For 30 days  
Not for midline administration.
- ☒ glucagon (human recombinant) (GLUCAGEN) injection 1 mg  
1 mg, Intramuscular, PRN, for glucose <55 without IV access, Starting Today at 1230, For 30 days
- ☒ glucose (GLUTOSE) 40 % oral gel 15 g  
15 g, Oral, PRN, Low blood sugar, for glucose 55-69 mg/dl and able to take PO, Starting Today at 1230, For 30 days

Additional SmartSet Orders

Search

## Examples of low-dose, medium-dose and high-dose insulin sliding scales at our hospital:

<b>LOW DOSE (EATING) INSULIN Patient Scale</b>			
Blood Glucose (mg/dl)	NPO or <15 gm carbohydrates solid food or full liquid (<30 gm if only clear liquid consumed)	15-30 gm carbohydrates solid food or full liquid (30-45 gm if only clear liquid consumed)	>30 gm carbohydrates solid food or full liquid (>45 gm if only clear liquid consumed)
< 70	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.
70 - 90	0	0	2
91 - 130	0	1	3
131 - 150	0	1	3
151 - 200	0	2	4
201 - 250	1	3	5
251 - 300	2	3	5
301 - 350	2	4	6
351 - 400	3	4	7
> 401	4 and notify	5 and notify	8 and notify

<b>MEDIUM DOSE (EATING) INSULIN Patient Scale</b>			
Blood Glucose (mg/dl)	NPO or <15 gm carbohydrates solid food or full liquid (<30 gm if only clear liquid consumed)	15-30 gm carbohydrates solid food or full liquid (30-45 gm if only clear liquid consumed)	>30 gm carbohydrates solid food or full liquid (>45 gm if only clear liquid consumed)
< 70	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.
70 - 90	0	0	3
91 - 130	0	2	4
131 - 150	0	3	5
151 - 200	0	4	6
201 - 250	2	5	8
251 - 300	4	6	10
301 - 350	6	8	12
351 - 400	8	10	14
> 401	10 and notify	12 and notify	16 and notify

<b>HIGH DOSE (EATING) INSULIN Patient Scale</b>			
Blood Glucose (mg/dl)	NPO or <15 gm carbohydrates solid food or full liquid (<30 gm if only clear liquid consumed)	15-30 gm carbohydrates solid food or full liquid (30-45 gm if only clear liquid consumed)	>30 gm carbohydrates solid food or full liquid (>45 gm if only clear liquid consumed)
< 70	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.
70 - 90	0	2	6
91 - 130	0	4	8
131 - 150	0	5	10
151 - 200	2	6	12
201 - 250	4	8	14
251 - 300	6	10	16
301 - 350	8	12	18
351 - 400	10	14	20
> 401	12 and notify	16 and notify	22 and notify

## Ordering custom-dose insulin:

- When the pre-set scales are inadequate in terms of dosing or a different scale is needed based on insulin dose calculations, the custom-dose insulin order set can be used.
- To order, utilize the “COMPREHENSIVE INSULIN SUBCUTANEOUS ORDER SET” as above, and scroll to the bottom, selecting “CUSTOMIZED DOSE” under the lispro and glargine insulin order sets, respectively

**Order Sets**

☒ Lispro Insulin (Eating):

For Insulin Naïve Patients, consider using:

- Low Dose Insulin**
  - Insulin sensitive patients such as frail, elderly, lean patients with body weight less than 50kg, patients requiring total daily insulin dose < 30 units, patients with history of frequently hypoglycemia or hypoglycemia unawareness, patients with chronic renal insufficiency or coronary artery disease
- Medium Dose Insulin**
  - For Patients who do not fulfill criteria for either insulin sensitive or insulin resistant profile such as patients less than 65 y.o. with weight greater than 100kg, patients requiring total daily dose of insulin between 30 and 100 units, patients with normal renal function and without significant coronary disease or seizure disorder and not receiving glucocorticoids.
- High Dose Insulin**
  - For Insulin resistant patients such as obese patients with BMI > 40, weight > 100kg, patients requiring total daily dose of insulin > 100 units, receiving glucocorticoids.
- For patients already being treated with Insulin, **Customize Insulin** orders based on existing Insulin regimen with modifications as needed.

☐ Low Dose (Eating)  
☐ Medium Dose (Eating)  
☐ High Dose (Eating)  
☒ Customized Dose (Eating)

<b>CUSTOMIZED DOSE (EATING) INSULIN Patient Scale</b>			
Blood Glucose (mg/dl)	NPO or <15 gm carbohydrates solid food or full liquid (<30 gm if only clear liquid consumed)	15-30 gm carbohydrates solid food or full liquid (30-45 gm if only clear liquid consumed)	>30 gm carbohydrates solid food or full liquid (>45 gm if only clear liquid consumed)
< 70	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.	Hypoglycemia Protocol and then, once blood glucose level is >70 give insulin dose in 70-90 row regardless of new blood glucose level.
70 - 90	0	2	6
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251 - 300	6	10	16
301 - 350	8	12	18
351 - 400	10	14	20
> 401	12 and notify	16 and notify	22 and notify

☐ insulin lispro (HUMALOG) injection CUSTOMIZABLE DOSE INSULIN patients

5 - 40 Units Subcutaneous Three Times Daily With Meals for 30 days

# INSULIN PUMP POLICY

- When a patient is on insulin pump, insulin pump orders need to be placed, as below
  - Navigate to the “INSULIN PUMP IP ENDOCRINOLOGY” order set & select all appropriate orders
- Endocrinology needs to be consulted on ALL PATIENTS with an insulin pump

INSULIN

Browse Preference List Facility List

Order Sets & Panels

Search order sets by user

Name	User Version Name	Type	Pref List	Code	ID
Comprehensive Insulin Subcutaneous Re...		Order Set			30400009635
Insulin Infusion Adult IP		Order Set			30400008906
Insulin Sliding Scale IP Endocrinology		Order Set			30400008937
Peds Meal Time Insulin Protocol Nursing...		Order Set			30400009143
Peds Meal Time Insulin Protocol Physicia...		Order Set			30400009142
Insulin Pump IP Endocrinology		Order Set			30400009125
insulin regular (HUMULIN R,NOVOLIN R)...		Order Panel	IP UH ORDER PANEL...	O122107	
Pediatric Insulin Pump Endocrinology		Order Set			30400009748

Medications (Click to expand)

Procedures (Click to expand)

Select And Stay Accept Cancel

Order Sets

Nursing

Interventions

- ☒ Vital Signs
  - Routine, EVERY SHIFT, First occurrence Today at 0750, For 30 days
- ☒ Notify Physician
  - Routine, CONTINUOUS, Starting Today at 0750, Until Thu 4/1/21, For 30 days
  - Whom To Notify: Physician
  - Notify Provider If? Finger Sticks Min, Finger Sticks Max
  - Other Parameters: Physical changes, dietary status, or mental status
- ☒ Notify Physician; Parameters: Other Parameters; Other Parameters: If there is a change in Diet
  - Routine, CONTINUOUS, Starting Today at 0750, Until Thu 4/1/21, For 30 days
  - Whom To Notify: Physician
  - Parameters: Other Parameters
  - Other Parameters: If there is a change in Diet
- ☒ Patient may use own Insulin Pump if criteria are met
  - Routine, UNTIL DISCONTINUED, Starting Today at 0750, Until Thu 4/1/21, For 30 days
  - Is patient willing to use their own insulin pump? Is the patient capable of using their own insulin pump? Does the patient have their insulin pump supplies here? If the answer is no to either of the questions, then the patient should have an alternate source of insulin therapy.
- ☒ Check Pump is attached and functioning properly
  - Routine, EVERY SHIFT, First occurrence Today at 0750, For 30 days

Diagnostic

Lab - Point of Care

- ☒ POCT glucose, docked
  - 4 TIMES DAILY BEFORE MEALS & AT BEDTIME, First occurrence Today at 1100, Last occurrence on Thu 4/1/21 at 0700, For 30 days, As Scheduled

Consults

Consults

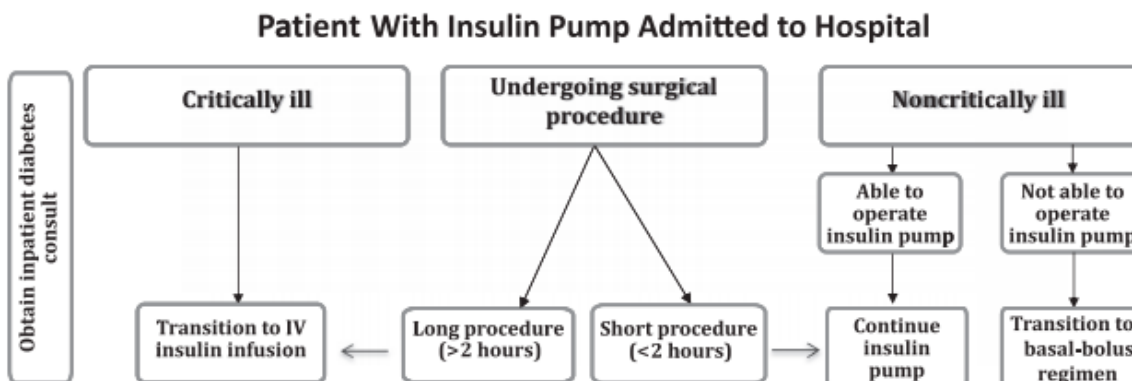
- ☒ Consult to Endocrinology Inpatient
  - Referral By - GOODYEAR, PATRICIA A
- ☐ Consult to Pediatric Endocrinology Inpatient
- ☒ Consult to Diabetes Educator Inpatient
  - ONCE, Today at 0750, For 1 occurrence

Medication

Insulin for Insulin Pump

- ☐ Insulin pump reservoir refill-lispro (HumaLOG) 100 units/mL injection
  - 300 Units, Does not apply, PRN, Insulin Pump Reservoir Refill

## Guide to Management of patients on an insulin pump:



Changes to Pump Therapy With Imaging Studies	
X-ray/CT	Pump should be covered by lead apron
MRI	Pump and metal infusion set should be removed
Ultrasound	No need to remove pump but transducer should not be pointed directly at the pump
Cardiac catheterization	Pump should be covered by lead apron
Pacemaker/automatic implantable cardioverter defibrillator (AICD)	Pump should be covered by lead apron
Colonoscopy/EGD	Pump can remain in place
Laser surgery	Pump can remain in place

## Resuming the insulin pump:

- If using a basal insulin, while off the pump, the effect of the insulin needs to have resolved (usually over 24 hours) after the last basal insulin injection, prior to starting insulin via the pump. *Careful attention should be made to the timing of insulin doses in order to prevent insulin stacking.*

## Brief guide to insulin pump settings:

- Insulin sensitivity factor (ISF): How many points, in mg/dL, blood sugar drop is expected for each unit of insulin administered. Eg. Insulin sensitivity Ratio (ISR) 1:50 would mean that 1 unit of insulin will bring sugar down by 50 points.
- Carbohydrate ratio (ICR): Eg 1U:15g ratio. For every 15g of carbohydrate a patient eats, a patient will receive 1 unit of insulin.

**Brief guide to continuous glucose monitors (CGM):**

- CGMs are devices that measure interstitial glucose. They differ from insulin pumps in a variety of ways. CGMs monitor the blood glucose level, but do not provide insulin.
- CGMs are helpful as they provide frequent blood glucose measurements and glucose trends, however they are NOT approved by the FDA for routine inpatient (ICU and non-ICU) use and are currently NOT available at UUH except for certain COVID patients.
- Some patients may continue to use CGM in the hospital but per hospital policy, nursing staff is required to obtain finger stick glucose values and use those values to administer insulin.

# INPATIENT DISCHARGE ORDER SETS

- To facilitate an easier discharge, specific Diabetes discharge order sets have been created.
- To navigate to the order sets, click the “DISCHARGE” tab → select “DISCHARGE ORDERS” on the left-hand side → then select “REVIEW ORDERS FOR DISCHARGE”
- At this point you can type in “ADULT” or “DIABETES” and select the “ADULT DIABETES DISCHARGE PRESCRIPTIONS” order set

The screenshot displays the 'Discharge' interface with a sidebar on the left containing the following menu items: Discharge, Discharge Deceased, Discharge Checklist, New Reading, Discharge Milestones and Delays, Discharge Order Reconciliation, Insulin Sliding Scale Instructions, Discharge Review, Best Practice, Problem List, Charge Capture, AVS Ready To Print, and AVS Preview.

The main content area is divided into several sections:

- Discharge Checklist:** Includes a 'New Reading' button and a 'No data found' message.
- Discharge Milestones and Delays:** Features a progress indicator showing '2 of 6 Milestones Completed' (33%). The milestones are:
  - Discharge Destination (Completed)
  - Place Discharge Order (Pending)
  - Transport Arranged (Completed)
  - AVS Ready to Print (Pending)
  - Complete Med Reconciliation (Pending)
  - AVS Printed (Pending)
- Discharge Order Reconciliation:** Includes a 'Go to Medication Reconciliation' link.
- Insulin Sliding Scale Instructions:** Includes a 'Create Note' button, a 'See All Notes' link, and a 'Refresh' button. A message states: 'You have no filed Insulin Sliding Scale Instructions for this patient within the last 24 hours.'

The bottom section of the interface shows the 'Discharge' tab selected, with sub-tabs for 'Discharge Order Rec' and 'Order Sets'. The 'Discharge Order Rec' sub-tab is active, showing a 'Find Unreviewed' button and a 'View by: Discharge Outpatient and Inpatient' dropdown. The 'Order Sets' sub-tab is also visible, showing a 'Place new discharge orders or order sets' button and a 'Standard' dropdown menu.

Order and Order Set Search

ADULT

Browse **Preference List** Facility List

**Order Sets & Panels** (Alt+1)

Name	User Version Name	Type	Pref List	Code	ID
Adult Hospice IP Admission		Order Set			30400009625
Adult Antithymocyte Globulin IP Oncology		Order Set			30400009050
Adult Diabetes Discharge Prescriptions		Order Set			30400009509
Adult GENERAL MEDICINE Admission IP		Order Set			30400009700
Adult Generic / General Admission IP		Order Set			30400002261
Adult Intracerebral Hemorrhage Admission...		Order Set			30400009135

**After Visit Medications** (Alt+2)

Name	Dose	Frequen	Dispen: Ref	End Date	Copay	Coverage	Formulary	Type	Pref List	Code
ASPIRIN 81 MG PO CHEW (aka ADULT ASPIRIN LOW STRENGTH 81 MG PO CHEW)	81 mg	Daily S...		S+364				Generic OTC	IP UMU R...	680
ASPIRIN 81 MG PO TBEC (aka ADULT ASPIRIN EC LOW STRENGTH 81 MG PO T...	81 mg	Daily S...		S+364				Generic OTC	IP UMU R...	688
acetaminophen (TYLENOL) solution 650 mg/20.3 mL (ADULT)	15 mg/kg	Every 4...	120...	0	S+10			Generic OTC	IP UMU R...	100
ASPIRIN 325 MG PO TABS (aka ASPIRIN ADULT 325 MG PO TABS)	325 mg	Daily S...		S+364				Generic OTC	IP UMU R...	681
ACETAMINOPHEN 650 MG RE SUPP (aka FEVERALL ADULTS 650 MG RE SUPP)	650 mg	Every 4...	12 s...	0	S+10			Generic OTC	IP UMU R...	105

**After Visit Procedures** (Alt+3)

Name	Type	Px Code	Pref List
Hepatitis A vaccine adult IM	Immunization	IMM24	AMB UMU IMMUNIZATIONS
Hepatitis B vaccine adult IM	Immunization	IMM28	AMB UMU IMMUNIZATIONS
Referral to Adult Pharmacist Services	Referral	REF924	AMB UMU FAM REFERRALS
Referral to Psychiatry	Referral	REF91	AMB UMU FAM REFERRALS
Referral to Endocrinology (aka REFERRAL TO ADULT ENDOCRINOLOGY, JOSLIN DIABETES...	Referral	REF22	AMB UMU FAM REFERRALS

**During Visit Orders**

Select And Stay

- Once in the order set, you can select the supplies needed (meter, swabs, brand of insulin pen and needles) according to type of insurance, which should help with approval.
- If the patient will be needing supplies for discharge, it is best to put these orders in 1-2 days in advance if possible, to ensure the supplies are approved by insurance.

## Place Discharge Orders



Order Sets

Clear All Orders

Adult Diabetes Discharge Prescriptions Manage User Versions

Please ensure the sliding insulin scale is added to the AVS.

## Prescriptions Needed

Select the Meter / Test Strips / Lancets order needed:

Select the brand of meter that was provided to the Patient.☒ Diabetes Supplies by Payor

Strips, lancets and alcohol wipes are selected by default. Please add the meter when needed.

- ☐ Commercial diabetes meter/strips/lancets
- ☐ NY Medicaid diabetes meter/strips/lancets
- ☐ Fidelis diabetes meter/strips/lancets
- ☐ Medicare Part B diabetes meter/strips/lancets
- ☐ Molina diabetes meter/strips/lancets
- ☐ United Healthcare Community diabetes meter/strips/lancets

## Diabetes Discharge Prescriptions for Adults

☐ Alcohol Swabs PADS

Disp-200 each, R-1

☒ Select an Insulin Pen and Needles for Prescription:

- ☐ Basaglar Pen & Needles
- ☐ Lantus Solostar Pen & Needles
- ☐ Humalog Kwikpen Pen & Needles
- ☐ Admelog Solostar Pen and Needles

☒ Select a Concentrated Insulin Pen and Needles for Prescription:

- ☐ Toujeo Contrated Pen & Needles
- ☐ Tresiba Concentrated Pen & Needles

☐ acetone, urine, test (KETOSTIX) strip  
Disp-100 each, R-1☐ glucagon (GLUCAGON EMERGENCY) 1 MG injection  
Disp-1 each, R-1

Insulin Meter and Supplies Prescription

# DIABETES EDUCATION AND DISCHARGE

- Discharge planning should begin at admission, in order to:
  - Reduce length of hospital stay
  - Reduce readmission rates
  - Increase patient satisfaction

## Diabetes Education Resources:

[www.thepatientchannelnow.com](http://www.thepatientchannelnow.com) (Pass code 06760)

Please watch the following videos. Mark the date you watched the video on the line. They are all 5-7 mins long. Write down any questions you may have!

**Managing Your Diabetes: An Introduction** \_\_\_\_\_

**Managing Your Diabetes: Healthy Eating** \_\_\_\_\_

**Managing Your Diabetes: Being Active** \_\_\_\_\_

**Managing Your Diabetes: Monitoring** \_\_\_\_\_

**Managing Your Diabetes: Taking Medication** \_\_\_\_\_

**Managing Your Diabetes: Problem Solving** \_\_\_\_\_

**Managing Your Diabetes: Reducing Risks** \_\_\_\_\_

**Managing Your Diabetes: Healthy Coping** \_\_\_\_\_

**Hypoglycemia** \_\_\_\_\_

**Diabetes: Treatments (Part 1)** \_\_\_\_\_

**Diabetes: Treatments (Part 2)** \_\_\_\_\_

**Diabetes: Treatments (Part 3)** \_\_\_\_\_

**Diabetes: Treatments (Part 4)** \_\_\_\_\_

**Diabetes: Avoiding Complications (Part 1)** \_\_\_\_\_

**Diabetes: Avoiding Complications (Part 2)** \_\_\_\_\_

**Diabetes: Avoiding Complications (Part 3)** \_\_\_\_\_

**Diabetes: Avoiding Complications (Part 4)** \_\_\_\_\_

**Your Care at Home: Checking Blood Sugar \_\_\_\_\_**

**Giving Yourself Insulin \_\_\_\_\_**

**Your Care at Home: Taking Insulin \_\_\_\_\_**

## ADA GUIDELINES

- Linked below are the 2021 Standards of Care in Diabetes (ADA guidelines)
  - [2021 Standards of Care in Diabetes](#)

## HELPFUL INPATIENT CASES

- Powerpoint linked below with several patient presentations that occur in the inpatient settings & how to best manage them
  - [Inpatient DM management ppt](#)

## REFERENCES

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2. Umpierrez GE, Klonoff DC. Diabetes Technology Update: Use of Insulin Pumps and Continuous Glucose Monitoring in the Hospital. Diabetes Care. 2018 Aug;41(8):1579-1589. doi: 10.2337/dci18-0002. Epub 2018 Jun 23. PMID: 29936424; PMCID: PMC6054505.
3. American Diabetes Association. 7. Diabetes Technology: *Standards of Medical Care in Diabetes-2020*. Diabetes Care. 2020 Jan;43(Suppl 1):S77-S88. doi: 10.2337/dc20-S007. Erratum in: Diabetes Care. 2020 Aug;43(8):1981. PMID: 31862750.
4. JOSLIN DIABETES CENTER and JOSLIN CLINIC GUIDELINE for INPATIENT MANAGEMENT OF SURGICAL and ICU PATIENTS with DIABETES (Pre, Peri and Postoperative Care) 12 30 2015; updated 04/22/19

