Pharmacy Plan Summary

STUDY DRUG: List the study drugs that will be used at your site based on your hospital formulary

Insulin human regular or NS for placebo (pharmacy stock)

Intervention Group (continuous IV insulin + SQ meal insulin or saline injections target BG 80-130 mg/dL):

Study drug = insulin 100 units/100mL (blue auxiliary label on IV bag)

GlucoStabilizer (a validated computerized electronic decision support tool) will be used for the IV insulin group only.

Insulin Aspart (Novolog) SQ will be used as mealtime insulin (dose per physician) – standard of care

If the patient is not eating --- Bacteriostatic saline

Saline SQ injection (to be used by nurse for blinding, prn sliding scale)

Control Group (IV saline + SQ sliding scale insulin to target BG < 180 mg/dL):

Study drug = NS 100mL (orange auxiliary label on IV bag) titrate IV infusion

Insulin human regular SQ will be used for sliding scale

(patients who progress to Level 3 will receive Insulin glargine (Lantus) SQ (at dose of 40% previous 24 hours insulin)

DRUG SUPPLY & STORAGE: Detail how study drugs will be supplied and where they will be stored

commercial drug in IV room at room temperature

This protocol will use local pharmacy-provided insulin products---human regular insulin for the continuous infusion and saline

RANDOMIZATION: Describe the randomization process as it pertains to your site pharmacy **(**how is the randomization assignment provided to pharmacy and documentation of this maintained)

Done by an unblinded research team member (study coordinator or physician) using WebDCU SHINE study website (IWRS). Team member will fax a copy of the allocation to the pharmacy along with medication orders.

DRUG ORDERING & DISPENSING: Describe the process for ordering/dispensing study-required treatments

Upon receipt of an order from an investigator for "SHINE Study Patient #___ ", **a signed copy of the informed consent document, and allocation paperwork,** the pharmacist will record the patient's name,

MRN, date, subject number, group assignment and RPh initials on the Patient Enrollment Log. The patient's initials, patient number and randomization allocation will be recorded on the Subject-Specific Drug Dispensing Record form in the study notebook.

The order will be entered in the patient's computerized medication profile **using mnemonic 7SHINE** to avoid a patient charge and a patient note added: "**SHINE Study patient** #____ ".

For subjects randomized to insulin infusion, prepare aseptically in a laminar flow hood by adding insulin 100units/1mL to NS 100mL and add **BLUE "SHINE Study Drug" label** for insulin/INTERVENTION For subjects randomized to CONTROL group (NS 100mL) cover additive port with foil to simulate admixture and add **ORANGE "SHINE Study Drug" label**.

STUDY DRUG LABELS: Describe how the study drug will be labeled

Please see above

PHARMACY CONTACT INFORMATION: Include name & contact info for pharmacist who will be working with SHINE

Marjorie A. Phillips, MS, RPh, FASHP

Clinical Research Pharmacist and Pharmacy Coordinator—Research/Education

Georgia Health Sciences Pharmacy

1120 15th Street, BI-2101

Augusta, GA 30912-5600

(706) 721-0802

"Stroke Hyperglycemia Insulin Network Effort (SHINE) Trial Protocol"

Version1 (10/18/2011) (HAC Pro#365)

Authorized Investigators:	Askiel Bruno, MD (1-5988 pager *5746) Jeffery Switzer, DO (1-1990 pager *5738); Fenwick Nichols, MD (1-6166 pager *1050); David Hess, MD (1-1691 pager *5739); Mihaela Saler, MD (1-0193 pager *5441); Shannon Stewart, MD (1-1886 pager *8150)
Study Coordinator:	Brian Close (1-2675 pager *3280)
Pharmacy Liaison:	Marjorie Shaw Phillips, Clinical Research Pharmacist (1-0802 pager *6101)
Purpose of Study:	To determine the efficacy of tight glucose control (target range 80-130 mg/dL) with IV insulin infusion in hyperglycemic acute ischemic stroke patients within 12 hours of symptom onset
Patients:	50 at GHSU & 1400 at approximately 56 sites
Study Design:	Phase 3, **single-blind (patient and evaluator)**, randomized, inpatient, NIH-funded
Study Drugs:	**Insulin human regular or NS for placebo (pharmacy stock) - not billed to patient**
Dose:	**SHINE Study Drug in NS 100mL IV infusion for 72 hours** insulin 100units, 1unit/mL rate determined by decision support tool GlucoStabilizer or "placebo" NS no additives – rate 4-5mL/hr based on blood sugar
Storage Location:	(commercial drug in IV room) notebook in Clinical research pharmacy
Responsible Pharmacists:	Central Pharmacist/IV technician with support from Clinical Research Pharmacist/Technician
Enrollment Orders:	Upon receipt of an order from an investigator for "SHINE Study Patient #___ ", **a signed copy of the informed consent document, and allocation paperwork,** the pharmacist will record the patient's name, MRN, date, subject number, group assignment and RPh initials on the Patient Enrollment Log. The patient's initials, patient number and randomization allocation will be recorded on the Subject-Specific Drug Dispensing Record form in the study notebook.
Randomization:	Done by an unblinded research team member (study coordinator or physician) using WebDCU SHINE study website (IWRS). Team member will fax a copy of the allocation to the pharmacy along with medication orders.
Computer Entry:	The order will be entered in the patient's computerized medication profile **using mnemonic 7SHINE** to avoid a patient charge and a patient note added: "**SHINE Study patient** #____ ".
Preparation:	For subjects randomized to insulin infusion, prepare aseptically in a laminar flow hood by adding insulin 100units/1mL to NS 100mL and add **BLUE "SHINE Study Drug" label** for insulin/INTERVENTION For subjects randomized to CONTROLgroup (NS 100mL) cover additive port with foil to simulate admixture and add **ORANGE "SHINE Study Drug" label**.
Record-keeping:	Log out doses dispensed on the Subject-Specific Product Accountability Log. **File the order, allocation paperwork, and informed consent in the study notebook.**
Reminders/Notes:	Send IDDS (study drug fact sheet) to nursing unit with first infusion (use green delivery receipt for each dose)

Georgia Health Sciences Health System

Pharmacy Department

INVESTIGATIONAL DRUG DATA SHEET

INFORMATION STATEMENT:

****The patient/family and evaluator(s) are blinded to drug received – please be cognizant of words used when administering and explaining medications to the patient/family to maintain blinding.****

Patients in the SHINE trial will be randomized to receive either a continuous infusion of insulin (intervention group, tight glucose control, target 80-130) or normal saline (control group, standard glucose control, ≤180). Patients will also receive SQ insulin, although the type and frequency will vary between groups.

Rate adjustments of continuous infusion insulin in the intervention group will be based upon finger stick blood glucose readings (recommendation by the GlucoStabilizer tool). Patients will also receive SQ injections three times daily of either insulin aspart (Novolog; dose based upon GlucoStabilizer recommendation) or bacteriostatic normal saline (0.1mL) depending upon feeding status.

Patients in the control group will receive continuous infusion normal saline with rate adjusted depending upon levels of finger stick blood glucose. Patients will also receive insulin regular SQ four times daily sliding scale per protocol guidelines. If required, patients in the control group will receive a one-time dose of insulin glargine (timing and dose to be determined by the research physician).

"Stroke Hyperglycemia Insulin Network Effort (SHINE) Trial Protocol" Version1 18Oct2011(HAC Pro#365)

Study Drug	**SHINE Study drug inj in NS**
Dosage Form	**Continuous infusion injection** (insulin concentration: 1unit/mL **or** NS)
Study Indication	To determine the efficacy of tight glucose control (target range 80-130 mg/dL) with IV insulin infusion in hyperglycemic acute ischemic stroke patients
Study Dosage	Dose/rate will be determined and adjusted according to finger stick blood glucose levels
Expected Effects	Improvement of clinical outcomes
Contraindications	Hypersensitivity to insulin
Potential Side Effects	Hypoglycemia
Toxicity & Treatment	Severe/prolonged hypoglycemia (blood glucose <40mg/dL); symptomatic & supportive treatment
Drug Administration	IV continuous infusion (duration: up to 72 hours)
Storage	Room temperature
Disposal Unused	Return doses not administered to the Clinical Research Pharmacy
Authorized Investigators (who can initiate Rx)	Askiel Bruno, MD (1-5988 pager *5746) Jeffery Switzer, DO (1-1990 pager *5738); David Hess, MD (1-1691 pager *5739); Fenwick Nichols, MD (1-6166 pager *1050); Mihaela Saler, MD (1-0193 pager *5441); Shannon Stewart, MD (1-1886 pager *8150)
Study Coordinator	Brian Close (1-2675 pager *3280)
Pharmacy Liaison	Marjorie Shaw Phillips, Clinical Research Pharmacist (1-0802 pager *6101)

SHINE Study (site #____)
PATIENT ENROLLMENT RECORD

Study Subject # Group Assigned (I=intervention, C=control)	Patient Name & MRN	Pt Initials	Date Started	Consent Signed (date)	Pharmacist Initials & date checked

Subject Specific Product Accountability Log
SHINE study drug in NS 100mL IV or placebo Normal Saline 100mL IV

Georgia Health Sciences Health System	Sponsor: NIH	Protocol Number: HAC#365	Site Number:	Telephone Number: 706 721 0802	Site Address: 1120 Fifteenth St BI 2101 Augusta GA 30912
Subject Initials / ID Number					Investigator: Askiel Bruno, MD

Before preparing each dose, determine group allocation for the patient

[ ] INTERVENTION:
Continuous IV insulin regular (100mL)
- Prepare insulin regular 1unit/mL, 100mL in NS
- Affix BLUE auxiliary label HERE:

- Affix the same BLUE auxiliary label to the IV bag

[ ] CONTROL:
Continuous IV normal saline (100mL)
- Prepare 100mL NS
- Cover additive port with foil
- Affix ORANGE auxiliary label HERE:

- Affix the same ORANGE auxiliary to the IV bag

Send to floor with delivery record (green sheet) to document receipt
(send as part of the regular IV delivery)

Subject Initials	Product Dispensed (NS or insulin 100unit)	Date Dispensed	Dispensed By	Dose Administered (YES or NO)

Comments:

Before preparing each dose, determine group allocation for the patient

Preparation:

- Pharmacist: consult order or worksheet in study notebook to determine group allocation (intervention/insulin v. control/normal saline) and provide IV technician with appropriate labeling.
- Per standard hospital protocol, aseptically in a laminar flow hood, prepare insulin regular 100 units added to NS for a total volume of 100mL (concentration 1 unit/mL).
- Place **BLUE** auxiliary label onto insulin infusion for INTERVENTION group

- **OR** prepare 100mL NS (placebo) and cover additive port with foil to simulate admixture
- Place **ORANGE** auxiliary label onto normal saline placebo infusion for CONTROL group.

Record-keeping:

- Log out doses prepared and place sample auxiliary label onto the Subject-Specific Product Accountability Log
- Send to floor with delivery record ("green sheet") to document receipt, as part of regular IV delivery process
- Record whether dose was administered on the Subject-Specific Product Accountability Log.

I have reviewed the study procedures for this study and any questions I had about the pharmacy preparation and dispensing process have been answered.

Pharmacist/Pharmacy Technician Name Date oriented by:

PHARMNET CHANGE CONTROL FORM
FOR INPATIENT STUDIES

Today's Date: 23Feb2012
Requested Completion Date: March 2, 2012
Request By: Marjorie Phillips, Ashley Cribb
****
Study Title: "Stroke Hyperglycemia Insulin Network Effort (SHINE) Trial Protocol"

Drug Products: (Include Drug Name, Vial Size, Concentration, Tablet Strength, etc)
1) SHINE Study Drug inj 1 each

****
Order Alert (F-note) needed with additional information for pharmacists?

****
Label: IV/Continuous
Is this product Chemotherapy? **No**
Proposed Mnemonic: **7SHINE**
Line1 (Medication Name): **SHINE Study Drug inj** Dose: 1 ea
Line2: Study normal saline Dose: 100 mL
Default Route: **IV**
Default Frequency: (replace every 24h) Default Stop/Max # doses: **72 hours** hard stop
PRN Med? **No**
FOR IV PRODUCTS:
Default Rate/infuse over: **Adjust per blood sugar**
TV: **100mL** Drug+Diluent / Diluent only

Label Comments (May map to Label, MAR, or Fill List, please specify) **maximum 255 characters for the label note !!!!!**

Order Comments (map to Label & MAR): =
SHINE Study Patient #_____
Adjust rate per study orders and written instructions
Product Notes (map to bottom of Label & face down on MAR)

CLINICAL INFORMATION:
Orderable in: **Adult**
Drug Interaction checking, link to:

CHARGE CODE: [**X**] Investigational drug – no chg
[ ] Investigational drug - NCI

Title of Protocol: **“Stroke Hyperglycemia Insulin Network Effort (SHINE) Trial Protocol”**
Version 1 (10/18/2011)

Sponsor: NIH- National Institutes of Neurological Disease and Stroke (The NETT Clinical Coordinating Center)

Study Design: Phase 3, Single-blind (Patient & Evaluator Blinded) Randomized, Inpatient, Federally-funded

Protocol Number SHINE

Investigator Name: Askiel Bruno, MD

Coordinator Name: Brian Close (Surgery Research)

Protocol submitted to: HAC# 365 (Dec 14, 2011)
#Subjects Planned **Target 50 at GHSU, total estimated 1400** at approximately 56 sites --17 Neurological Emergencies Treatment Trials (NETT) hubs and their spoke hospitals + 10 non-NETT sites.

Budget Needed By: ASAP

Anticipate Study Start: Feb 2012

Duration: Enrollment 3.5-4 years (through 2015 at least) – treatment per subject up to 72 hours

The purpose of this single-blind, NIH study is to determine the efficacy of tight glucose control to a target range of 80-130 mg/dL with IV insulin infusion in hyperglycemic acute ischemic stroke patients within 12 hours of symptom onset (and 3 hours of arrival to ED) as measured by modified Rankin Scale (mRS) at 90 days after stroke

This protocol will use local pharmacy-provided insulin products---human regular insulin for the continuous infusionand saline (billed to study). The pharmacy manual says “study-specific accountability is not required,” however, the pharmacy will document doses dispensed in order to bill the study doses to research account rather than patient bill. Subcutanenous insulin (and dextrose 50% injection for treatment of hypoglycemia) are considered standard of care for both groups (and will be billed to patient/insurance as part of the hospital bill).

Randomization will be done by an unblinded research team member (study coordinator or physician) using WebDCU – the pharmacy does not need access to this system, rather will rely on the randomization fax or printed allocation and orders.
Hyperglycemic acute ischemic stroke patients who qualify (adult & with history of type 2 diabetes and hyperglycemia or non-diabetics with baseline glucose levels ≥ 150 mg/dL) must begin treatment within 3 hours of ER arrival and within 12 hours of stroke symptom onset and be randomized and receive:

SHINE Study Drug in Study NS 100mL IV (titrate per protocol for a maximum of 72 hours)

Intervention Group (continuous IV insulin + SQ meal insulin or saline injections target BG 80-130 mg/dL):
Study drug = insulin 100 units/100mL (blue auxiliary label on IV bag)
GlucoStabilizer (a validated computerized electronic decision support tool) will be used for the IV insulin group only.
Insulin Aspart (Novolog) SQ will be used as mealtime insulin (dose per physician) – standard of care
If the patient is not eating --- Bacteriostatic saline
Saline SQ injection (to be used by nurse for blinding, prn sliding scale)

Control Group (IV saline + SQ sliding scale insulin to target BG < 180 mg/dL):
Study drug = NS 100mL (orange auxiliary label on IV bag) titrate IV infusion
Insulin human regular SQ will be used for sliding scale
(patients who progress to Level 3 will receive Insulin glargine (Lantus) SQ (at dose of 40% previous 24 hours insulin)

The pharmacy will assist with order set development/approval, develop a study-specific pharmacy procedure to implement the SHINE protocol, prepare/label & dispense single blind study infusions (and study normal saline vial for the SQ placebo) in accordance with state and Federal law, and hospital procedures. Study staff will need to provide a study order signed by the investigator, copy of the signed informed consent document, and register the subject (provide copy of the allocation paperwork). We will need a second order (can be electronic) to discontinue the study medications.

Draft email to pharmacists/staff:

The **Stroke Hyperglycemia Insulin Network Effort (SHINE) Trial (local principal investigator Dr Askiel Bruno)** is open for enrollment. The purpose of this Phase 3, **single-blind (patient and evaluator)**, randomized, inpatient, NIH-funded study is to determine the efficacy of tight glucose control (target range 80-130 mg/dL) with IV insulin infusion in hyperglycemic acute ischemic stroke patients within 12 hours of symptom onset.

Patients in the SHINE trial will be randomized to receive either a continuous infusion of insulin (intervention group, tight glucose control, target 80-130) or normal saline (control group, standard glucose control, ≤180). Patients will also receive SQ insulin, although the type and frequency will vary between groups.

****The patient/family and evaluator(s) are blinded to drug received – please be cognizant of words used when in contact with the patient/family to maintain blinding.****

We cannot label the IV infusion as insulin or normal saline (this would break the blind), so the study has supplied colored labels that should be placed on the infusion bag for identification purposes. These are located in the study notebook on the Subject-Specific Product Accountability Log. For subjects randomized to insulin infusion, add the **BLUE "SHINE Study Drug" label** for insulin/INTERVENTION. For subjects randomized to CONTROL group (NS 100mL) cover additive port with foil to simulate admixture and add the **ORANGE "SHINE Study Drug" label.**

Per study protocol, patients in the INTERVENTION group will also receive SQ injections of either insulin aspart or bacteriostatic normal saline. Patients in the CONTROL group will receive SQ insulin regular per sliding scale and may receive one dose of insulin glargine if necessary (to be determined by study physician). (See order set attached.) Insulin aspart, insulin regular and insulin glargine are **not** study medications and will be billed to the patient as standard of care (routine order entry but will be on hard copy order rather than in CPOE).

Stroke Hyperglycemia Insulin Network Effort (SHINE) Trial
BASELINE STUDY ORDERS SHEET

SHINE informed consent document signed on: _____ at ___:___

Control group- IV saline per SHINE protocol plus SQ sliding scale insulin injections per SHINE protocol

Intervention group-continuous IV insulin per SHINE protocol (see GlucoStabilizer software for instruction on the study laptop) plus SQ meal insulin or saline injections per SHINE protocol.

No additional hypoglycemic agents should be ordered for the patient during the 72 hour period of study treatment.

Diet Orders: 1800 calorie, 60 gram carbohydrate diet as soon as cleared to eat

See drug orders for all pharmacy-related activities

For any concerns, contact the SHINE Team Attending.

If glucose concentration <80mg/dL, initiate the following hypoglycemia protocol

1. Stop all IV infusions and hold all subcutaneous injections.
a. Control Group – A dose of IV D50 25 ml (1/2 amp) will be given (slow IV push over 1-2 minutes) every 15 minutes until blood glucose is ≥80 mg/dL. Repeat finger stick glucose checks and treatment every 15 minutes if needed until glucose is ≥80 mg/dL.
b. Intervention Group – An individualized dose of IV D50 will be given (slow IV push over 1-2 minutes). The specific dose will be determined by the decision support tool based on the glucose concentration. Recheck blood glucose every 15 minutes as directed by the decision support tool. Repeat treatment every 15 minutes as directed by the decision support tool until glucose is ≥80 mg/dL.
2. Once glucose is ≥80 mg/dL, restart IV insulin or saline per protocol, and restart SQ insulin or saline per protocol.

If glucose concentration <70mg/dL, initiate the following hypoglycemia protocol
Continue to use the hypoglycemia protocol above (e.g. hold insulin, give D50, repeat glucose checks every 15 minutes).
1. Draw a STAT laboratory serum glucose measurement but do not delay treatment with D50 by waiting for this blood draw result. Only the results from finger stick point of care glucose checks should be used for insulin dosing.
2. Screen the patient for hypoglycemia symptoms using the Hypoglycemia Symptomatic Questionnaire.
- The worksheet and instructions are available on the desktop of the laptops.
- The Hypoglycemia Symptomatic Questionnaire must be repeated every 15 minutes while the glucose is <70mg/dL.
- Once the glucose is ≥70mg/dL or the symptoms have resolved, whichever comes first, one final assessment with the Hypoglycemia Symptomatic Questionnaire is required.
- Once the glucose is ≥80 mg/dL, the timing of glucose checks and insulin infusion rate will again be determined by the GlucoStabilizer.

3. Screen the patient for neurological worsening.
- Perform a standard of care neuro check.
- The SHINE study definition of neurological worsening will be considered any clinical change that is associated with a ≥4 point increase from baseline on the NIHSS score.
- Any patient with neurological worsening will be assessed for hypoglycemia and for relatedness of the hypoglycemia to neurological worsening if present.
- If the patient has not returned to neurological baseline within 24 hours, a NIHSS assessment is required within 24 hours(+/-4 hours) from onset of hypoglycemic event (<70mg/dL). If the patient has returned to neurological baseline at any point in less than 24 hours, the NIHSS is not required at 24 hours.
- If neurological worsening persists for greater than 24 hours and is associated with a glucose concentration <55mg/dL, an SAE form is required (provided by study coordinator).

4. If the glucose falls below 40mg/dL at any time, an SAE form is required.

Steps for ≥3 episodes of hypoglycemia (Glucose concentration <70mg/dL) in 24 hour period

- Intervention Group
  - For any study patient in the intervention group who experiences 3 or more episodes of hypoglycemia (glucose concentration of <70mg/dL in a 24 hour period, contact Dr. Askiel Bruno (pager 5746).
- Control Group
  - For any study patient in the control group who experiences 3 or more episodes of hypoglycemia (glucose concentration of <70mg/dL in a 24 hour period, contact Dr. Askiel Bruno (pager 5746).
  - At the 24 and 48 hour intervals, regardless of the previous two glucose measurements, do **NOT** advance to a higher level on the subcutaneous sliding scale.

Steps for severe hyperglycemia (Glucose concentration >500mg/dL)

If a point of care meter shows that the blood glucose is too high to provide an exact measurement (generally greater than 500-600 mg/dL depending on the meter) or the glucose reads >500 mg/dL

1. Draw a STAT laboratory serum glucose measurement
2. Call the SHINE Principal Investigator (Dr. Askiel Bruno) at pager 5746.

Stroke Hyperglycemic Insulin Network Effort (SHINE) Trial

DRUG ORDERS - Control Group Initial Protocol – Supplemental Insulin SQ
IV saline with subcutaneous insulin injections (blood glucose range 80-179mg/dL)

Subject #: _____ GHSU Principal Investigator: Askiel Bruno, M
Randomization time: ___:___ on _____ Discontinue study Rx at: ___:___ on _____

Check glucose levels using finger stick testing every hour for the first 4 hours, then every 3 hours for the remaining treatment period **(03:00, 06:00, 09:00, 12:00, 15:00, 18:00, 21:00, & 00:00) and use information to adjust study infusion rate and insulin dose as noted**.

SHINE Study Drug in Normal Saline 100mL IV continuous: (contains Normal Saline 100mL, no additive)

Rate determined and adjusted by glucose check -- 4mL/hr for glucose of 80-179; 5mL/hr for glucose of ≥180mg/dL or higher When glucose check coincides with meal time, check glucose before patient starts eating.

- If glucose is < 80 mg/dL, administer NO saline and initiate hypoglycemia protocol below

Insulin regular (concentration: 100units/mL vial) subcutaneous up to four times a day -- ONLY at 06:00, 12:00, 18:00, & 24:00 -- dose to be determined by table below.

Insulin Regular SQ per Sliding Scale	
Glucose (mg/dL)	**Level 1:** Insulin regular dose (units)
>450	8
400-450	7
351-399	6
300-350	5
251-299	4
200-250	3
180-199	2
80-179	0
<80	**HYPOGLYCEMIA PROTOCOL:** **HOLD study infusion and insulin SQ injections** **Call Study Physician (at pager # 5746)** **Dextrose 50% 25mL IV slow push over 1-2 minutes, repeat PRN every 15 minutes until blood glucose ≥80 (then restart study infusion & SQ)**

IF inadequate glucose control (the latest two measurements are ≥ 180mg/dL): transition to Level 2 on the second day as determined by research coordinator or physician (instructions will be provided in separate order).

Stroke Hyperglycemic Insulin Network Effort (SHINE) Trial

DRUG ORDERS - Control Group Level 2 Protocol (Supplemental Insulin SQ)
IV saline with subcutaneous insulin injections (blood glucose range 80-179mg/dL)

Subject #: _____ GHSU Principal Investigator: Askiel Bruno, MD
Randomization time: ___:___ on _____
Discontinue study Rx at: ___:___ on _____

Increase insulin dosing to Level 2

Insulin regular (concentration: 100units/mL vial) subcutaneous up to four times a day -- ONLY at 06:00, 12:00, 18:00, & 24:00 -- dose to be determined by table below.

Insulin Regular SQ per Sliding Scale	
Glucose (mg/dL)	**Level 2:** Insulin regular dose (units)
>450	16
400-450	14
351-399	12
300-350	10
251-299	8
200-250	6
180-199	4
80-179	0
<80	**HYPOGLYCEMIA PROTOCOL:** **HOLD study infusion and insulin SQ injections** **Call Study Physician (at pager # 5746)** **Dextrose 50% 25mL IV** slow push over 1-2 minutes, repeat PRN every 15 minutes until blood glucose ≥80 (then restart study infusion & SQ)

IF inadequate control at Level 2 (the latest two measurements are ≥180mg/dL) add Level 3 insulin glargine on the third day as determined by research coordinator or physician (instructions will be provided separately).

Stroke Hyperglycemic Insulin Network Effort (SHINE) Trial

DRUG ORDERS - Control Group Level 3 Protocol – Basal + Supplemental Insulin
IV saline with subcutaneous insulin injections (blood glucose range 80-179mg/dL)

Subject #: _____ GHSU Principal Investigator: Askiel Bruno, MD
Randomization time: ___:___ on _____
Discontinue study Rx at: ___:___ on _____

ADD:

Insulin glargine (concentration: 100units/mL) _____ units subcutaneously at (time): _____

(dose to be determined by research coordinator or physician

= 40% of previous 24 hours total insulin dose)
To be administered at 48 hours of protocol treatment if indicated
(do not revert to typical HS schedule)

Stroke Hyperglycemic Insulin Network Effort (SHINE) Trial

DRUG ORDERS: **Intervention Group (blood glucose target range 80-130mg/dL)**
Intervention: IV Insulin with Subcutaneous Meal Insulin or Saline Injections

Subject #: _____ GHSU Principal Investigator: Askiel Bruno, MD
Randomization time: ___:___ on _____
Discontinue study Rx at: ___:___ on _____

Check glucose levels using finger stick as instructed by the computer decision support tool, the GlucoStabilizer.

SHINE Study Drug in Normal Saline 100mL IV (will contain insulin 100 units, 1 unit/mL)
rate determined and adjusted with each glucose check per GlucoStabilizer tool
Hypoglycemia Protocol (if glucose concentration is below 80mg/dL)

- **HOLD study insulin infusion and insulin SQ injections and the saline SQ injections**
- **Call Study Physician (at pager # 5746)**
- **Dextrose 50% (dose determined by GlucoStabilizer tool) IV** slow push over 1-2 minutes, recheck blood glucose every 15 minutes and repeat treatment as directed by the **GlucoStabilizer** decision support tool until blood glucose ≥ 80
- When blood glucose ≥ 80, restart study insulin infusion and insulin SQ or the saline SQ per protocol

Insulin aspart (Novolog) (concentration: 100units/10mL vial) subcutaneous: three times daily with meals (dose to be determined by carbohydrate count using GlucoStabilizer tool)

□ **If patient is eating:**

- Approximately 20 minutes after patient begins eating, estimate meal consumption.
  If none or nearly none,
  - DO NOT enter carbohydrate amount in GlucoStabilizer and do not give supplemental meal insulin SQ (See order below).
  If partial meal consumption:
  - Enter **30gm carbohydrate** in GlucoStabilizer and give SQ rapid acting insulin according to recommendation by GlucoStabilizer tool.
  If all or nearly all:
  - Enter **60gm carbohydrate** in GlucoStabilizer give SQ rapid acting insulin according to recommendation by GlucoStabilizer tool.

□ **If patient is not eating OR is receiving continuous tube feeds:**

Sodium Chloride 0.9% 0.05mL subcutaneous injection twice daily at 09:00 and 21:00

- Do NOT give meal insulin.