

# Table 1: Cardiac Surgery Intraoperative Glycemic Control Protocol

**\*\* Glucose must be checked every 30 minutes \*\***

## **Initiation of Protocol:**

- Diabetics start at 100 mg/dL
- Non-diabetics start at >140 mg/dL

## **Hypoglycemia:**

- If dextrose is administered, do not resume protocol until glucose >140 mg/dL and consider modifying

## **Transfer to ICU:**

- Insulin infusion may be reduced prior to transfer to the ICU

## **\* INSULIN Bolus / Infusion Protocol \***

Blood Glucose (mg/dL)	Insulin Bolus (U)* ½ Bolus Pre & Post-CPB	Insulin Infusion (U/h)
< 100	0	0
100 – 110	0	2
111 – 130	0	4
131 – 150	2	4
151 – 170	4	6
171 – 190	4	8
191 – 210	6	8
211 – 230	8	10
231 – 250	10	10
251 – 300	12	14
> 300	15	15

## **INSULIN TITRATION PROTOCOL (start after INITIATING insulin infusion)**

**\* If BG unchanged- repeat action on Infusion Protocol \***

Blood Glucose (mg/dL)	Action
< 60	<b>25 mL of D<sub>50</sub> I.V. AND STOP ALL INSULIN</b>
60 – 99	<ul style="list-style-type: none"> <li>• If BG ↓ by 30 mg/dL or less from last BG, stop infusion</li> <li>• If BG ↓ by greater than 30 mg/dL from last BG, 25 mL of D<sub>50</sub> I.V.</li> <li>• If BG ↑ from last BG, NO infusion and NO bolus</li> </ul>
100 – 150	<p><u>BG Less than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↓ by 30 mg/dL or less from last BG, ↓ infusion by 2 U/h and NO bolus</li> <li>• If BG ↓ by greater than 30 mg/dL from last BG, ↓ infusion by 4 U/h and NO bolus</li> </ul> <p><u>BG Greater than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↑ by 10 mg/dL or less from last BG, continue infusion with ½ bolus</li> <li>• If BG ↑ by greater than 10 mg/dL from last BG, continue per infusion protocol</li> </ul>
151 – 170	<p><u>BG Less than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↓ by 30 mg/dL or less from last BG, continue per infusion protocol, NO bolus</li> <li>• If BG ↓ by greater than 30 mg/dL, start ½ recommended infusion, NO bolus</li> </ul> <p><u>BG Greater than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↑ by 10 mg/dL or less from last BG, continue per infusion protocol with ½ bolus</li> <li>• If BG ↑ by greater than 10 mg/dL from last BG, continue per infusion protocol</li> </ul>
171 – 200	<p><u>BG Less than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↓ by 30 mg/dL or less from last BG, continue per infusion protocol with ½ bolus</li> <li>• If BG ↓ by greater than 30 mg/dL, continue per infusion protocol, NO bolus</li> </ul> <p><u>BG Greater than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↑ by 10 mg/dL or less from last BG, continue per infusion protocol with ½ bolus</li> <li>• If BG ↑ by greater than 10 mg/dL from last BG, continue per infusion protocol</li> </ul>
201 – 250	<p><u>BG Less than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↓ by 30 mg/dL or less from last BG, continue per infusion protocol with ½ bolus</li> <li>• If BG ↓ by greater than 30 mg/dL, continue per infusion protocol, NO bolus</li> </ul> <p><u>BG Greater than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↑ by 10 mg/dL or less from last BG, continue per infusion protocol with ½ bolus</li> <li>• If BG ↑ by greater than 10 mg/dL from last BG, continue per infusion protocol</li> </ul>
251 – 300	<p><u>BG Less than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↓ by 30 mg/dL or less from last BG, continue per infusion protocol with ½ bolus</li> <li>• If BG ↓ by greater than 30 mg/dL, continue per infusion protocol, NO bolus</li> </ul> <p><u>BG Greater than Prior</u></p> <ul style="list-style-type: none"> <li>• If BG ↑ by 10 mg/dL or less from last BG, continue per infusion protocol with ½ bolus</li> <li>• If BG ↑ by greater than 10 mg/dL from last BG, continue per infusion protocol</li> </ul>
> 300	Continue per infusion protocol

# References/External Regulations

1. Lazar et al. The Society of Thoracic Surgeons Practice Guideline Series: Blood Glucose Management During Adult Cardiac Surgery. *Annals of Thoracic Surgery*. 2009. Volume 87;2: 663-669.
2. Kohl et al. Evaluation and Enhancement of an Intraoperative Insulin Infusion Protocol via In-Silico Simulation. *IEEE International Conference on Healthcare Informatics (ICHI 2013)*. 2013. 307-316.