ICU Insulin Orders – IV Insulin Infusion Protocol

(Not intended for use in patients with type 1 diabetes, DKA or hyperglycemic hyperosmolar states)

1) Start an IV Insulin Flow Sheet and keep record at bedside

2) Start IV:
   _____ D5W at 100ml/h
   _____ D5W½NS at _______ ml/h
   _____ Other: _______________________________________________

3) Mix standard insulin drip:
   • 100 units Regular, aspart or glulisine insulin in 100 cc NS (1 unit insulin /cc) (Circle one)

4) Give initial insulin bolus:
   • Bolus units of I.V. insulin = Glucose ÷ 100 (e.g. if glucose = 240 mg/dL, give 2.5 units)

5) Start insulin infusion:
   • Initial infusion rate of insulin units/h = Glucose ÷ 100 (e.g. if glucose=240, begin 2.5 units/h)

6) Target range for glucose:
   • Low Target (circle one)    High Target (circle one)
     70  100  or _________ mg/dL  110  120  140  or _________ mg/dL

7) Monitor capillary (finger stick) glucose every hour:
   • Obtain lab glucose if finger stick BG is <40 or >400 mg/dL
   • Change frequency of glucose monitoring to: _____________________________

8) Adjust insulin infusion rate each hour after initial insulin bolus and infusion
   • Start on Algorithm 1 (No patient begins on Algorithm 3 or 4 without endocrine service authorization)
   • Start on Algorithm 2 (s/p CABG, transplant, glucocorticoids or >80 units/d insulin outpatient)
   • Move up or down on the same algorithm each hour if glucose remains outside the target range
   • Advance to the next algorithm (i.e. 1→2 etc.) if outside target range at highest infusion rate
   • Treat for hypoglycemia is glucose <60 mg/dL (see # 9)
   • Decrease 1 algorithm (i.e. 3→2 etc.) if glucose 60-69 mg/dL x 2 or decreases >60 mg/dL in 1 hour

<table>
<thead>
<tr>
<th>Algorithm 1</th>
<th>Algorithm 2</th>
<th>Algorithm 3</th>
<th>Algorithm 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG</td>
<td>units/h</td>
<td>BG</td>
<td>units/h</td>
</tr>
<tr>
<td>&lt;70</td>
<td>Off</td>
<td>&lt;70</td>
<td>Off</td>
</tr>
<tr>
<td>70–109</td>
<td>0.2</td>
<td>70–109</td>
<td>0.5</td>
</tr>
<tr>
<td>110–119</td>
<td>0.5</td>
<td>110–119</td>
<td>1</td>
</tr>
<tr>
<td>120–149</td>
<td>1</td>
<td>120–149</td>
<td>1.5</td>
</tr>
<tr>
<td>150–179</td>
<td>1.5</td>
<td>150–179</td>
<td>2</td>
</tr>
<tr>
<td>240–269</td>
<td>3</td>
<td>240–269</td>
<td>5</td>
</tr>
<tr>
<td>300–329</td>
<td>4</td>
<td>300–329</td>
<td>7</td>
</tr>
<tr>
<td>&gt;360</td>
<td>6</td>
<td>&gt;360</td>
<td>12</td>
</tr>
</tbody>
</table>

<60 = Hypoglycemia (See #9 for treatment)
9) Treat for hypoglycemia if glucose <60 mg/dL or _____________ mg/dL.
   - Glucose 40-59 mg/dL: Give ½ ampule (12.5 grams glucose) D50W by slow IV push over 30 seconds.
   - Glucose <40 mg/dL: Give 1 ampule D50W (25 grams glucose) by slow IV push over 30 seconds.
   - Decrease insulin drip rate by moving down 1 algorithm (i.e. from Algo 3 to Algo 2, etc.)
   - Recheck glucose in 15 minutes and repeat D50W, as above, if necessary.

10) Call Endocrine Service if:
    - Other physicians make changes to subcutaneous or IV insulin regimen
    - TPN, steroids or feedings are started, stopped or changed
    - Other physicians turn off the insulin drip for any reason
    - Patient does not respond to above pathways for glycemic control

11) Transition from IV insulin to SC insulin: Proceed to the Insulin Transition Pathway

Physician: ________________________________   Time:____________  Date:_____________