**Objective**

Stochastic TARgeted (STAR) is a model-based, adaptive and patient-specific accurate glycemic control (AGC) framework, customizable to clinically specified glycemic targets, control approaches and clinical resources. This work compares two STAR pilot trials with different control approaches (insulin-only vs. insulin + nutrition) to results of the model-derived SPRINT.

**Method**

- **STAR framework:**
  - Measured blood glucose (BG)
  - Forecasted BG (intra-patient variability)

- **Pilot trial of STAR in New-Zealand and in Belgium (SPRINT trial = reference)**

<table>
<thead>
<tr>
<th>Location</th>
<th>STAR New-Zealand</th>
<th>STAR Belgium</th>
<th>SPRINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG target in mg/dL</td>
<td>80-120</td>
<td>100-140</td>
<td>72-110</td>
</tr>
<tr>
<td>Controller interventions</td>
<td>Insulin + nutrition</td>
<td>Insulin-only</td>
<td>Insulin + nutrition</td>
</tr>
<tr>
<td>Control length</td>
<td>Entire patient stay</td>
<td>24 hours</td>
<td>/</td>
</tr>
<tr>
<td>Measurement frequency</td>
<td>1-3 hourly</td>
<td>1-3 hourly</td>
<td>1-2 hourly</td>
</tr>
</tbody>
</table>

**Results**

- **Belgian results:**
  - Less % BG in bands, due to 24-hours trial length
  - BG levels are skewed slightly higher (given the target band), due to short trial length
  - Less moderate hypoglycemia (BG < 72 mg/dL), due to higher target band

- No severe hypoglycemia
- Tightly distributed BG levels (IQRs < 35 mg/dL)

**Conclusion**

Pilot clinical trials demonstrate that STAR provides *flexible and customizable accurate glycemic control* to desired target levels, and compares well to a proven model-derived AGC protocol.

**Contact**

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