

Pilot Trials of STAR Target to Range Glycemic Control

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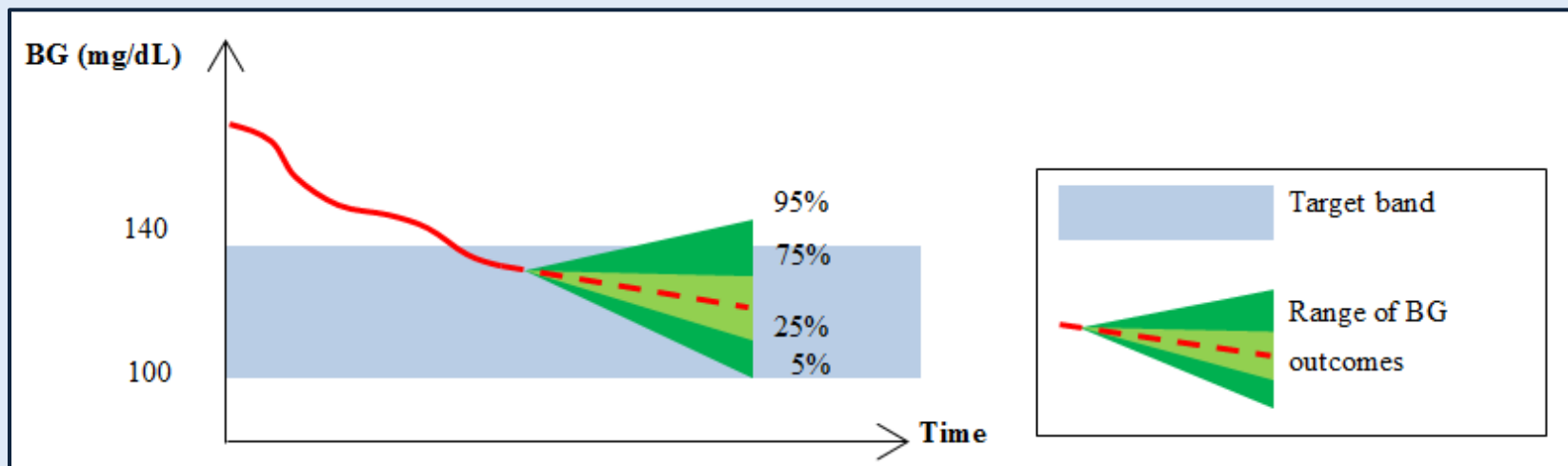


INTRODUCTION - OBJECTIVE

- **Stress-induced hyperglycemia is often experienced in critically ill patients**
- **Tight Glycemic Control (TGC) can significantly reduce the rate of negative outcomes associated with poor control BUT risks of hypoglycemia**
- **STAR: TGC protocol**
 - **Flexible**
 - **Model-based**
 - **Patient variability**
 - **Maximum 5% risk of blood glucose (BG) < 90 mg/dL**
- **Clinical trial objectives:**
 - **Safety**
 - **Efficacy**
 - **Clinical workload minimization**

METHOD

- Clinical trial
 - 9 patients
 - 24-hour long
 - 2-3 hourly interventions (BG + insulin)
 - Target band: 100-140 mg/dL



METHOD

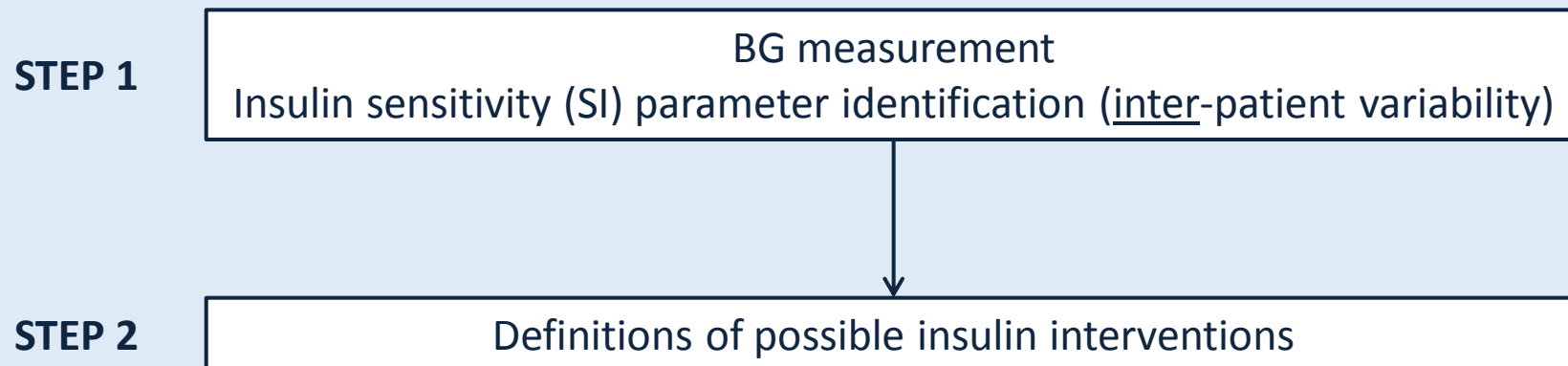
- **STAR interventions: 3 phases**

STEP 1

BG measurement
Insulin sensitivity (SI) parameter identification (inter-patient variability)

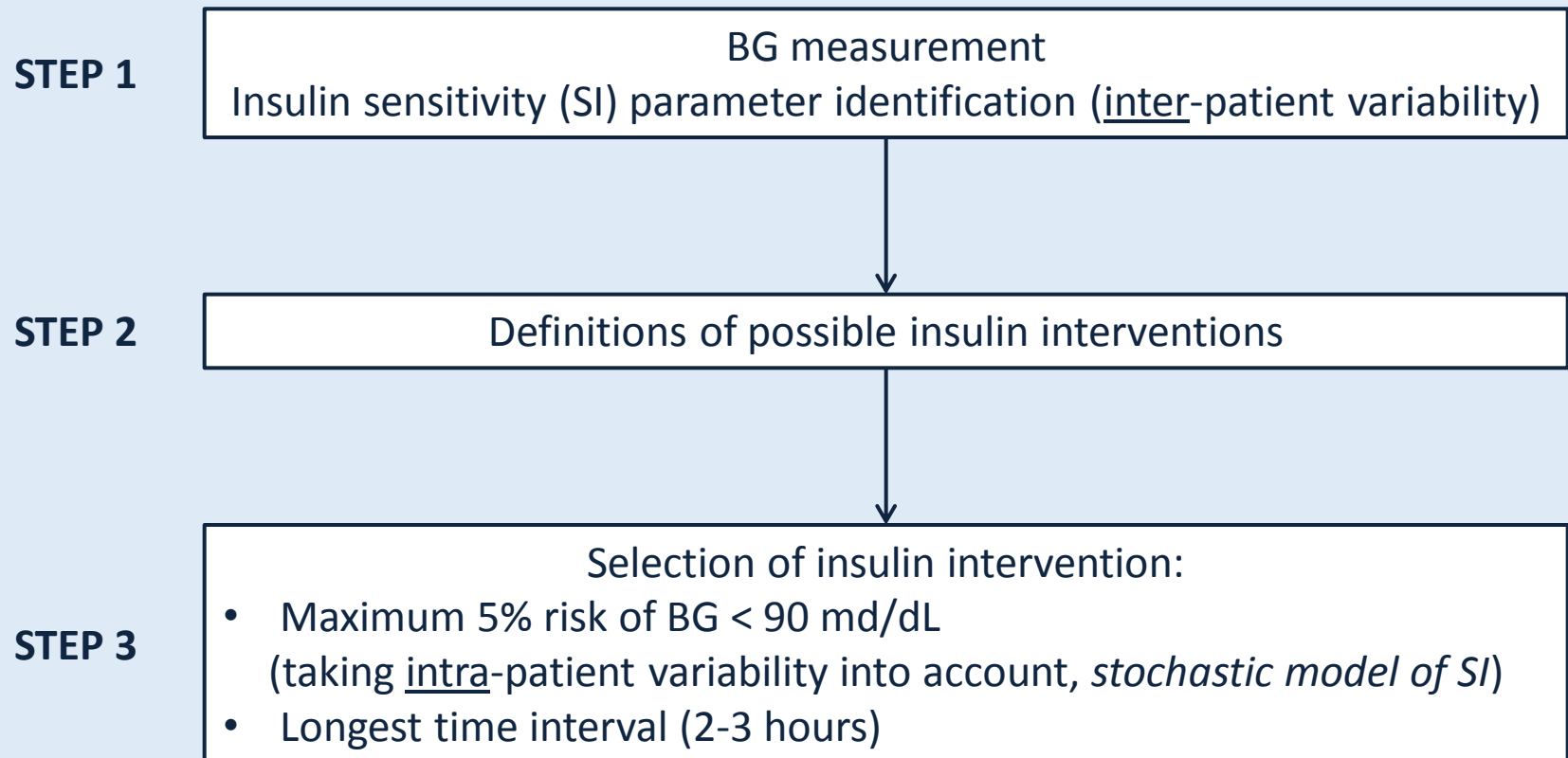
METHOD

- **STAR interventions: 3 phases**



METHOD

○ STAR interventions: 3 phases



RESULTS

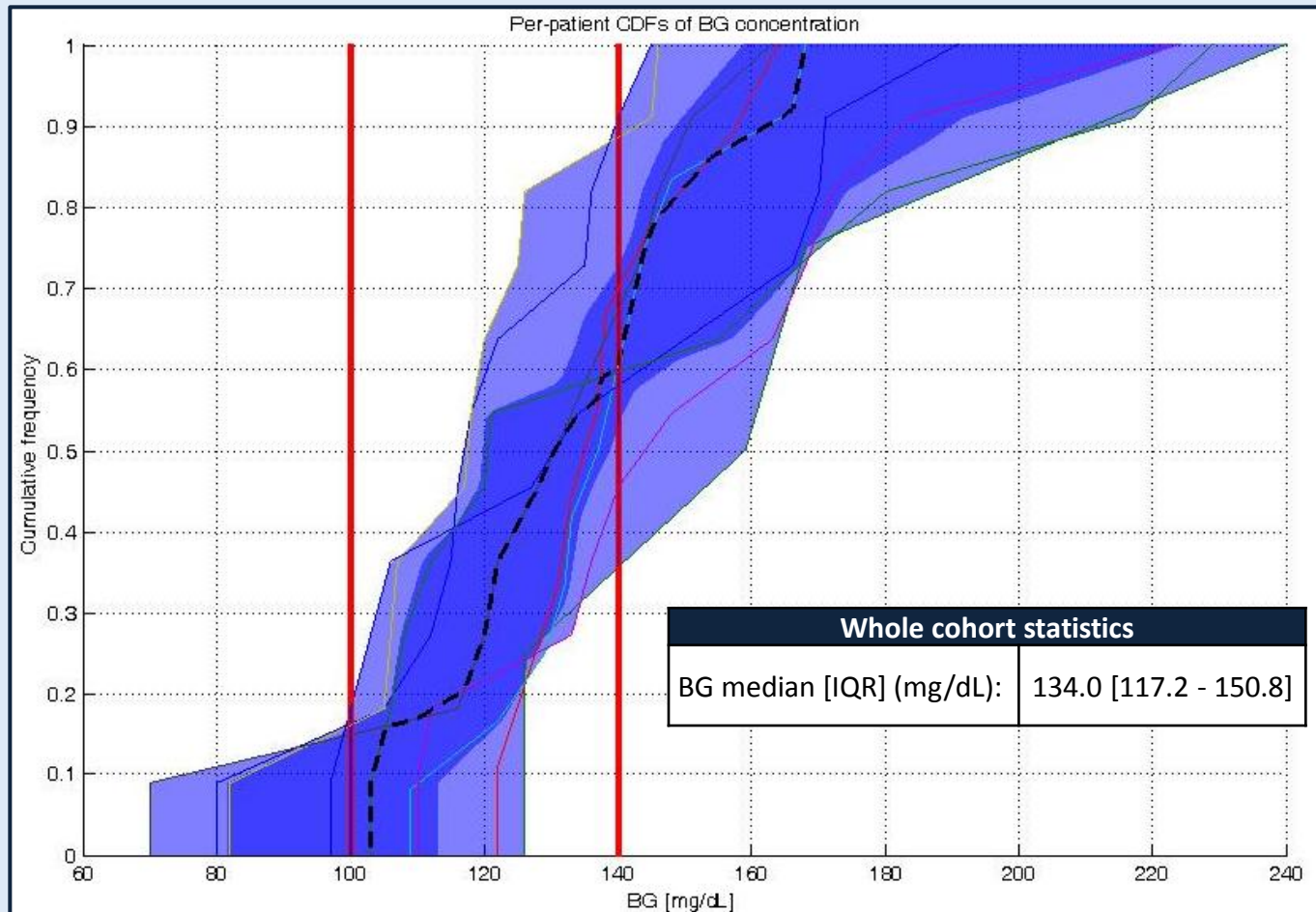
Whole cohort statistics		Per-patient statistics (presented as median [IQR])	
Number of patients:	9	Initial BG (mg/dL):	155.0 [126.5 - 165.0]
Total hours:	194 hours	Hours of control:	23.0 [23.0 - 24.0]
Number of BG measurements:	91	Number of BG measurements:	11.0 [10.5 - 11.0]
BG median [IQR] (mg/dL):	134.0 [117.2 - 150.8]	BG median (mg/dL):	137.0 [120.3 - 142.4]
% BG < 100 mg/dL	4.4	Time to < 125 mg/dL (hours):	6.6 [1.9 - 9.0]
% BG within 100-140 mg/dL	54.9	% patients to < 125 mg/dL:	88.9
% BG ≥ 140 mg/dL	40.7	Time to < 140 mg/dL (hours):	1.8 [0.0 - 2.6]
% BG < 40 mg/dL	0.0	% patients to < 140 mg/dL:	100
Number of patients < 40 mg/dL	0	Median insulin rate (U/hour):	1.4 [0.2 - 2.6]
Median insulin rate [IQR] (U/hour):	2.0 [1.0 - 2.5]	Max insulin rate (U/hour):	3.0 [2.9 - 4.0]
Median glucose rate [IQR] (g/hour):	0.0 [0.0 - 5.4]	Median glucose rate (g/hour):	0.0 [0.0 - 4.7]

RESULTS

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Control group data

RESULTS



CONCLUSION

STAR assessment

→ Safety

- No BG < 40 mg/dL

→ Efficacy

- Inter-patient variability
- Intra-patient variability
- 54.9% BG within 100-140 mg/dL

→ Clinical workload minimization

- 10-11 BG measurements/day

CONCLUSION

STAR protocol provides tight safe and effective control when adapted to clinical setting.