

Pharmacist Impact on Inpatient Hypoglycemic Events

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Background

- Hypoglycemia has been linked to increased hospital length of stay (LOS), morbidity, and mortality and each day with hypoglycemia can increase LOS by 2.5 days. ^{1,2}
- Many factors contribute to hypoglycemia in the hospital setting, but episodes are commonly iatrogenic and due to insulin misuse. ³
- The Society of Hospital Medicine's target for percent of patient days with hypoglycemia is less than 4%. The percent of patient days with hypoglycemia at St. Joseph's Medical Center (SJMC) during the first quarter of the fiscal year 2020 was 4.6%.
- Pharmacist driven and targeted interventions such as proactive surveillance of abnormal point of care testing (POCT) can reduce hypoglycemia events in targeted populations to improve patient safety and care. ^{1,4}

Objectives

To evaluate the impact of pharmacist-led interventions on hypoglycemic events in hospitalized patients.

Primary Outcome

- Percent of patient days with hypoglycemia (POCT < 70 mg/dL)

Secondary Outcomes

- Percent of patients with recurrent hypoglycemic events
- Mean time to hypoglycemia resolution

Methodology and Interventions

Figure 1 Patient Selection

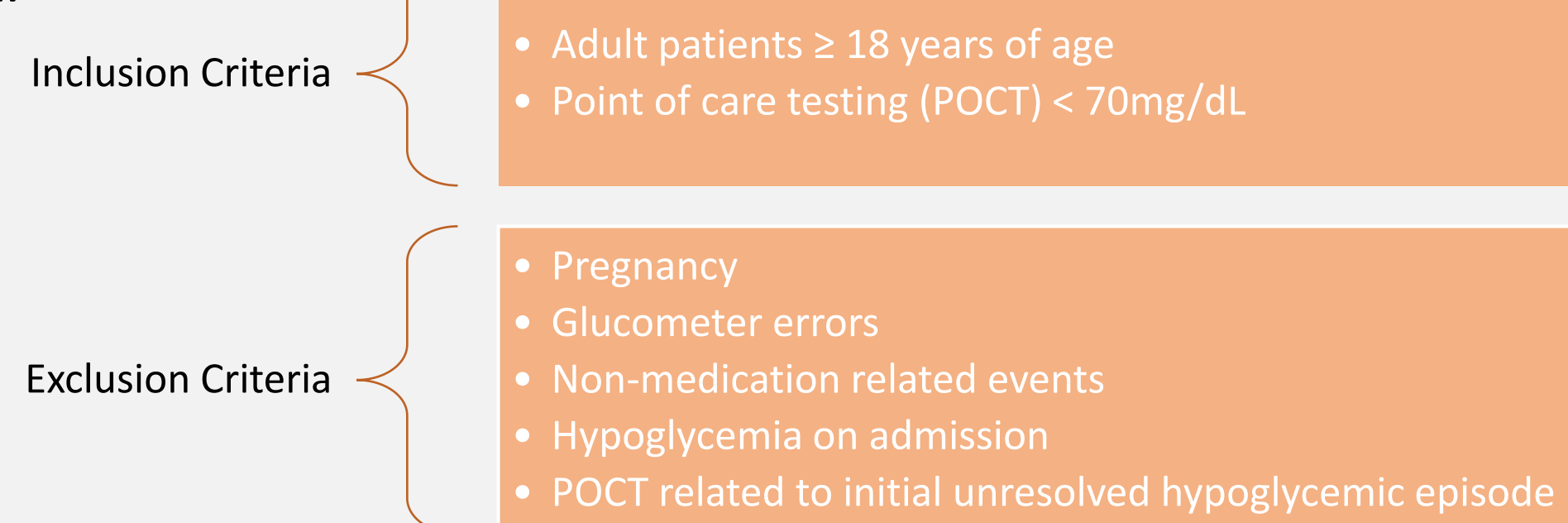
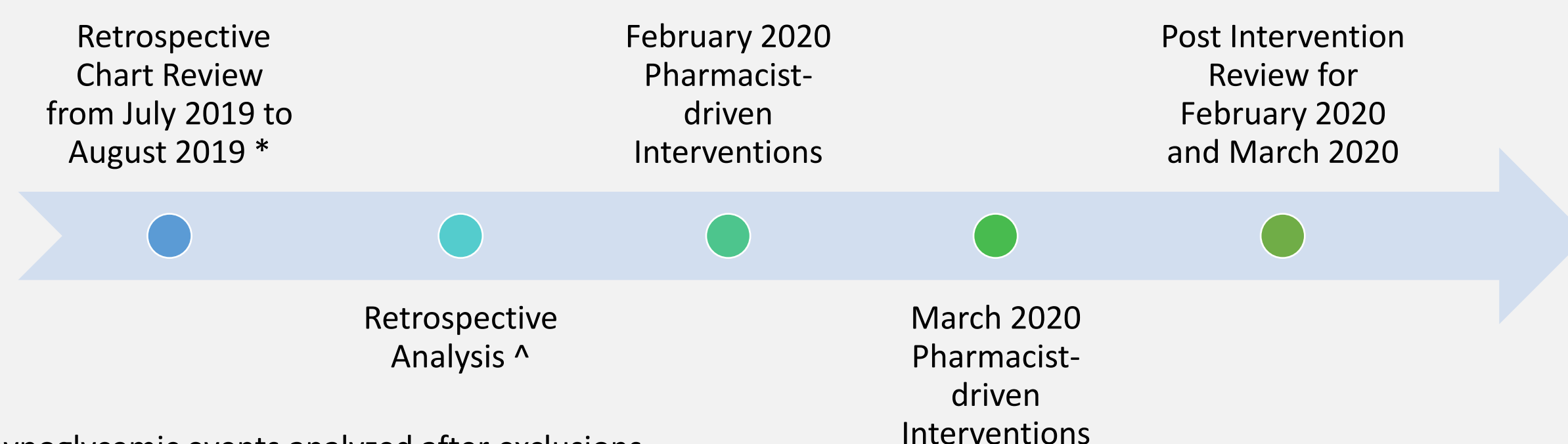


Figure 2: Demographics

Baseline Characteristics	Pre-intervention (July 2019 – Aug 2019) N = 192	Post-Intervention (Feb – March 2020) N = 174	P-value
Age	62 (± 1.19) years	60 (± 1.34) years	0.718
Female	91 (47.4%)	79 (45.4%)	0.703
A1c	8.2 (± 0.19) %	8.56 (± 0.19) %	0.144
CKD Stage			0.001
1	1 (0.5%)	0 (0%)	
2	1 (0.5%)	1 (0.6%)	
3	21 (10.9%)	24 (13.8%)	
4	15 (7.8%)	35 (9.6%)	
5	33 (17.2%)	48 (27.8%)	
CKD – No stage documented	23 (12%)	11 (6.3%)	
No CKD	98 (51%)	70 (40.2%)	

Methodology and Interventions (cont.)

Figure 3: Research Timeline



*346 hypoglycemic events analyzed after exclusions

^Risk Factors and Trends observed included: history of hypoglycemia within the last 3 months, nonadherence to hypoglycemia protocol, and inconsistent meal documentation

Figure 4: Pharmacist Driven Interventions

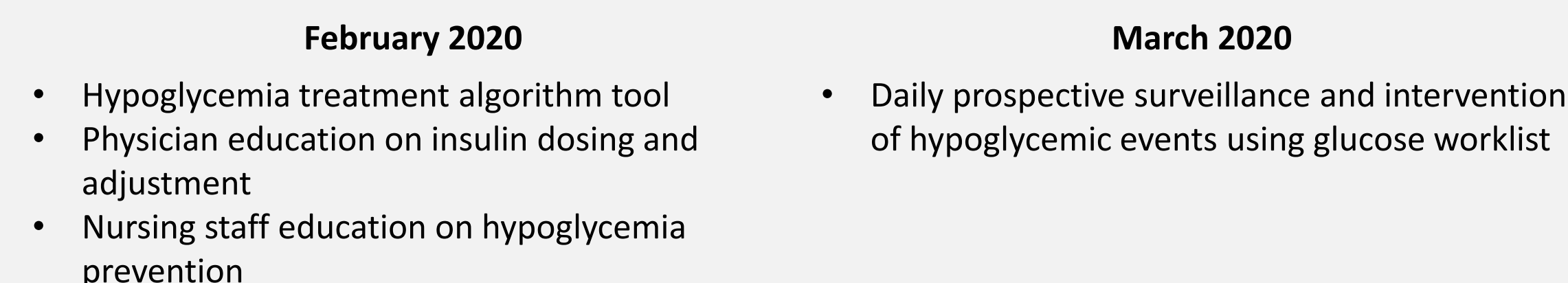
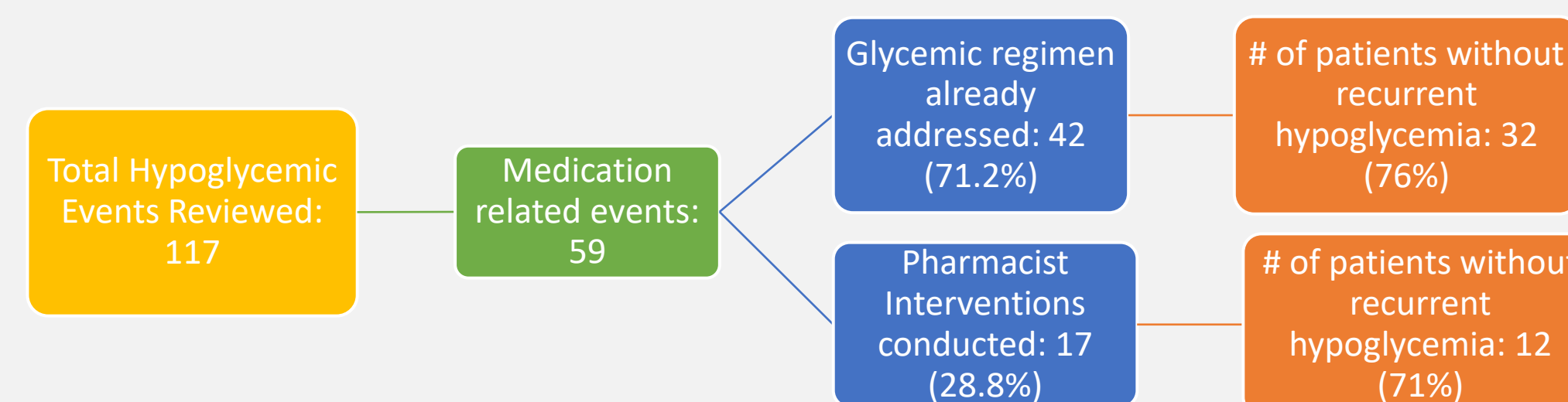


Figure 5: Prospective Surveillance of Hypoglycemia (March 2020)



Results

Figure 6: Primary Outcomes

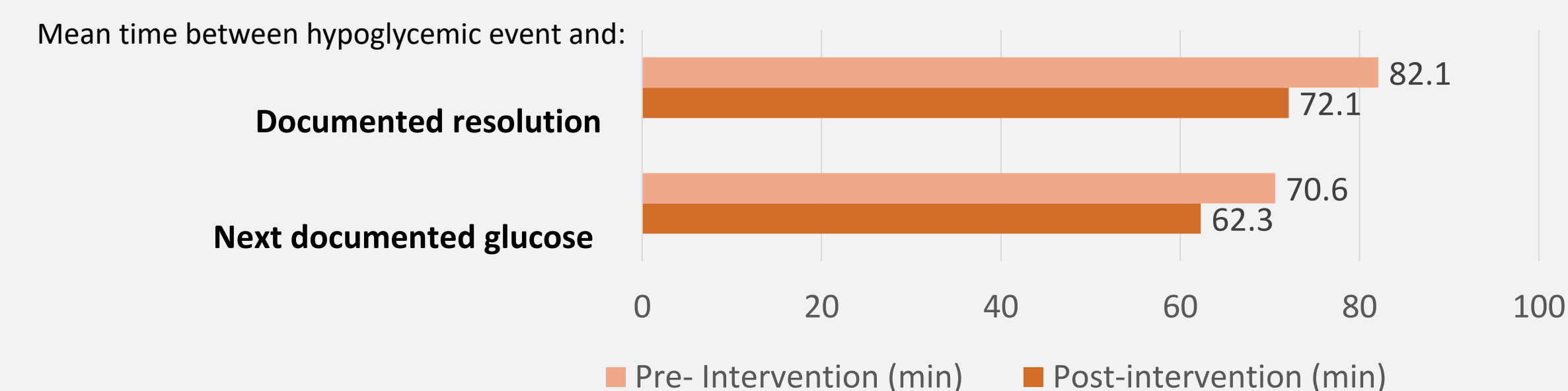
	Pre-Intervention (July 2019- Aug 2019) Patient Days = 10,807	Post-Intervention (Feb 2020-March 2020) Patient Days = 10,157
Percent of patient days with hypoglycemia	4.2%	4.3%

Results (cont.)

Figure 7: Secondary Outcome – Recurrence of Hypoglycemia

	Pre-Intervention (July 2019- Aug 2019) N = 194	Post-Intervention (Feb 2020-March 2020) N = 174	p value (Chi Square)
Patients with recurrent hypoglycemic episodes	77 (40.1%)	47 (27%)	0.009

Figure 8: Secondary Outcome – Hypoglycemia Management



Limitations

- Prospective hypoglycemia surveillance started beginning of March
- Inconsistent nursing documentation
- More patients with poor renal function in post intervention group
- Subjective nature of determining hypoglycemic causes
- Short study period

Conclusions

Pharmacist interventions significantly decreased hypoglycemia recurrence. The mean time to hypoglycemia resolution was lower but the meeting goal time of rechecking blood glucose within 30 minutes of hypoglycemia was not met.

Future Directions

- Further education on hypoglycemia prevention and management is necessary to reduce hypoglycemic events.
- Evaluate the value of implementing a glucose management worklist into daily pharmacy clinical activities

References

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Disclosure Statement

Primary Investigator: Nicole Kong, PharmD

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IRB Status: Exempt

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