Reducing Golden Hour Admission Times for Extremely Preterm Infants: An Improvement Science Initiative



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Introduction

Extremely preterm infants (<28 weeks) are at high risk for morbidity, and rapid, coordinated stabilization during the Golden Hour (first 60 minutes) is critical. At UVA NICU, prolonged admission times (>60 min) prompted a QI initiative to reduce birth-to-incubator closure time by 25% within one year.

Methods

Using the Institute for Healthcare Improvement model, a multidisciplinary team mapped the Golden Hour process and identified key delays, including umbilical line placement and x-ray confirmation. Two PDSA cycles targeted team awareness (via an admission timer and coordinator) and streamlined line placement using time-based cues and earlier isolette closure. Outcomes were analyzed using SPC charts, with balancing measures including temperature, glucose, and severe IVH rates.

Results

Seventy-four infants <28 weeks GA were included. Average admission time decreased by 50% (117 → 58 minutes), with sustained improvement and reduced variability. Balancing measures showed no change in admission temperature, glucose, or severe IVH rates.

Discussion

Designating an admission leader, adding visual and auditory cues, and standardizing line placement significantly improved efficiency without compromising safety. Success was driven by strong multidisciplinary engagement and shared team ownership. Redefining admission completion at isolette closure improved thermoregulation and reflects a meaningful clinical process change.

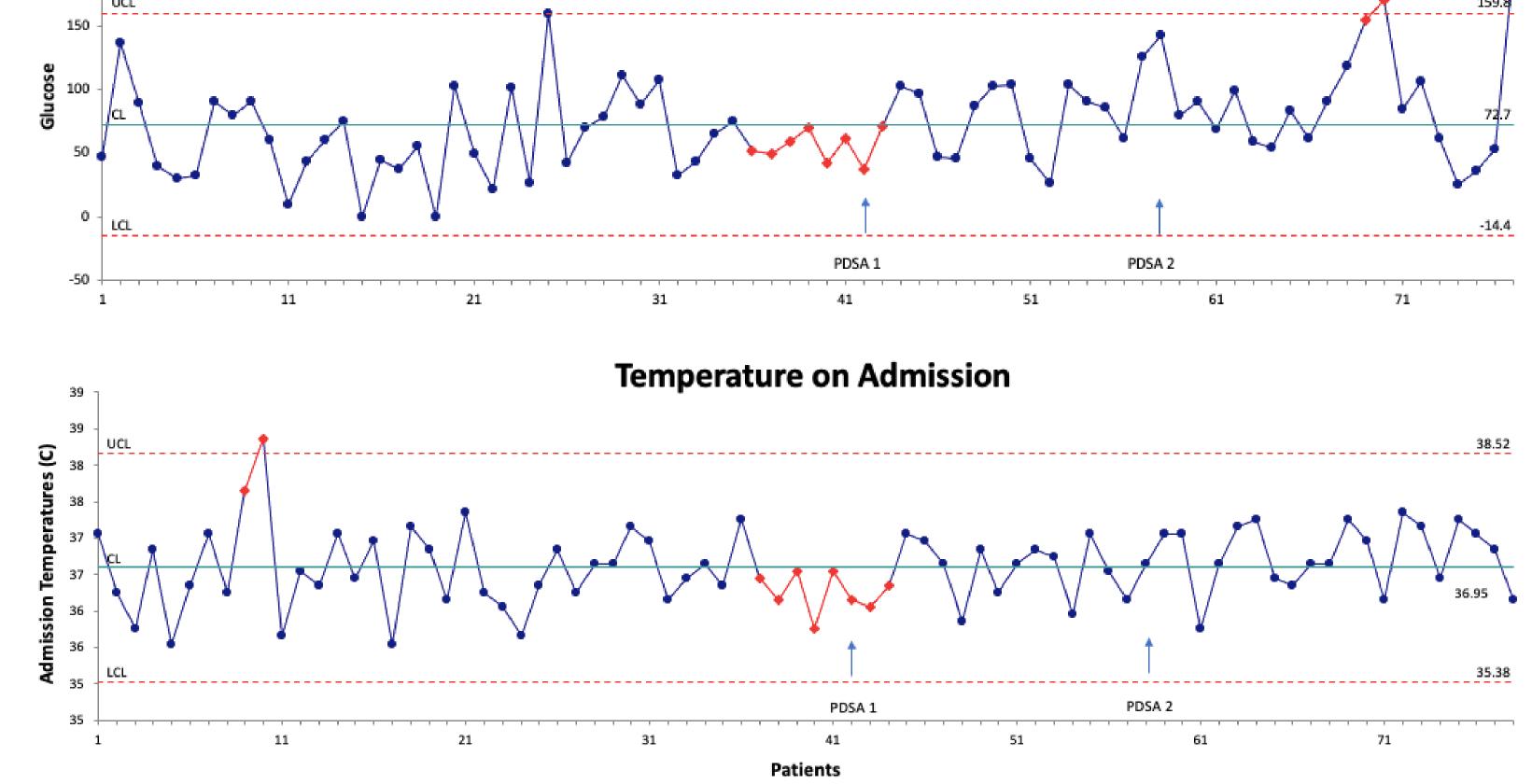
Conclusion

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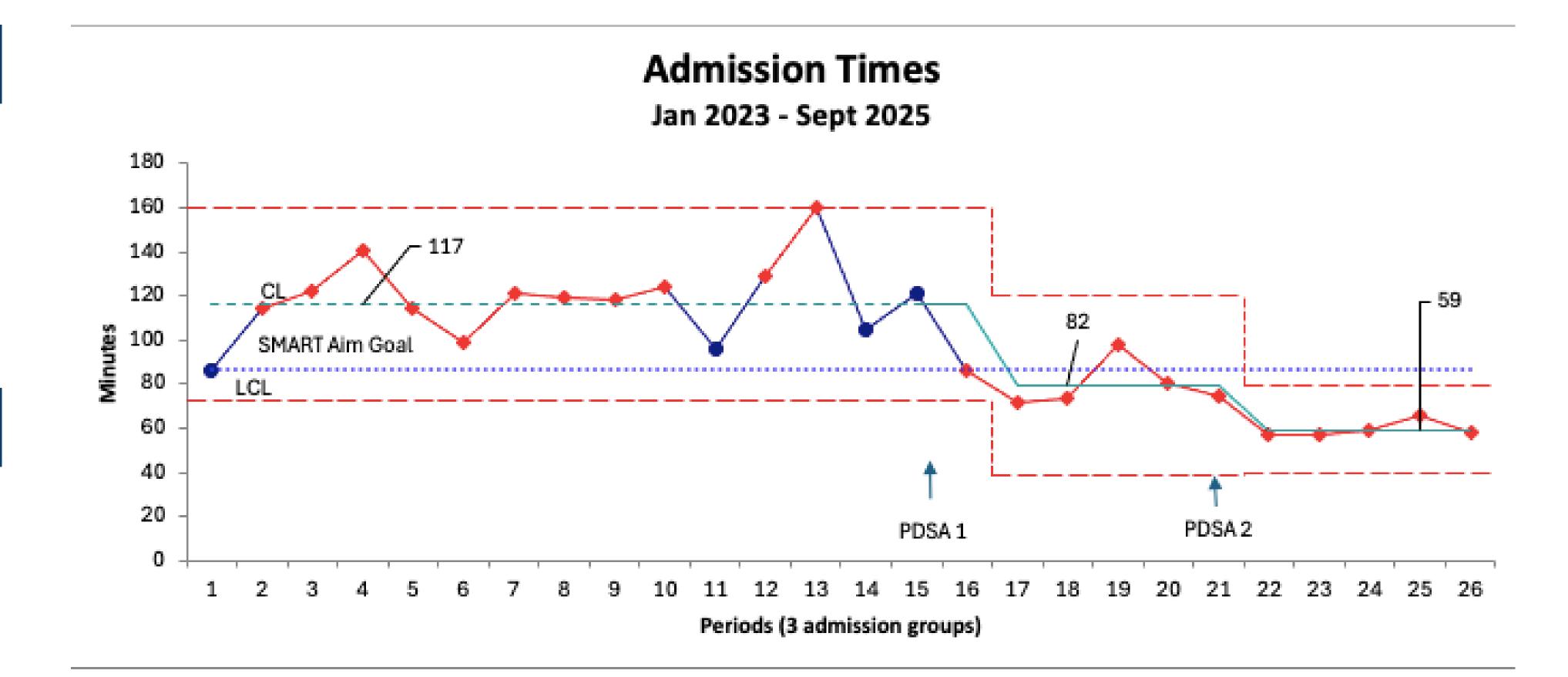
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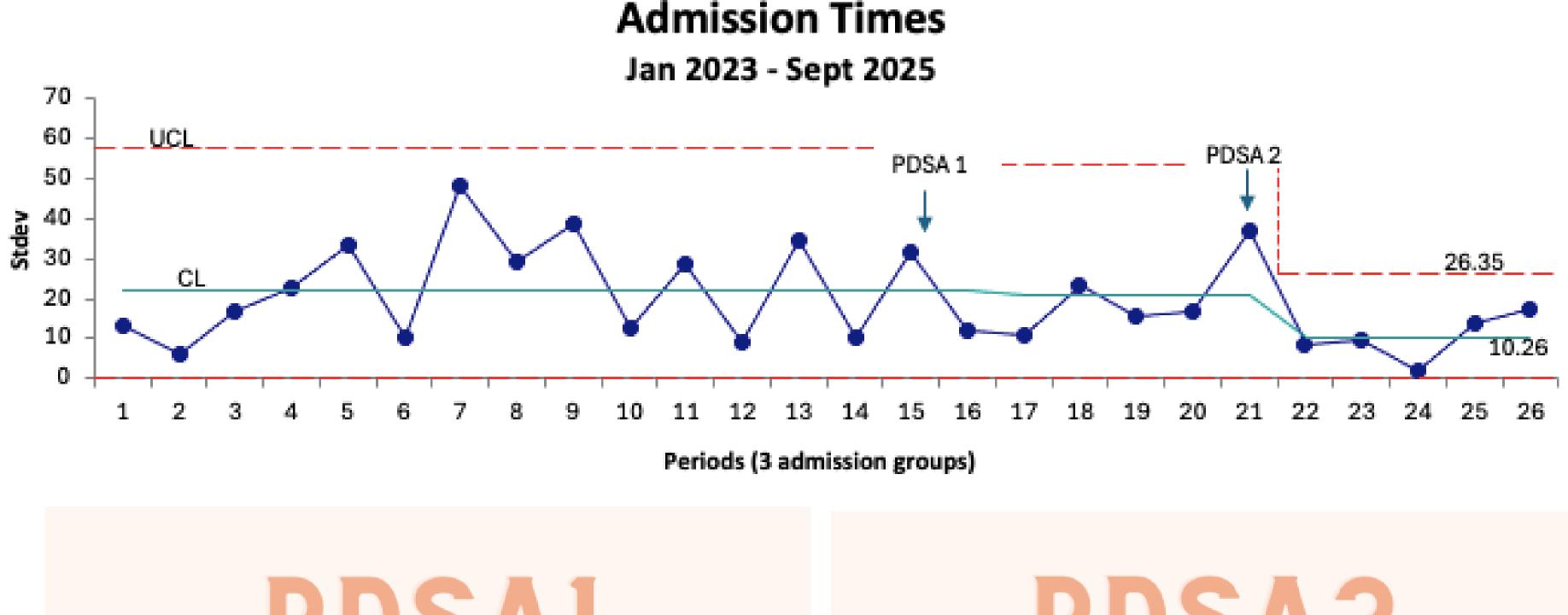
Structured QI interventions achieved and sustained a 50% reduction in Golden Hour admission time for extremely preterm infants. Future cycles will integrate point-of-care ultrasound and role-specific checklists to further streamline care and support replication across NICUs.

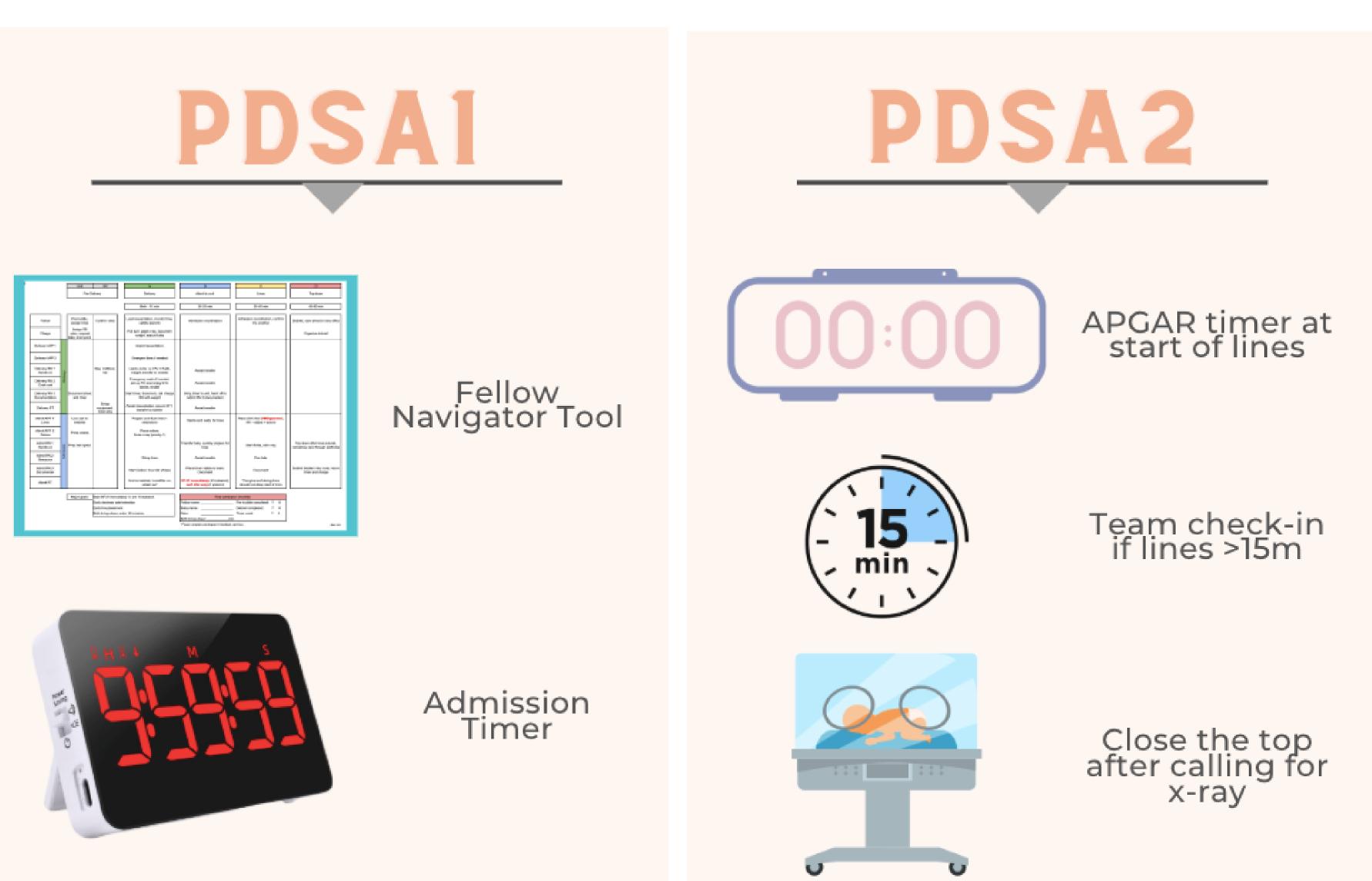
	Measure	Baseline (n=74)	PDSA 1 (n=15)	PDSA 2 (n=17)
Process	Gestational age (weeks)	25.6 (± 1.5)	26.0 (± 1.9)	25.4 (± 1.3)
	Birth weight (grams)	767 (± 215)	817 (± 213)	785 (± 207)
	Total admission time (min)	117 (± 26)	82 (± 23) *	59 (± 12) **
	Time to Glucose (min)	68 (± 24)	66 (± 24)	49 (± 15)
	Time to IV Dextrose (min)	49 (± 30)	38 (± 28)	38 (± 31)
	Time to X-Ray (min)	43 (± 16)	39 (± 13)	43 (± 18)
	Time to Surfactant (min)	51 (± 18)	47 (± 13)	56 (± 34)
balancing	Temperature (°C)	36.9 (± 0.6)	36.9 (± 0.4)	37.1 (± 0.4)
	Glucose (mg/dL)	66 (± 34)	77 (± 22)	92 (± 45)
	Severe IVH (Grade ≥3), %	0.2 (±0.4)	0.3 (± 0.5)	0.1 (±0.3)



Glucose on Admission







Key Driver Diagram Primary Drivers Secondary Drivers Interventions Conduct multidisciplinary Golden Hour education sessions Education and Disseminate new GH data monthly to staff empowerment for consistent practice Team engagement Perform simulated GH and ownership admissions to Identify barriers Work with OB on improving time to bands in DR. Review necessary tasks Decrease the average with each process length of admission for Create a more efficient process owner to reduce waste. Waste reduction infants born less than with radiology for XR. and process 28 weeks gestation to efficiency the UVA NICU by 25% Implement a 15-minute auditory before Jan 1, 2026. timer and team check-in step during line placement POCUS Train providers on use of POCUS for umbilical catheter Technology location/placement. innovation and Admission lead workflow Designate a fellow as the admission lead using the standardized flowsheet Real-time feedback mechanisms Implement large admisison timer available during all stages of admission

