

Reducing LOS for inpatient pediatric sepsis workup through improved HSV PCR turn around time



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INTRODUCTION

Herpes simplex virus (HSV) encephalitis/ meningitis is a rare but serious disease in the pediatric population. A total of 30% of neonatal HSV is localized to the CNS and often presents with nondescript symptoms including seizures (focal or generalized), lethargy, irritability, tremors, poor feeding, and temperature instability. Current standard of care requires hospitalization and IV antiviral administration (Acyclovir) until HSV is ruled out. Detection of HSV is performed by polymerase chain reaction (PCR) for specimens from spinal fluid, serum, skin, eye, and mouth.

At UF Health, the frequency of HSV PCR tests for in-patient was previously 3 times per week on M,W,F. In August 2016, the frequency of tests was increased to 5 times per week by in-patient laboratory staff on M, W, F, Sa, Su. This increased availability of lab testing demonstrated a reduction in lab turn around time (TAT) and hospital length of stay (LOS) for HSV (-) pediatric patients.

METHODS

	Pre-Intervention (Dec 15 – July 16)	Post- Intervention (Aug 16 – April 17)
Patients 0 - 17 yo	159	174
Patients 0 - 17 yo, LOS < 8 days	88	111
Patients < 1 yo, LOS < 8 days	51	75

Patients Analyzed

Turn around time: Specimen received at UF Health lab → HSV PCR resulted
Length of stay: Admission date and time → Discharge date and time

AIMS

1. Reduce HSV PCR turn around time to <24 hours within 1 year, particularly on weekend days
2. Reduce length of stay for pediatric sepsis workup by 12 hours within 1 year

HSV RULEOUT TREATMENT

Infant presents with fever and other signs and symptoms for suspected HSV infection

- HSV PCR
- CSF cell count, protein, glucose
- CBC, CRP, LFTs
- Blood, urine, CSF cultures

Infant hospitalized pending lab results

- Administer IV Acyclovir Q8 hr



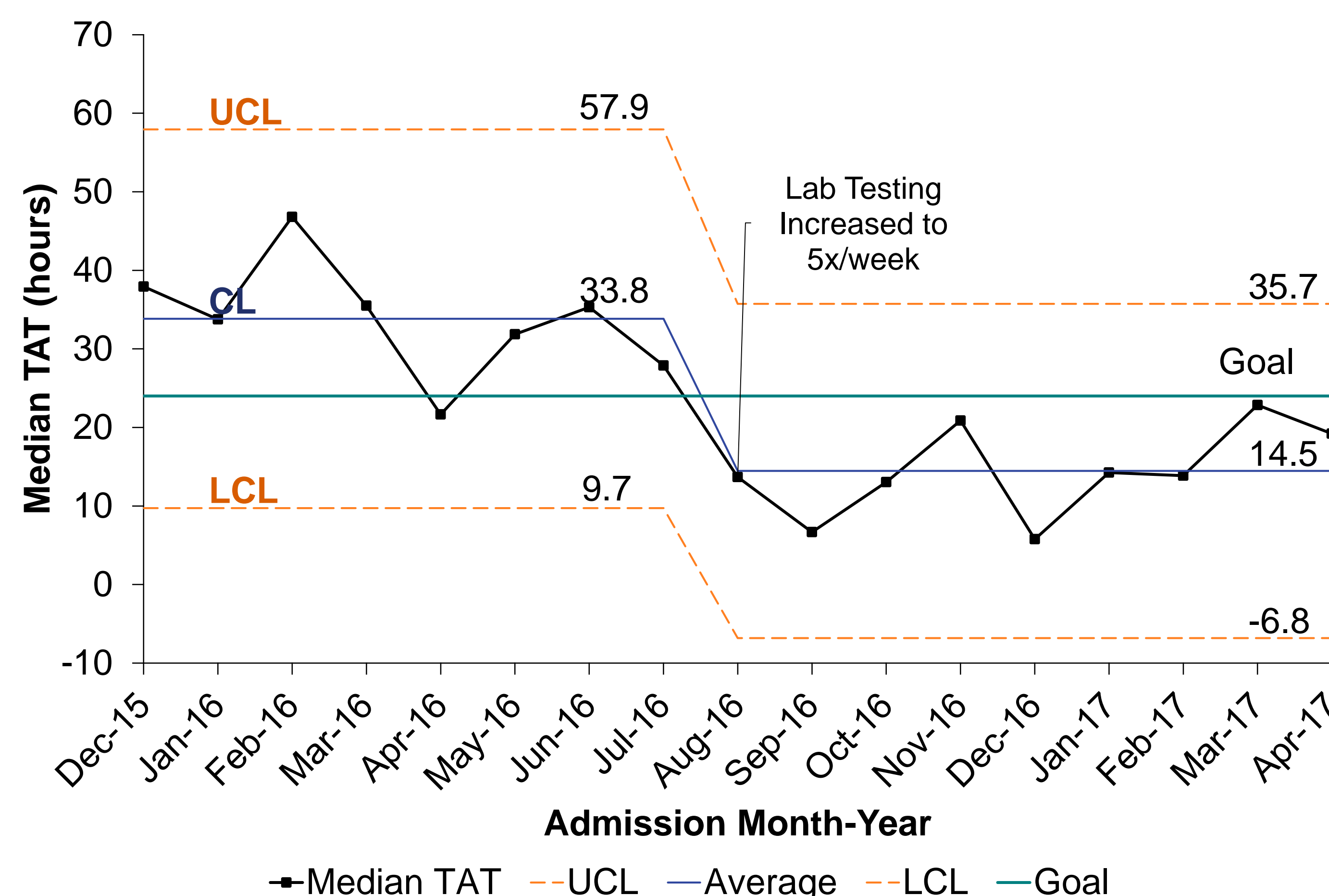
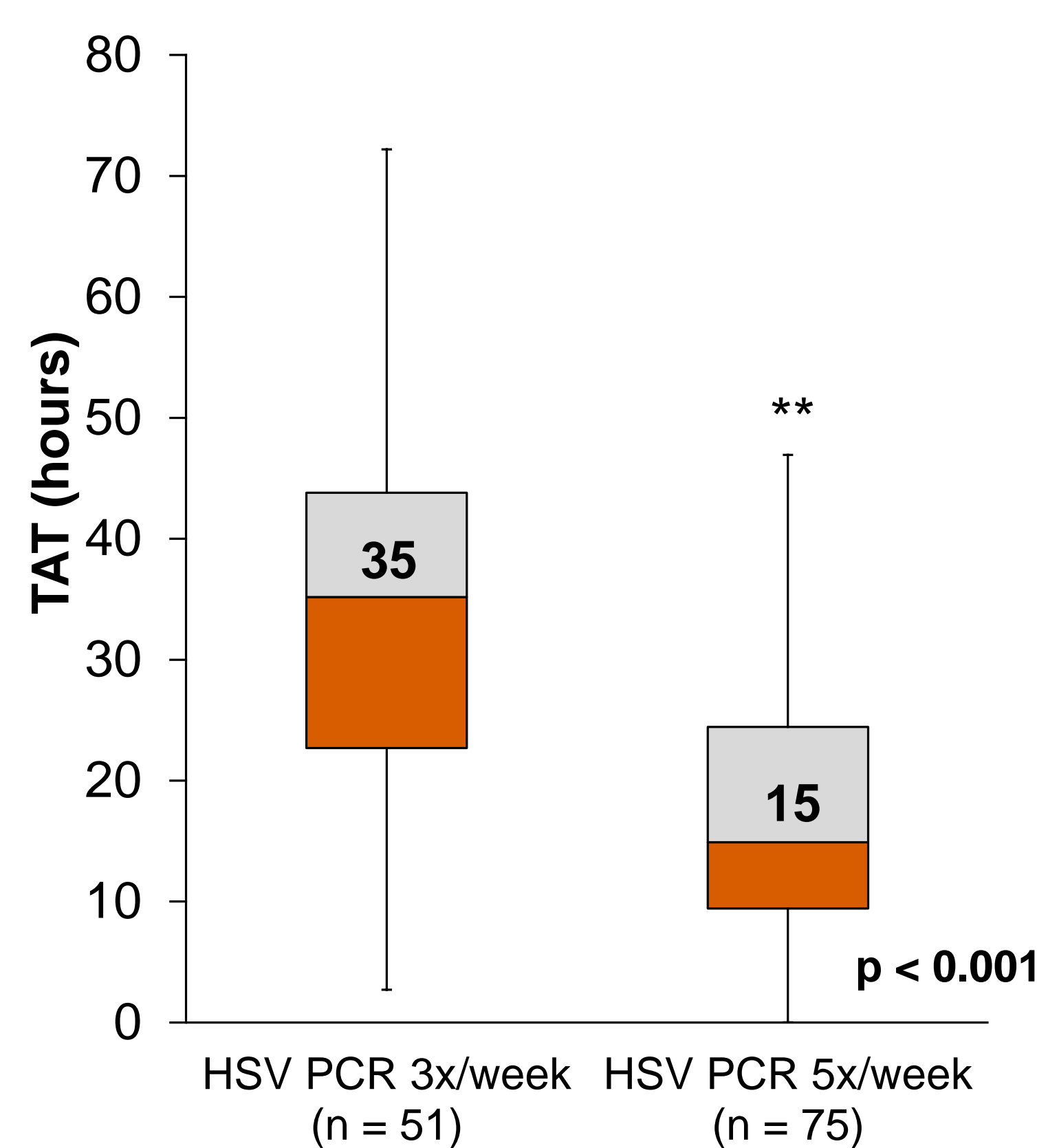
HSV PCR results obtained

- HSV Consider discharge

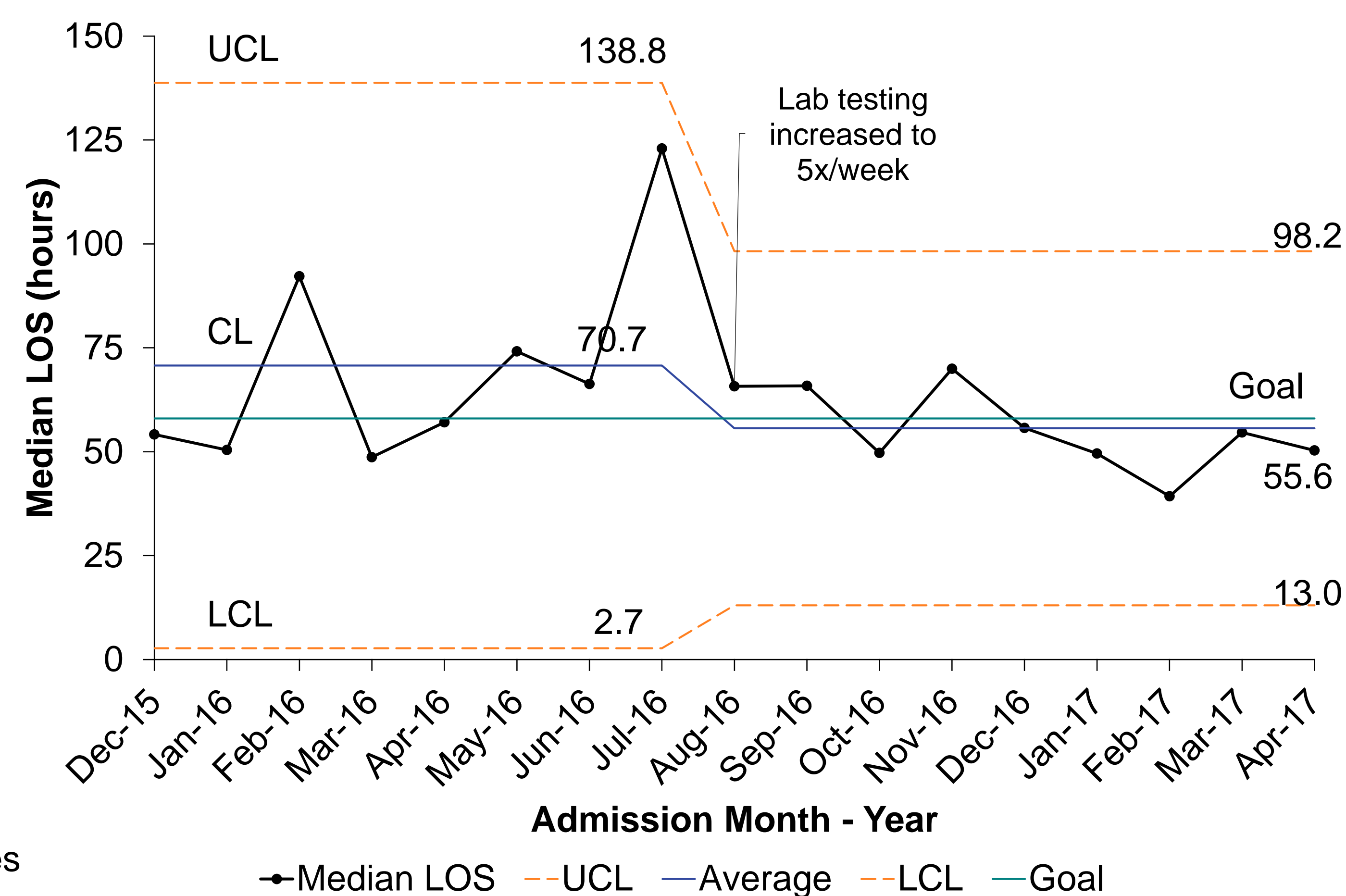
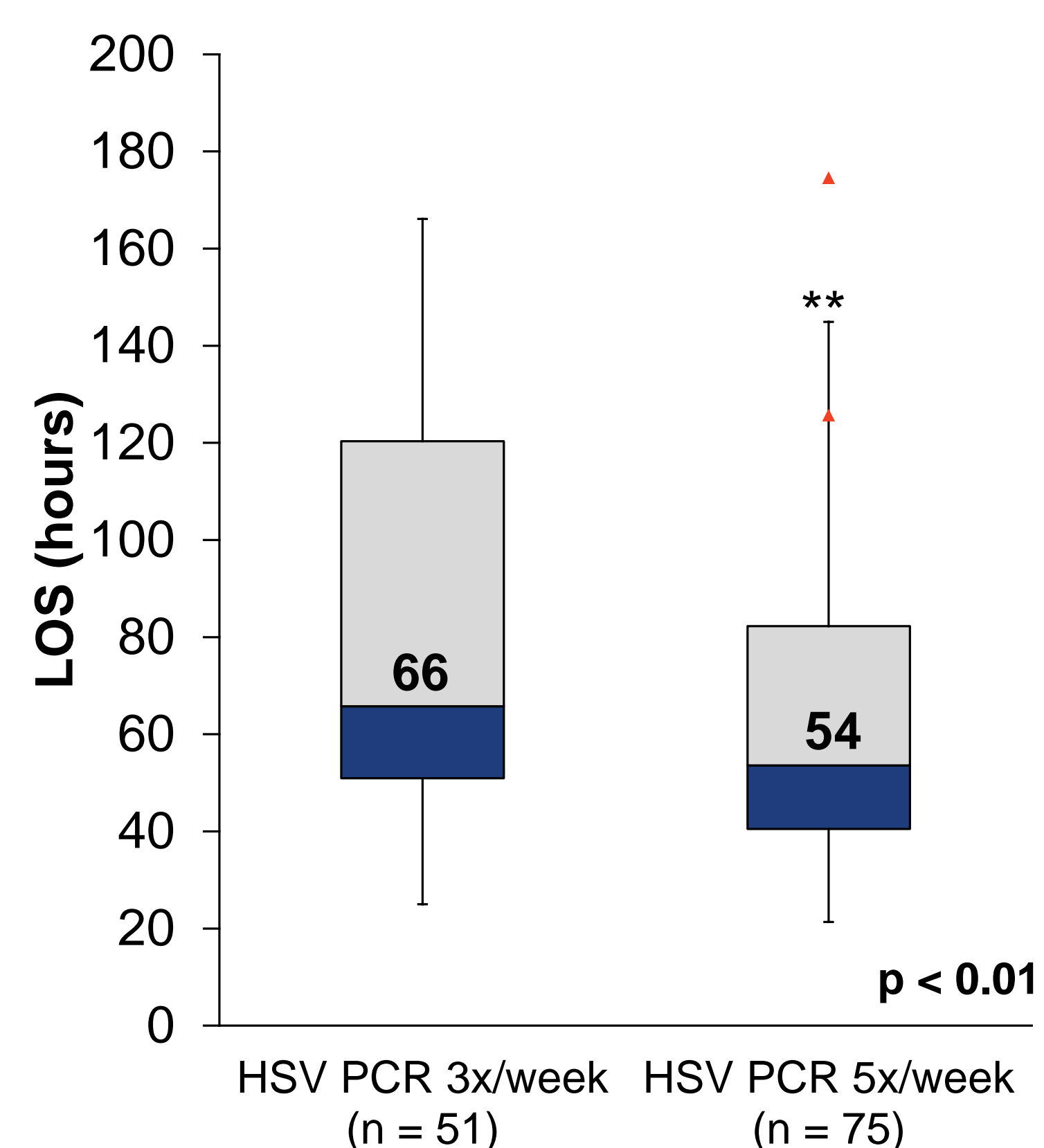
+ HSV Continue IV Acyclovir for 21 days

RESULTS

HSV PCR Turn Around Time

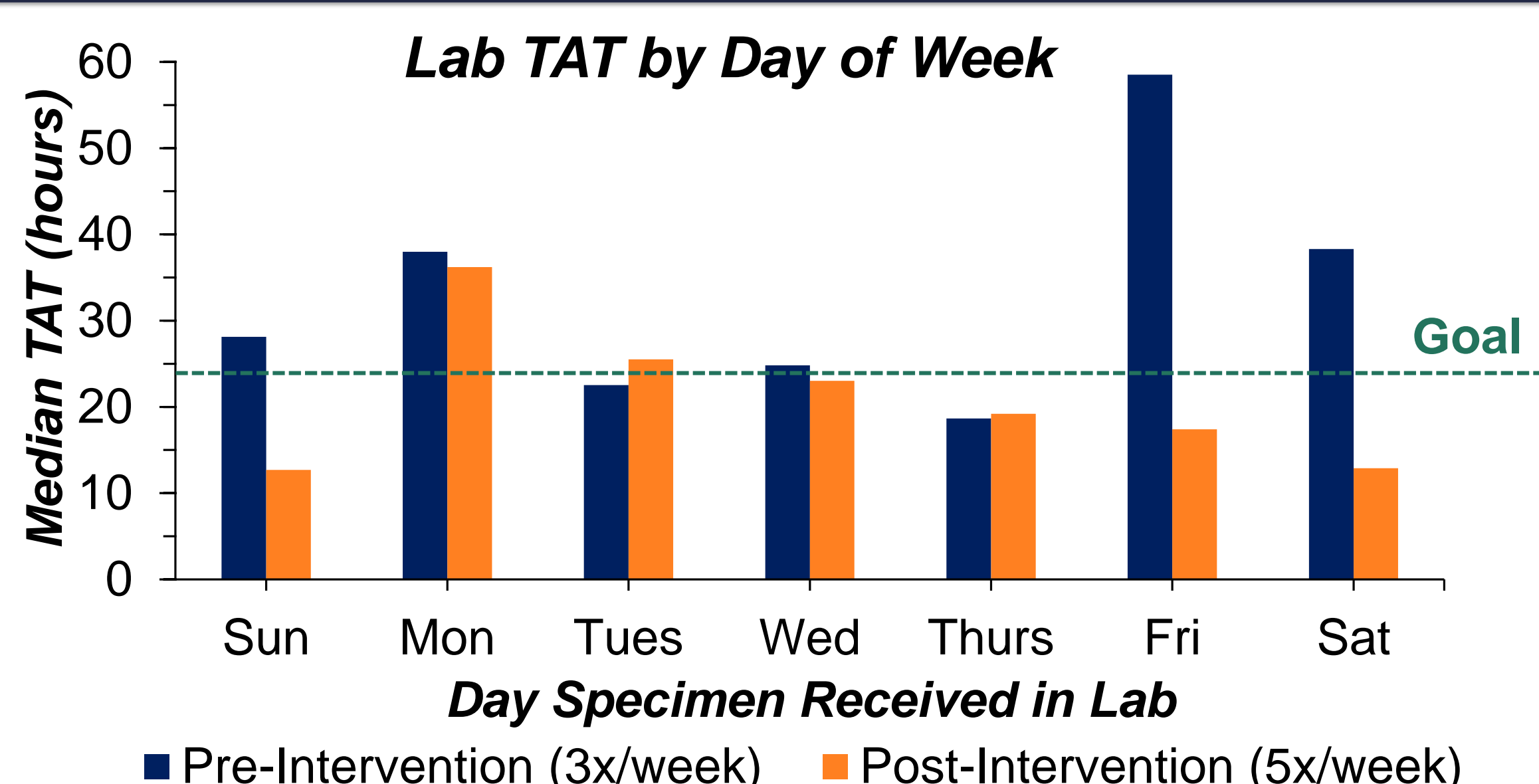


LOS for patients receiving HSV PCR



Statistical significance:
t-Test: Two-Sample Assuming Unequal Variances
95% confidence interval

CONCLUSIONS



Intervention led to:

1. Reduced TAT for Sunday, Friday, Saturday
2. Reduced median LOS by 12 hours

Next steps:

1. Increase lab test frequency to 7x/week
2. Perform cost analysis to assess potential cost savings from reduced LOS

Area for continued improvement:

1. Current median TAT >24 hours for several days. Goal to reduce TAT for all days.
2. Further reduce LOS