



Background

Patients admitted with trauma and solid organ injuries (SOI) are routinely subjected to medical treatment such as serial lab draws, enforced bedrest, and periods of inpatient observation based on grade of injury rather than patient-specific hemodynamic factors.

Evidence

Previous literature validated a hemodynamic-driven protocol for pediatric solid organ injury, instituted by two pediatric trauma centers, showing that this approach may lead to a decrease in length of stay, intensive care unit (ICU) utilization, number of lab draws, and cost, with no change in complication rates.¹

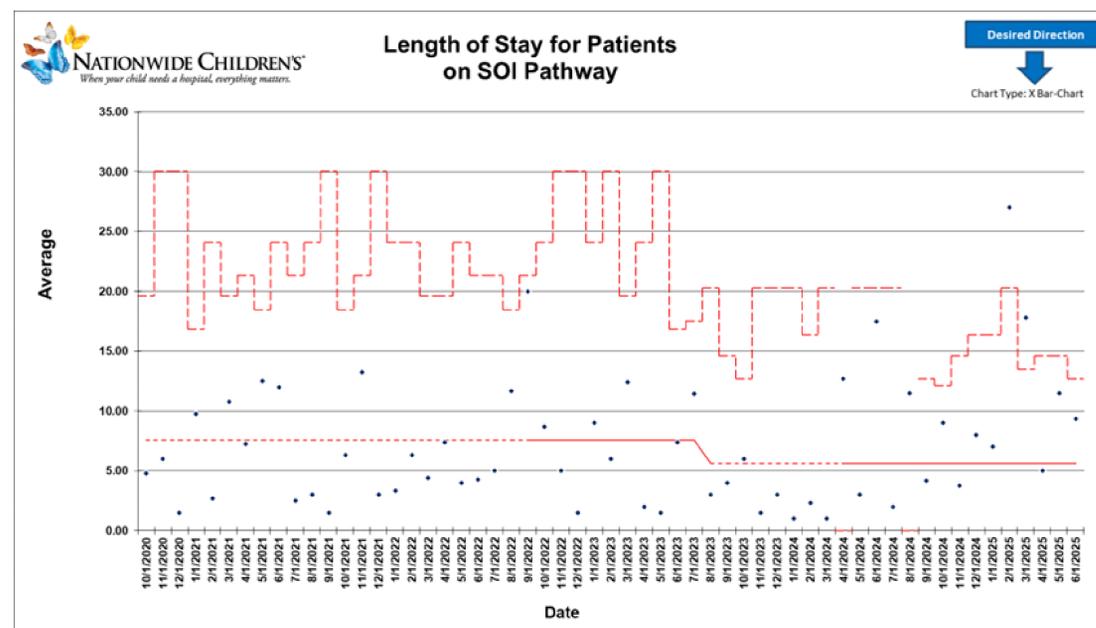
Intervention

Multidisciplinary team: trauma surgeons, advanced practice providers, pediatric intensivists, emergency medicine physicians, urologists, trauma leadership, nurses, and radiologists.

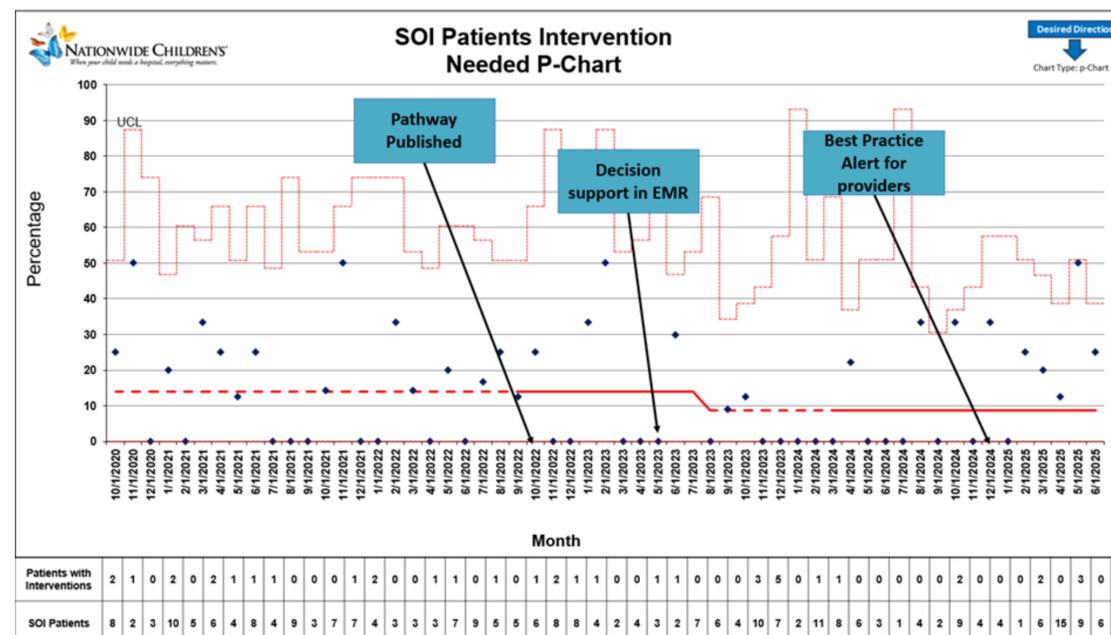
The team developed a comprehensive clinical care pathway encompassing:

- Decision to obtain a CT scan based on physical exam findings and lab values during initial injury work-up
- Treatment decisions based on hemodynamics and serial lab results as described by the APSA Blunt Liver/Spleen Injury Guidelines 2019²
- Monitoring parameters and discharge criteria for hemodynamically stable patients

Results



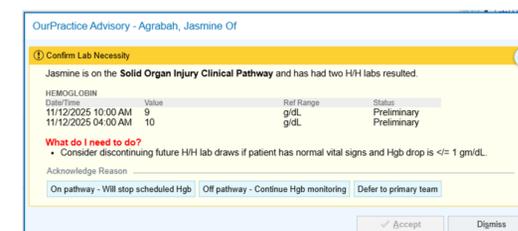
Average hospital length of stay decreased from 7.6 days baseline to 5.6 days after the clinical pathway was implemented.



The percentage of patients with solid organ injury having intervention (blood transfusion, embolization or surgery) decreased from a baseline of 14.0% to 8.7% after the clinical pathway was implemented.

PDSA

After pathway implementation, the trauma program tracked compliance and found 14 patients not following the pathway recommendations in the first 6 months, 9 (12.2% of all patients with solid organ injury) due to obtaining serial lab draws no longer indicated. An interruptive alert (Figure 3) was developed in the electronic medical record, alerting providers to review lab results and discontinue serial lab draws when indicated.



Only 1 (2.9%) patient had unintended hemoglobin checked in the 5 months following tool implementation.

Discussion

Clinical Pathways can be an effective framework to enact change in practice for the benefit of patients and healthcare systems. The clinical care pathway decreased the percentage of patients undergoing intervention and overall length-of-hospital stay, thereby lowering the cost of care delivery and decreasing the impact of hospitalization on families.

References

1. Cunningham AJ, Lofberg KM, Krishnaswami S, et al. Minimizing variance in care of pediatric blunt solid organ injury through utilization of a hemodynamic-driven protocol: a multi-institution study. *J Ped Surg.* 2017;52:2026-2030.
2. American Pediatric Surgical Association. *Updated APSA Blunt Liver/Spleen Injury Guidelines*, April 2019. Available from: <https://apsaped Surg.org/wp-content/uploads/2020/10/APSASolid-Organ-Injury-Guidelines-2019.pdf>