TexMed 2016 Quality Improvement Abstract

Please complete all of the following sections.

Procedure and Selection Criteria

- Applicants should demonstrate an understanding of QI concepts through the use of quality tools, measures of success and the use and interpretation of data. Judges will use the scoring described in this matrix to identify projects to be presented at the conference, as well as, projects to be considered for the awards.
- Maximum points are delineated with a brief explanation of the content that should be included under each section. Applicants must select one of the following improvement categories into which the project best fits: patient safety, patient centered care, timeliness, efficiency, effectiveness, or equity. Applicants may describe the problem and results in narrative or graphic format.

PROJECT NAME: Improving Timeliness of Academic Pediatrics Continuity Clinic Patient Care

Institution or Practice Name: University of Texas Health Science Center at San Antonio School of Medicine, Department of Pediatrics

Setting of Care: University Health System ambulatory clinical site; general pediatrics clinic

Primary Author: Janet F. Williams, MD

Secondary Author: Sandra J. Ehlers, MD

Other Members of Project Team: Karen Aufdemorte, MHA; Leticia Bresnahan, MBA

Is the Primary Author, Secondary Author or Member of Project Team a TMA member (required)?
☐ Yes ☐ No
Please provide name(s): Janet F. Williams, MD, Sandra J. Ehlers, MD

Project Category: *(Choose most appropriate category)*

☐ Patient Safety   ☐ Patient Centered Care   ☐ Timeliness
☐ Efficiency   ☐ Effectiveness   ☐ Equity
☐ **Enhanced Perioperative Recovery/Future of Surgical Care program**

For this poster session, TMA is looking for projects that demonstrate the six aspects of Quality Care as defined by the Institute of Medicine.

- Safe - avoids injuries to patients from care that is intended to help them
- Timely - reduces waits and delays for both those who receive care and those who give care
- Effective - based on scientific knowledge, extended to all likely to benefit, while avoiding underuse and overuse
- Equitable - provides consistent quality, without regard to personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status
- Efficient - avoids waste, including waste of equipment, supplies, ideas, and energy

- Patient centered - respects and responds to individual patient preferences, needs, and values, ensuring that patient values guide all clinical decisions

Quality Improvement (QI)

Overview: *Describe 1) where the work was completed; 2) a description of the issue that includes how long the issue has been going on and the impact the issue has on the organization/facility; 3) what faculty/staff/patient groups were involved, and 4) the alignment to organizational goals.*

The Children's Health Center (CHC) is the continuity 'well child' clinical training site for UTHSCSA Pediatrics' house staff and serves as the medical home for over 18,000 patients annually. The CHC is located in the Bexar County University Health System city-center ambulatory clinical site, and serves a patient population that is predominantly low income with very high biomedical-psycho-social care complexity. As partners, exceeding patient care quality standards and meeting house staff education and training requirements are goals held in common by the UTHSCSA academic training program and the county healthcare system. Both share the goal to operate clinically efficient and effective systems. Overall CHC clinic operations had been inefficient based on universal experience over the 2 years since clinic development at that site, and thus were a key barrier to meeting efficiency goals, producing long patient throughput times resulting in lengthy clinic days, long patient wait times and low rates of patient, staff and physician satisfaction with the CHC experience regarding both training and care delivery. House staff training requirements and time expenditure limits demand compliance for accreditation, and CHC inefficiencies are stressors to the house staff and for program compliance. A quality assurance study was undertaken with full participation of pediatric clinics' registration staff, the CHC nursing staff and the pediatrics' house staff and the faculty physician supervisors in order to explore CHC inefficiencies, and intervene to increase clinical care effectiveness and system efficiency while maintaining patient care quality as well as meeting training requirements for the house staff.

Aim Statement (2 points for each portion of SMART, with max points 10): *Describe the goal of the project incorporating SMART.*

Specific – what faculty/staff/patient groups were involved and where the work was completed
Measureable – numerical values that define baseline and goal
Actionable – what solutions/interventions were implemented
Realistic - able to implement solutions and sustain outcomes with given constraints
Time bound – what date established to reach goal by

Over a six month time period to conduct all portions of the study and by March 31, 2015, the Bexar County, Texas, University Health System Children's Health Center's nursing staff and house staff team work (with support from the registration staff and the supervising faculty) will reduce the 10.2 hour mean total daily clinic length by 20% from the first appointment time to the last patient dismissal through collaborative implementation of a new clinic operation's standard that utilizes nursing staff-house staff dyad teams which have two dedicated rooms per team and employ a 'knock and talk' communication system.

Measures of Success (5 points for describing solutions measurement and 5 points for describing outcome measurement, with max points 10): *Describe how you measured your interventions to ensure adherence and describe how you measured your outcome.*

Pre-intervention patient processing/throughput times were incrementally recorded on the baseline survey tool during each patient visit daily for one week's time in order to delineate the average time expenditures needed to deliver clinic 'services' and to wait between them - registration, nursing staff services, and physician services. Time increments were manually recorded in sequence with each patient and separately in each service area. For validation, these time were correlated with available time recordings at patient registration and electronic health record times, such as patient dismissal time. Baseline assessment in each area was

analyzed and compared to identify service time inefficiencies possible to address through discrete interventions in area related to the project aim. An action plan was created through 'intra- and interprofessional group process input and test case review, focused on the wait times between services rather than the service delivery time. The extended house staff time spent with the patient was also targeted with an innovative 'knock and talk' reminder communication with the nursing staff.

Post-intervention patient through-put time expenditures and total clinic times were recorded and analyzed. Commentary was individually solicited from all clinic staff (registration, NS, HS and faculty) regarding satisfaction with the changes made and brainstorming suggestions for adjustments needed and to sustain changes and make continued improvement.

Use of Quality Tools (5 points for appropriate tools utilized during each PDSA phase, with max points 20): W*hat quality tools did you use to identify and monitor progress and solve the problem? Provide sample QI tools, such as fishbone diagram or process map, and identify which phase of the PDSA cycle each tool was utilized in. Note tools here and send as addendum with abstract form.*

The following quality tools were used sequentially. Serving the entire PDSA cycle, inter-professional nominal group technique was employed for brainstorming (Planning) and gaining buy-in and team commitment (Do, Study, Act) from planning to sustaining the project. A patient visit flow diagram, and then a fishbone cause-effect diagram were used in the Planning phase to reveal challenges and potential improvements. Incremental time data collection surveys were designed specific to each group - Registration Staff (RS), Nursing Staff (NS), House Staff (HS) as part of Planning in order to determine possible interventions, focus and plan the specific, actionable and realistic intervention to implement. The intervention went into effect for one month before newly-devised Intervention-focused surveys were utilized for 2 weeks specific to separate data collection about CHC NS actions and the HS actions in order to document effects on the clinic throughput of patients. These manually completed surveys were part of the Do/Study phases. Group process through periodic interdisciplinary team meetings with feedback and buy-in and commitment reinforcement were employed in the Act phase to sustain the new clinic system of patient flow.
See Addendum for Process Analysis Tools – Patient Visit Flow; Fishbone Diagram.

Interventions (max points 15 includes points for innovation): W*hat was your overall improvement plan (include interventions and identify quick wins)? How did you implement the proposed change? Who was involved in implementing the change? How did you communicate the change to all key stakeholders? What was the timeline for the change? Describe any features you feel were especially innovative.*

The Pre-intervention baseline survey revealed greater efficiency during 'service' times (Registration, Nursing Staff patient work, physician visit time, NS dismissal work), but extended wait times between each service, so various patient flow blockades offered opportunities for intervention. The longest wait times directly related to room inavailability, NS availability and no standard communication system.

Pre-intervention baseline data analysis revealed key inefficiency areas to focus interventions to improve patient throughput, and they are as follows: 1. Wait time soared when a patient room was not available. Rooms assigned as available to the CHC and within the clinic, the availability to each HS was limited with room use being random assignment instead of related to HS number scheduled for clinic or having more than one room available per HS. Room availability intervention – Ensure dedicated 2 rooms per HS per clinic period. 2. Registration was consistently highly efficient, so RS were celebrated and recognized with positive feedback to continue the highly effective system currently in place. 3. NS and HS worked together on the basis of a random who's-next availability 'system' with no particular continuity, advocacy or 'team' affiliation throughout the CHC day. Team formation intervention – 1:1 NS:HS work teams were formally assigned each CHC clinic day. Established and engrained a teamwork orientation; team-building with daily pre-CHC session NS:HS huddles. 4. NS:HS communication systems were not established or utilized. HS lost track of time spent in the room and did not know when the next patient was ready to be seen. Teambuilding was encouraged and empowered. An innovative NS 'knock and talk' process that would cue HS about time use and the schedule

ahead was devised, implemented and reinforced. Interventions were introduced to the entire clinic personnel through meetings and a written plan of new CHC operations with a team approach. Team-building and empowerment reminders were reinforced weekly for one month before post-intervention data were collected for each patient during each clinic day for 2 weeks.

Results (max points 25): *Include all results, using control charts, graphs or tables as appropriate. Charts and graphs must be appropriately labeled or points will be deducted. Note charts, graphs and tables here and send as addendum with abstract form.*

Interventions caused the average CHC clinic day to be 1.4 hours shorter, a 14% improvement in systems efficiency but less than the 20% projected.

Return on investment (ROI) included unanimous agreement that interventions caused improvement and an increase in satisfaction with the CHC operations and patient flow. RS efficiency became a gold standard. NS expressed high satisfaction and demonstrated increased confidence with the teamwork approach and a more predictable clinic flow. All expressed a preference for and high satisfaction with the 1:1 staffing model. HS and faculty supervisors all preferred the 1:1 NS:HS teams. HS satisfaction with CHC experience improved. HS met work hour limits with quicker return to 'rotation' duties (rounds, call, etc.). HS had greater availability to assist clinic team member, and could more readily meet patient care education and training accreditation compliance goals. At all training levels, the HS time spent with patients decreased appropriately and approached the allotted time consistent with that expected for their training level. Indirect ROI also included: reduced risk of regulatory sanctions for house staff transgression of work hour limits; reduced cost of overhead from longer hours of clinic operation; reduced cost of NS overtime pay; and having NS availability for redeployment to other clinics which in turn decreased operations, overhead and overtime costs there.
See Addendum for Tables, Run Charts and Return on Investment calculation.

Conclusions and Next Steps (max points 20): *Describe your conclusions drawn from this project and any recommendations for future work. How does this project align with organizational goals? Describe, as applicable, how you plan to move ahead with this project.*

Improvements and teamwork enhancements improved CHC training clinic patient flow and served to help ensure meeting certain continuity clinical training requirements as well as work hour standards. HS time with patients was aligned with having greater NS communication and awareness of their time expenditures related to their schedule and expectations. CHC inter-professional working relationships, communication and satisfaction with the provision and receipt of care were enhanced. All gained insight into CHC processes and operations and greater appreciation for others' roles as well as a teamwork education about how to implement and sustain lasting systems' change. Results were formally presented to the Pediatrics training program directors and the University Health System administration, which have explored making similar interventions in other clinical training sites. The plan is to sustain and these changes. Conducting followup measurements will indicate whether time efficiencies are continuing and which additional quality improvement measures to implement regarding the other inefficiencies identified by the fishbone diagram and baseline survey results.
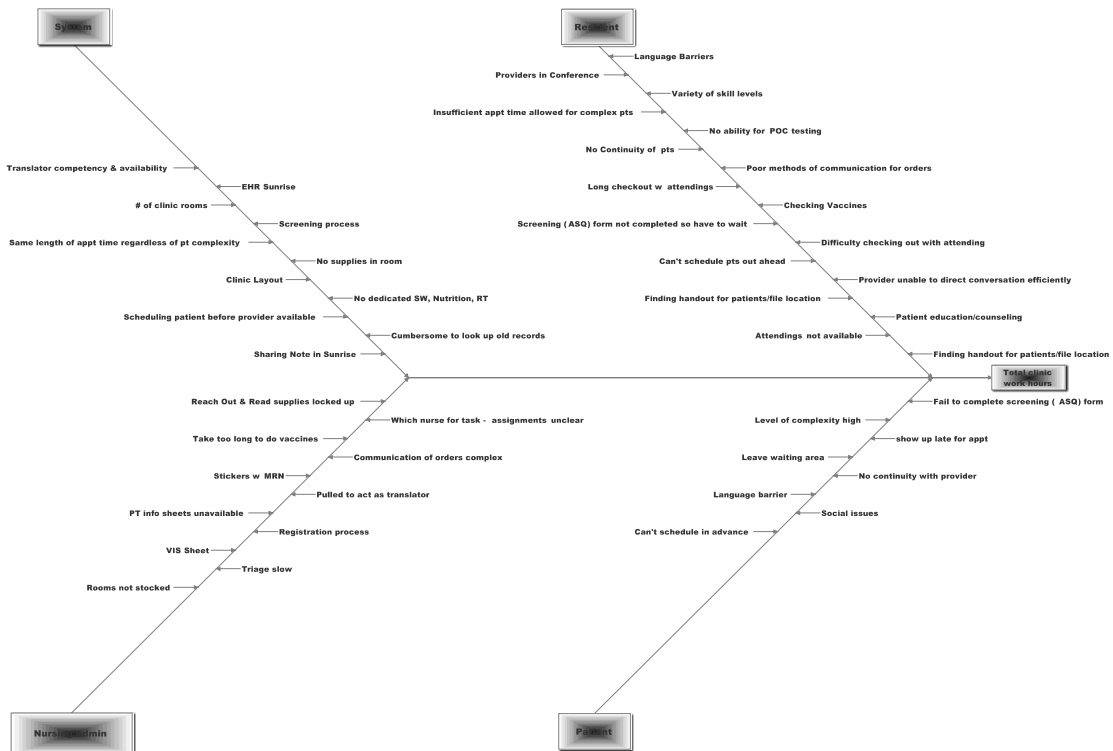
ADDENDUM:

Process Analysis Tool: Patient Visit Flow
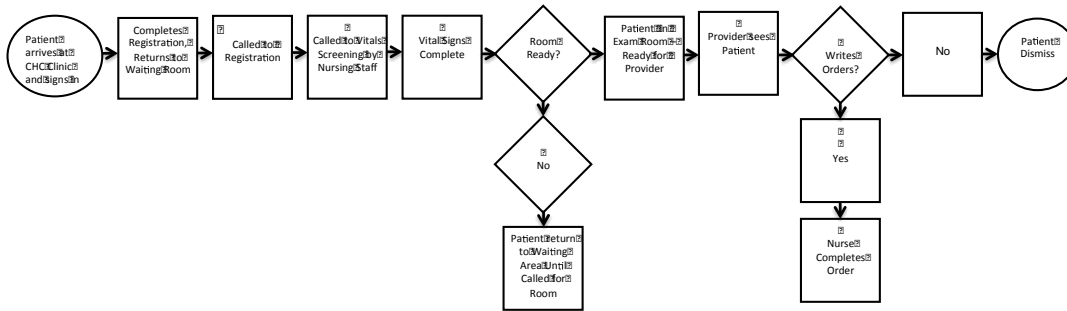
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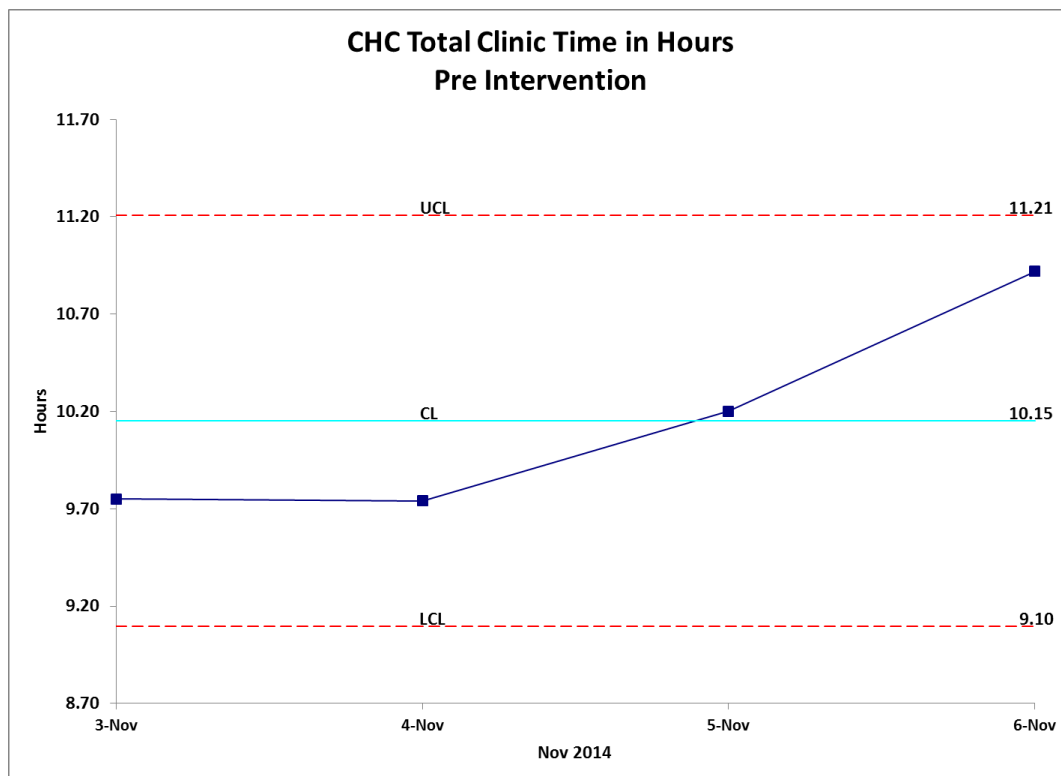# Process Analysis Tool: Fishbone Diagram
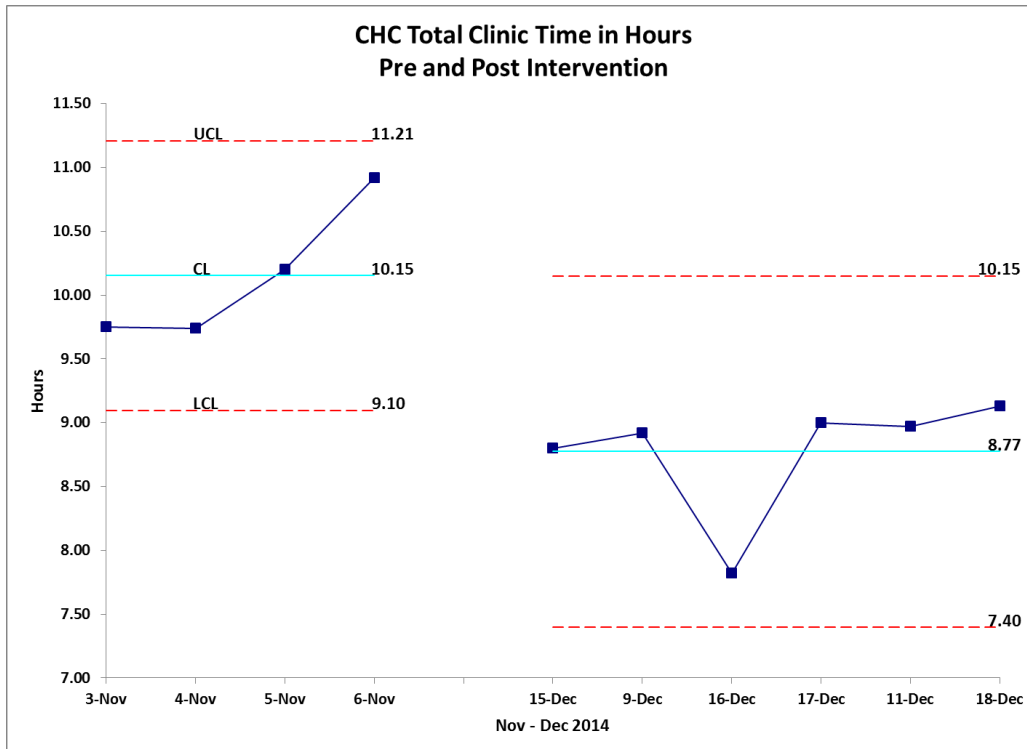

2

Pre-Intervention Baseline - Patient Flow
Average Wait or Service Time in Minutes

- **5.7 = Wait** for Registration
- 4.7 = Registration
- **16.7 = Wait** for Nursing staff
- 9.3 = Nursing staff: VS, hearing/vision, ROR, forms/ASQ, etc.
- **43.9 = Wait** for House Staff includes wait for room
- 52.1 = House Staff: Min/pt allotted PGY1/2/3 = 45/30/20
- 13.6 = Dismissal: Vaccines, forms, asthma ed., SW, etc.

3

CHC Total Clinic Time in Hours
Pre Intervention

4

CHC Total Clinic Time in Hours
Pre and Post Intervention

Hours (y-axis): 11.50, 11.00, 10.50, 10.00, 9.50, 9.00, 8.50, 8.00, 7.50, 7.00

UCL — 11.21
CL — 10.15
LCL — 9.10

10.15

8.77

7.40

Nov – Dec 2014 (x-axis): 3-Nov, 4-Nov, 5-Nov, 6-Nov, 15-Dec, 9-Dec, 16-Dec, 17-Dec, 11-Dec, 18-Dec

5

House Staff: Average Time with Patient

Aver. Time with Pt. (Min.)	PGY* - 1	PGY - 2	PGY - 3	Overall
Nov. 3 - 6	70.7	43.0	42.5	52.1
Dec. 8 - 11	46.9	48.6	36.9	44.1
Dec. 15 - 18	46.7	38.4	30.8	38.6**
Allotted CHC appt. time	45	30	20	

*PGY = postgraduate year of training
** 26% decrease from Nov. baseline

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7

$ample ROI - Nur$ing $taff Overtime Co$t$ $aved

- **CHC operations:**
  - 49 weeks/year & 4 CHC days/week = 196 CHC/year
  - Staffing: 4 MA and 1 LVN/CHC day
  - CHC overtime (OT) saved = 1.4 hours daily
    - **MA** OT pay range = $17.74 – $26.79/hr X 1.4 hr = $24.84 – $37.50/MA/day
      - Annual OT savings across pay scale = 1 **MA low:** $4,869 to **high:** $7,350
      - **$6,110 = Average OT costs saved/MA/year**   (2 - 4 MA = $12,219 - $24,438)
    - **LVN** OT pay range = $20.65 – $40.18/hr X 1.4 hr = $34.77 – $56.25/LVN/day
      - Annual OT savings across pay scale = **1 LVN low:** $6,815 to **high:** $11,025
      - **$8,920 = Average OT costs saved/LVN/year**

- **$21,139 = OT Co$t $aving$/year** (based on 2 MA, 1 LVN, mid-range pay)