DEDER GENERAL HOSPITAL

HEALTHCARE QUALITY IMPROVEMENT PROJECT

EMERGENCY DEPARTMENT

REDUCING THE WAITING TIME FROM TRIAGE TO INITIAL PHYSICIAN CONSULTATION

By: EMERGENCY DEPARTMENT QI TEAM

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LISTS OF EMERGENCY DEPARTMENT QI TEAM MEMBERS

S. N	Name(s)	Department	Profession/Position	Responsibility
1	Dr.Isak Abdi	Surgery	MD, Senior	Team leader
	Jabir Mohammed	EOPD Head	BSC	Secretary
2	Dr. Derese Gosa	CCO	GP	Member
	Nuredin Yigezu	CEO	MPH	Member
3	Abdi Tofik	HQUD	MPH	Supervisor
4	Hamza Jemal	Matron	BSC	Member
5	Dr. Fraser Girma	EIC Director	GP	Member
7	Abdella Aliyi	QO	BSC	Member
8	Reduwan Sherefudin	QO	BSC	Member
9	Tigist Fetahi	Emergency nurse	BSC	Member
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11	Zebib	Emergency nurse	BSC	Member
12	Beyan Shafi	Emergency nurse	BSC	Member

Introduction

Emergency Triage is a critical process in healthcare systems to ensure that patients receive timely care based on the severity of their conditions. Ineffective triage can lead to delays in care, increased morbidity, and poor patient outcomes. At Deder General Hospital, the current triage system faces challenges such as inconsistent standards, lack of training, and delays in identifying high-risk patients. This Quality Improvement (QI) project aims to enhance the triage standards, ensuring accurate prioritization and improved patient outcomes.

Vision

- To establish a sustainable, efficient, and patient-centered triage system that enhances emergency care and reduces adverse outcomes.

Mission

- To ensure that all patients presenting to the emergency department (ED) receive timely, equitable, and high-quality triage based on their clinical needs.

Table 1: ***Problem identification and prioritization Matrix***

SN	**Lists of problems identified**	**Prioritization criteria**				Rarank/
		magnitude	**Feasibility**	**Importance**	**Total/ priority score**	
1	Low patient record completeness	3	4	3	10	6
2	Delayed triage of critical patients	5	5	5	15	1
3	High > 24hrs EOPD attendance	3	4	4	11	5
4	High EOPD referral Out	4	4	4	12	4
5	Low infection prevention	4	5	4	13	3
6	Low pain Management	4	5	5	14	2
		Priority score=Severity + Frequency + Feasibility				

PROBLEM STATEMENT

- A survey conducted from **April 17, 2017 to May 20, 2017** at Deder General Hospital Emergency shows that patients have to wait an average of 44.5 minutes to be evaluated by a clinician after they have been triaged, and this may lead to preventable morbidity and mortality of patients from delayed definitive management.

AIM STATEMENT

- The aim of this QIP is to decrease the average waiting time between triage and the first patient contact with a clinician to less than 10 minutes, down from the current 44.5 minutes, during the period from **May 20, 2017 to August 30, 2017**.

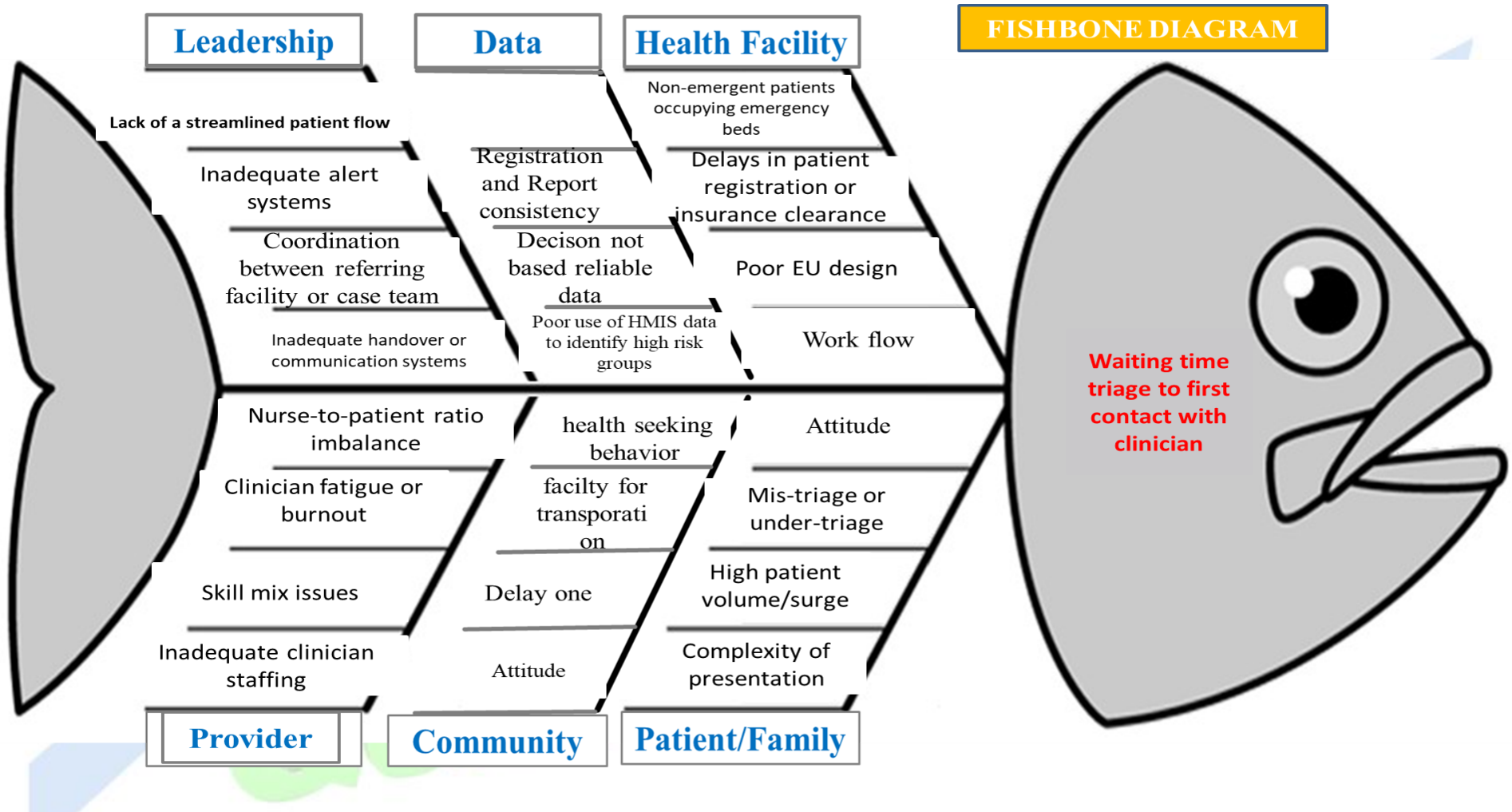

Figure 1: Fishbone diagram showing decrease the average waiting time between triage and the first patient contact with a clinician to less than 10 minutes, down from the current 44.5 minutes, during the period from May 20, 2017 to August 30, 2017.

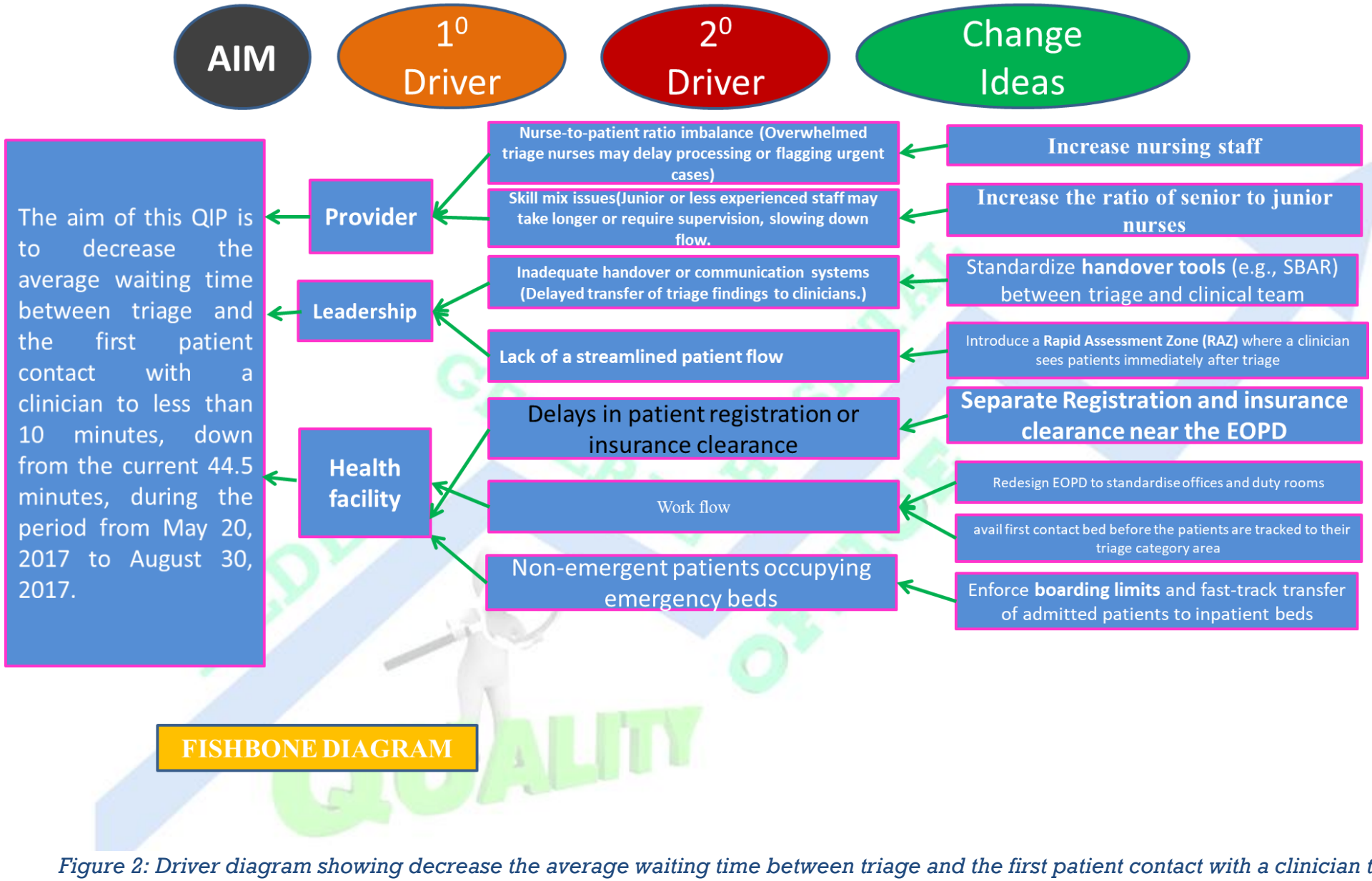

Figure 2: Driver diagram showing decrease the average waiting time between triage and the first patient contact with a clinician to less than 10 minutes, down from the current 44.5 minutes, during the period from May 20, 2017 to August 30, 2017.

List of intervention/change idea that selected by prioritization matrix for testing

1. Separate Registration and insurance clearance near the EOPD
2. Increase the ratio of senior to junior nurses
3. Standardize handover tools (SBAR) between triage and clinical team
4. Enforce boarding limits and fast-track transfer of admitted patients to inpatient beds
5. Introduce a Rapid Assessment Zone (RAZ) where a clinician sees patients immediately after triage
6. Increase nursing staff
7. Redesign EOPD to standardize offices and duty rooms
8. Avail first contact bed before the patients are tracked to their triage category area

Measures/Indicators

Outcome measure

Aim	Indicators	Numerator	Denominator	Data	Responsible
To improve triage standards from current median of 44% to >95% from sept 2016 to January 30, 2017E.C	Percentage of patients triaged according to standard guidelines.	Number of patients triaged according to standard guidelines.	Total number of patients visiting emergency department	Triage register	Emergency Dept head nurse

Measures/Indicators---

Aim	Outcome measure		Change ideas	Process measures				Balancing measures
				Indicator	Numerator	Denominator	Data Source	
Decrease the average waiting time between triage and the first patient contact with a clinician to less than 10 minutes, down	Indicator	Average waiting time between triage to first contact with clinician	Separate Registration and insurance clearance near the EOPD	Presence of separate Registration and insurance clearance near the EOPD			Observation	
	Numerator	Sum total of waiting time triage to first	Increase the ratio of senior to junior nurses	Ratio of senior to junior nurses to > 3:1	Number of SENIOR STAFF	Number of Junior staff	Assignment schedule	

		clinician in minute						
	Denominator	Total patients	Standardize handover tools (e.g., SBAR) between triage and clinical team	Proportion of patients handovered from triage to service delivery points	Number of handovered as protocol	Total triaged	Document review	
	Data Source	Survey/ MR review	Enforce boarding limits and fast-track transfer of admitted patients to inpatient beds to make >60% emergency bed free of patients	% of free emergency bed	Number of free bed	Total bed	Observation	
			Redesign EOPD to standardise offices and duty rooms	Yes/No			Observation	

IMPLEMENTATION OF P OF PDSA

S No.	What (Change ideas)	Process Measure	Where(service area)	Who (responsible body)	When (timetable)		How
					Start date	End date	
1	Separate Registration and insurance clearance near the EOPD	Presence of separate Registration and insurance clearance near the EOPD	EOPD	SMT	May 20/2017	05/11/17	They integrated the registration and insurance clearance service directly with the emergency unit. This was done to avoid delays by making the service readily available within or near the emergency unit, so patients no longer had to go to a separate department.
2	Standardize handover tools (e.g., SBAR) between triage and clinical team	Proportion of patients handovered from triage to service delivery points	EOPD	SMT	July 10/2017	30/12/17	They prepared an acceptance order on a daily basis for both day and night shifts. They employed a standardized handover tool (SBAR) to facilitate accountability and ensure clear communication, making it easier to identify any delays in patient handover.

Data collection Plan (process indicators)

Process/Change idea	Data source (Where)	Data collection method (how)	Time (When)	Responsible Person
Separate Registration and insurance clearance near the EOPD	EOPD	Observation	Every five days	Jabir M
Increase the ratio of senior to junior nurses	Assignment schedule file at EOPD and letter of assignment at in staff file	Document review	Every five days	Jabir M
Standardize handover tools (e.g., SBAR) between triage and clinical team	Document review	Document review	Every five days	Jabir M
Enforce boarding limits and fast-track transfer of admitted patients to inpatient beds to make >60% emergency bed free of patients	EOPD bed LOS	Observation	Every five days	Jabir M
Redesign EOPD to standardise offices and duty rooms	Observation	Observation	Every five days	Jabir M

Process Indicator Performance Tracking Sheet

S.No	Change Ideas/ Interventions	Number/Session Planned	Number/Session Performed	% of achievement	Remark
1	Separate Registration and insurance clearance near the EOPD	01 (Permanent Setup)	01	100%	A dedicated registration desk was established inside the EOPD on 05/11/17. This eliminated the need for patients to go to the main hall.
2	Increase the ratio of senior to junior nurses	Target: 3:1 Ratio	Achieved: 2:1 Ratio	67%	Two senior nurses were reassigned to the EOPD. The goal of three was not fully met due to staffing constraints in other departments.
3	Standardize handover tools (e.g., SBAR) between triage and clinical team	01 (Tool Implementation)	01	100%	The SBAR handover form was introduced and implemented for all shifts starting 30/12/17. Compliance was monitored daily.
4	Enforce boarding limits and fast-track transfer of admitted patients to inpatient beds	3X/DAY	2X/DAY (Avg.)	67%	Bed meetings with inpatient wards were held twice daily. The third meeting was often missed due to high patient volume in the EOPD.
5	Redesign EOPD to standardise offices and duty rooms	16 (Work Days)	16	100%	The physical layout was successfully redesigned over 16 days to create a more efficient flow for staff and patients

Outcome Indicator Performance Tracking Sheet

Aim				
To reduce EOPD average Waiting Time from Triage to Initial Physician Consultation from current median of 44.5 Minutes to less than 10 minutes from May 20, 2017, to August 30, 2017.				
Time: weekly	Numerator, Denominator & outcome Indicator	**Sum total of waiting time (in minutes)**	**Total cases reviewed**	Average Waiting Time from Triage to Initial Physician Consultation (Minute)
	20-May-17	435	33	43
	25-May-17	637	40	16
	30-May-17	640	35	18
	5-Jun-17	638	30	21
	10-Jun-17	900	20	45
	15-Jun-17	610	30	20
	20-Jun-17	350	27	26
	25-Jun-17	350	27	14
	30-Jun-17	954	34	28
	5-Jul-17	785	33	24
	10-Jul-17	1002	37	27
	15-Jul-17	429	33	13
	20-Jul-17	372	31	12
	25-Jul-17	406	29	14
	30-Jul-17	324	27	12
	5-Aug-17	380	28	14
	10-Aug-17	270	30	9
	15-Aug-17	324	27	12
	20-Aug-17	429	33	13
	25-Aug-17	300	28	11
	30-Aug-17	290	29	9

RESULTS

The baseline assessment showed that the **median waiting time from triage to initial physician consultation** was **44.5 minutes**, which highlighted a major bottleneck in the Emergency Outpatient Department (EOPD). This prolonged delay placed patients at risk by slowing down emergency care, and it also affected patient satisfaction. The initial run chart clearly reflected this high baseline with little natural variation, confirming that the problem was consistent. The QI team set an ambitious aim to reduce the waiting time to less than 10 minutes through successive interventions.

During **PDSA Cycle 1**, the team relocated registration and insurance clearance closer to the EOPD by establishing a **mini-MRNU**. As shown in **Table 4**, this intervention immediately reduced average waiting times, dropping from **43 minutes** on May 20 to **16 minutes** on May 25, and further to 18 minutes on May 30. Although a spike to 45 minutes was observed on June 10 due to a temporary surge in patient volume, the overall performance remained significantly lower than the baseline. The cycle ended with an **average waiting time of 20 minutes**, which represents a substantial improvement. The run chart demonstrated **Rule 1 (Shift)**: more **than six consecutive data** points following the intervention fell below the baseline median of 44.5 minutes, showing that the change was real and not due to chance **(Figure 3).**

In **PDSA Cycle 2**, the focus shifted from structural changes to **process improvement** by introducing **standardized SBAR handover tools** between triage and physicians. As reflected in **Table 4**, waiting times showed even more consistent reductions, with averages dropping to **13 minutes overall**. Several measurement points achieved the target of less than 10 minutes—for example, **9 minutes on August 10 and again on August 30**. Compared to Cycle 1, fluctuations were smaller, and the performance showed greater stability. The run chart here clearly demonstrated **Rule 2 (Trend)**: sequences of **five or more consecutive points** were moving downward in the same direction, confirming a sustained improvement and not just random fluctuation.

The combined effect of the two cycles is best visualized in the run chart, which shows a progressive decline from the **44.5-minute** baseline, to **20 minutes during PDSA 1**, and finally to **13 minutes during PDSA 2**, with several points achieving <10 minutes. The **Shift (Rule 1)** confirms that the system performance changed permanently after the interventions, while the **Trend (Rule 2)** demonstrates that the improvement continued in the intended direction over time. Together, these findings provide both **clinical significance** (timely emergency consultations) and **statistical evidence** (using run chart rules) that the QIP interventions had a real and sustained impact **(Figure 3).**

Figure Caption (Run Chart)

Figure: Run chart showing average waiting time from triage to initial physician consultation. The baseline median of 44.5 minutes is shown, with subsequent reductions during **PDSA Cycle 1 (mini-MRNU)** and **PDSA Cycle 2 (SBAR handover**). **Rule 1 (Shift):** more than six consecutive points fell below the baseline median after the first intervention, confirming a **true system change**. **Rule 2 (Trend):** sequences of five or more consecutive points in a downward direction during Cycle 2 demonstrate **sustained improvement and not random variation.**

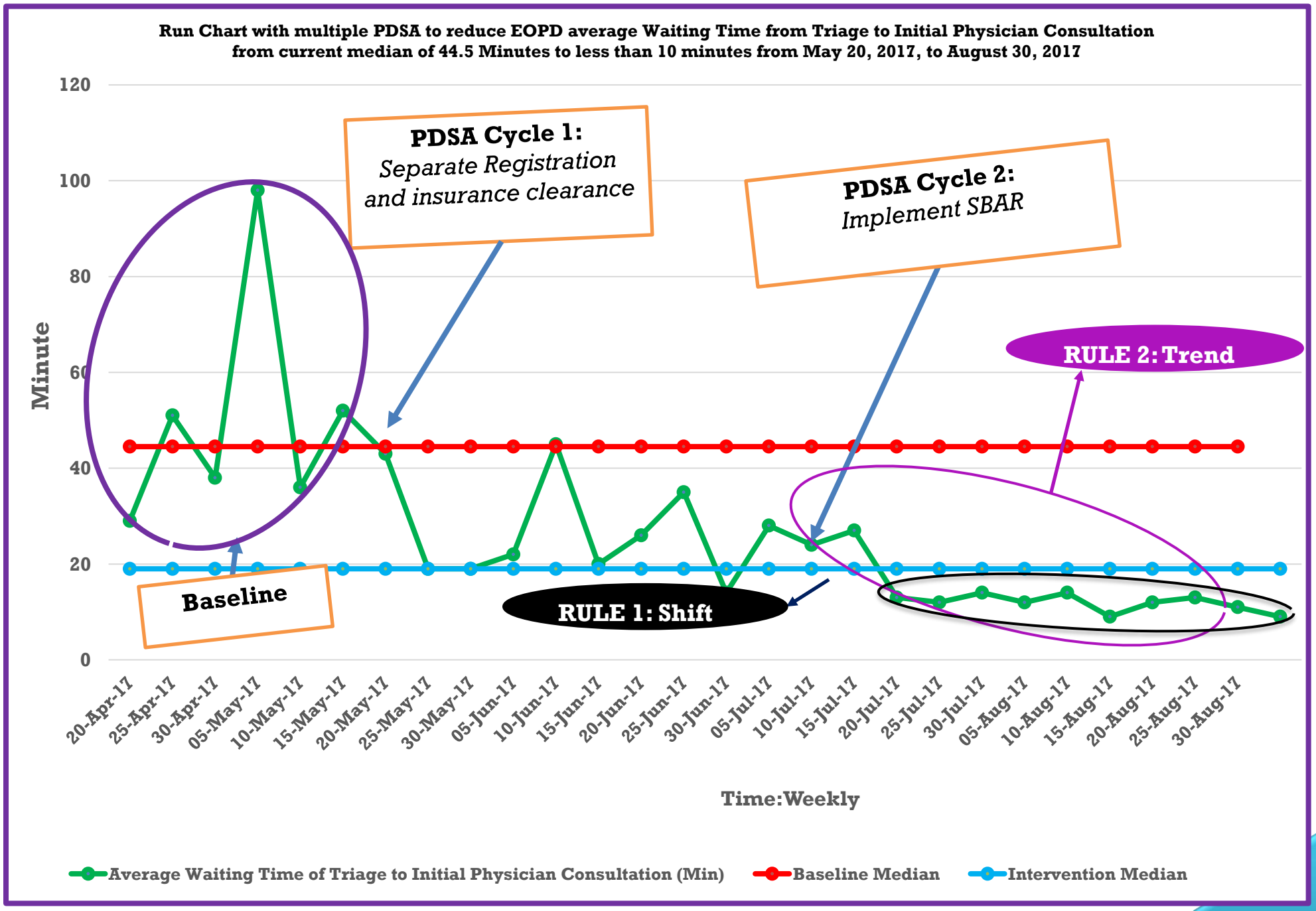

Figure 2: Run Chart with multiple PDSA to reduce EOPD average Waiting Time from Triage to Initial Physician Consultation from current median of 44.5 Minutes to less than 10 minutes from May 20, 2017, to August 30, 2017

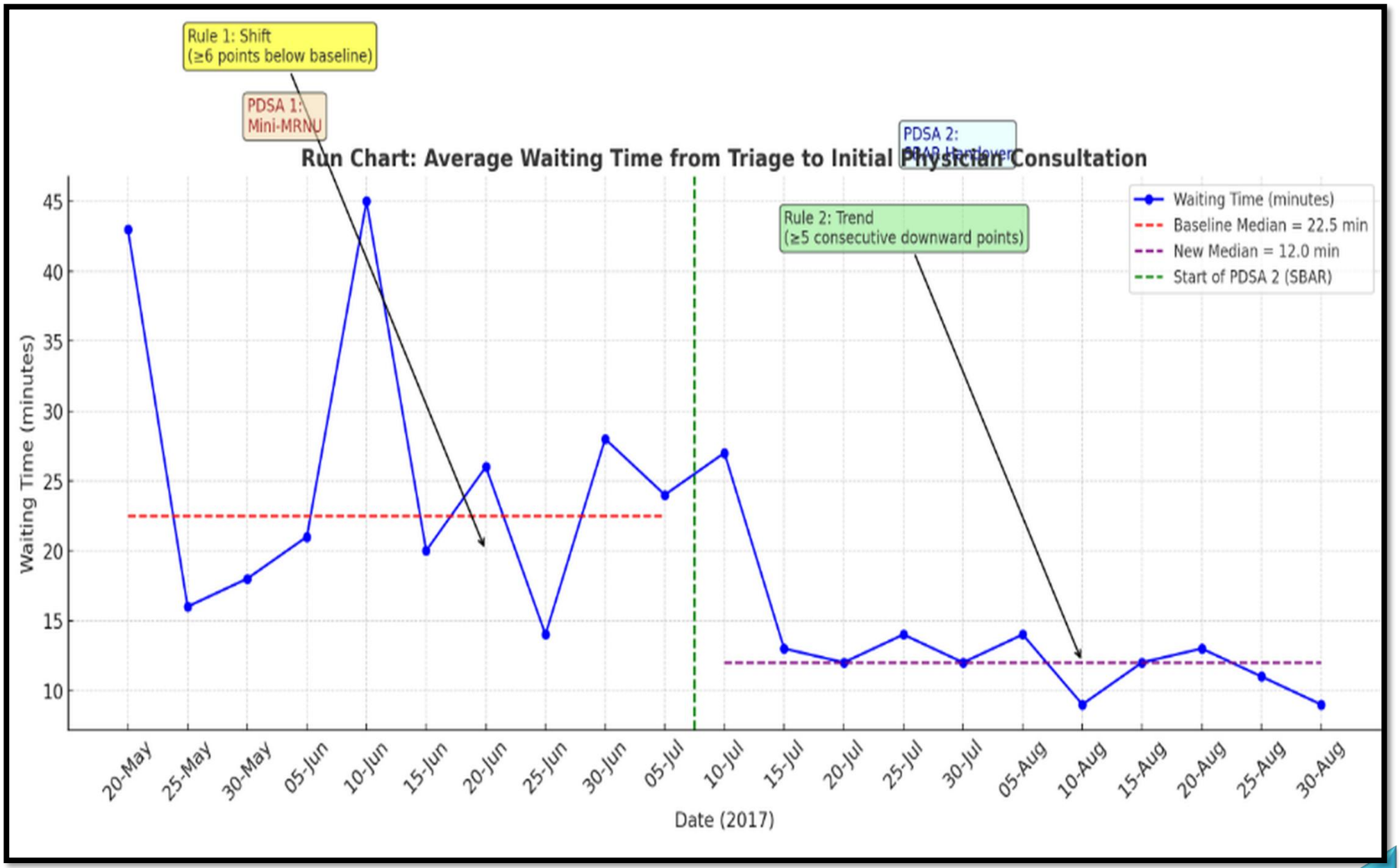

Figure 3:Run Chart with multiple PDSA to reduce EOPD average Waiting Time from Triage to Initial Physician Consultation from current median of 44.5 Minutes to less than 10 minutes from May 20, 2017, to August 30, 2017E.C

Discussion

This Quality Improvement Project (QIP) demonstrated that targeted structural and process interventions can substantially reduce waiting times from triage to initial physician consultation in the Emergency Outpatient Department (EOPD). The baseline median of 44.5 minutes highlighted a significant delay that placed patients at risk for adverse outcomes. The implementation of prioritized interventions, namely the relocation of registration and insurance clearance to the EOPD and the introduction of standardized SBAR handover tools, yielded measurable and sustained improvements.

The first intervention, creating a mini-registration and insurance clearance unit inside the EOPD, addressed a major systemic bottleneck by eliminating the need for patients to move between service points. This structural adjustment was effective in producing an immediate and sharp decline in waiting times, as reflected by the "Shift Rule" in the run chart analysis. This finding supports the widely recognized principle that reducing unnecessary steps in patient flow can directly improve efficiency and reduce delays in emergency care.

The second intervention, introducing SBAR (Situation, Background, Assessment, Recommendation) as a standardized handover tool, ensured clear communication between triage staff and physicians. This process-focused change not only stabilized performance but also brought waiting times closer to the project's target of <10 minutes. The reduction in variation and the downward "Trend Rule" observed in the run chart suggest that the improvement was not only real but also sustainable. Similar findings have been reported in global studies where structured communication tools reduced miscommunication, improved accountability, and enhanced timeliness of emergency care.

Despite the success of the project, some challenges were noted. For example, the target ratio of senior to junior nurses was not fully achieved due to staffing shortages, and boarding limit enforcement was inconsistent because of high patient volumes. These limitations indicate that while system redesign and communication improvements can significantly reduce delays, achieving and maintaining the target requires ongoing leadership engagement, workforce planning, and hospital-wide coordination to address capacity issues.

Overall, the combined effect of the tested interventions resulted in clinically meaningful improvements in emergency care delivery, with several measurement points meeting the <10-minute target. Importantly, the project demonstrated that both structural changes (mini-registration unit, EOPD redesign) and process changes (SBAR handover, bed management) are necessary to achieve sustained gains in efficiency. Future efforts should focus on consolidating these gains, integrating them into hospital policy, and ensuring continuous monitoring to prevent regression.

Lessons Learned

1. **Simple structural adjustments can create immediate results.** Relocating registration and insurance clearance directly into the EOPD eliminated a major cause of delay with minimal resource requirements.
2. **Standardized communication tools enhance reliability.** Implementing SBAR improved accountability and consistency in triage-to-physician handover.
3. **Staffing levels remain a critical enabler.** Efforts to improve senior-to-junior nurse ratios highlighted the importance of human resource allocation for sustainability.
4. **Data-driven decision-making strengthens improvement efforts.** Run charts and PDSA cycles provided real-time evidence of performance and motivated staff participation.
5. **System-wide collaboration is essential.** Sustaining improvements required coordination with inpatient units to manage boarding and bed availability.

Messages for Others

- Emergency care delays can be reduced significantly when hospitals address **both workflow design and communication processes** simultaneously.
- Improvements are most sustainable when **integrated into daily routines and hospital policies** rather than left as project-specific interventions.
- Even resource-limited hospitals can achieve substantial results by prioritizing **low-cost, high-impact changes** such as service relocation and standard handover tools.
- Continuous monitoring using **run charts and QI methods** helps detect regression early and maintain momentum.
- Leadership commitment is key to ensuring interventions survive beyond the project timeline.

Conclusion

This QIP successfully reduced the average waiting time from triage to initial physician consultation in the EOPD of Deder General Hospital from a baseline of 44.5 minutes to consistently near or below 10 minutes following targeted interventions. The integration of a registration/insurance desk into the EOPD and the adoption of standardized SBAR handover tools were particularly effective in driving and sustaining improvements. Although some challenges remain—especially staffing ratios and bed management—the project demonstrates that practical, low-resource strategies can produce measurable improvements in emergency care efficiency and patient outcomes. Sustained commitment to continuous monitoring, workforce strengthening, and policy integration will be vital for maintaining and expanding these gains.

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