DEDER GENERAL HOSPITAL

HEALTHCARE QUALITY IMPROVEMENT PROJECT

QI PROJECT: IMPROVING INPATIENT PAIN MANAGEMENT

BY: INPATIENT DEPARMENT QI TEAM

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GRADUATED PAIN QI PROJECT, MARCH 2017E.C

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ABSTRACT

Introduction: Pain management is a critical component of inpatient care, yet Deder General Hospital faced significant gaps, with only 35% of patients receiving appropriate pain management prior to this initiative. Poor pain control adversely affected patient outcomes, satisfaction, and recovery.

Objective: This quality improvement project aimed to enhance inpatient pain management from a baseline of 35% to over 90% within seven months (September 2017–March 2017 E.C.).

Methods: Using the Model for Improvement and PDSA cycles, the team implemented four key interventions: (1) on-the-job staff training, (2) integration of pain scoring with routine vital signs, (3) daily patient education, and (4) biweekly performance reviews with feedback. Data were collected biweekly via chart audits (total sample: 560) and patient satisfaction surveys.

Result: Up on completion of the project, the inpatient pain management at Deder General Hospital was improved from 35% to 90%. The inpatient wards like medical, Surgical, Pediatric, and OB/GYN showed improvements in the inpatient pain managements from 30% to 94%, 32.5% to 90%, 37.5% to 95%, and 27.5% to 92%, respectively. The implementation of the project brought positive consequence in improving patient satisfaction as balancing measures. It increased patient satisfaction from 53% to 84%.

Conclusion: The project demonstrated that low-resource, systematic interventions—staff training, workflow integration, and accountability mechanisms—can significantly improve pain management and patient satisfaction. This model offers a scalable framework for similar healthcare settings. Future efforts should expand to outpatient care and leverage digital tools for sustainability.

Key Words: inpatient Pain management, Quality improvement, Deder General Hospital

INTRODUCTION

Pain is the most common symptom of potentially thousands of injuries, diseases, disorders and conditions you can experience in your lifetime [1]. It can also result from treatments for conditions and diseases [1]. Pain can last quickly and disappear when you heal (acute pain) [2]. It can also last for months or years (chronic pain) [2]. Pain management specialists help you regulate pain with medications, procedures, exercises, and therapy [3]. To reduce or relieve pain, your provider may recommend one approach or a combination of several [3]. You may receive care in a pain clinic, provider's office, or hospital [4].

Depending on the cause and type of pain, it may not be possible to find total relief, and the pain may not get better immediately [5]. Your provider will work with you to adjust your pain management plan so you can feel better [5].

CONTEXT

Deder General Hospital is one of the oldest and earliest hospitals in Oromia, which was established in 1957 GC in East Hararghe Zone, Deder town by Mennonite missions.

The Mission of the hospital is to reduce morbidity, mortality, and disability. This improves the health status of people in the catchment areas through providing comprehensive rehabilitative, promotive, and curative health services with all stakeholders. It has a well-organized multi-disciplinary QI team comprising physicians, nurses, pharmacists, laboratory technologists, anesthetists, and midwifery professionals. This quality improvement project was of improving inpatient pain management was conducted at Deder General Hospital from **September 1, 2017 E.C. to March 30, 2017 E.C.**

STATEMENT OFPROBLEM

- The pain Audit conducted from **July 15, 2016E.C to August 30, 2016E.C**, shows that the inpatient pain management at Deder General Hospital was 35%. This resulted in a wide range of negative consequences, impacting not only a patient's physical health (increased risk of complications, delayed healing, increased healthcare costs) but also their mental and emotional well-being (anxiety and depression, sleep disturbances, decreased quality of life), as well as their ability to function in daily life (decreased mobility, work and social limitations, increased risk of falls).

AIM STATEMENT

- Deder General Hospital QIT Aim to improve pain management in the inpatient departments from 35% to >90% from **September 1, 2017 E.C. to March 30, 2017 E.C.**

METHODOLOGY

Design:

To improve the diabetes patients' knowledge, the QI team used the model for improvement model (MFI), and the PDSA (Plan-Do-Study- Act) cycle was used to test the change ideas. We used a Fishbone diagram and a Driver diagram technique to identify the root causes and address them.

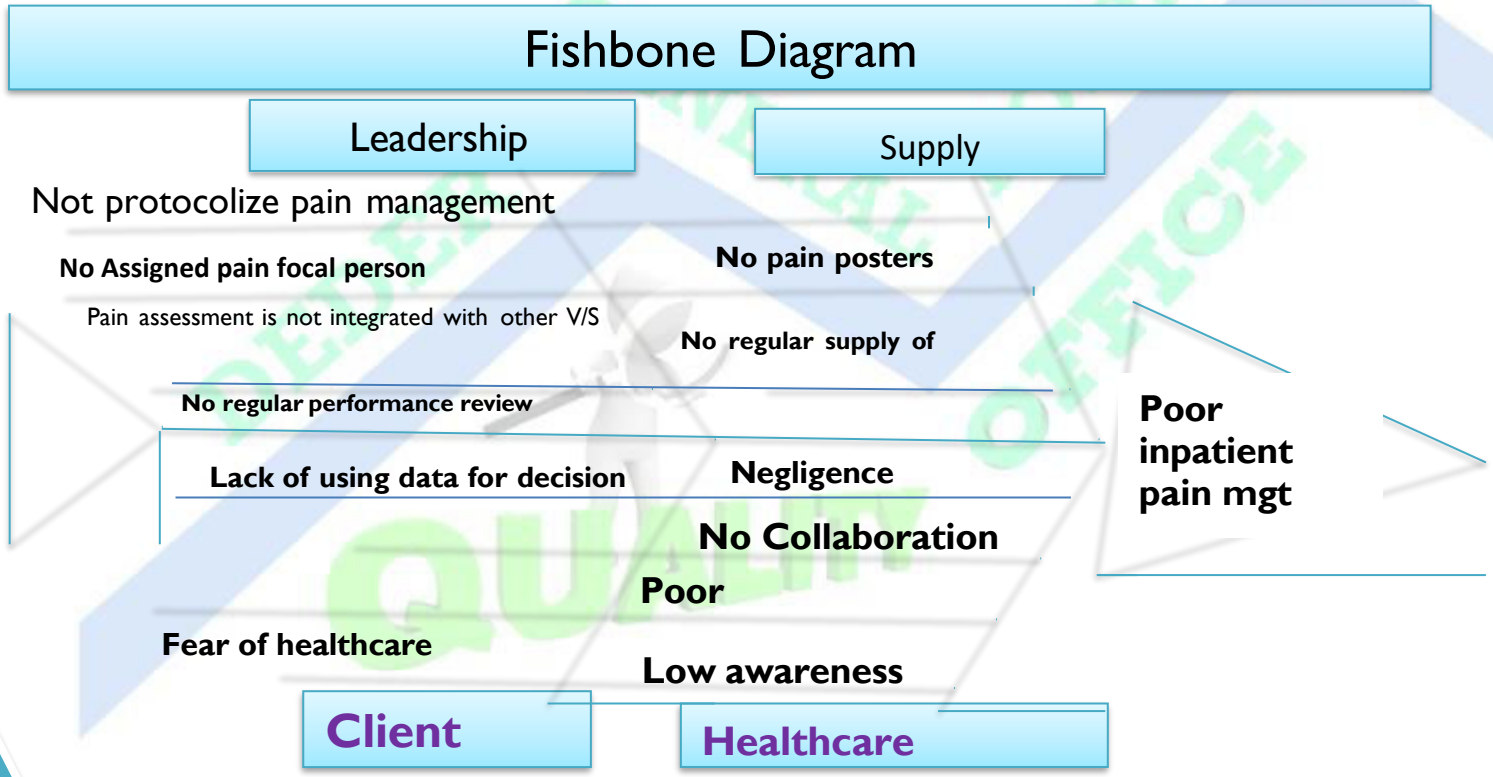

Figure 1: fishbone diagram to improve pain management in the inpatient departments from 35% to >90% from September 1, 2017 E.C. to March 30, 2017 E.C.

DRIVER DIAGRAM

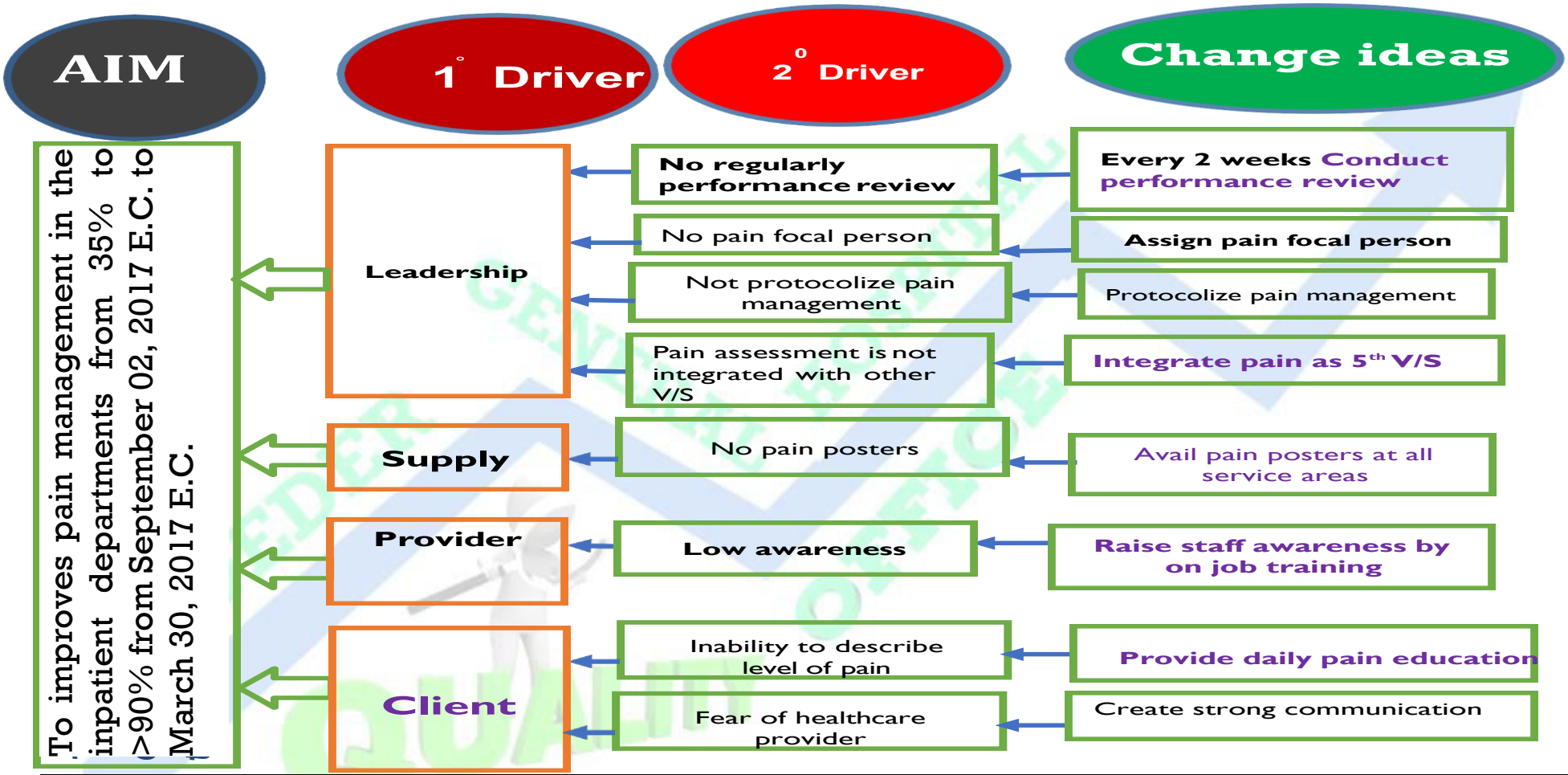

Figure 2: Driver diagram to improves pain management in the inpatient departments from 35% to >90% from September 02, 2017 E.C. to March 30, 2017 E.C.

The project utilized the **Model for Improvement** and **PDSA cycles** to test and implement interventions. Key interventions included:

1. **Provide on job training**
2. **Integrate pain score and mgt with other V/S**
3. **Provide daily pain education for admitted patients**
4. **Performance review meeting with feedback**

MEASURES

Outcome measurement

- Proportion of inpatient pain management.

Process measures

- Proportion of training session provided
- Proportion of staff trained
- Proportion of pain posters provided.
- Proportion of performance review meeting conducted
- Proportion of daily pain education session conducted
- Proportion of protocolized pain management

Balancing measures

- Proportion of patient satisfaction

MEASURES/INDICATORS…Cont'd

Outcome measure

Aim	Indicators	Numerator	Denominator	Data source	Responsible
To improve pain management in the inpatient departments from 35% to >90% from September 1, 2017 E.C. to March 30, 2017 E.C	Percentage appropriate inpatient pain management	Number of charts with appropriately managed pain.	Total charts audited	Inpatient Wards Pt folders	Pain f/person (Abdella Aliyi)

MEASURES/INDICATORS…Cont'd

Process Measures

Aim	Outcome measure		Change ideas	Process measures				Balanci ng measur es
				Indicator	Numerator	Denominator	Data source	
To improve pain management in the inpatient departments from 35% to >90% from September 1, 2017 E.C. to March 30, 2017 E.C.	to improve pain management in the inpatient departments from 35% to >90% from September 1, 2017 E.C. to March 30, 2017 E.C.	Proportion of inpatient pain management	Provide on job training	Proportion of training session provided	Number of training session provided	Total Planned training session	Minute	Improving patient satisfaction
	Numerator	Number charts with appropriate pain management	Integrate pain score and mgt with other V/S				Observation	
	Denominator	Total charts audited	Provide daily pain education for admitted patients	Proportion of daily pain education session provided for admitted patients	Number of daily pain education session provided for admitted patients	Total number of daily pain education session provided for admitted patients	Attendance	
			Performance review meeting with feedback	Proportion of Performance review meeting with feedback conducted	Number of performances revie meeting with feedback conducted	Total number of performances revie meeting with feedback conducted	Minutes	
	Data Source	Patient charts						

IMPLEMENTATION/DO of PDSA

Process Measures

What (Change ideas)	How	Who	When	Where
Provide on job training	Training was given with power point prepared for this purpose and presenters were present interactive presentation for three days	QU Director (Abdi Tofik) & pain focal Person (Abdella Aliyi)	September 01-30, 2017E.C	Skill lab hall
Integrate pain score and mgt with other V/S	The pain focal person integrated Pain score and management with other V/Ss on a single sheet	Pain focal person (Abdella Aliyi)	October 1, 2017E.C to November 30, 2017E.C	Medical ward, pediatric ward, Surgical
Provide daily pain education for admitted patients	Pain education for inpatient admitted patients was provided on daily round basis	Multidisciplinary team	December 1, 2017E.C to January 30, 2017E.C	Medical ward, pediatric ward, Surgical ward, & Gyn ward
Performance review meeting with feedback	The PRM with feedback was provided after each audit was conducted	QI team	February 01, 2017E.C to March 30, 2017E.C	DGH

DO OF PDSA------

Process measurements data collection plan

Measurement	Timeline for DC	frequency of DC	Responsible for DC	Data source
Proportion of training session provided	September 01-30, 2017E.C	Bi-Weekly	QU Director (Abdi Tofik) & pain focal	Attendance
Integrated pain score and mgt with other V/S	October 1, 2017E.C to November 30, 2017E.C	Bi-Weekly	pain focal person (Abdellahi	Pt charts
Proportion of daily pain education session provided for admitted patients	December 1, 2017E.C to January 30, 2017E.C	Bi-Weekly	MDT	Minute
Proportion of performance review with feedback conducted	February 01, 2017E.C to March 30, 2017E.C	Bi-Weekly	QI team	minute

Process Measures performance tracking sheet

S/N	Change Ideas/ Interventions	Process measure			Remark
		Number/session planned	Number/session performed	% of achievement	
1.	**Proportion of training session provided**	1	1	100%	
2.	**Integrated pain score and mgt with other V/S**	1	1	100%	
3.	**Proportion of daily pain education session provided for admitted patients**	180	160	80%	
4.	**Proportion of performance review with feedback conducted**	12	**12**	100	

OUTCOME MEASURE (Do of PDSA)

***Table 1**: Showed to improve pain management in the inpatient departments from 35% to >90% from September 1, 2017 E.C. to March 30, 2017 E.C.*

Aim	Numerator, denominator a and outcome indicator	15-Sep-17	30-Sep-17	15-Oct-17	30-Oct-17	15-Nov-17	30-Nov-17	15-Dec-17	31-Dec-17	15-Jan-17	31-Jan-17	15-Feb-17	28-Feb-17	15-Mar-17	30-Mar-17
To improve pain management in the inpatient departments from 35% to >90% from September 1, 2017 E.C. to March 30, 2017	Number of charts with appropriately correct pain managed/control	22	22	25	28	30	36	34	39	36	38	40	40	37	38
	Total charts audited	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	% of appropriately inpatient pain managed	**55**	**55**	**63**	**70**	**75**	**90**	**85**	**98**	**90**	**95**	**100**	**100**	**93**	**95**

STRATEGY FOR IMPROVEMENT

Four PDSAs were conducted over 28 weeks, with each PDSA cycle focusing on different aspects of the intervention to improve inpatient pain management: **PDSA 1** was tested **over 4 weeks,** and **PDSAs 2-4 over 8 weeks**, respectively. Additional interventions were explored in subsequent PDSA cycles, alongside consolidation of the previous cycle. We assessed the extent to which improved performance was achieved and maintained every two weeks. The total sample size used was **40 × 14 = 560.**

PDSA CYCLE 1:

In the first PDSA (sample size=80) the plan was to provide on-the-job training on pain management to staff. Therefore, the pain focal person and the QI Director provided functional training to 93.8% (75/80*100) of the staff on appropriate pain management. In the first cycle, trained 40 nurses from Medical & Surgical Wards. After two weeks, the QI team conducted the audit which showed that rate of appropriate inpatient pain management to be **55%.** Similarly, in the second cycle, trained 35 nurses from OBGYN and Pedi wards. Then, on week 4 of the intervention, the nursing audit was conducted and resulted that appropriate inpatient pain management was also becoming 55%. Therefore, On-**the-job training** with basic knowledges improved inpatient pain management from a baseline of **35% to 55%.**

PDSA CYCLE 2:

In this PDSA cycle (**sample=160),** the QI team has integrated the pain management with other V/S on a single format. The QI team showed the formats to ward heads and encouraged them to use and evaluated the performance every two weeks. Therefore, the assessment showed that the inpatient pain management over 8 weeks of tested PDSA to be **63%, 70%, 75% and 90** respectively.

PDSA CYCLE 3:

In this PDSA cycle (sample=160), we reinforced each of the previous interventions. The QI team decided to provide **pain education on daily round basis** and evaluated the project performance biweekly. Therefore, the assessment results showed that the inpatient pain management during 8 weeks of the PDSA cycle to be **85%, 98%, 90%, and 95%** respectively.

PDSA CYCLE 4:

In this PDSA cycle (sample=160), the QI team decided to conduct Biweekly **performance review with feedbacks** to unit heads for consecutive 8 weeks. Accordingly, the biweekly audit results showed that the inpatient pain management during the PDSA cycle to be **100%, 100%, 93%, and 95%** respectively.

RESULTS

The Quality Improvement (QI) project at Deder General Hospital successfully improved inpatient pain management from a baseline of **35% to over 90%** within seven months (**September 2017 E.C. to March 2017 E.C.).** The **intervention, structured around four PDSA cycles**, introduced targeted changes such as **staff training**, **integration of pain scoring with vital signs**, **daily patient education**, and **performance reviews with feedback**. These measures led to progressive improvements, with pain management rates rising to **55% after initial training, 90% after process integration**, and **peaking at 100% during performance reviews**. Ward-level data revealed significant gains across all departments, with the most notable improvements in the Medical Ward (94%) and Pediatric Ward (95%). Additionally, patient satisfaction increased from **53% to 84%,** underscoring the broader positive impact of the project.

The success of the QI initiative was driven by a combination of staff engagement, standardized protocols, and continuous monitoring. By addressing root causes such as lack of training and inconsistent pain assessment practices, the hospital achieved sustained improvements in pain management. The project demonstrated that iterative testing, multidisciplinary collaboration, and patient-centered interventions are effective strategies for enhancing healthcare quality in resource-limited settings. These results highlight the potential for scalable solutions to improve clinical outcomes and patient experiences in similar healthcare facilities.

Run Chart with multiple PDSAs showing improvement in pain management in inpatient departments

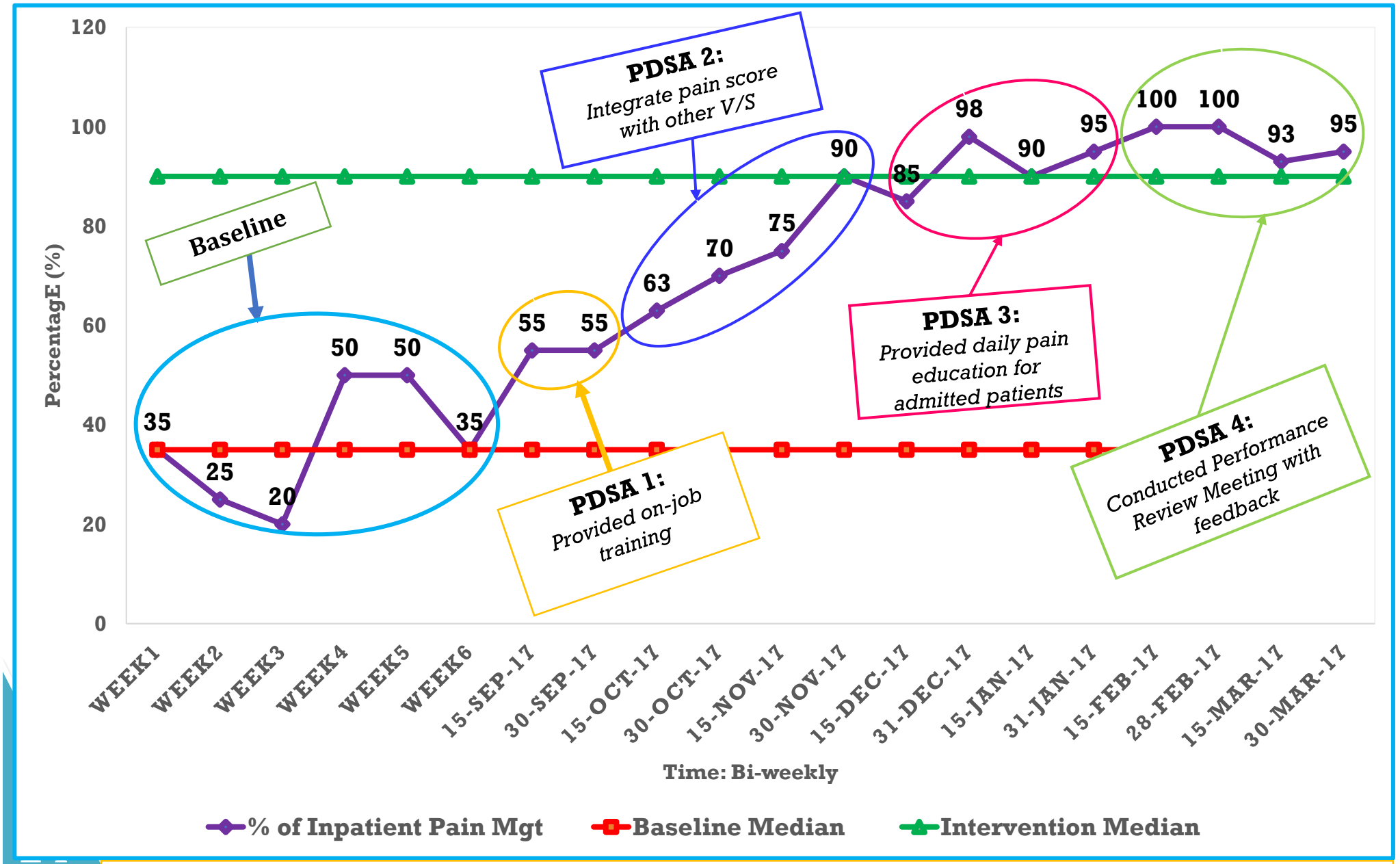

***Figure 3**: Run Chart with multiple PDSAs showing improvement in pain management in inpatient departments from 35% to >90% from September 1, 2017 E.C. to March 30, 2017 E.C.*

After QI intervention: Inpatient Pain Management at ward levels

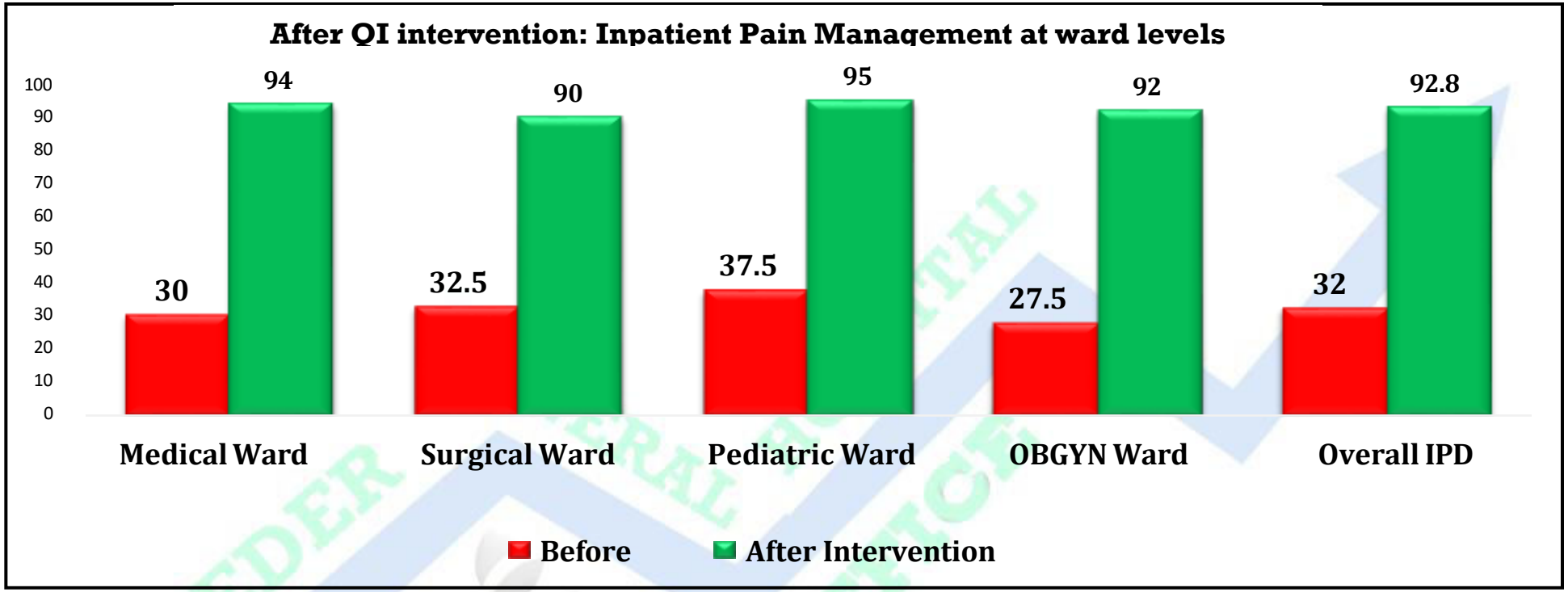

Figure 4: Ward level inpatient pain management at Deder General Hospital from September 1, 2017E.C to March 30, 2017E.C

BALANCING MEASURE OUTCOMES

A Positive consequence of implementing the quality improvement project was improved patient satisfaction from 53% to 84%.

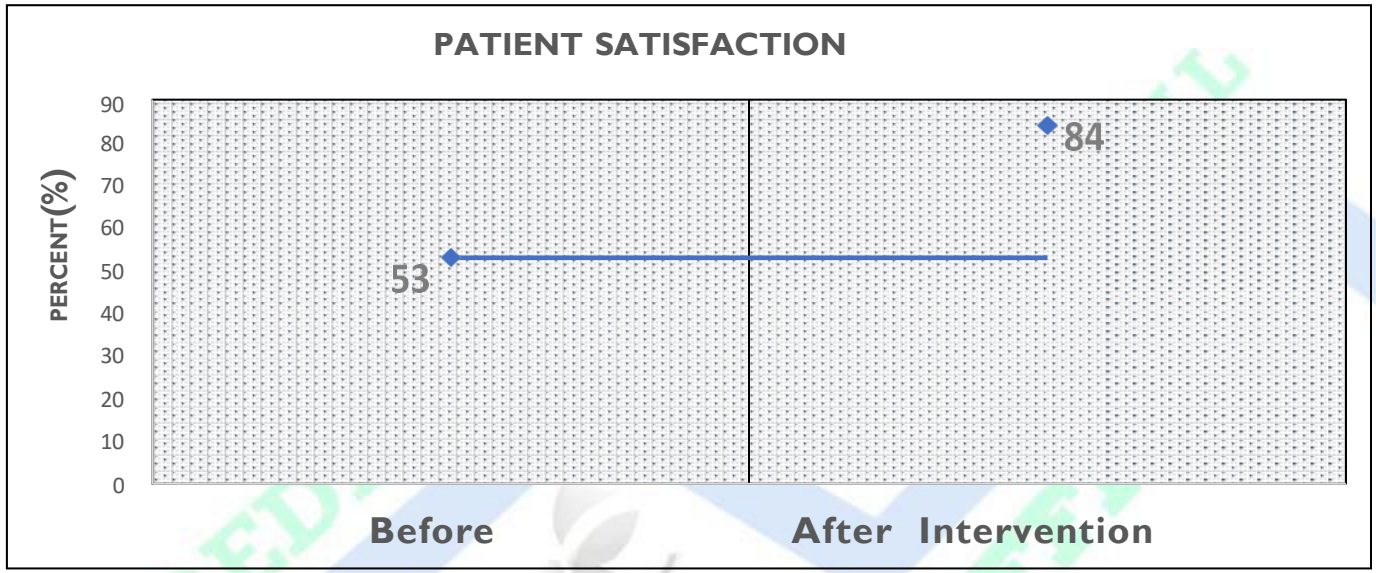

Figure 5: *Shows that improved inpatient pain management resulted that improving patient satisfaction in inpatient Wards of Deder General Hospital, from September 02, 2017E.C to March 30, 2017E.C.*

DISCUSSION

The success of this QI project demonstrates the effectiveness of systematic, data-driven approaches in addressing complex healthcare challenges like pain management. By employing the Model for Improvement and PDSA cycles, the hospital was able to test and refine interventions in real-time, allowing for rapid identification of what worked best. The integration of pain assessment with routine vital signs proved particularly impactful, as it embedded pain management into standard workflows rather than treating it as an additional task. This structural change, combined with comprehensive staff training, addressed both knowledge gaps and systemic barriers to effective pain management. The progressive improvement across PDSA cycles suggests that layering interventions while reinforcing previous changes created a compounding effect, ultimately leading to sustained high performance.

Beyond clinical outcomes, the project's positive impact on patient satisfaction (from **53% to 84%)** highlights how quality improvement in pain management extends beyond metrics to meaningful patient experiences. The daily education sessions empowered patients to communicate their pain needs more effectively, fostering a collaborative care environment. Challenges such as initial staff resistance and supply limitations were mitigated through leadership engagement and iterative problem-solving, underscoring the importance of adaptability in QI initiatives. These findings align with global evidence that multifaceted interventions—combining education, process redesign, and accountability mechanisms—are most effective for improving pain management. The project's success in a resource-limited setting also offers valuable insights for similar hospitals seeking to enhance care quality without major infrastructure investments. Future efforts could build on this foundation by expanding pain management protocols to outpatient settings, incorporating digital tools for real-time monitoring, and further studying the long-term effects on patient outcomes and healthcare utilization. The lessons from this project reinforce that sustainable improvement requires both technical solutions and a commitment to cultural change within healthcare teams.

LESSEN LEARNT:

The Deder General Hospital's pain management QI project yielded several key lessons: structured frameworks like PDSA cycles proved essential for systematic improvement, while multidisciplinary engagement ensured staff ownership and accountability. Integrating pain assessment into routine workflows increased compliance, and patient education sessions enhanced communication and outcomes. Regular data tracking and transparent performance reviews-maintained momentum, demonstrating that even resource-limited settings can achieve significant gains through strategic, low-cost interventions like protocol standardization and feedback loops. Leadership commitment emerged as critical for sustaining changes, with active involvement from administrators and clinicians driving long-term success. These insights highlight that effective QI requires both technical solutions and cultural shifts, offering a replicable model for similar healthcare challenges. The project underscores how adaptable, team-based approaches that prioritize patient needs and continuous learning can transform care delivery without requiring major infrastructure investments.

CONCLUSION

The Quality Improvement project at Deder General Hospital successfully transformed inpatient pain management, achieving a remarkable increase from **35% to over 90% compliance** within seven months. By leveraging the Model for Improvement and iterative PDSA cycles, the project demonstrated that structured, data-driven interventions—such as staff training, process integration, patient education, and performance feedback—can drive sustainable change even in resource-limited settings. The significant rise in patient satisfaction (from **53% to 84%**) further highlights the project's holistic impact on both clinical outcomes and patient experiences. Key lessons, including the importance of multidisciplinary collaboration, workflow integration, and leadership engagement, provide a replicable blueprint for addressing similar healthcare challenges. This initiative underscores that systemic improvements in care quality are achievable through strategic planning, continuous monitoring, and a commitment to patient-centered solutions. Moving forward, scaling these interventions to outpatient settings and incorporating digital tools could further enhance pain management across the healthcare system, solidifying the hospital's progress toward excellence in patient care.

REFERENCES:

1. [American Academy of Pain Medicine: https://painmed.org/what-is-pain-medicine/]
2. [National Institute of Neurological Disorders and Stroke: https://www.ncbi.nlm.nih.gov/books/NBK553030/]
3. [Mayo Clinic: https://www.mayoclinic.org/departments-centers/pain- medicine/sections/conditions-treated/orc-20450067]
4. [American Society of Anesthesiologists: https://www.asahq.org/advocating-for- you/pain-medicine]
5. [International Association for the Study of Pain: https://www.iasp- pain.org/advocacy/definitions-of-chronic-pain-syndromes/]