



Assessing the effectiveness of targeted supplementary feeding programmes for moderate acute malnutrition in northeastern Nigeria: results of a mixed-methods study

***Mario-David Barbagallo¹**, Anja De Weggheleire¹, Sulan Yang¹, Abdullahi Chara¹, Musa Tanko¹, Hastings Onu¹, Stephen Nadap Pancha¹, M. Arab Alhaji², Garba Mohammed Ashir³, Abdullahi Alhaji Madi⁴, Mala Abdulwahab⁴, Aissami Abdou¹, Umberto Pellecchia^{1,5}, Temmy Sunyoto^{1,5}

Conflicts of interest

All authors declare no competing interests.

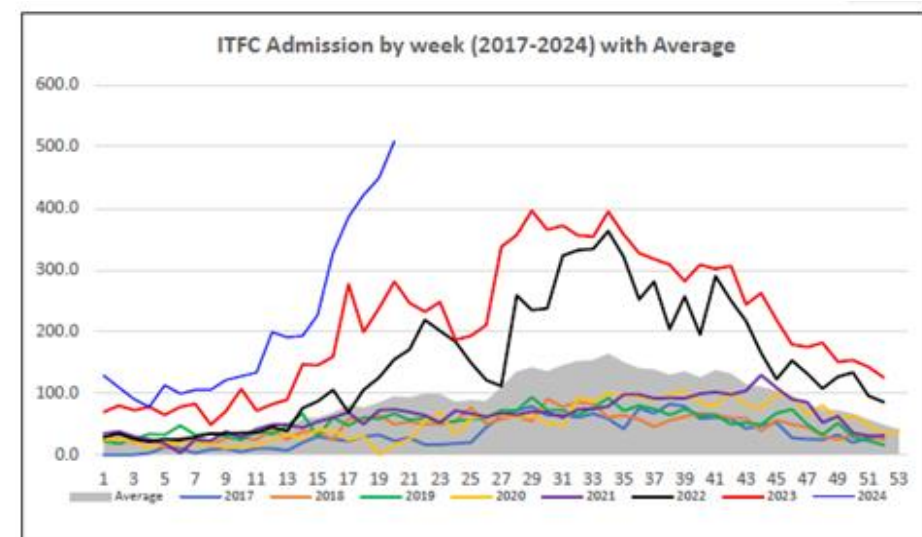
Ethics

This research was reviewed and approved by Médecins Sans Frontières (MSF) Ethics Review Board (ERB2446) and Borno State Health Research Ethics Committee (SHREC 051/2024). It was conducted with permission from Medical Director, Operational Center Brussels, and it received permission from the local authorities.



Introduction

- Protracted crisis in Borno (1.6M displaced people)
- MSF services for Severe Acute Malnutrition (SAM) in Maiduguri since 2017
- High malnutrition burden, multiple factors, high need, overburdened facilities during seasonal peak (May-October) (since 2022)
- Moderate Acute Malnutrition (MAM) under-addressed compared to SAM
- MSF launched a simplified targeted supplementary feeding program (TSFP) for MAM to prevent deterioration to SAM.
- Aim: evaluate program outcomes after one year, guide potential scale-up in Nigeria & support advocacy for improved MAM services in similar contexts.



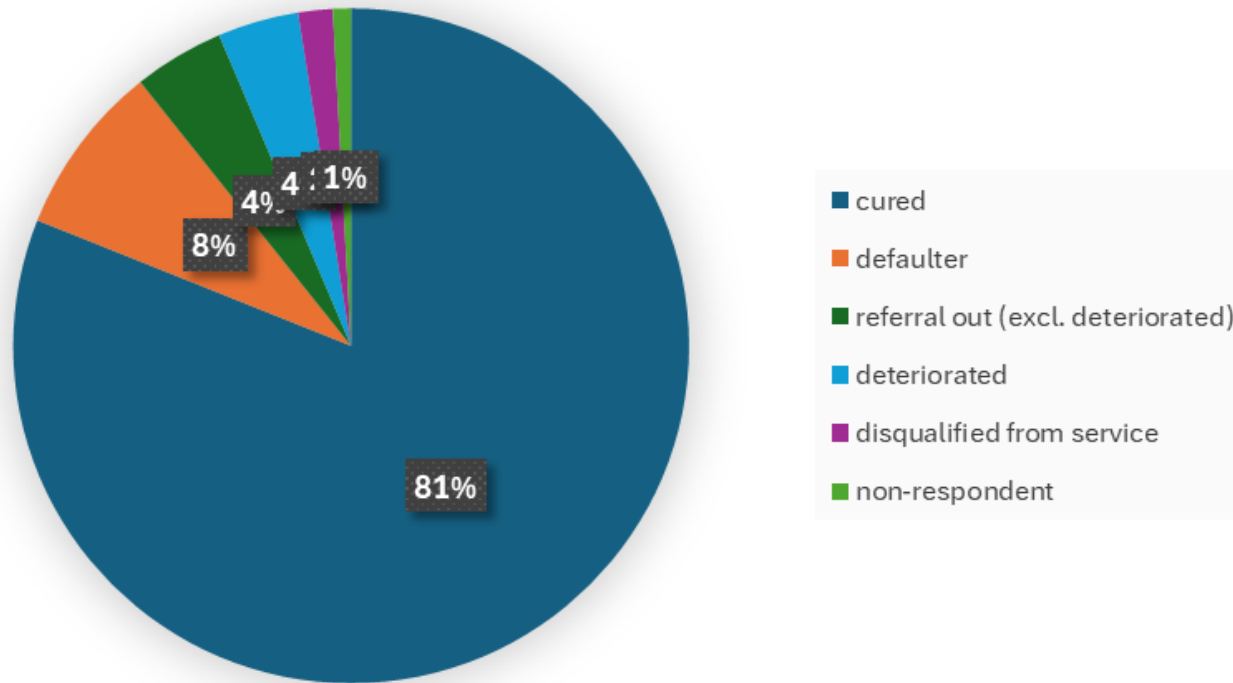
Study design and method: Parallel mixed-methods study

- **Quantitative:** retrospective analysis of routine programme data
- Participants:
 - 5893 children aged 6-59 months enrolled in TSFP (May 2023 – April 2024)
- Outcomes measured:
 - % recovery, deterioration to SAM, defaulter, non-response
 - Risk factors of deterioration (descriptive and univariate statistics in R)
 - Aggregated data analysis: origin trends before and after opening TSFP + outside/inside TSFP catchment area
- **Qualitative:** Focus group Discussions (FGD) and In-Depth Interview (IDIs)
- Participants:
 - Caregivers (≈ 100 ; saturation principle)
 - Health care workers (MSF and Ministry of health) (≈ 20)
 - Project staff (= 6) (involved in design and implementation)



Results – Quantitative - outcome indicators (N= 5893)

Exit categories



weight gain_g/Kg/day

Mean (SD)	2,78 (3,71)
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muac gain_mm

Mean (SD)	4.82 (3.05)
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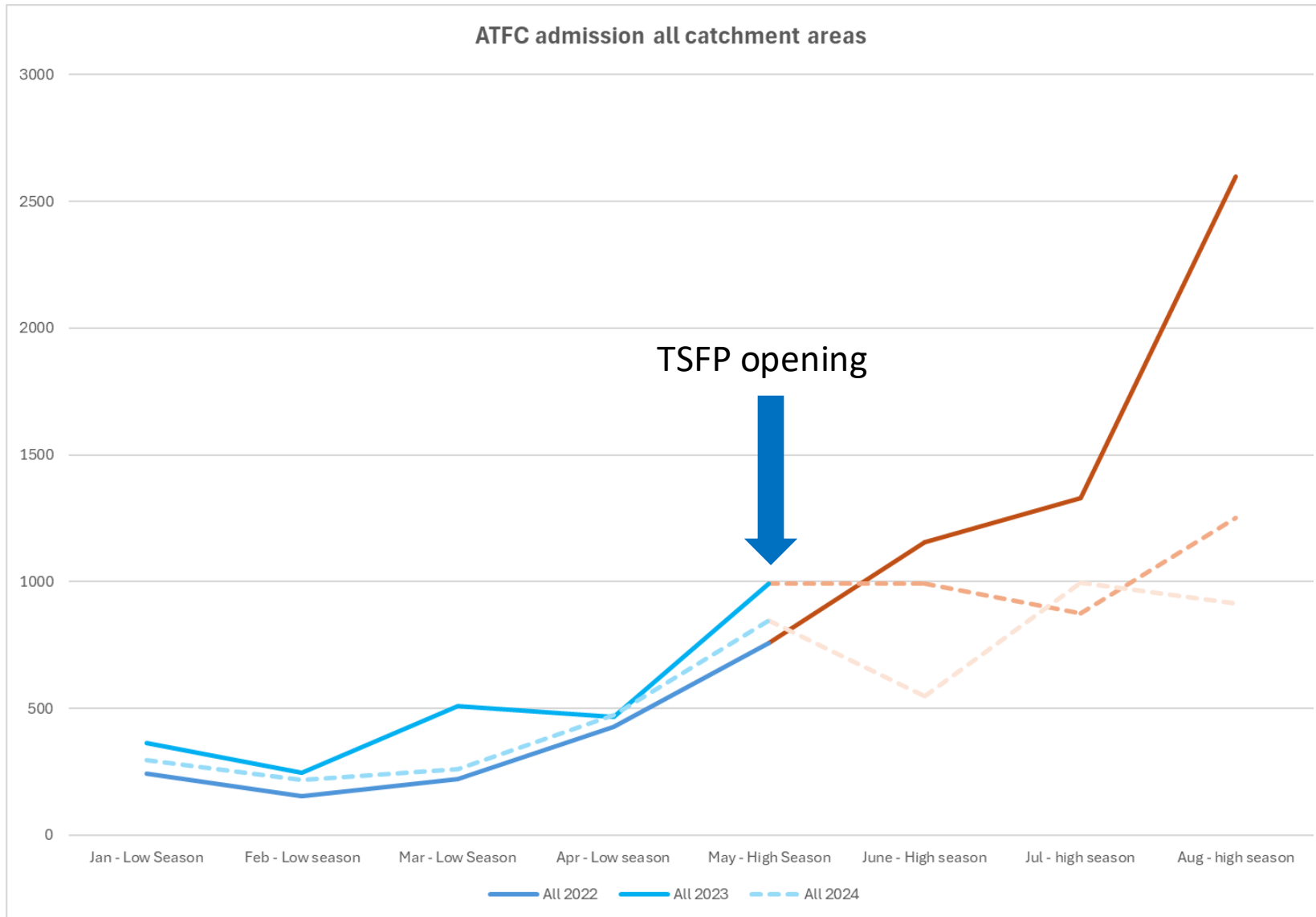
length of stay_days

Median (IQR)	27 (14-41)
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Results – Quantitative – risk factors for deterioration

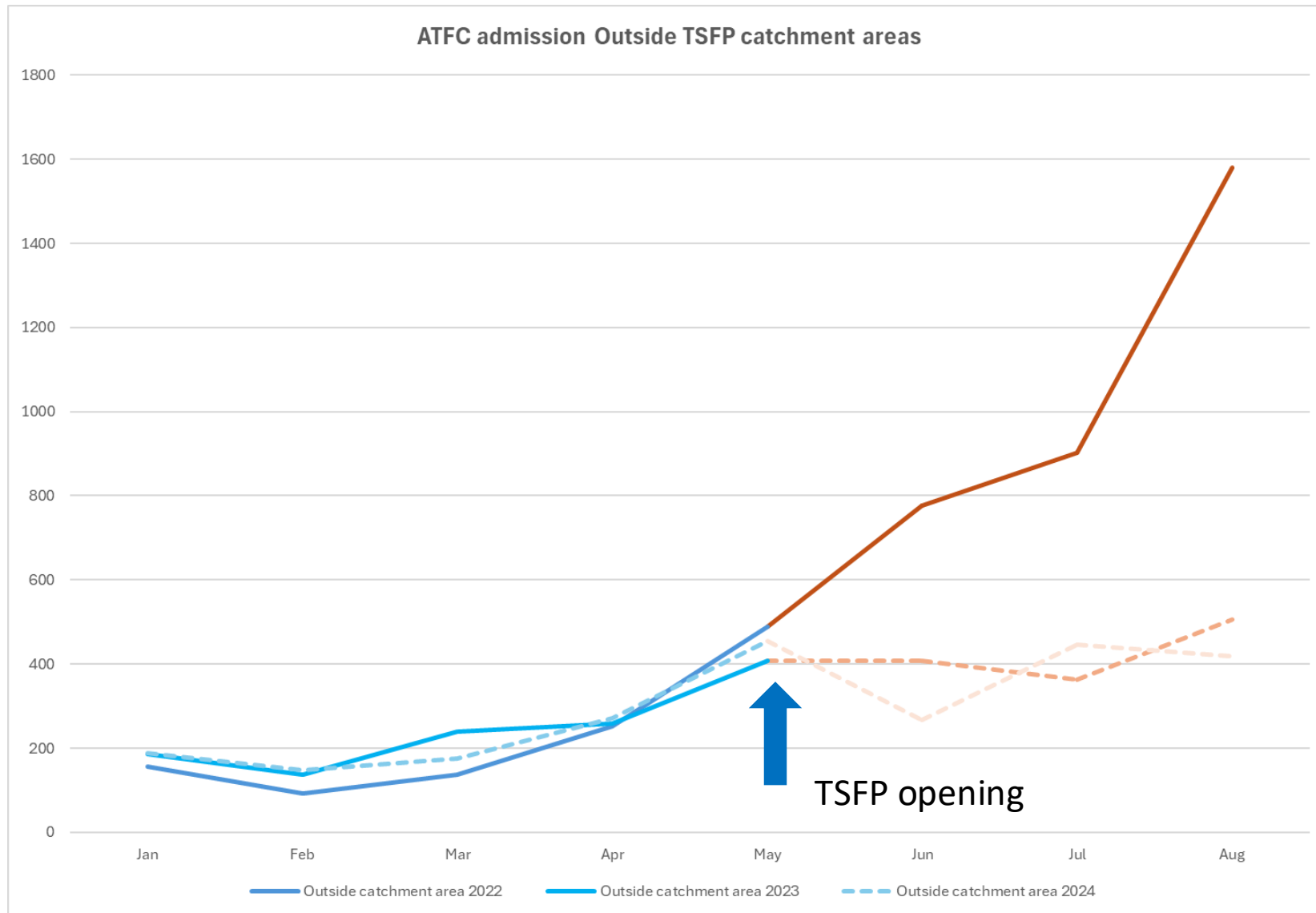
Significant factors of deterioration	Total (N=5002)	cured (N=4774)	deteriorated (ITFC) (N=228)	p value
age category_month				<0,001
06m-08m	451 (9.0%)	404 (8.5%)	47 (20.6%)	
sex				0.02
Female	2887 (57.7%)	2738 (57.4%)	149 (65.4%)	
Male	2115 (42.3%)	2036 (42.6%)	79 (34.6%)	
admission muac_mm				<0,001
Mean (SD)	121 (2.33)	121 (2.27)	119 (2.35)	
vaccination status uptodate at exit				<0,001
No	627 (12.5%)	555 (11.6%)	72 (31.6%)	
Yes	4369 (87.3%)	4217 (88.3%)	152 (66.7%)	
Missing	6 (0.1%)	2 (0.0%)	4 (1.8%)	

Impact on SAM admissions in ATFC?



- 2022-2023: 17% drop
- 2023-2024: 20% drop

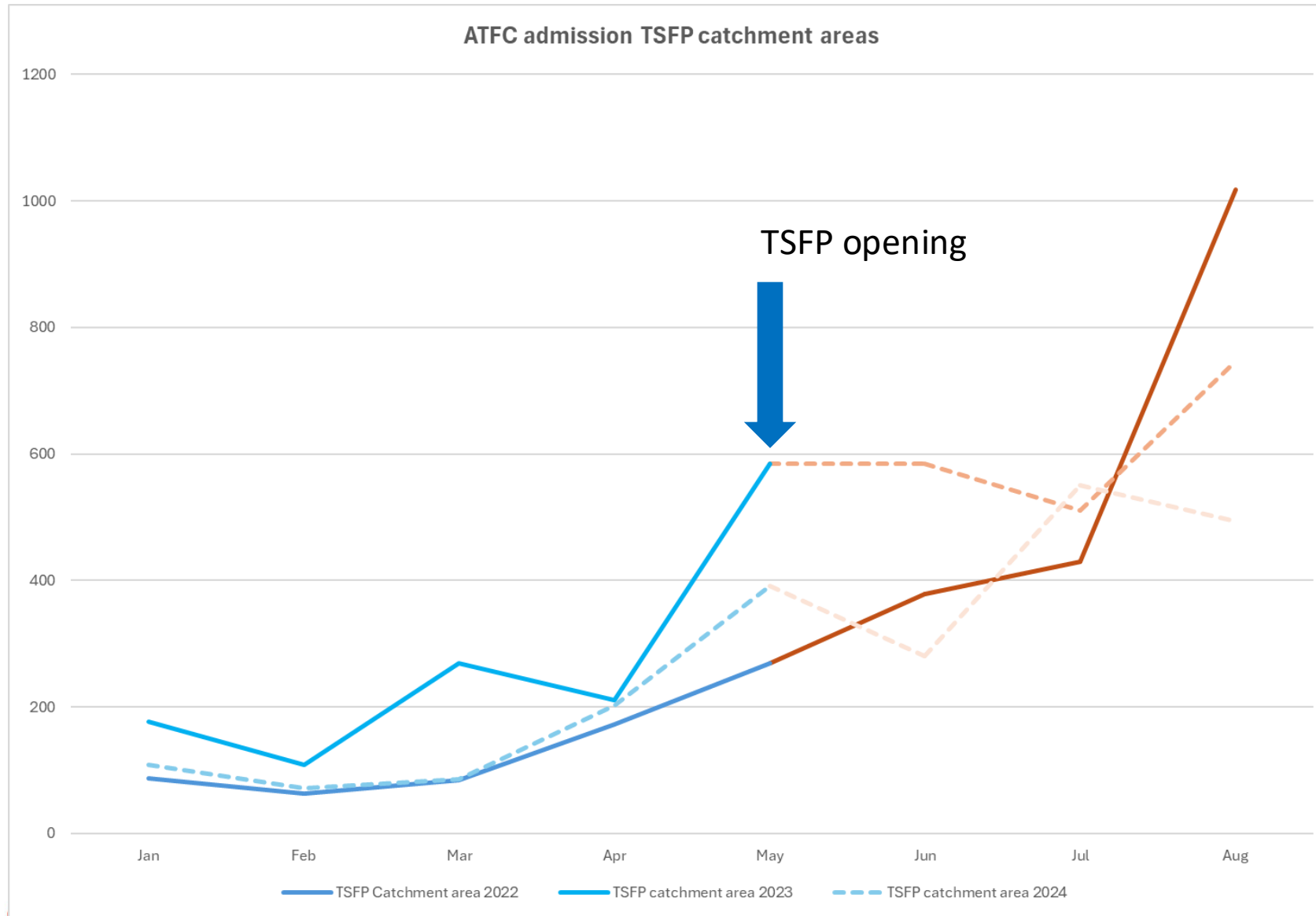
Impact on SAM admissions in ATFC ?



Opening of TSFP in May 2023

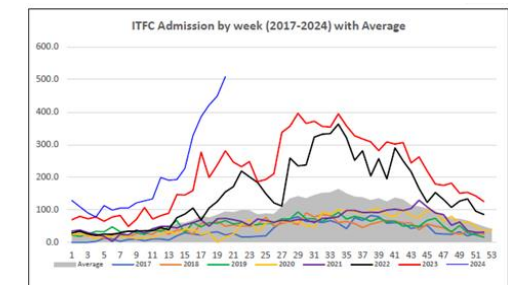
- 2022-2023: 43% drop
- 2023-2024: 6% drop
- **2022-2023:**
 - Low season: 28% increase
 - High season: 55% drop

Impact on SAM admissions in ATFC ?



Opening of TSFP in May 2023

- **2022-2023:**
 - **Low season: 88% increase**
 - **High season: 16% drop**
- **2023-2024:**
 - **Low season: 39% drop**
 - **Low season: 29% drop**



Qualitative preliminary findings

Positive Health Impact: Caregivers reported improved child health and valued free care (medical, nutrition, FP), while retaining key hygiene and feeding messages.

Economic Barriers: Poverty drove RUTF misuse, incomplete adherence, and anxiety over discharge; financial stress limited caregiving capacity.

Security Risks: RUTF Theft, crowding, and protests disrupted care

Social & Gender Dynamics: Malnutrition seen as failure of men to sustain family need; men influence health decisions, stressing need to involve fathers in program efforts.

Internal organizational challenges: overcrowded work environment, and integration of mental health services affected service quality.



Conclusion

Key Results Supporting Scale-Up

- TSFP in Maiduguri effectively treated MAM and reduced progression to SAM
- SAM admissions declined, linked to TSFP and improved referral pathways
- New WHO guidelines, simplified approaches and global focus on high-risk MAM create strong momentum

Opportunities This Platform Enables

- Pilot local alternatives to RUTF (e.g., *Tom Brown*) (sustainability and security)
- Explore community-based delivery and community engagement strategy with focus on engaging men
- Prioritize younger children and those with MUAC <120 mm and strengthen integration of IYCF activities
- Address social and gender dynamics affecting outcomes
- Integrate catch-up vaccination into routine care
- Strengthen mental health support within nutrition programs
- Continue qualitative research to guide future design
- Pursue collaboration with other actors