REDUCING NEONATAL MORTALITY IN ABS GENERAL HOSPITAL, YEMEN

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ABS GENERAL HOSPITAL

- Armed conflict context, supported by MSF since 2015.
- Main gaps: Malnutrition, Maternal – child health, Lack of access to PHC
- Activities and capacity in Feb 2023.
  - **Neonatal Ward: 88 beds**
  - **Maternity: 900 births/month**
  - ITFC: 60 beds
  - IPD Pediatrics: 30 beds
  - ER, OT, Surgical ward, MH, Laboratory

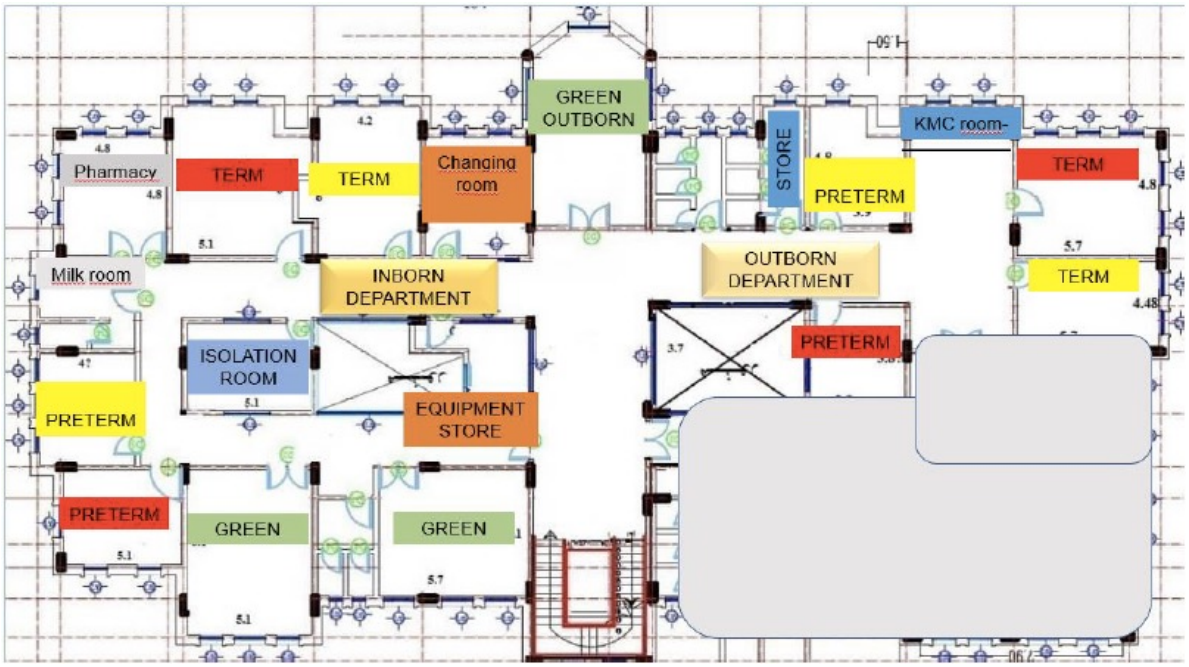
ITFC: Inpatient Therapeutic Feeding Centre, IPD: Inpatient Department, ER: Emergency Room, OT: Operating Theatre, MH: Mental Health

MEDECINS SANS FRONTIERES

NEONATAL WARD

Situation during 2022

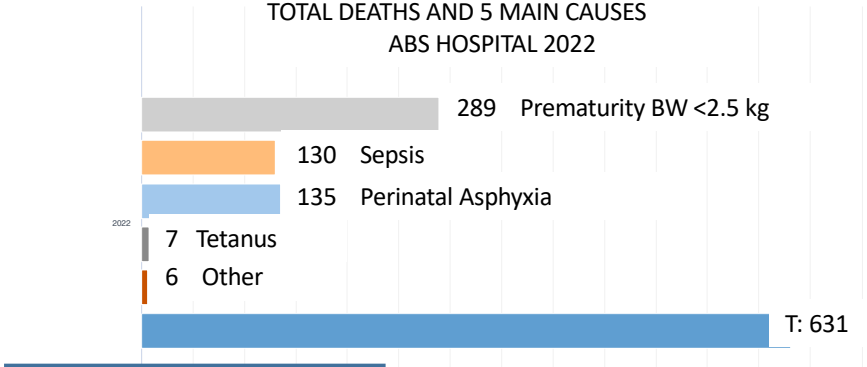
- 88 cribs divided in red / yellow / green rooms
- Admissions / month: 167 – 351 (mean 258) (peak June - September)
- BOR: 46 – 99.5% (mean 77%)
- ALS 5.4 – 10.2/days (mean 7.2 days)
- **Mortality rate: 12- 30% (mean: 21.1%)**



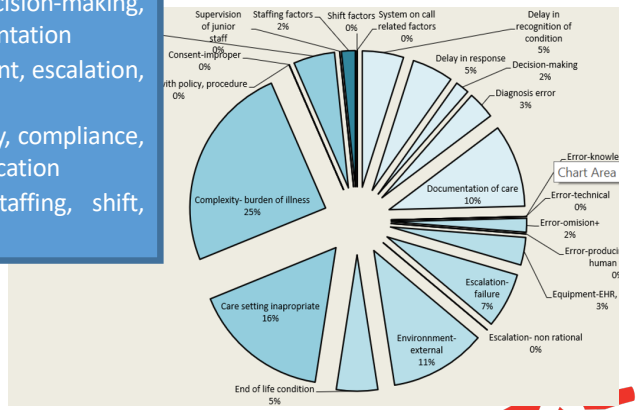
BOR: Bed Occupancy Rate, ALS: Average Length of Stay.

MORTALITY ANALYSIS

- Main causes of death during 2022:
  - Prematurity
  - Sepsis
  - Perinatal asphyxia
- Mortality cases were analysed using DECS tool, main contributory factors were:
  - Complexity – burden of the disease
  - Care setting inappropriate
  - Escalation failure
  - Documentation of care



D: Delays, decision-making, diagnosis, documentation
E: Errors, equipment, escalation, environment
C: Care, complexity, compliance, consent, communication
S: Supervision, staffing, shift, system on call



MEDECINS SANS FRONTIERES

ACTION PLAN

We identified up to 38 different activities organised by priority and feasibility.

Problem description (Subjects evaluated from the i-MC assessment tool or from observation)		**ACTIONS/ACTIVITIES TO BE IMPLEMENTED**			
Area	***Summary description of the problem***	**OBJECTIVE** (Expected results)	**ACTIVITY OR ACTIVITIES PLANNED** One file for each activity!!	**PRIORITY** (low, medium, high, urgent)	**OUTCOME MEASUREMENT** Key indicators to measure the expected results
D - Delays, decision-making, diagnosis, documentation					
Delay in recognition of condition	Lack of knowledege of GPs of clinical signs for early detection of neonatal sepsis.	Increase knowledge and awareness about neonatal sepsis for GPs	Formal training on early recognition of neonatal sepsis every 6 months	Urgent	Monthly mortality revie. Decrease in global mortality, decrease in mortality due to sepsis. May be increase in diagnosis of sepsis as recognition will increase.
			On job training during ward rounds	Urgent	
	Nurses fail to identify symptoms of sepsis or to communicate to the doctor soon.	Early detection of sepsis symptoms by nurses	On job training during daily rounds	High	
			Formal training for nurses on early detection of sepsis symptoms in neonates every 6 months	High	
			Posters for neonatal unit with key information about neonatal sepsis	High	
Delay in response	Second line antibiotic treatment delayed after indication becouse of process of validation too complex. (need validation by expat pediatrician that might not be reachable at the moment)	Update SOP for second line antibiotic use in neonatology	New protocol for use of second line antibiotic in neonatal sepsis following assessment of local resistency pattern and easy to follow flowchart, reducing the need of validation and reducing time to start second line antibiotic.	Medium	Medical meetings, supervisors to follow up delay in adminitration of antibiotic.

ACTIVITIES

- Implementation of activities started during March – April 2023 and continued throughout the year
- Activities were focused in 3 main pillars:
  1. Promoting Zero – Separation
  2. Adherence to Neonatal protocols
  3. Reducing nosocomial infection
- Methodology: We compared mortality rates before and after implementation of activities:
  - Post-implementation: May – December 2023 (P3)
  - Pre implementation: Reference period: September – February 2023 (P2), January – August 2022 (P1), this last period was also compared to avoid seasonal bias.
  - Analysis: aggregated monthly data from Health Management Information System (HMIS)
  - Stratified by year and by predefined pre and post implementation periods
  - Mortality rate ratios (MRR) were calculated using negative binomial regression

ACTIVITIES: PROMOTING ZERO-SEPARATION

- Neonatal Unit was redesigned to include enough space for mothers:
  - More rooms with bed+crib for rooming-in
  - Chairs beside every crib
- Revision of admission criteria:
  - Less severe cases would be admitted in maternity with mothers (1 neonatal nurse assigned to maternity)
- Breastfeeding / KMC working group:
  - Biweekly meetings
  - HP, NTS, Paediatrician, MD, MW…
  - Frequent trainings

HP: Health Promoter, NTS: Nurse Team Supervisor, MD: Medical Doctor, MW: Midwife

ACTIVITIES: ADHERENCE TO NEONATAL PROTOCOLS

Adherence to neonatal protocols:

- Weekly formal trainings for MDs and bedside training
- Reduce MDs rotation between departments
- Focal points
- Improve documentation of care and communication MD – nurse – patient's family
- Mortality committee

ACTIVITIES: REDUCING NOSOCOMIAL INFECTION

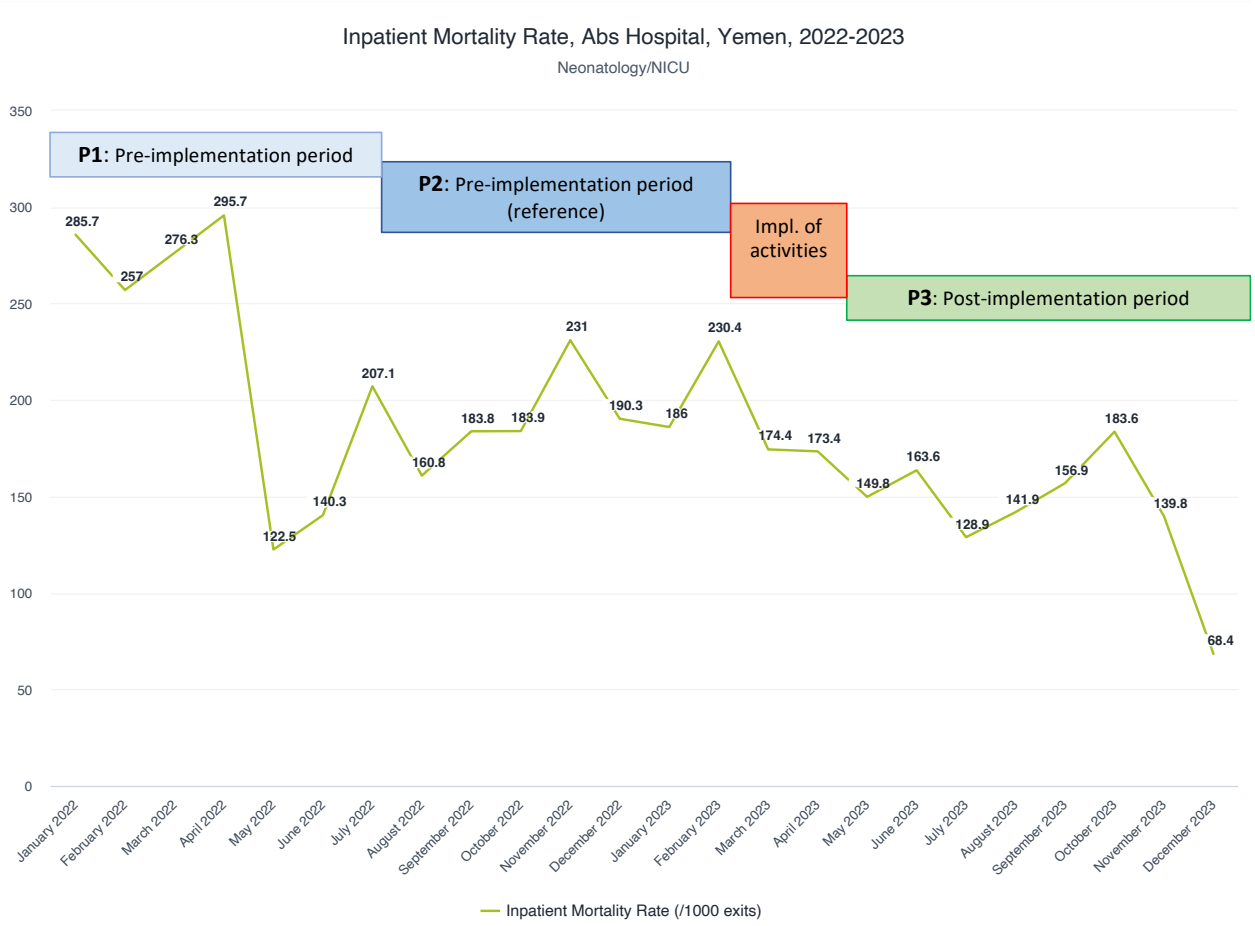
Reducing nosocomial infection:

- IPC committee already in place
  - Reinforce IPC measures
  - Hand washing compliance improved from 40 to 70%
  - Ensure enough space between patients
- Nosocomial outbreak SOP
- Avoid overcrowded wards: revision of admission and discharge criteria

IPC: Infection Prevention Control,
SOP: Standard Operations Procedure

RESULTS

- Sample size: A total of 1050 neonatal deaths and 5733 exits were included in the analysis period
- Result showed a 24% decrease in neonatal mortality in P3 compared to P2 (MRR= 0.76, 95%CI0.60-0.95, p=0.02)
- No seasonal bias: 26% mortality decrease in P3 compared to P1 (MRR= 0.74, 95%CI0.65-0.85, p<0.05)



CONCLUSIONS

- Increased neonatal mortality is a common problem in MSF settings
- Combination of low-cost activities can have significant impact on mortality
- Strategies like Zero-Separation have already been proven useful to reduce neonatal mortality, but its implementation may be difficult in some settings
- All medical staff working in neonatal wards should receive specific training and frequent rotation between departments should be avoided
- Involving locally-hired staff is key for good outcome and continuity

- Limitations: Data analysed retrospectively and in different periods of time; Combination of activities, not possible to identify which activity is more effective

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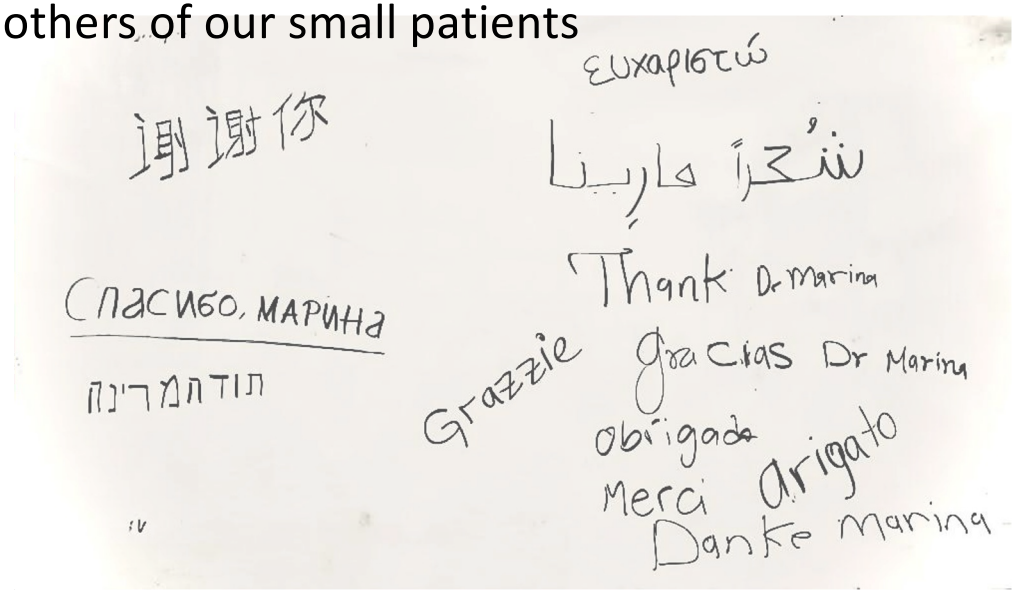
Special aknoledgement to all staff working in Abs Neonatal Department and to the mothers of our small patients



ETHICS STATEMENT: This descriptive study is based on routinely collected programmatic data. MSF OCBA Medical Director has granted an Ethics exemption for presentation at the MSF Paediatric Days.