

OVERVIEW OF NEONATAL MORBIDITY & MORTALITY AT THE EASTERN HIGHLANDS PROVINCIAL HOSPITAL SPECIAL CARE NURSERY 2011-2015



Dr Temane Korowi
MMED

Introduction

□ Worldwide

- Neonatal morbidity and mortality contributes for 40% of deaths of children <5 yrs

(Lerberghe WV et al 2005, WHO Press)

□ Developing Countries:

- Last 30 yrs there has an improvement in mortality of children less than 5years

- → from malaria, diarrhoeal diseases & pneumonia rather than neonatal causes

(The MDGs report)

- Despite this improvement in under 5 mortality, MDG 4 was not achieved → reduce under 5 mortality by 2/3 by 2015

❑ WHO Western Pacific Region:

- ❑ Neonatal deaths represented 54% of children who died before the age of 5 years
- ❑ From PT/LBW complications, birth asphyxia (BA), infection & congenital anomalies

(Action Plan for Healthy newborn infants, WPR, 2014- 2020, WHO)

❑ PNG:

- ❑ Common causes of neonatal morbidity are: **LBW** (prematurity & IUGR), **bacterial infections**, and **BA**.

(Duke T et al, 2000 PMGMJ)

- ❑ 2015: Neonatal conditions 2nd leading cause of admissions → 25% of all paed admissions

Aim

To Identify:

1. Common causes of neonatal admissions
2. Common causes of neonatal deaths
3. Interventions to improve neonatal outcomes in EHPH SCN

Methodology

- ❑ Retrospective descriptive study of the records of neonatal admissions from 2011 to 2015.

- ❑ Data on all neonates who were admitted to the NNU were collected from the admission and discharge registry.
 - ❑ gender
 - ❑ place of birth
 - ❑ weight on admission or birth
 - ❑ diagnosis
 - ❑ outcomes (discharge, abscond, LHAOR or death)

Study Setting

- ❑ New NNU completed in 2012
- ❑ 14 cots, 1 infant warmer, 2 incubators,
- ❑ Manpower: 1 MO, 1 RMO, 14 nursing staff (9 NOs, 5 CHWs)





□ Inclusion criteria:

- All neonates less than 1 month of age
 - admitted to the SCN
 - For any medical condition
- Permission was received from the management of EHPH for this study.
- Information was entered into MS Excel spreadsheet and analysed using MS Excel and Stata statistics software.

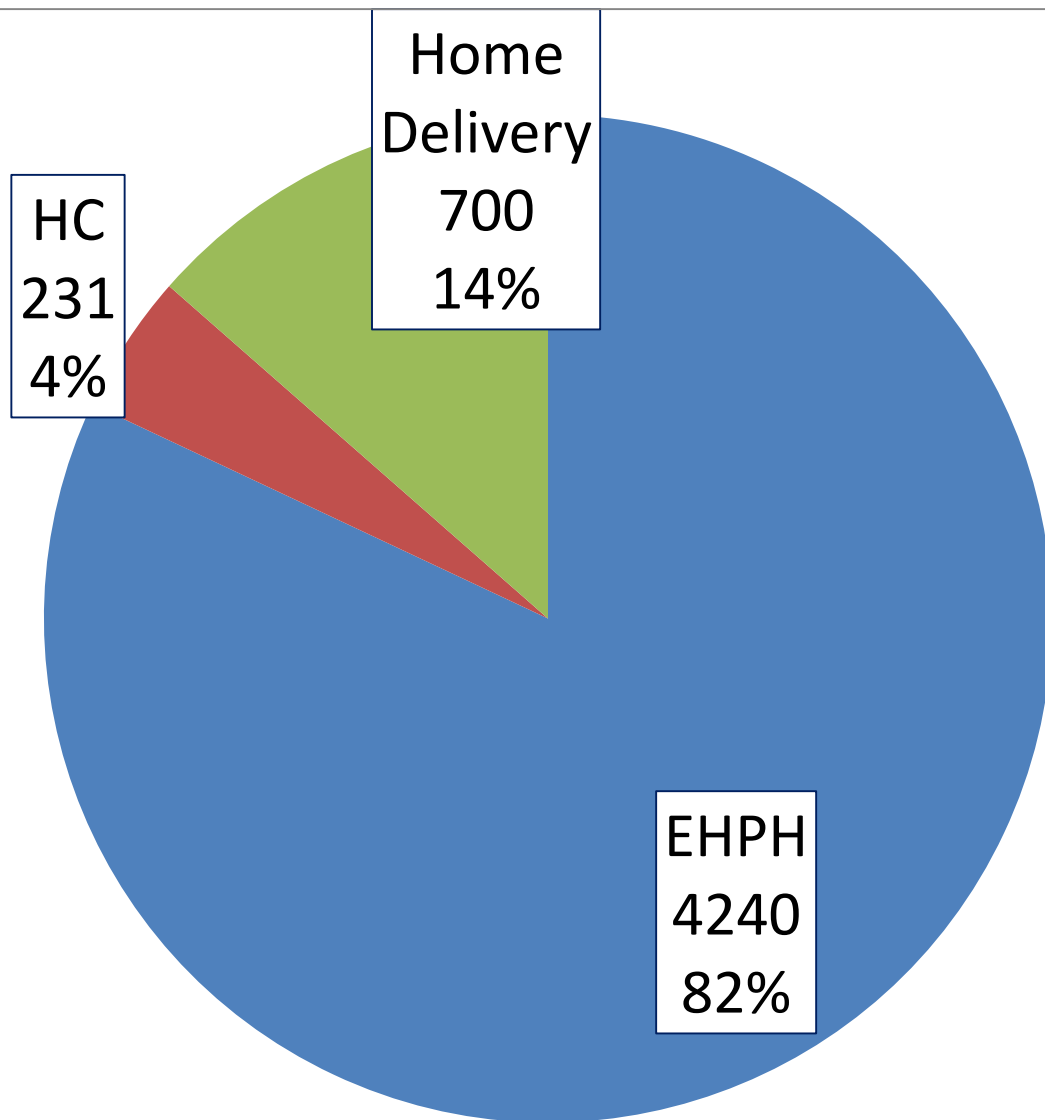
RESULTS

Table 1: Sex distribution of the neonates per year

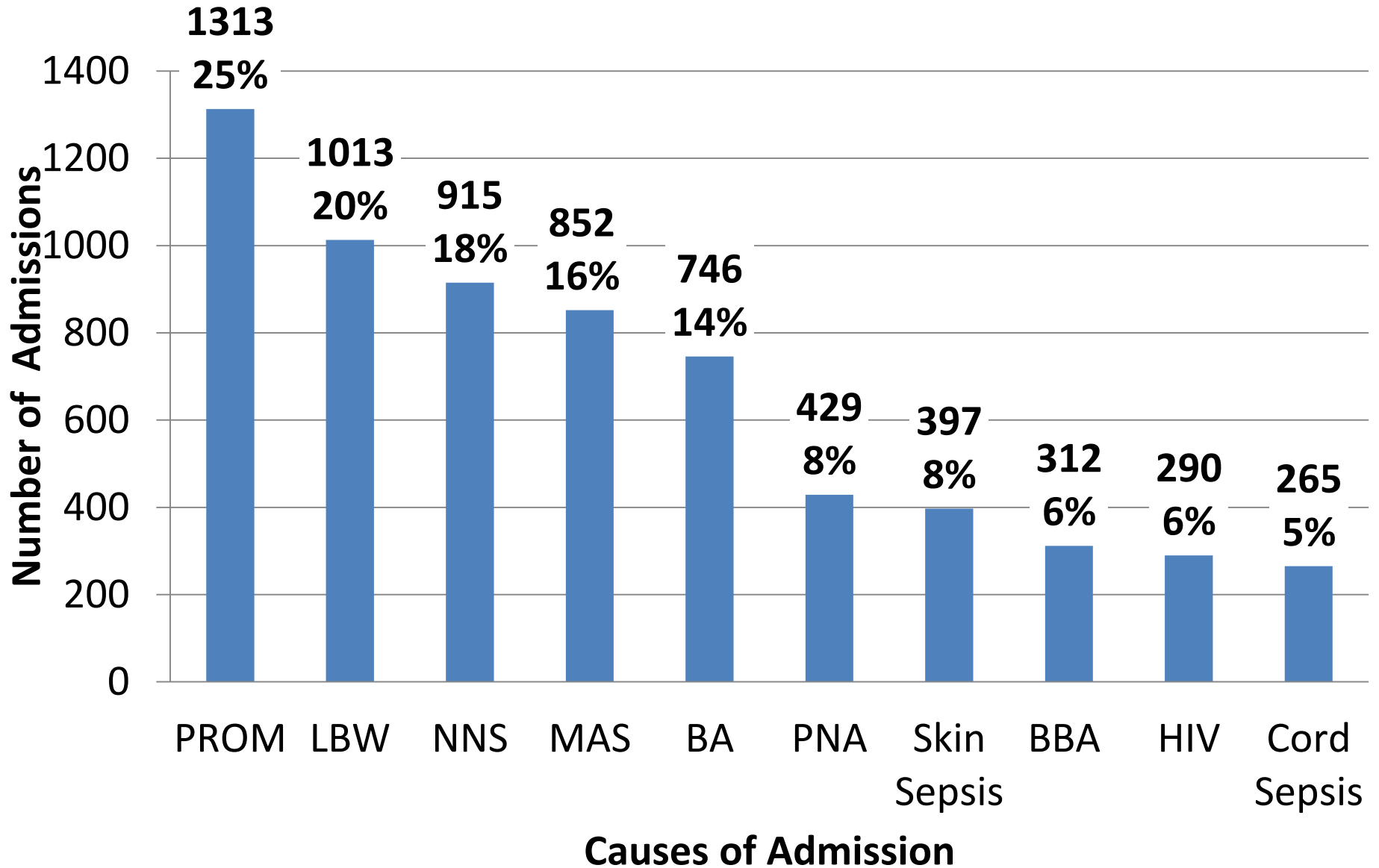
Sex	2011	2012	2013	2014	2015	<u>Total</u>
Male	556	626	568	603	554	2907 (56%)
Female	414	491	460	461	443	2269 (44%)
Total	970	1117	1028	1064	997	5176

Place of Delivery

Graph 1



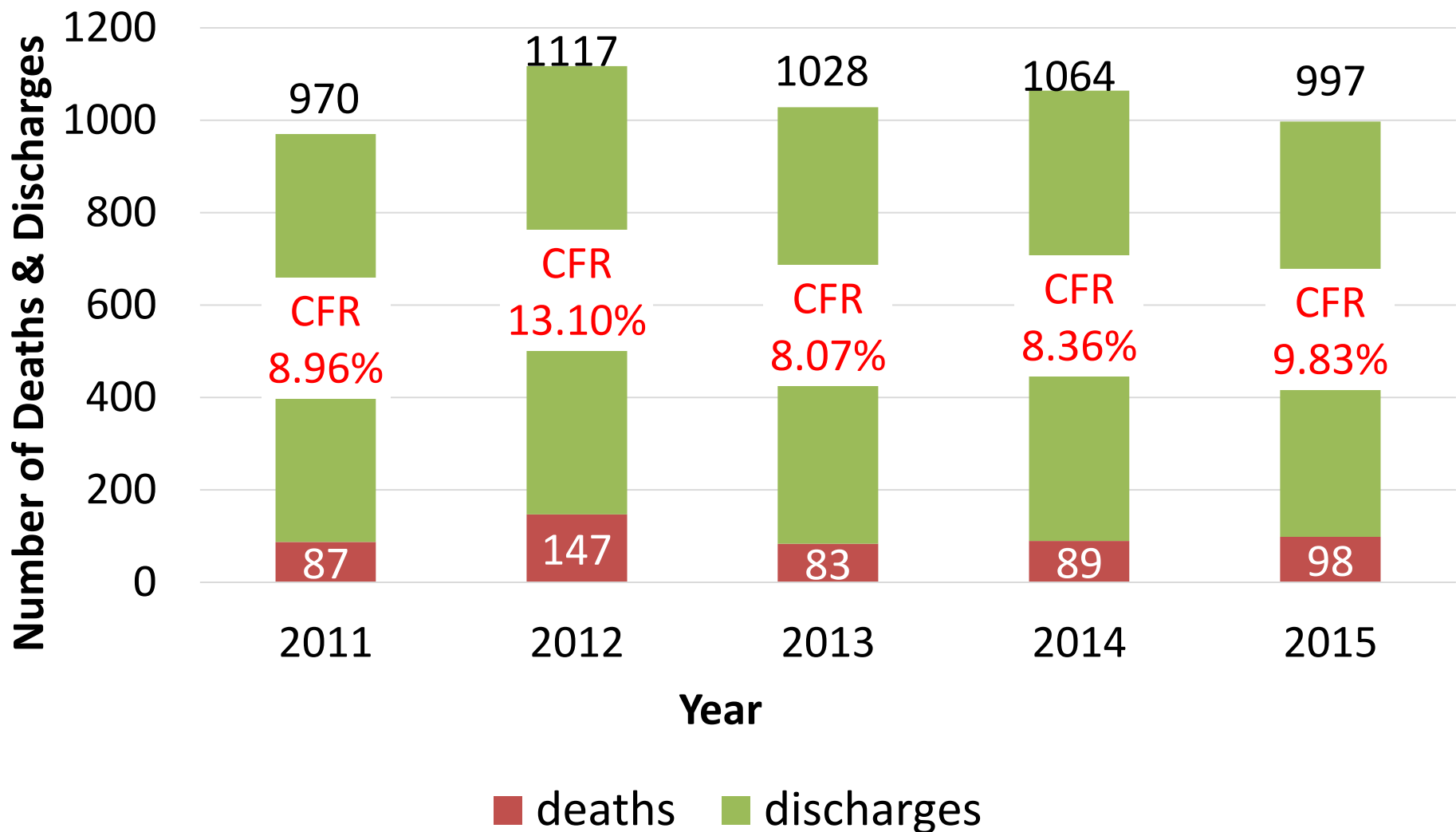
Graph 2: Top 10 Causes of Admissions to SCN



Admissions & mortality rates each year

□ Total # of deaths: **504**

□ Overall mortality **9.74%**



Graph 4: Top 10 Causes of death and CFR (%)

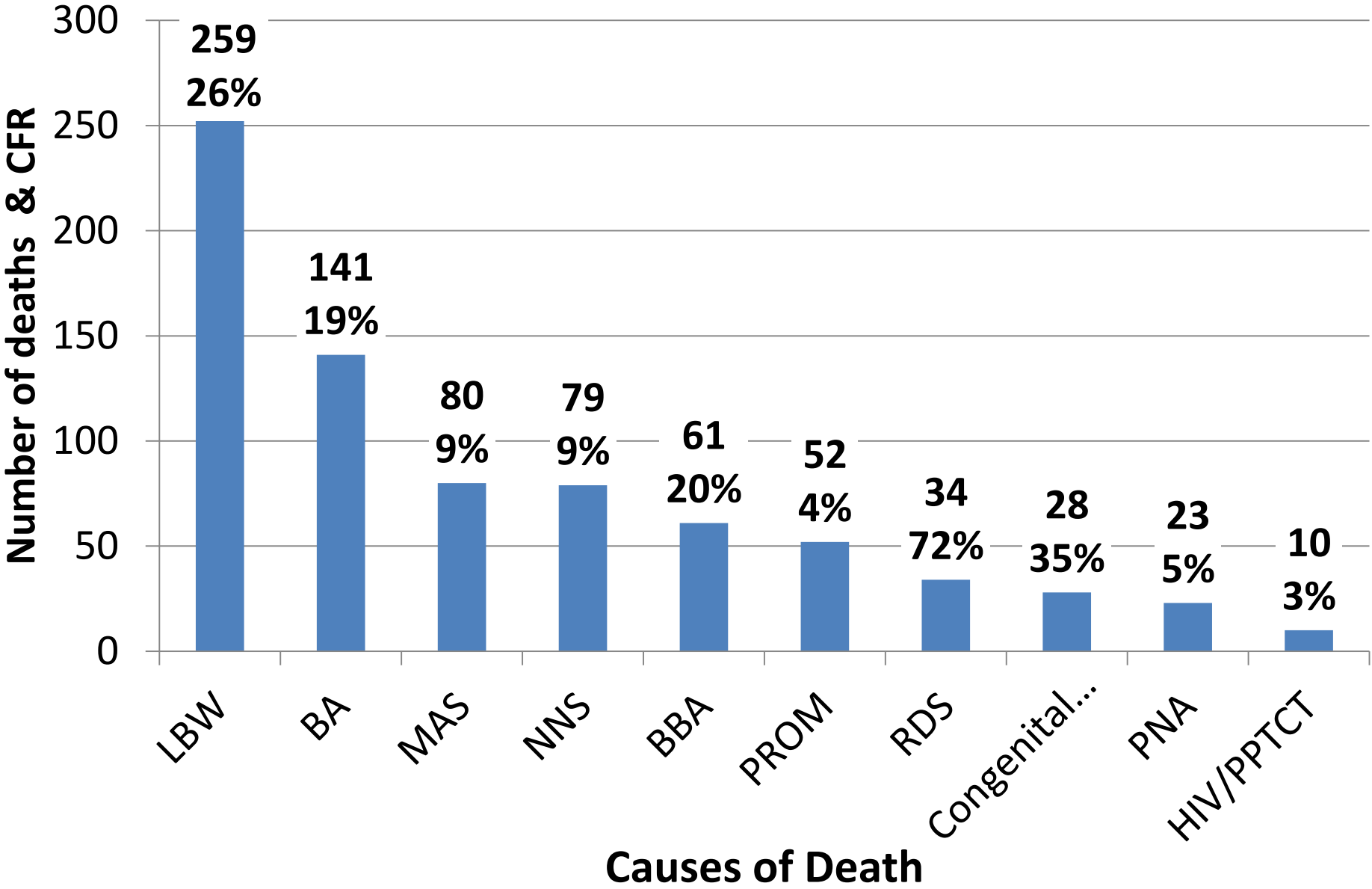


Table 2: Mortality rates for Low Birth Weight babies for each year

Birth weight		2011	2012	2013	2014	2015	Total
LBW (1.5kg-2.49kg)	Admission	210	264	210	231	213	1128
	Deaths	23	40	20	25	27	135
	CFR	11%	15%	10%	11%	13%	12%
VLBW (1kg-1.49kg)	Admission	44	48	43	38	52	225
	Deaths	19	38	20	16	24	117
	CFR	43%	79%	47%	42%	46%	52%
ELBW (<1kg)	Admission	16	19	12	15	11	73
	Deaths	14	18	10	14	9	65
	CFR	88%	95%	83%	93%	81%	89%

Table 3: Risk factors for mortality

(Multivariate logistic regression analysis)

Risk Factors	Number	Neonatal Deaths	Odds Ratio	P>z	95% Confidence interval
Health centre birth	229 (4%)	58 (25%)	3.07	0.000	2.18 - 4.33
Village birth	695 (13%)	113 (16%)	2.18	0.000	1.69 - 2.83
Low birth weight (<2500g)	1005 (19%)	259 (26%)	7.31	0.000	5.85 - 9.12
Birth asphyxia	746 (14%)	141 (19%)	5.94	0.000	4.61 - 7.66

DISCUSSION

- ❑ Babies born in HCs and in villages who are referred to EHPH have higher mortality rates than hospital delivered babies who are admitted to NNU

- ❑ Leading causes of neonatal mortality
 - LBW, BA, MAS, NNS

- ❑ Mortality rate increases substantially with decreasing birth weight

- ❑ LBW babies have the highest risk of dying

- ❑ High CFR: RDS 72%

□ BA and MAS:

- co-morbidities in many neonates admitted to SCN
- 4th and 5th leading causes of admission, together they account for 30% of SCN admissions
- 2nd and 3rd leading causes of death, together account for 28% of deaths
- Majority of the babies are hospital born

□ Leading cause of admission:

➤ PROM +/- co-morbidities (25%)

➤ Most cases of PROM (alone) were admitted for prophylaxis antibiotics (rather than treatment)

➤ LBW, NNS, BA & MAS

Limitations

- ❑ Missing data from the SCN admissions & discharge registry
 - ❑ e.g. Birth weight, gender, place of birth
- ❑ Gestational age of neonates was not captured/registered in the admissions & discharge registry

Conclusion

- ❑ LBW, NNS and BA remain the leading causes of death in EHPH
- ❑ LBW continue to contribute significantly to neonatal mortality
 - Improvements in the quality of care for the LBW babies can result in better survival, even with limited resources
- ❑ Despite, some improvements in neonatal care and management in EHPH SCN unit, there has been little to no improvement in morbidity and mortality

Recommendations

- ❑ **Vigilant hand hygiene, infection control & good antibiotic stewardship** must be practised at all times.

- ❑ Improving communication
 - Between the labour ward and SCN staff

 - Between HCs & SCN staff on status of sick neonate- via radio or mobile network

- ❑ More regular combined perinatal mortality meetings between the NNU and O&G unit need to take place

- ❑ Increasing staffing and leadership in SCN
- ❑ Refresher courses for nursing and medical staff at outside centres
- ❑ KMC for preterm babies

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