

Outcomes of Extremely Low Birth Weight Infants

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Outcomes

Who

What

When

Where

Why

How

ELBW in Kenya

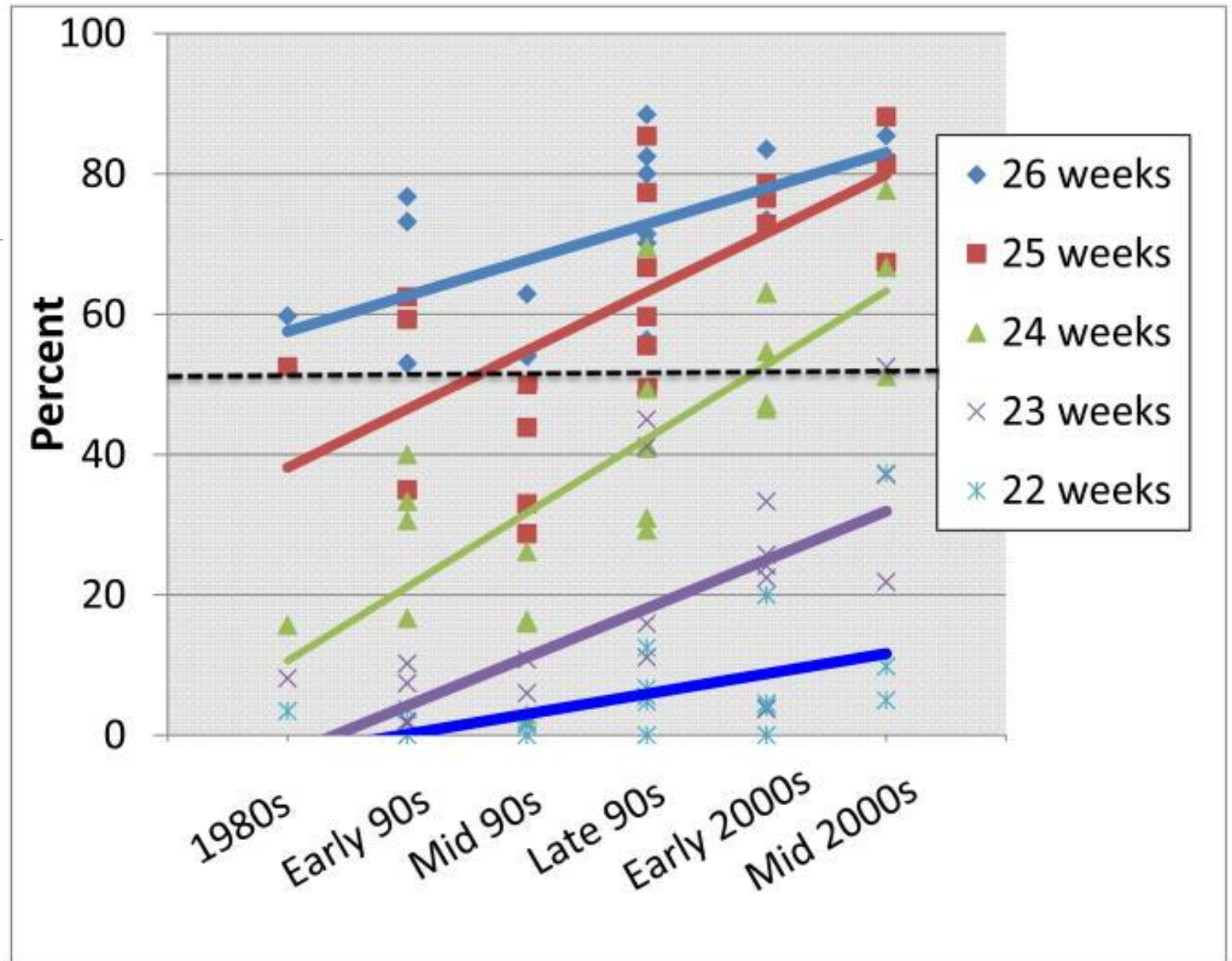
Multicentre study 2013

Weight Category	Frequency
ELBW (<1000g)	0.4%
VLBW (1000-1499)	1.3%
LBW (<2500g)	10%

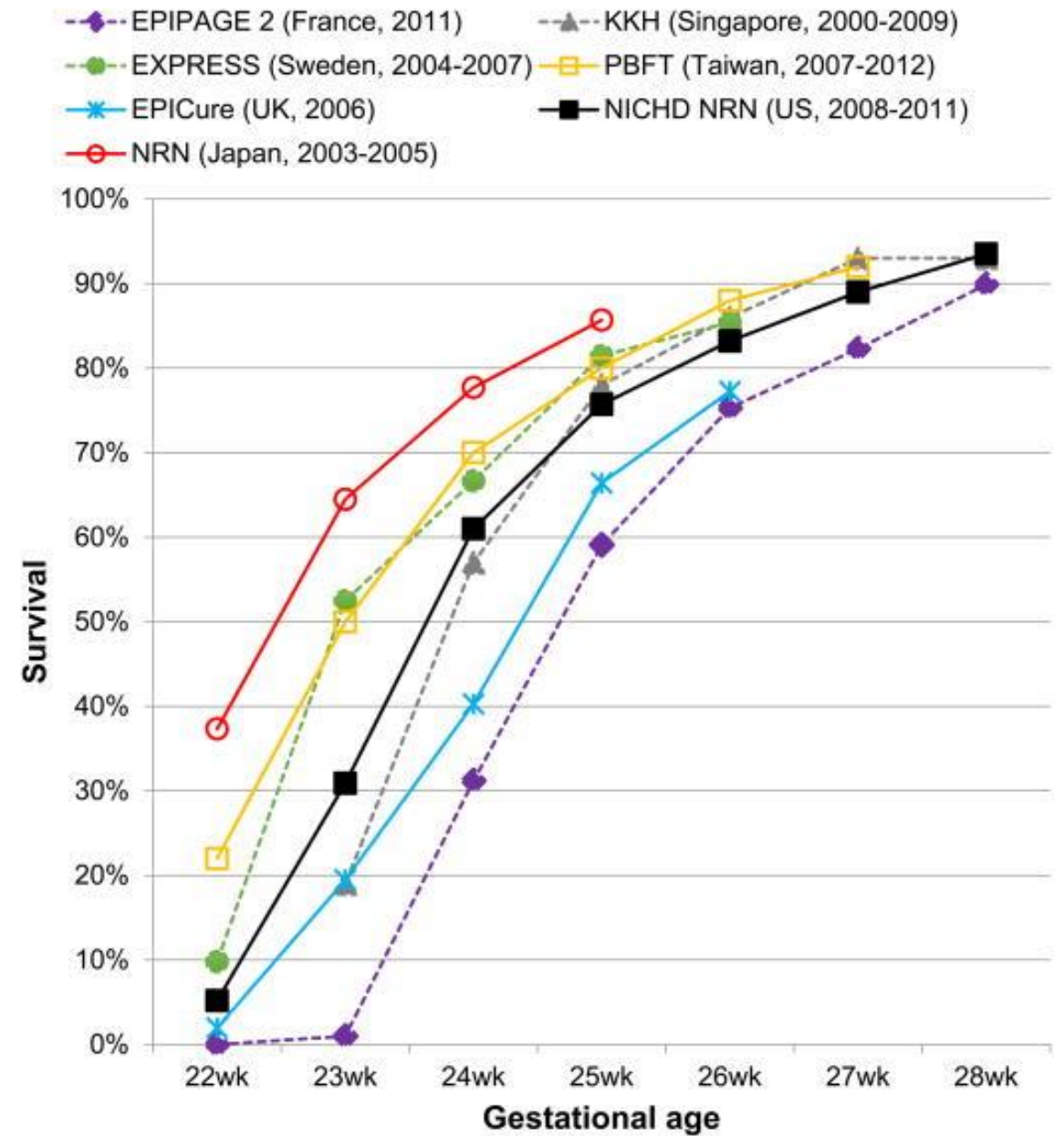
Aluvaala J, Okello D, Murithi G, Wafula L, Wanjala L, Isika N, et al. Delivery outcomes and patterns of morbidity and mortality for neonatal admissions in five Kenyan hospitals. *J Trop Pediatr*. 2015 Aug 1;61(4):255–9.

Country	Year	ELBW Mortality	Reference
Kenya (Moi-Eldoret) (n=24)	2006	100%	Njuguna FM, Kiptoon P, Nyandiko W. AN ASSESSMENT OF THE OVERALL MORTALITY OF LOW BIRTH WEIGHT NEONATES AT THE NEW BIRTH UNITS OF THE MOI TEACHING AND REFERRAL HOSPITAL IN ELDORET, KENYA. 2014;9.
Kenya (KNH) (n=23)	1996	100%	Were FN, Mukhwana BO, Musoke RN. Neonatal survival of infants less than 2000 grams born at Kenyatta National Hospital. East Afr Med J. 2002 Jan 1;79(2):77–9.
Kenya (multicenter) N= 43	2013	84%	Aluvaala J, Okello D, Murithi G, Wafula L, Wanjala L, Isika N, et al. Delivery outcomes and patterns of morbidity and mortality for neonatal admissions in five Kenyan hospitals. J Trop Pediatr. 2015 Aug 1;61(4):255–9.
Malawi Multicentre Kamuzu Central Hospital (n=20) Bwaila District hospital (n=25)	2015	Kamuzu Central - 85% Bwaila District 100%	Ahlsén AK, Spong E, Kafumba N, Kamwendo F, Wolff K. Born too small: who survives in the public hospitals in Lilongwe, Malawi? Arch Dis Child - Fetal Neonatal Ed. 2014 Dec 16;fetalneonatal-2013-305877.
Malawi Blantyre	2010	89%	Rylance S, Ward J. Early mortality of very low-birthweight infants at Queen Elizabeth Central Hospital, Malawi. Paediatr Int Child Health. 2013 May 1;33(2):91–6.
Zimbabwe-Harare n=77	2015	91%	Zvenyika-Hlatywayo L. Risk Factors for mortality in Low Birth Weight Infants at harare Hospital. University of Zimbabwe; 2015.
South Africa (Cape Town) (n=190)	2016	35.7%	VON data

Mortality

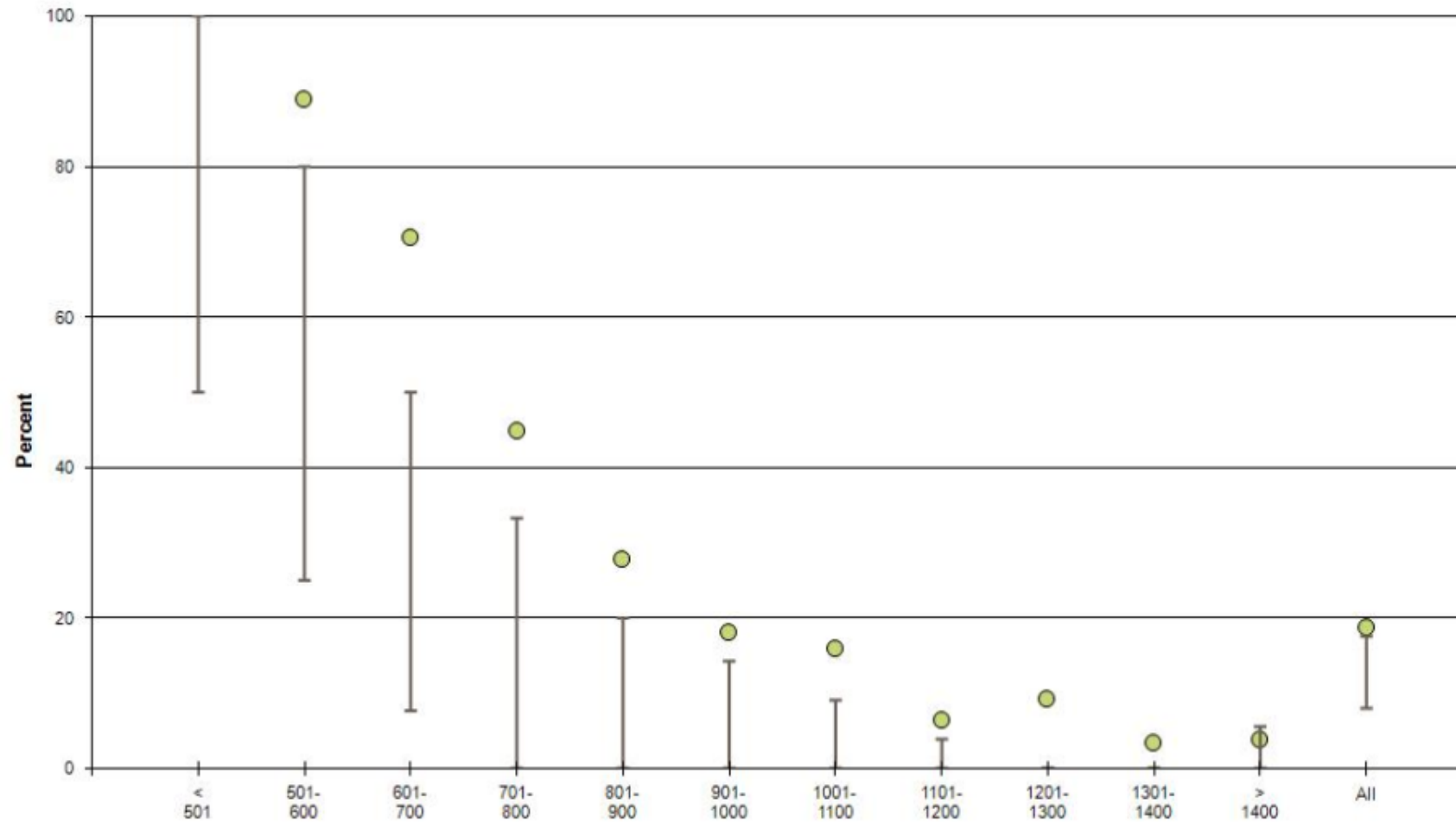


Current data

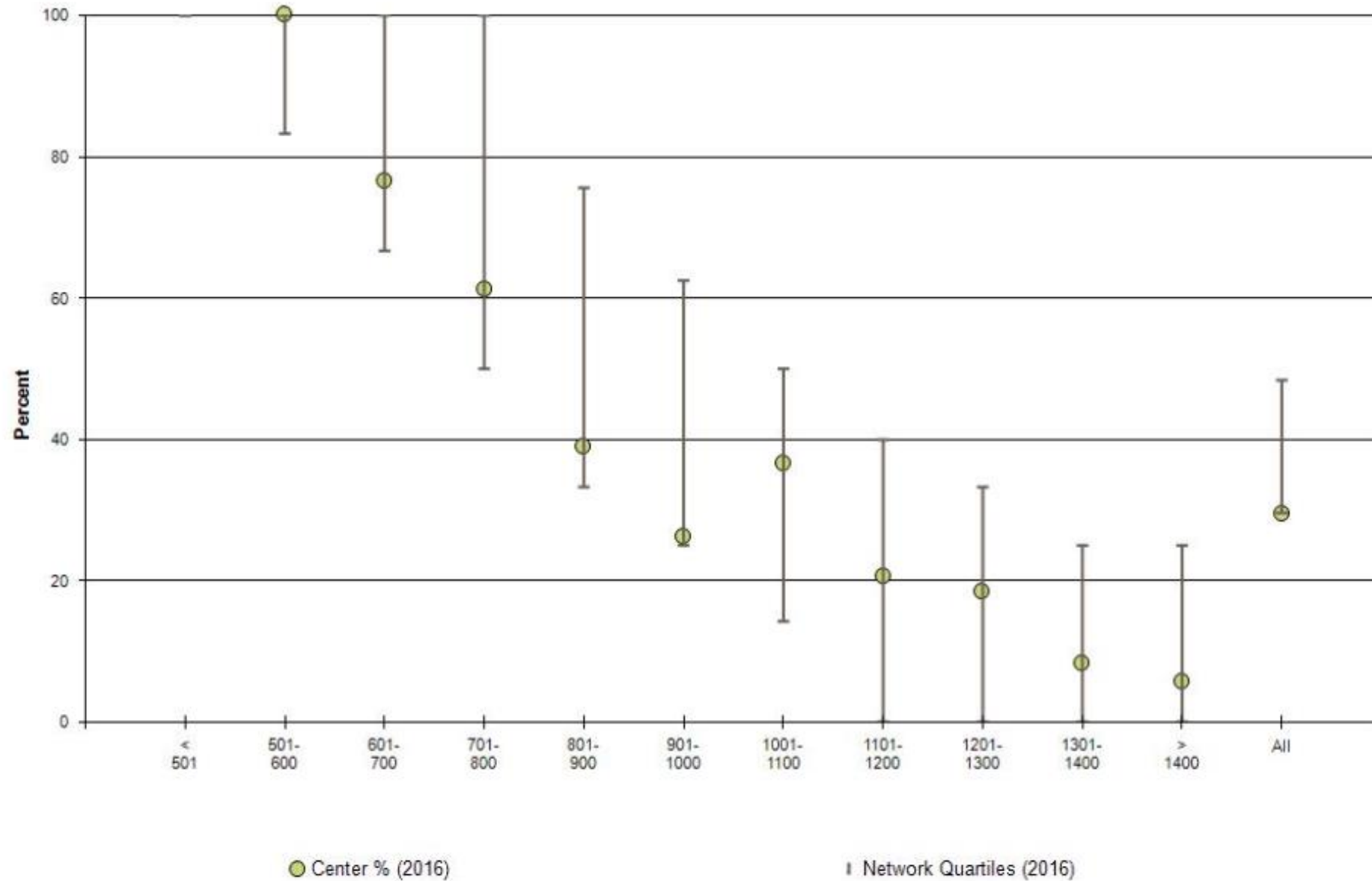


Groote Schuur Mortality before discharge 2016

Key Performance Measures - All VLBW Infants

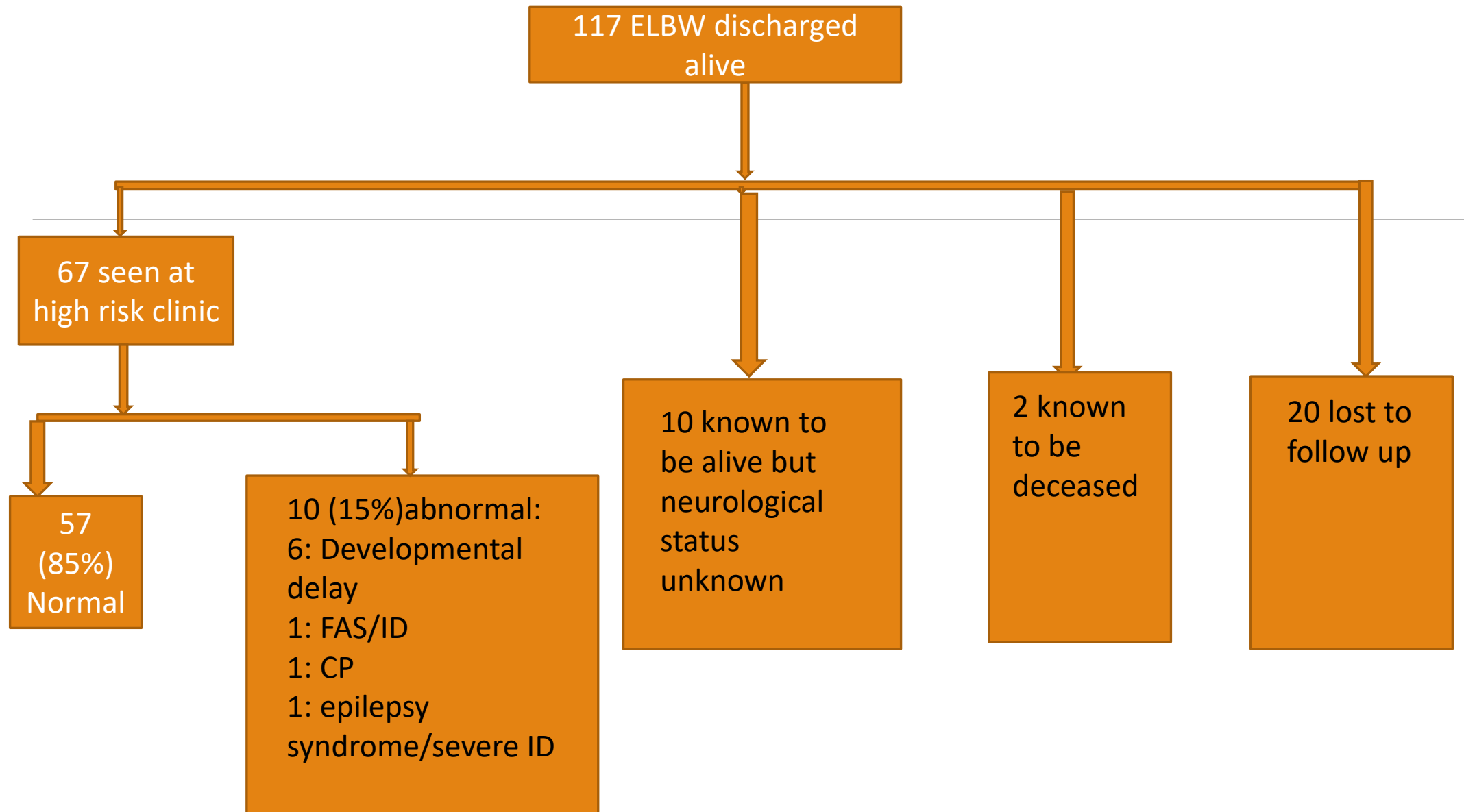


Combined mortality or severe disability



Short Term morbidity- Groote Schuur 2016

Outcome	Groote Schuur	All VON network
Severe ROP	2.1%	6.3%
Cystic PVL	2.1%	2.9%
NEC	3.1%	4.5%
Nosocomial sepsis	5.0%	11.9%
Chronic Lung Disease	4.2%	24.1%



EPICure

EPICure 1: All extremely preterm births in every single maternity unit (n=270) in UK and Ireland in 1995

Epicure 2: 2006

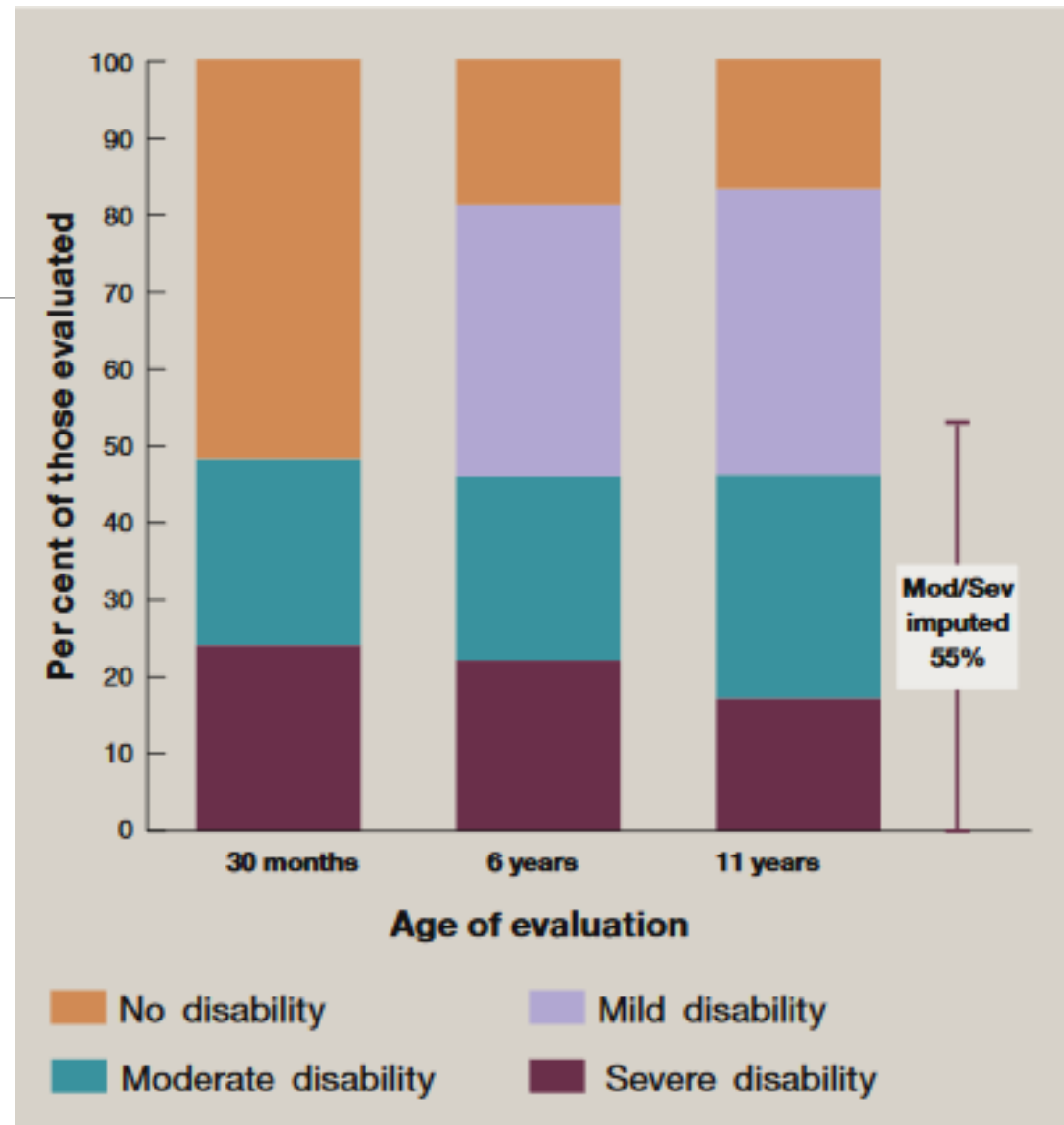
Assessed mortality, short term morbidity before discharge

Follow up:

2.5 years: Neurological examination, Growth, hearing, vision, Standardised Development Test (Bayley Scales)

6 years and 11 years: As above plus psychometric tests for cognitive ability/intelligence. Also documentation of social, behavioral, educational, psychiatric outcomes. Furthermore analysis of respiratory, cardiac and sensory outcomes

Epicure



Johnson S, Marlow N. Charting the survival, health and development of extremely preterm infants: EPICure and beyond. *Paediatr Child Health*. 2016 Nov;26(11):498–504.

Epicure : outcomes at 11 years

- 23% of extremely preterm babies had a diagnosed psychiatric condition
- 8% had autism 11.5 % had ADHD
- Increased risk Emotional problems (OR 4.2), Social problems (OR 2.5) increased FEV1
- Greater reversibility to bronchodilators
- Increased BP
- Increased augmentation index

Long term outcomes

Cardiovascular disease

Diabetes

Cancer

Impact on family

Family stress

Marriage break up

Financial burden

Decreased chance having another child

Cost

Direct medical costs of admissions (vary aprox KSh 7 million in Aus to KSh 22 million in USA)

Then readmission costs (aprox KSh 2 million)

Include costs of

Parental loss of employment

Loss of future earnings of baby

Ongoing disability care

Behrman RE, Butler AS, Outcomes I of M (US) C on UPB and AH. A Systematic Review of Costs Associated with Preterm Birth [Internet]. National Academies Press (US); 2007 [cited 2018 Apr 13]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK11391/>

Western Cape Guidelines

<27 weeks or 500-650g

- IV fluids, IV antibiotics
- Fluid, warmth, feeds
- caffeine
- High flow oxygen
- CPAP if inborn and in good condition
- Palliative care if failing to respond

- No: surfactant, ventilation, blood tests

Western Cape Guidelines

≥ 27 weeks AND ≥650g to 799g

As above plus one dose of surfactant

Not for ventilation

≥27 weeks AND ≥800g: for all interventions, including second dose surfactant and ventilation

References

1. Glass HC, Costarino AT, Stayer SA, Brett C, Cladis F, Davis PJ. Outcomes for Extremely Premature Infants. *Anesth Analg*. 2015 Jun;120(6):1337–51.
2. Patel RM. Short and Long-Term Outcomes for Extremely Preterm Infants. *Am J Perinatol*. 2016 Feb;33(3):318–28.
3. Zvenyika-Hlatywayo L. Risk Factors for mortality in Low Birth Weight Infants at harare Hospital. University of Zimbabwe; 2015.
4. Njuguna FM, Kiptoon P, Nyandiko W. AN ASSESSMENT OF THE OVERALL MORTALITY OF LOW BIRTH WEIGHT NEONATES AT THE NEW BIRTH UNITS OF THE MOI TEACHING AND REFERRAL HOSPITAL IN ELDORET, KENYA. 2014;9.
5. Aluvaala J, Okello D, Murithi G, Wafula L, Wanjala L, Isika N, et al. Delivery outcomes and patterns of morbidity and mortality for neonatal admissions in five Kenyan hospitals. *J Trop Pediatr*. 2015 Aug 1;61(4):255–9.
6. Ahlsén AK, Spong E, Kafumba N, Kamwendo F, Wolff K. Born too small: who survives in the public hospitals in Lilongwe, Malawi? *Arch Dis Child - Fetal Neonatal Ed*. 2014 Dec 16;fetalneonatal-2013-305877.
7. Rylance S, Ward J. Early mortality of very low-birthweight infants at Queen Elizabeth Central Hospital, Malawi. *Paediatr Int Child Health*. 2013 May 1;33(2):91–6.
8. Stoll BJ, Hansen NI, Bell EF, Walsh MC, Carlo WA, Shankaran S, et al. Trends in Care Practices, Morbidity, and Mortality of Extremely Preterm Neonates, 1993–2012. *JAMA*. 2015 Sep 8;314(10):1039–51.
9. Behrman RE, Butler AS, Outcomes I of M (US) C on UPB and AH. A Systematic Review of Costs Associated with Preterm Birth [Internet]. National Academies Press (US); 2007 [cited 2018 Apr 13]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK11391/>