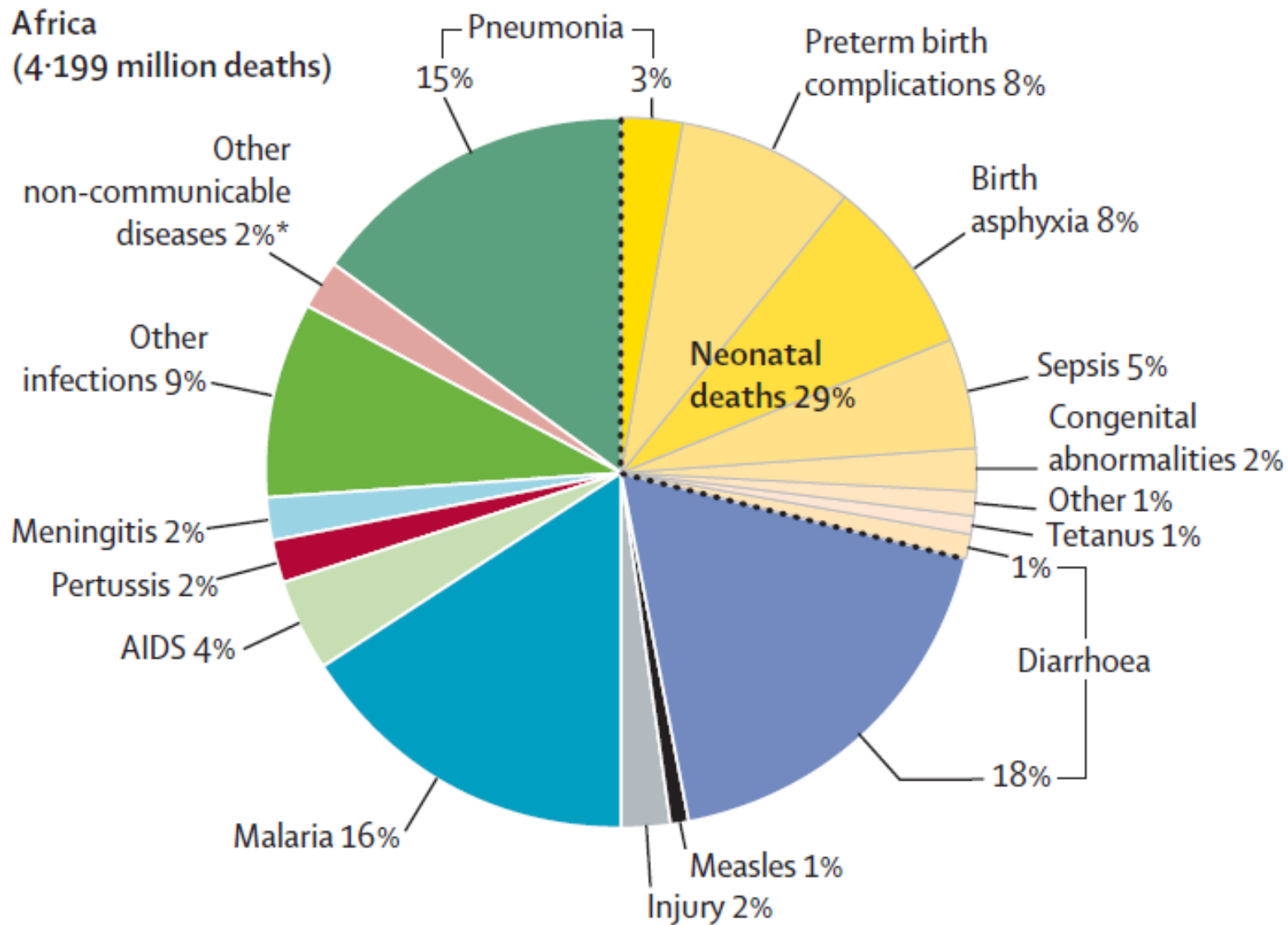


Neonatology

5th year lecture

Dr. Sarah Rylance

College of Medicine, University of Malawi



Global, regional and national causes of child mortality in 2008: a systematic analysis
 Black et al, Lancet 2010;375:1969-87

As 5th year students, you should already.....

- Be able to take a relevant neonatal history –
Including ante/peri/post-natal details
- Be able to examine a newborn baby systematically
- Know normal values for HR and RR in a newborn
- Be aware of definitions relating to birth weight and maturity

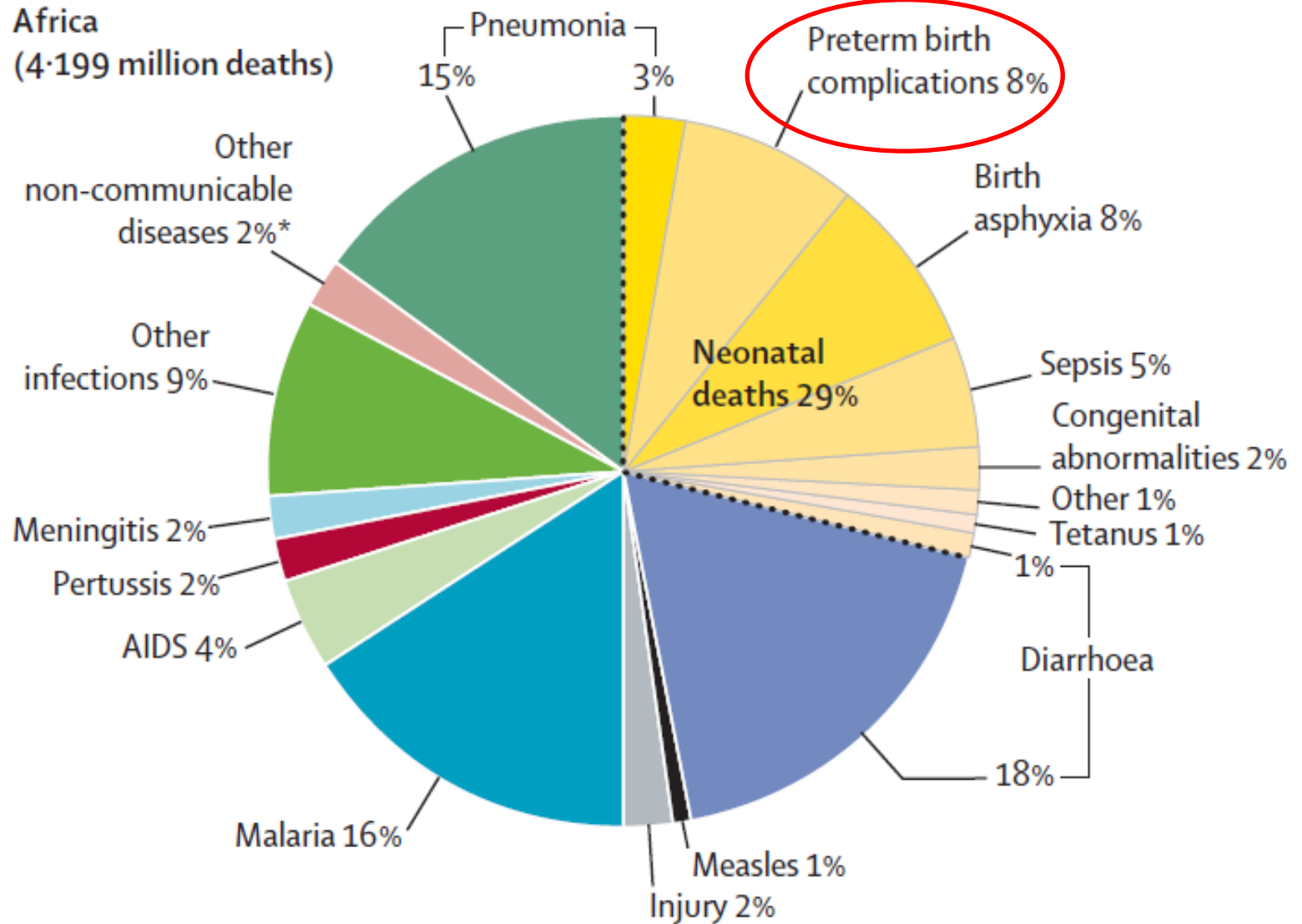
Learning objectives

By the end of this lecture, you should....

- Know the main causes of neonatal mortality in Malawi
- Recognise physical features suggesting prematurity
- Know the common complications of prematurity and how to prevent/treat them
- Know the problems associated with birth asphyxia and how to treat them
- Sepsis will be covered in a different lecture

Prematurity

Africa
(4.199 million deaths)



Assessment of gestation

- Ballard score
- Examination of;
 - Skin
 - Lanugo hair
 - Plantar creases
 - Ears
 - Breast tissue
 - Genitalia
- *See p18 “A Paediatric Handbook for Malawi”*

What problems might this baby have?



Prematurity

Why does it matter?

- Hypothermia
- Hypoglycaemia
- Infection
- Respiratory problems
 - Apnoea, surfactant deficiency
- Ability to feed

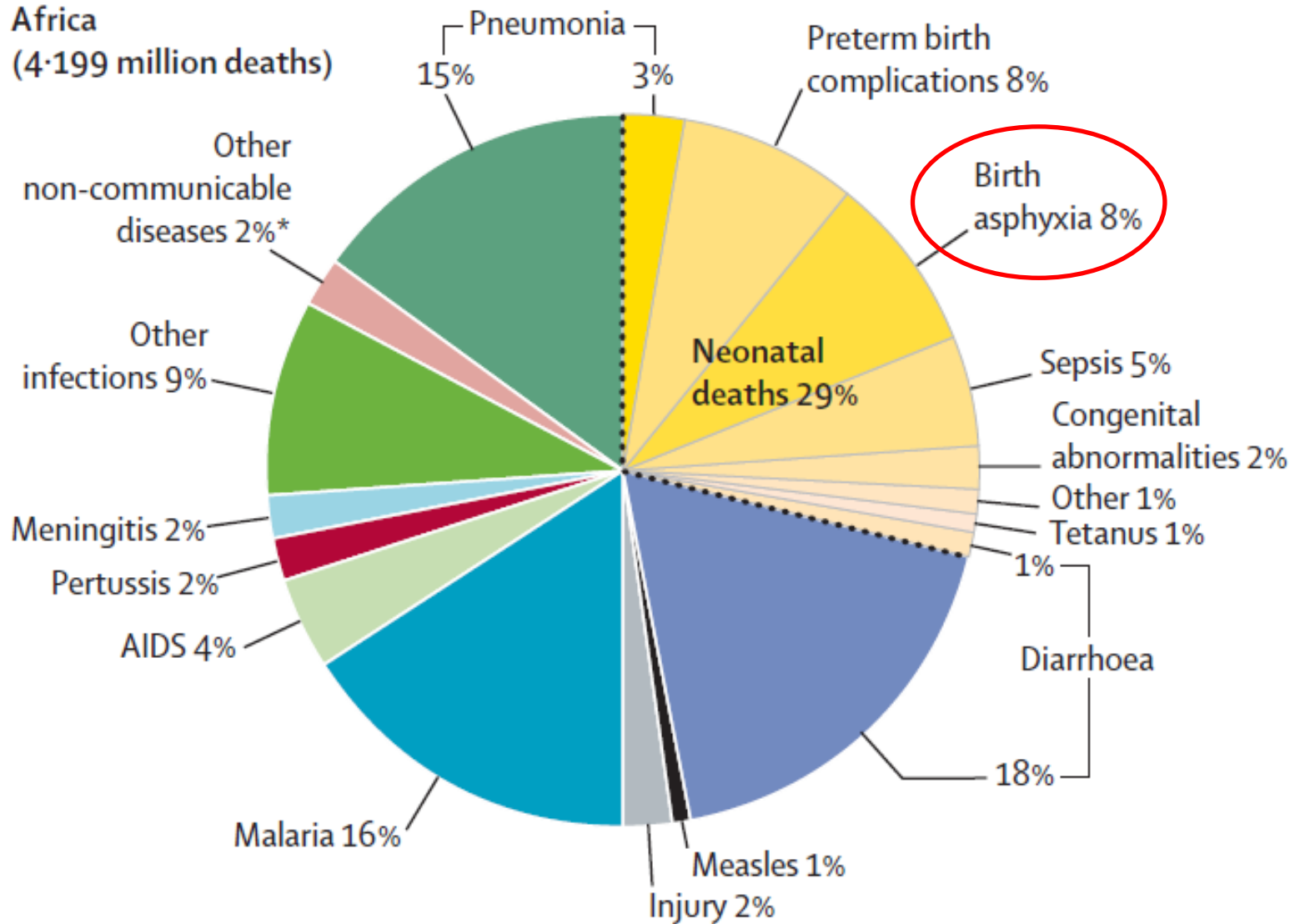
Management

- Hypothermia
 - Heaters, hats, KMC
- Hypoglycaemia
 - 3 hourly feeds, NG and cup
- Infection
 - Hygiene, antibiotics
- Respiratory problems
 - O₂, aminophylline



Birth asphyxia

Africa
(4·199 million deaths)



Perinatal asphyxia

- Apgar <6 at 5 mins
- Metabolic acidosis
 - Cord pH <7.0, base deficit >12mmol/l
- Signs of fetal distress
 - Meconium
- Abnormal fetal heart rate
 - <120 or >160

Stages of neonatal encephalopathy

	Stage 1 - mild	Stage 2 - moderate	Stage 3 – severe
<i>Duration</i>	<24h	2-14 days	Hours to weeks
<i>Consciousness</i>	Alert / hyperalert	Lethargic	Coma
<i>Seizures</i>	None	Frequent	Frequent/absent
<i>Muscle tone</i>	Normal or increased	Mild hypotonia	Flaccid
<i>Tendon reflexes</i>	Increased	Increased	Decreased/absent
<i>Clonus</i>	Present	Present	Absent
<i>Suck</i>	Weak	Weak/absent	Absent
<i>Pupils</i>	Dilated, reactive	Constricted, reactive	Variable
<i>Heart rate</i>	Increased	Decreased	Variable
<i>Secretions</i>	Sparse	Profuse	Variable

Management

- Supportive
 - Treat convulsions
 - Anticipate and treat hypoglycaemia
 - ?Antibiotics
- Multiorgan damage
 - Hypotension
 - Thrombocytopaenia, clotting problems
 - Renal failure

Management of neonatal seizures

- Check blood glucose
 - If $<2.2\text{mmol/l}$ give dextrose bolus
 - 5ml/kg 10% dextrose IV
 - 1ml/kg 50% dextrose via NGT
- Phenobarbitone 15mg/kg IM/IV
- Paraldehyde 0.2ml/kg IM

Outcomes

- Adverse outcome = Death, cerebral palsy, motor/cognitive impairment $>2SD$ below normal
- Mild 0%
- Moderate $\sim 33\%$
- Severe 100%

A review of developmental outcomes of term infants with post-asphyxia neonatal encephalopathy

Pin et al. European Journal of Paediatric Neurology 2009 13 :224-234

Outcomes - survival

	Died	Survived
Mild HIE	2/98 (2%)	96/98 (98%)
Moderate HIE	11/26 (44%)	15/26 (56%)
Severe HIE	15/16 (94%)	1/16 (6%)

Mwakyusa et al.

Journal of Tropical Paediatrics 2008 55 (1) 8-14

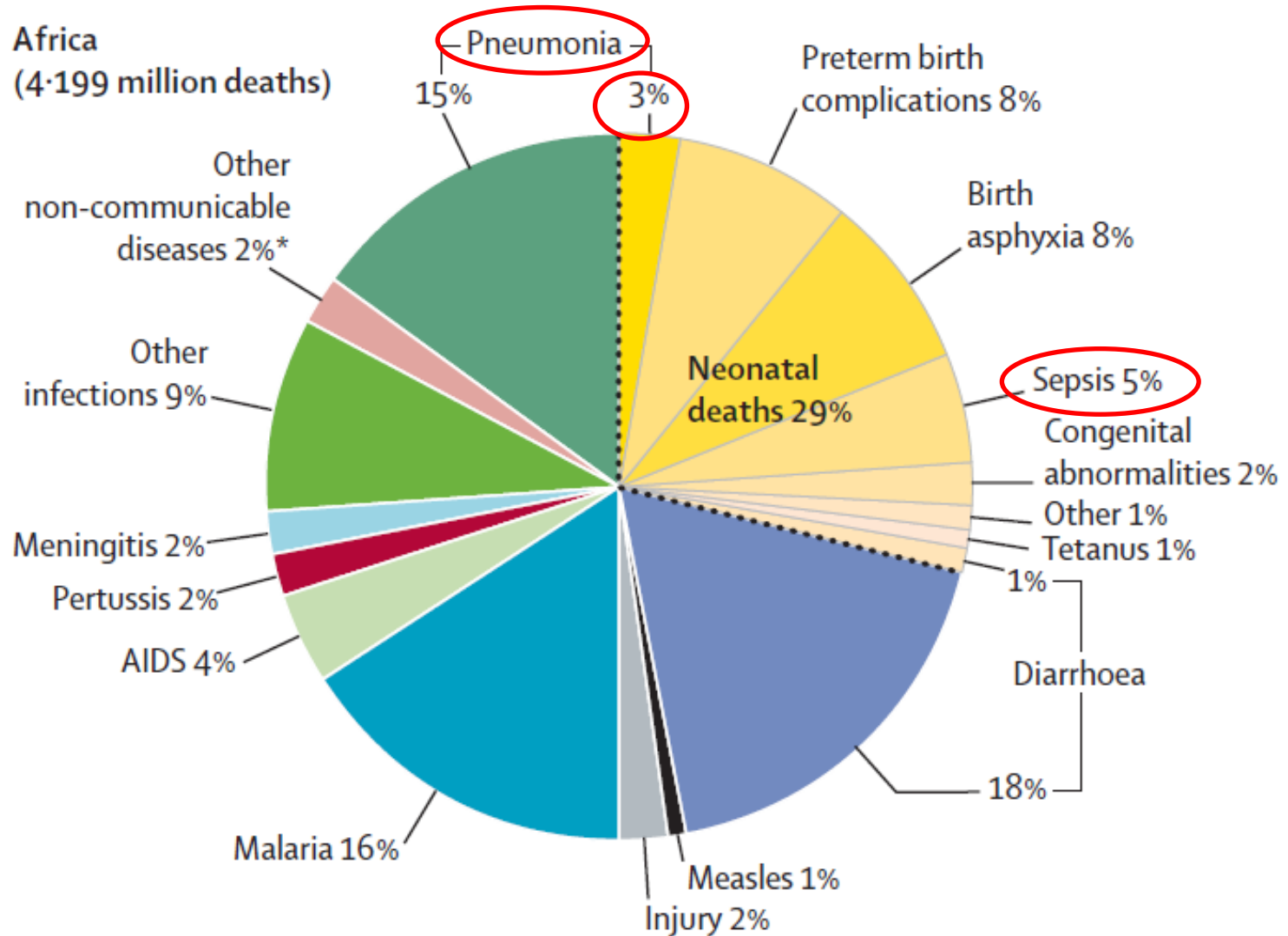
Outcomes – at 6 months

	Mild HIE	Moderate HIE
Convulsions	5/70	7/11
Abnormal tone	13/70	8/11
Developmental delay	5/70	7/11
CP	2/70	4/11

Mwakyusa et al.

Journal of Tropical Paediatrics 2008 55 (1) 8-14

Infection



Case 1

- 1.2kg baby just arrived on CN
- Active, slightly dusky, recessions++
- What further information would you like?
- What are you going to do?
- What problems do you anticipate?

Case 2

- 3.5 kg baby just admitted to CN
- Blue, secretions++, floppy
- What further information would you like?
- What are you going to do?
- What problems do you anticipate?

Learning objectives

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Reading

- WHO Pocket book of hospital care for children
 - Chapter 3 Problems of the neonate and young infant

- A paediatric handbook for Malawi
 - Chapter 2 The Neonate
 - p197 Weight for GA chart