

# The Underutilization of Caffeine in sub-Saharan Africa

Dr Helen Nabwera

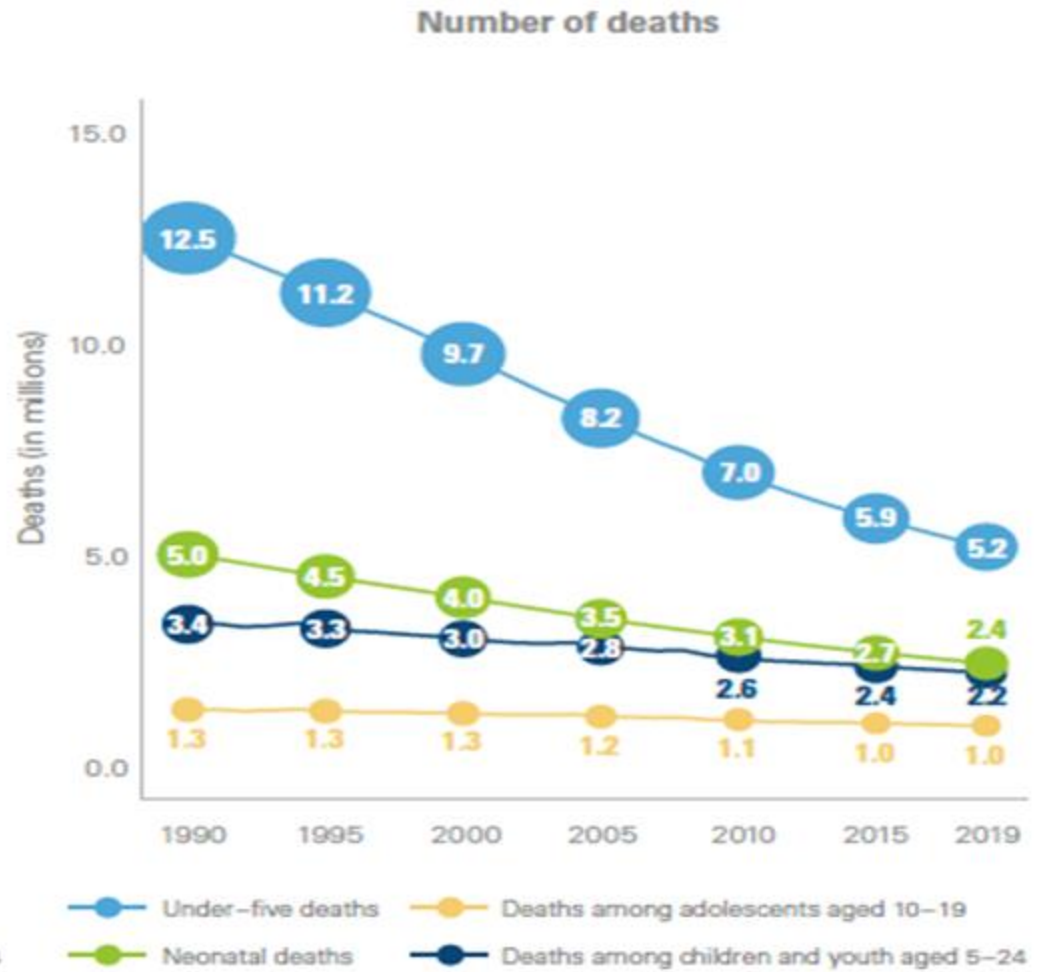
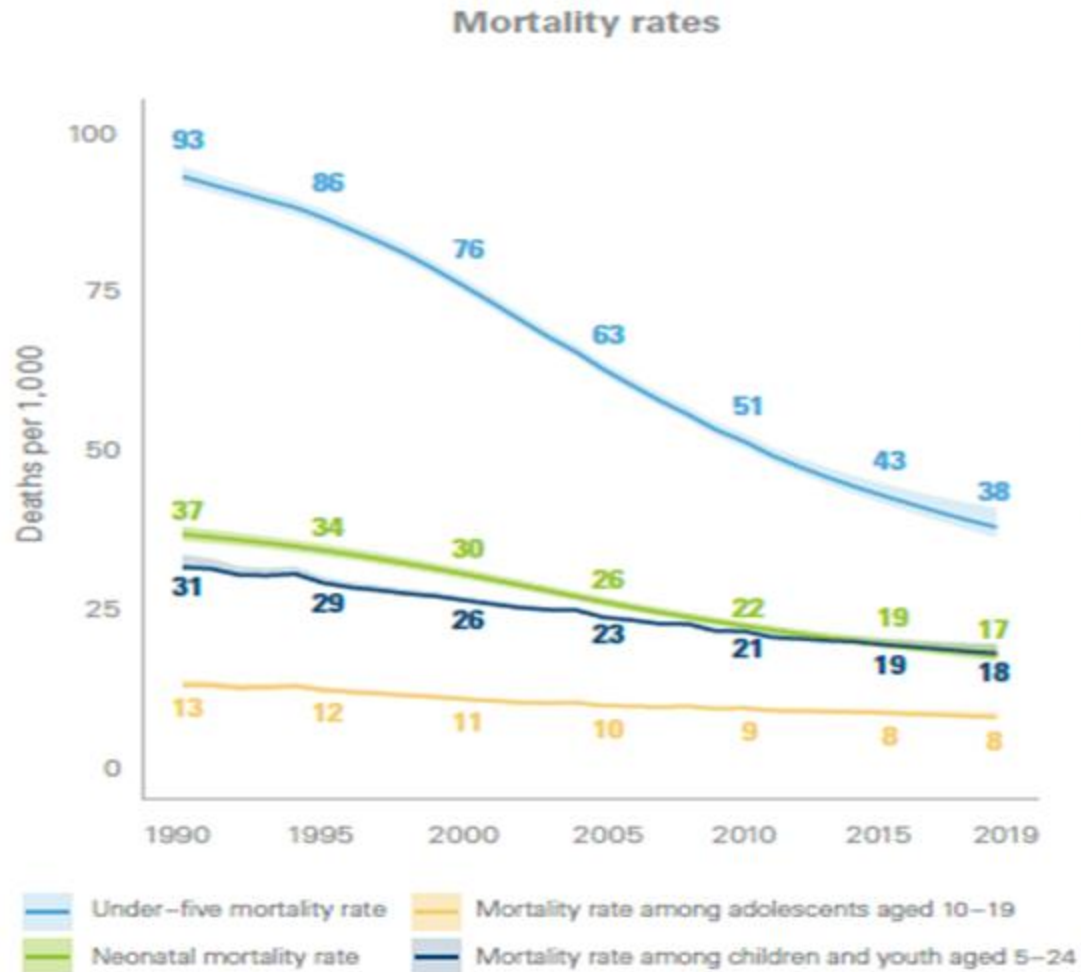
(On behalf of the Neonatal Nutrition Network for sub-Saharan Africa)

<https://www.lstmed.ac.uk/nnu>

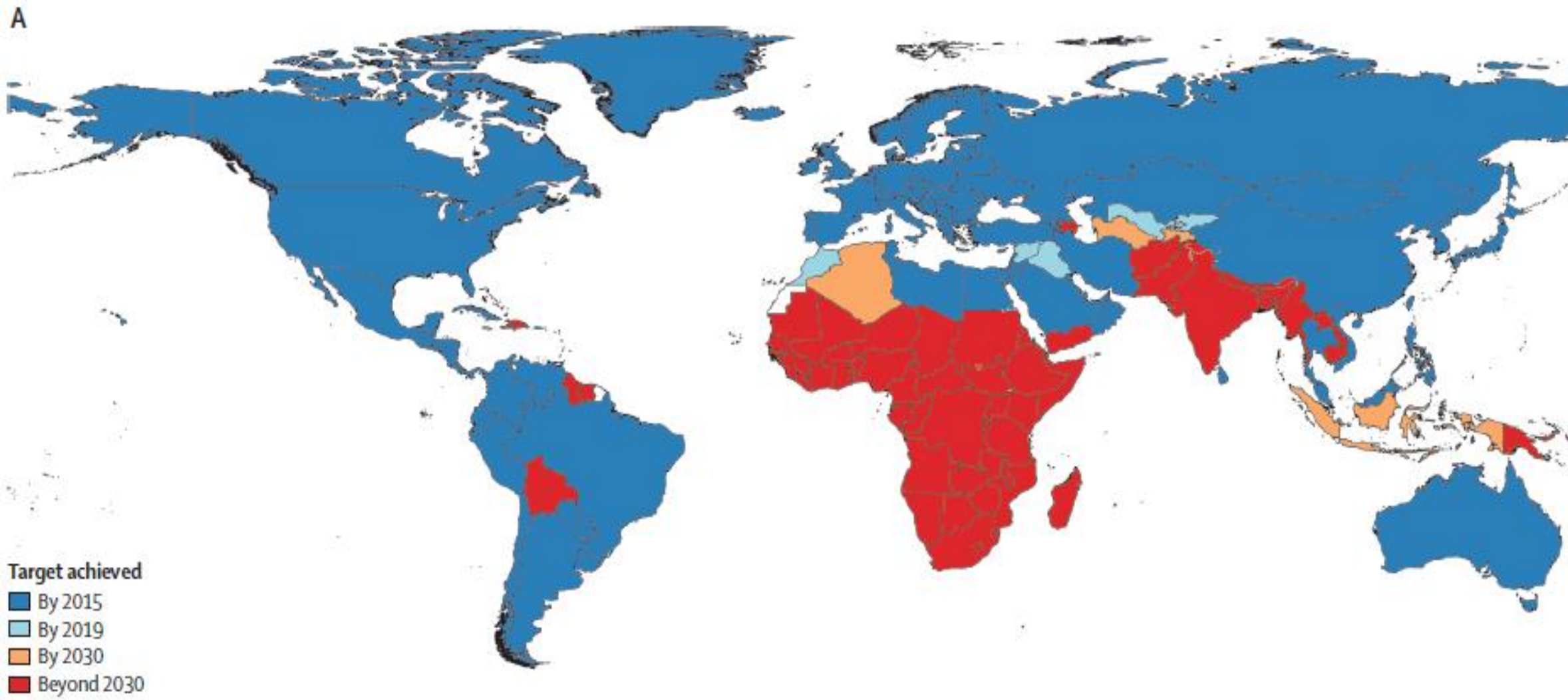
# Disclosure

- Nothing to disclose

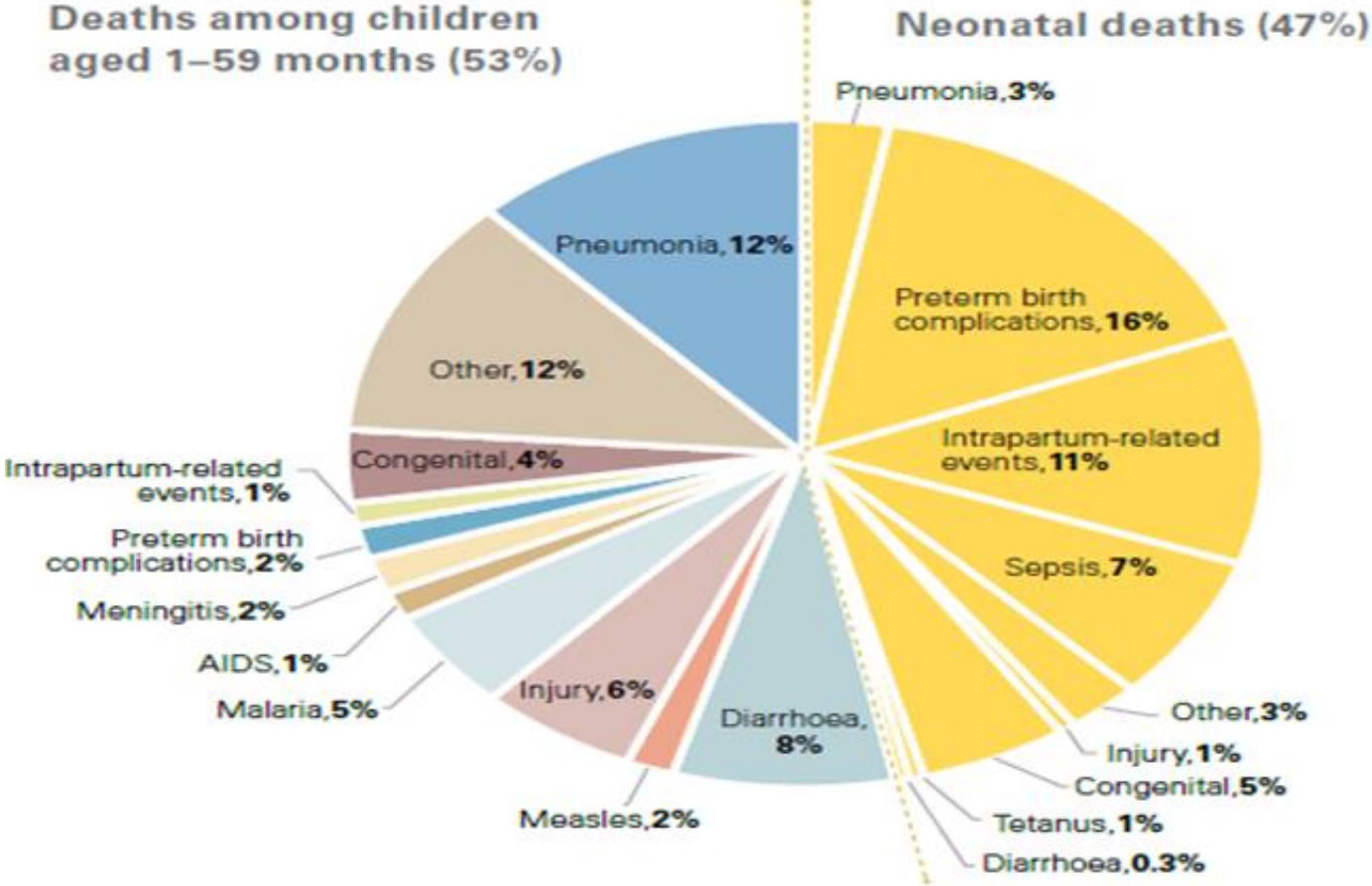
# Global mortality rates and number of deaths by age, 1990-2019



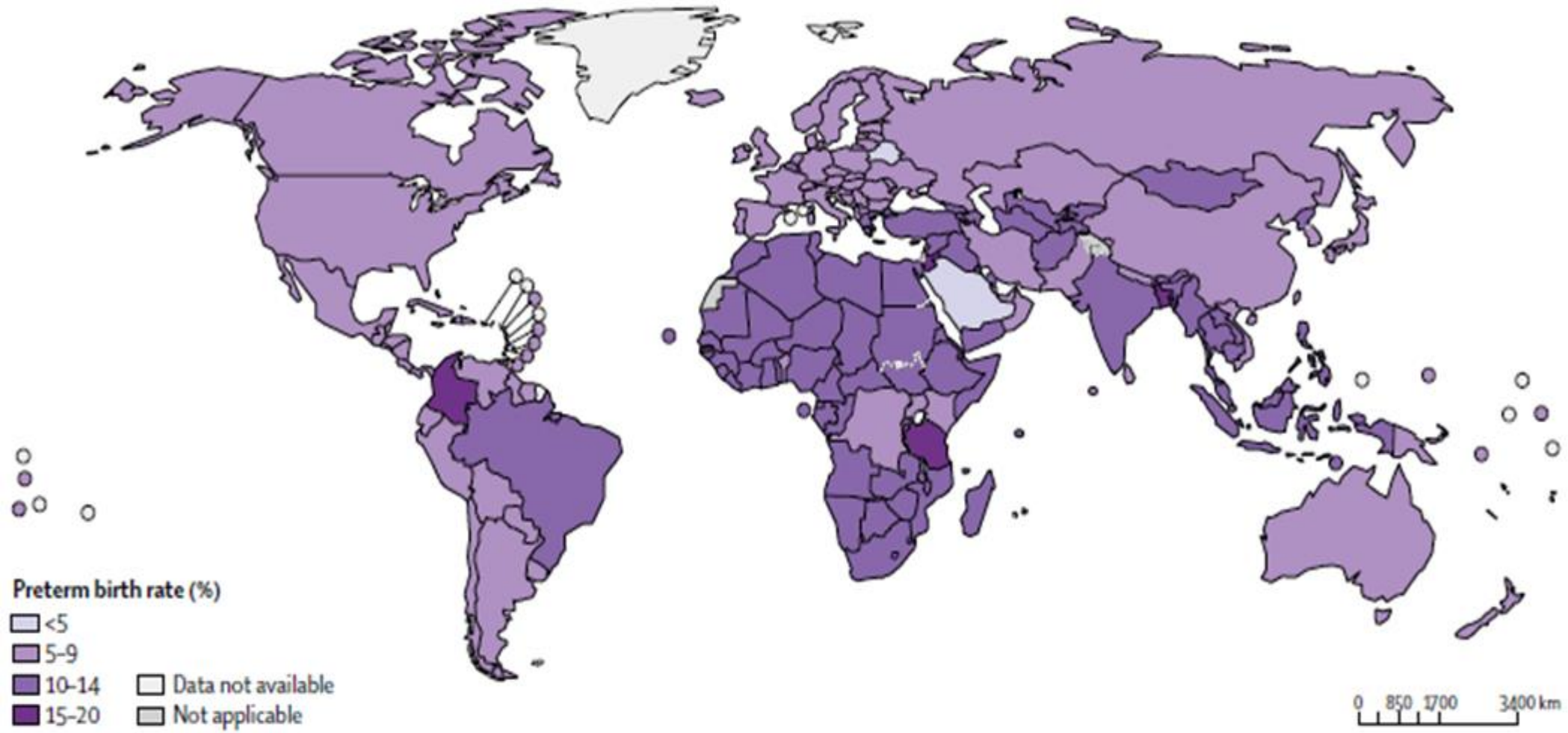
# Progress towards achieving Sustainable Development Goal target for neonatal mortality



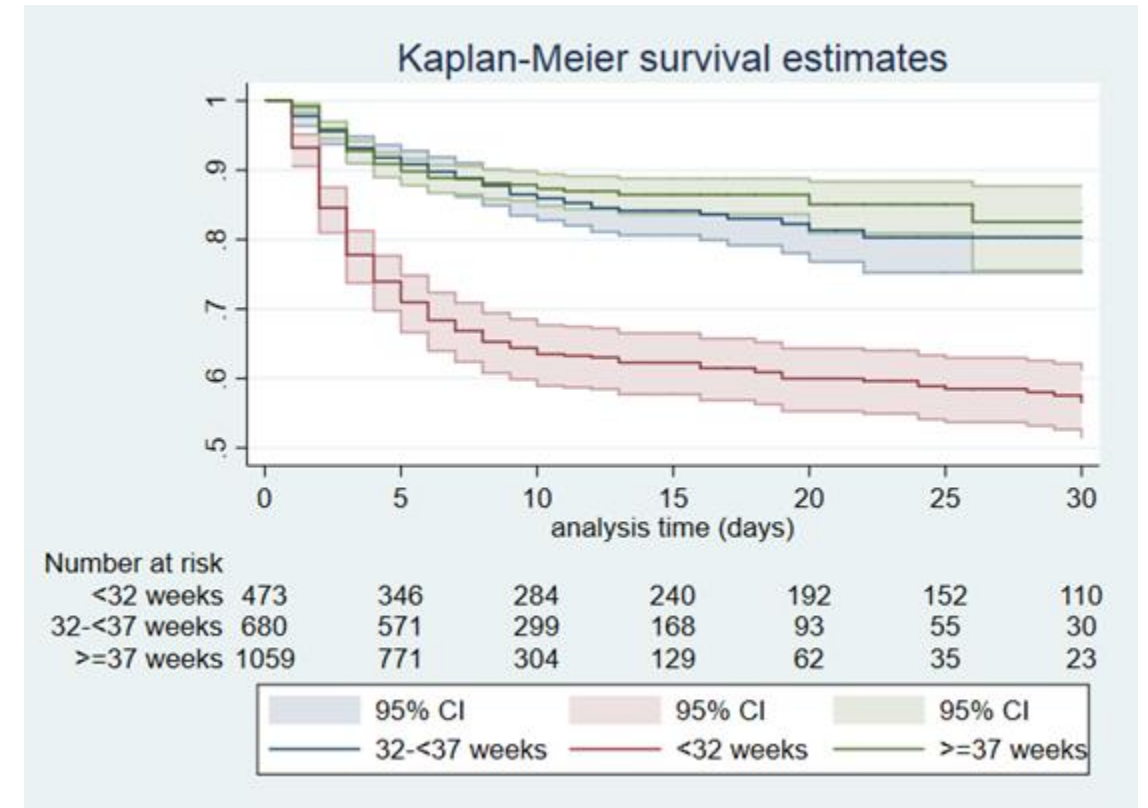
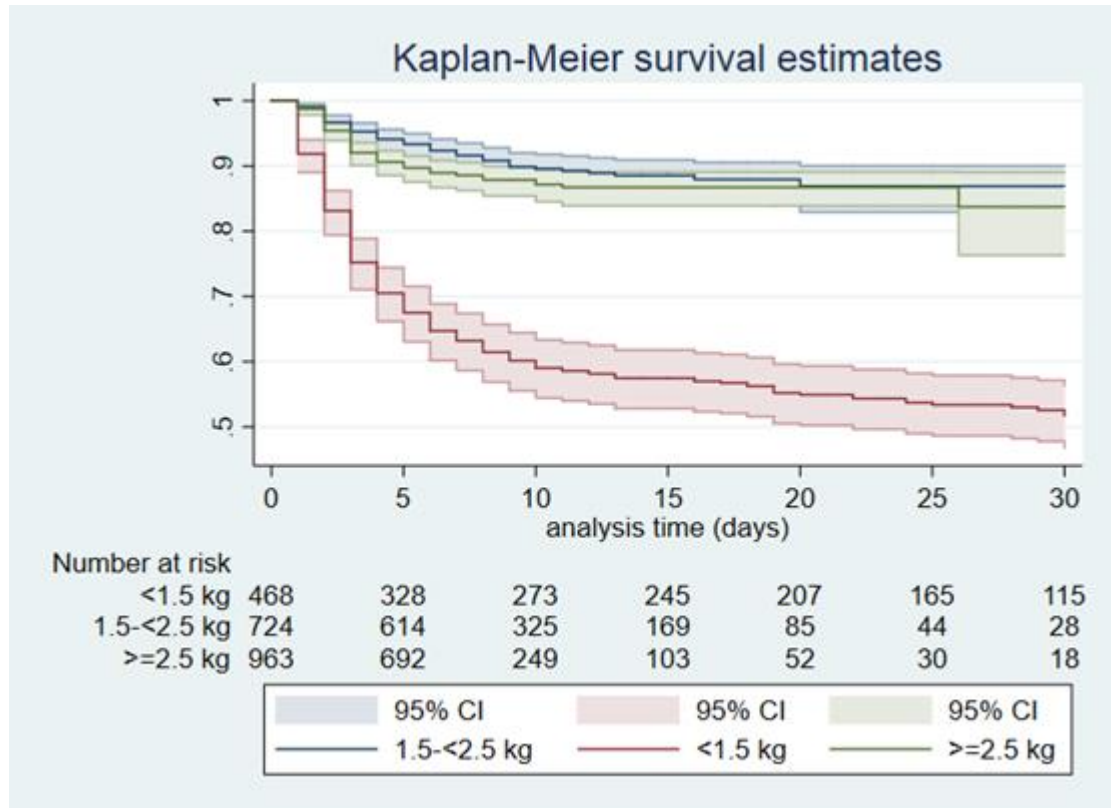
# Causes of under 5 mortality



# Estimated global preterm birth rates in 2014



# Neonatal Nutrition Network project in sub-Saharan Africa



Purpose:

- Enhancing equitable (universal) access to effective and sustainable high-quality care for pregnant women and their newborns.
- Improved quality of data to assess progress and promote accountability.



2019





# Caffeine citrate for apnea of prematurity

## Benefits

- Safe
- Non-invasive
- Effective in decreasing the frequency of apneic episodes hence need for mechanical ventilation
- Given once a day (oral/ intravenous)
- Reduced risk of cerebral palsy months ( $\downarrow$ 42%), cognitive impairment ( $\downarrow$ 19%) and death/survival with neurodisability ( $\downarrow$ 23%) at 18-21 .
- Reduced risk of motor impairment ( $\downarrow$ 34%) and improved respiratory outcomes at middle school age (11y) .

## Potential side effects

- Tachycardia
- Jitteriness
- Feed intolerance

# Essential Medicines

- Caffeine citrate one of only two drugs listed under “medicines administered to the neonate”.

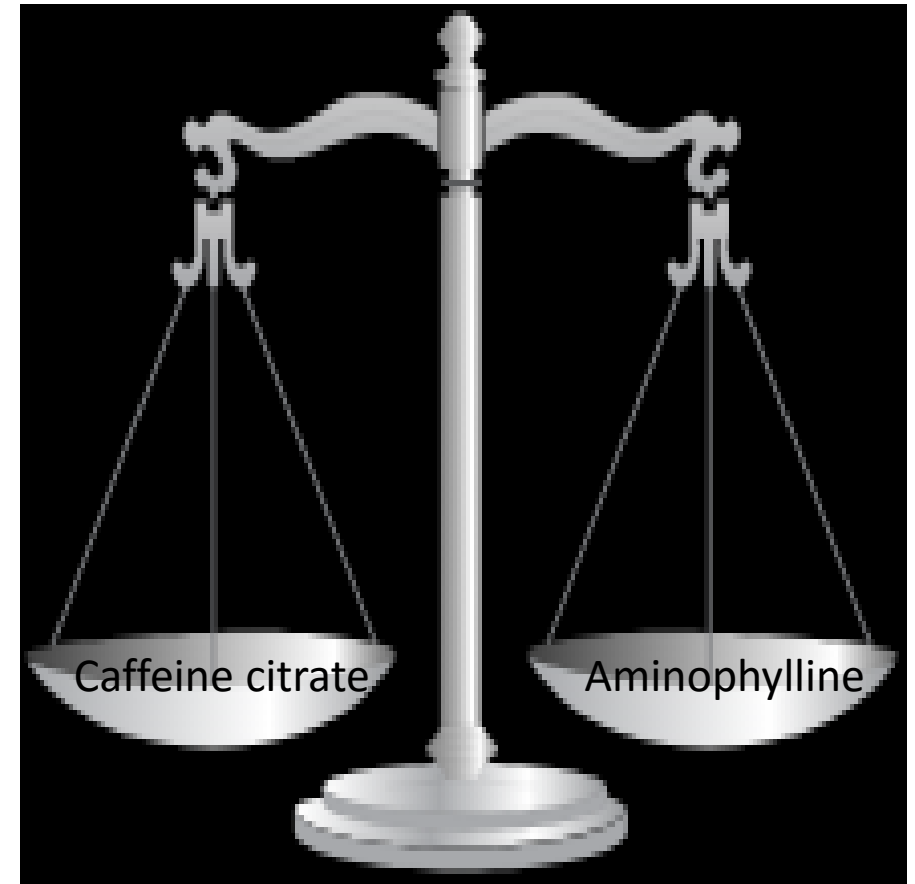
WHO Model List of Essential Medicines for Children (2021)



**World Health  
Organization**

# Why is caffeine citrate not underutilized sub-Saharan Africa?

- Uncertainty of the efficacy and safety of methylxanthines in the prevention and treatment of apnea of prematurity in low- and middle-income countries.
  - Caffeine citrate vs intravenous aminophylline
  - Randomize clinical trials relatively small, often single centre trials in HICs/LMICs.
  - Clinical equipoise - minimal benefits by either drug or no difference.
  - Caffeine citrate lower risk toxicity.



- Not in national guidelines where available.
  - Predominantly used in tertiary centres.
  - Lack of knowledge/experience of using caffeine.
- Unavailable in some countries
  - Legislation to avoid misuse.
- High cost
  - 7- day course can cost upto USD 600 in Kenya – sourced through private pharmacies.
  - Limited availability through hospital pharmacies.
  - Patenting.
- South Africa
  - Accessible, affordable, prescribed regularly

# Suggested next steps

- Evidence of efficacy/safety in sub-Saharan Africa
  - multi-centre randomised controlled trial caffeine citrate versus standard of care
- Availability
  - Stakeholders (in-country partners, industry and drug regulatory bodies etc)
  - Feasibility of locally produced generic caffeine citrate for neonatal care
  - Pricing



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