



**MEDICI  
CON L'AFRICA  
CUAMM**

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# La scuola ferrarese di pediatria nella cooperazione con l'Ospedale di Tosamaganga

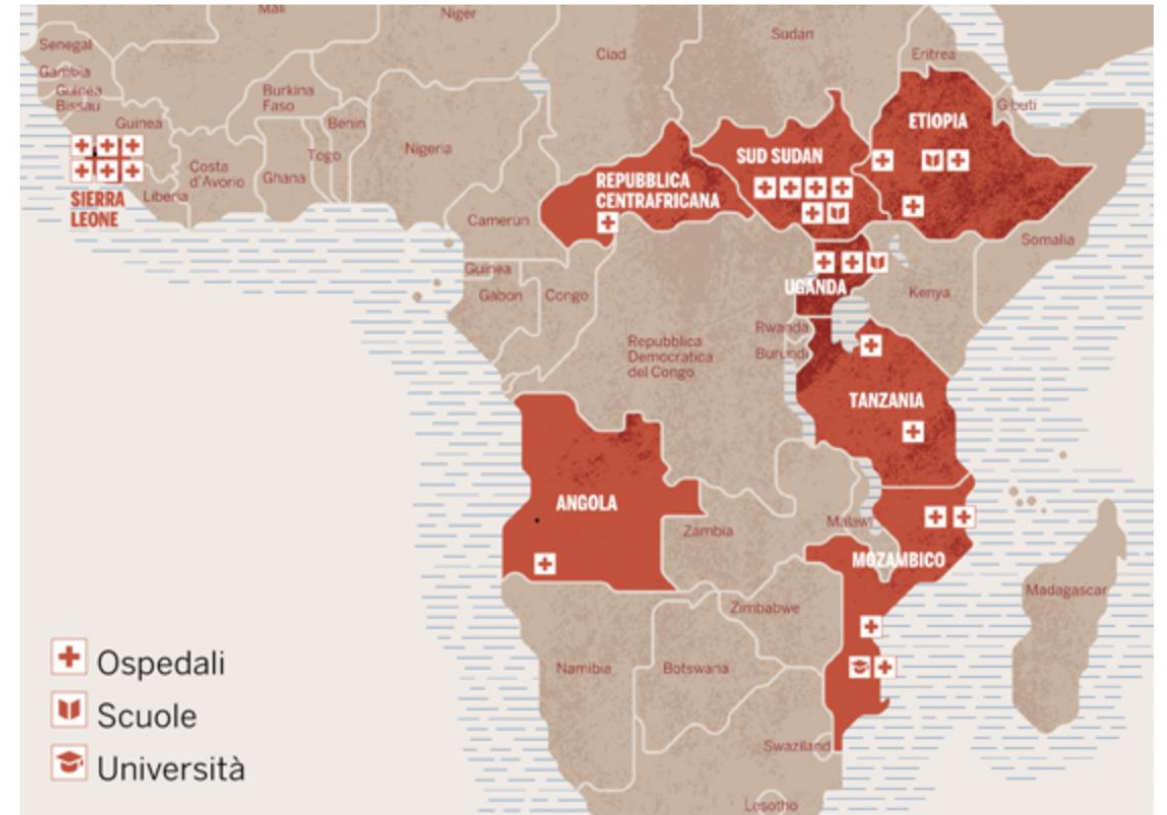
Dott.ssa Alessandra Lumaca  
UO Pediatria

# Medici CON l'Africa CUAMM

L'intervento in Africa è al centro delle attività di Medici con l'Africa Cuamm, che dal 1950 si spende per il rispetto del diritto umano fondamentale alla salute e per rendere l'accesso ai servizi sanitari disponibile a tutti, soprattutto ai più poveri ed emarginati.

L'organizzazione è attiva oggi in 8 paesi dell'Africa sub-sahariana (Angola, Etiopia, Mozambico, Repubblica Centrafricana, Sierra Leone, Sud Sudan, Tanzania e Uganda) con progetti di assistenza sanitaria a lungo termine, in un'ottica di inclusione sociale: negli ospedali, nei piccoli centri di salute, nei villaggi, nelle università, il Cuamm opera con l'Africa, per lavorare, costruire, crescere insieme alla sua gente.

Vengono coinvolte nelle iniziative soprattutto le fasce più deboli della popolazione, in particolare le mamme e i bambini, con **programmi di cura e prevenzione**, interventi di sviluppo delle strutture sanitarie, attività dedicate ai malati HIV/Aids, tubercolosi, malaria), formazione di medici, infermieri, ostetriche e altre figure professionali.



# Tosamaganga Hospital

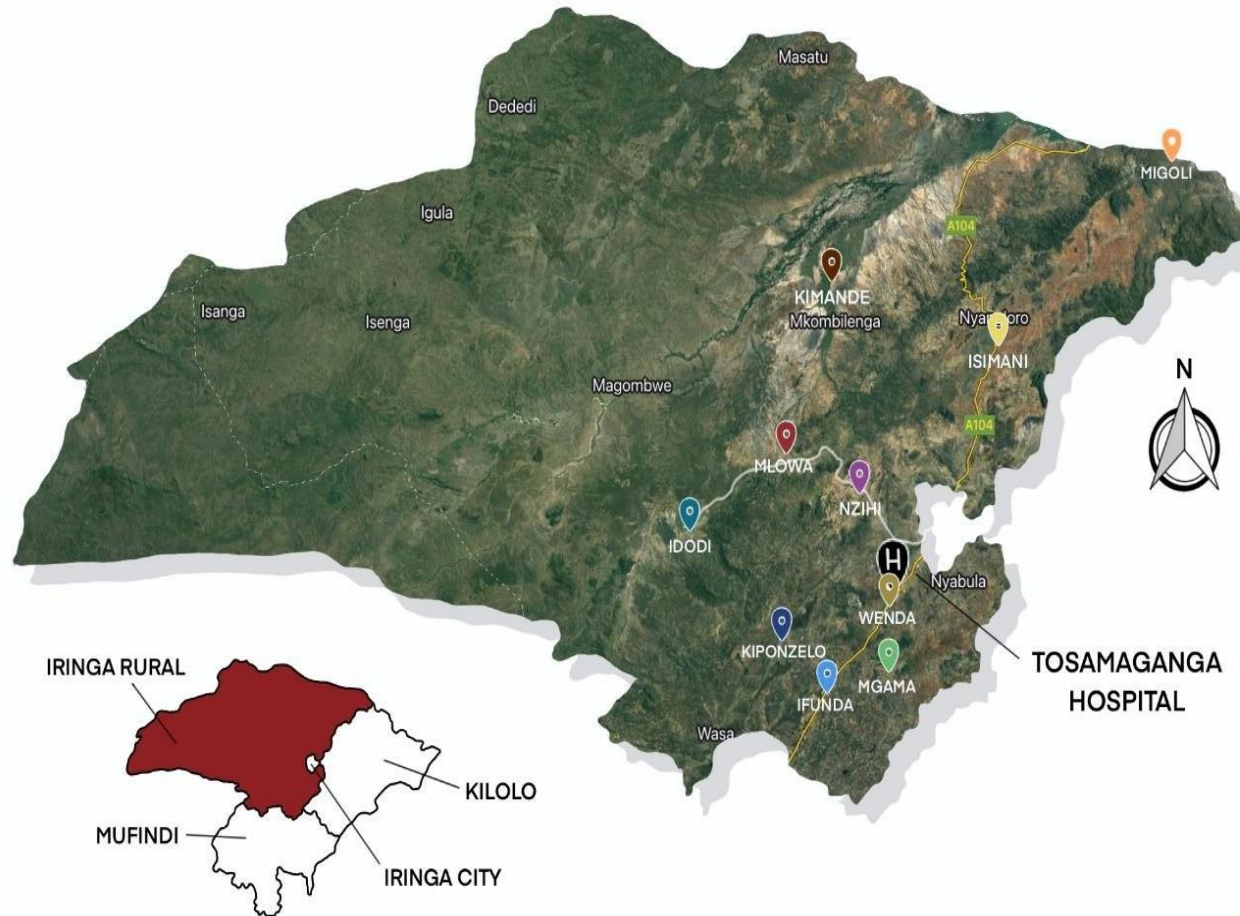




# Iringa District Council Map

Ramani ya halmashauri ya wilaya ya Iringa

Updated 2022



## Tosamaganga Hospital

- Active from 1970, private not for profit hospital owned by the Iringa Diocese
- It has been officially integrated into the Tanzanian public health system since 2007


### Distretto di Iringa rurale distretto

#### Localizzazione

Stato  Tanzania

Regione Iringa

#### Territorio

Coordinate  7°46'09.55"S  
35°42'10.8"E

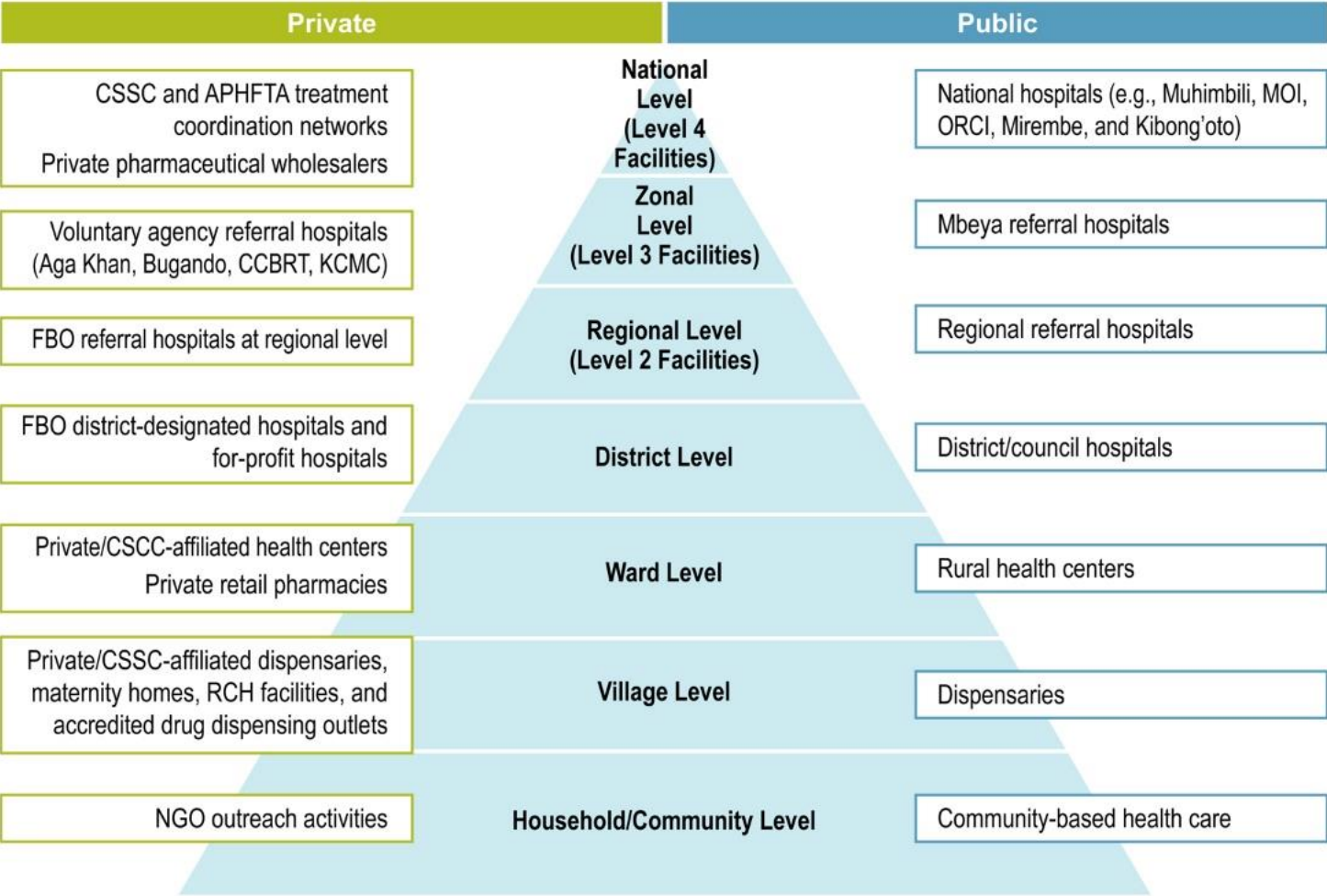
Superficie 18 783 km<sup>2</sup>

Abitanti 315 354<sup>[1]</sup> (2022)

Densità 16,79 ab./km<sup>2</sup>

Ward 28

# Tanzanian Health System Referral Pyramid



Notes: APHFTA – Association of Private Health Facilities in Tanzania, CCBRT – Comprehensive Community Based Rehabilitation in Tanzania, CSSC – Christian Social Services Commission, FBO – faith-based organization, KCMC – Kilimanjaro Christian Medical Centre, MOI – Muhimbili Orthopaedic Institute, ORCI – Ocean Road Cancer Institute, RCH – reproductive and child health

# Ospedale di Tosamaganga



## Updated hospital Capacity and Staff

|                   | Number of beds |
|-------------------|----------------|
| Children Ward     | 31             |
| Female Ward*      | 40             |
| Male Ward*        | 40             |
| Maternity Ward**  | 52             |
| Surgical***       | 18             |
| Neonatal Ward     | 11             |
| <b>Total beds</b> | <b>192</b>     |

\* They include Private ward and ICU

\*\* It does not include Mother Waiting Home (25 beds)

\*\*\* It includes the orthopedic and neuro ward

|                         | Number     |
|-------------------------|------------|
| Doctors                 | 11         |
| Nurses                  | 88         |
| Clinical Officers       | 6          |
| Technologists           | 27         |
| Other health Personnel* | 54         |
| Administrative staff    | 34         |
| <b>Total</b>            | <b>220</b> |

\* It includes mainly health assistants, and physiotherapists, dental therapist and one assistant medical officer



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# NEONATAL UNIT



Tosamaganga Hospital



## NICU data - Jan – June 2022

|               |     |       |
|---------------|-----|-------|
| numero totale | 291 |       |
| M             | 155 | 53,3% |
| F             | 135 | 46,4% |
|               | 290 | 99,7% |

|            |    |      |
|------------|----|------|
| num. twins | 28 | 9,6% |
|------------|----|------|

|                  |     |       |
|------------------|-----|-------|
| inborn           | 238 | 81,8% |
| inborn returned  | 1   | 0,3%  |
| outborn          | 47  | 16,2% |
| outborn returned | 4   | 1,4%  |
|                  | 290 | 99,7% |

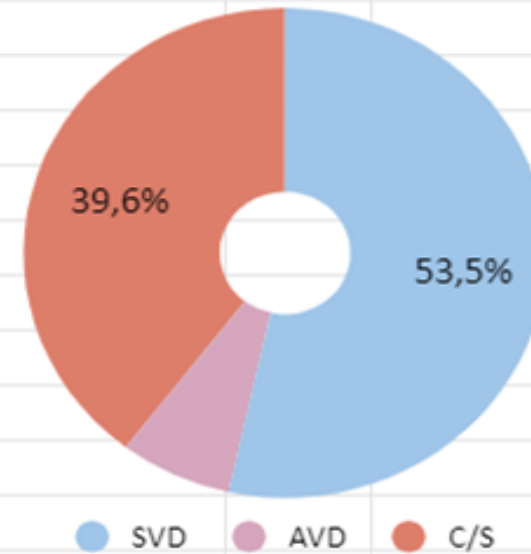
|                                       |       |
|---------------------------------------|-------|
| giorni medi di vita all'ammissione    | 4     |
| mediana giorni di vita all'ammissione | 1     |
| BW nascita medio (g)                  | 2.624 |
| BW ammissione medio (g)               | 2.581 |
| BT ammissione media (°C)              | 36,2  |

|                         |       |
|-------------------------|-------|
| giorni medi di ricovero | 8     |
| BW dimissione medio (g) | 2.522 |



|                          |       |       |
|--------------------------|-------|-------|
| num. PMTCT 1             | 29    | 10,0% |
| peso medio se PMTCT 1    | 2.540 |       |
| death se PMTCT 1         | 2     | 6,9%  |
| death se PMTCT 2         | 19    | 7,4%  |
|                          |       |       |
| num. VDRL 1              | 5     | 1,7%  |
| peso medio se VDRL 1 (g) | 2.550 |       |
| death se VDRL 1          | 0     | 0,0%  |
| death se VDRL 0          | 14    | 5,9%  |

Delivery modality



| birth weight |     |       |
|--------------|-----|-------|
| ≥ 2.500 g    | 184 | 63,2% |
| LBW          | 81  | 27,8% |
| VLBW         | 20  | 6,9%  |









| pathology            |     |       |
|----------------------|-----|-------|
| respiratory distress | 117 | 40,2% |
| EOS                  | 27  | 9,3%  |
| LOS                  | 13  | 4,5%  |
| hypoglycaemia        | 5   | 1,7%  |
| jaundice             | 89  | 30,6% |
| weight loss          | 20  | 6,9%  |
| skin infection       | 7   | 2,4%  |
| anemia               | 8   | 2,7%  |

| birth asphyxia      |    |       |
|---------------------|----|-------|
| birth asphyxia      | 62 | 21,3% |
| with hypothermia    | 27 | 43,5% |
| without hypothermia | 33 | 53,2% |
| with no BT taken    | 2  | 3,2%  |



# Neonatal resuscitation



|                     | Score 2  | Score 1  | Score 0   |
|---------------------|--|--|---|
| <b>A</b> ppearance  | <br>Pink            | <br>Extremities blue  | <br>Pale or blue |
| <b>P</b> ulse       | > 100 bpm  | < 100 bpm  | No pulse  |
| <b>G</b> rimace     | Cries and pulls away   | Grimaces or weak cry   | No response to stimulation  |
| <b>A</b> ctivity    | <br>Active movement | <br>Arms, legs flexed | <br>No movement  |
| <b>R</b> espiration | Strong cry   | Slow, irregular  | No breathing  |



## Tanzania



### Child survival

|  |         |                           |
|--|---------|---------------------------|
| Under-five mortality rate (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>          | 49      | <a href="#">View data</a> |
| Under-five deaths (Number of deaths) <a href="#">Find out more &gt;</a>                              | 102,252 | <a href="#">View data</a> |
| Infant mortality rate (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>              | 35      | <a href="#">View data</a> |
| Neonatal mortality rate (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>            | 20      | <a href="#">View data</a> |
| Under-five mortality rate (Female) (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a> | 45      | <a href="#">View data</a> |
| Under-five mortality rate (Male) (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>   | 52      | <a href="#">View data</a> |

## Italia



### Child survival

|  |       |                           |
|--|-------|---------------------------|
| Under-five mortality rate (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>          | 3     | <a href="#">View data</a> |
| Under-five deaths (Number of deaths) <a href="#">Find out more &gt;</a>                              | 1,298 | <a href="#">View data</a> |
| Infant mortality rate (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>              | 2     | <a href="#">View data</a> |
| Neonatal mortality rate (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>            | 2     | <a href="#">View data</a> |
| Under-five mortality rate (Female) (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a> | 3     | <a href="#">View data</a> |
| Under-five mortality rate (Male) (Deaths per 1,000 live births) <a href="#">Find out more &gt;</a>   | 3     | <a href="#">View data</a> |

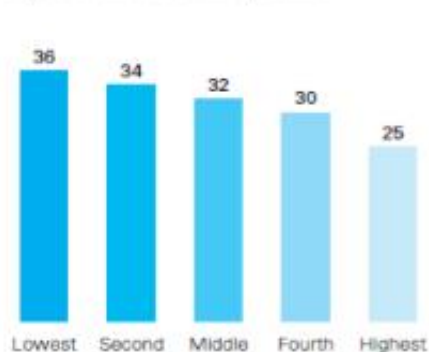


### The risk to newborns varies among and within countries

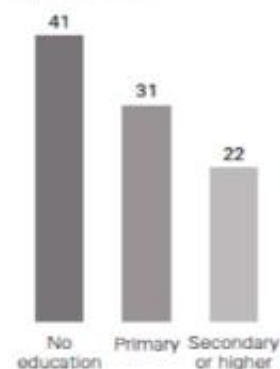
National averages mask variations within countries. Babies born to the poorest families are more than 1.4 times more likely to die during the newborn period than those born to the richest.<sup>17</sup> Babies born to mothers with no education face almost twice the risk of dying as newborns as babies born to mothers with at least a secondary education.

In other words, babies are dying not just from medical causes such as prematurity and pneumonia. They are dying because of who their parents are and where they are born – because their families are too poor or marginalized to access the care they need.

By household wealth quintile



By education



By residence

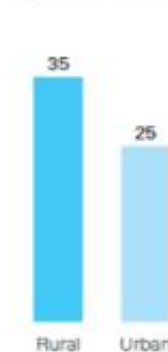


Figure 5  
Newborn mortality rate by household wealth quintile, education and residence

**Note:** Data are based on the MICS or DHS survey in the country that took place since 2005. Data from the most recent survey are used for countries with multiple surveys. Data by wealth quintile are based on 57 surveys, data by education level on 64 surveys and data by residence on 65 surveys.

**Source:** UNICEF analysis based on MICS and DHS.

challenge of keeping Every Child Alive

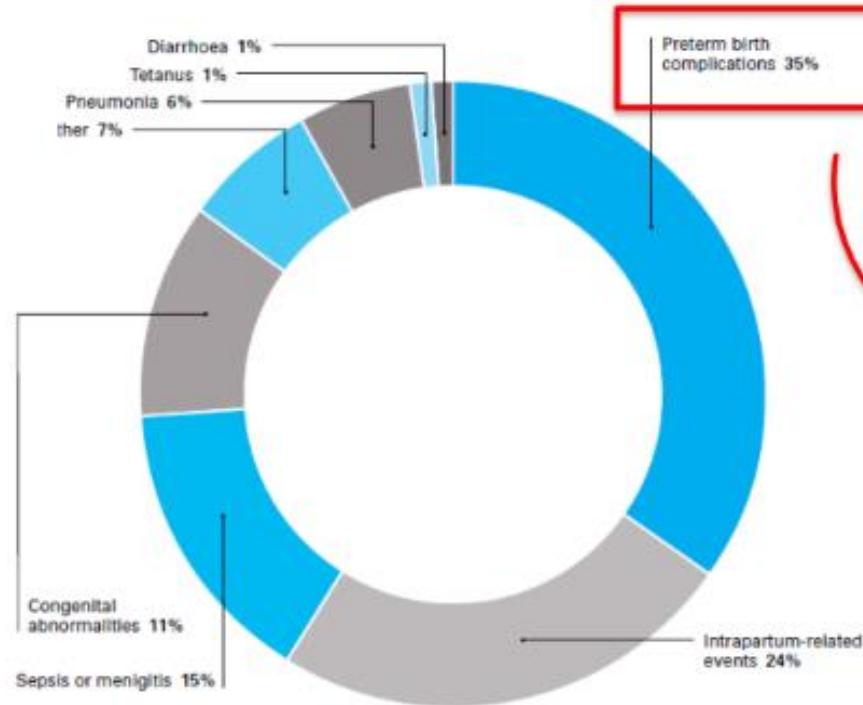


Figure 2  
Causes of newborn deaths, 2016

RESPIRATORY DISTRESS

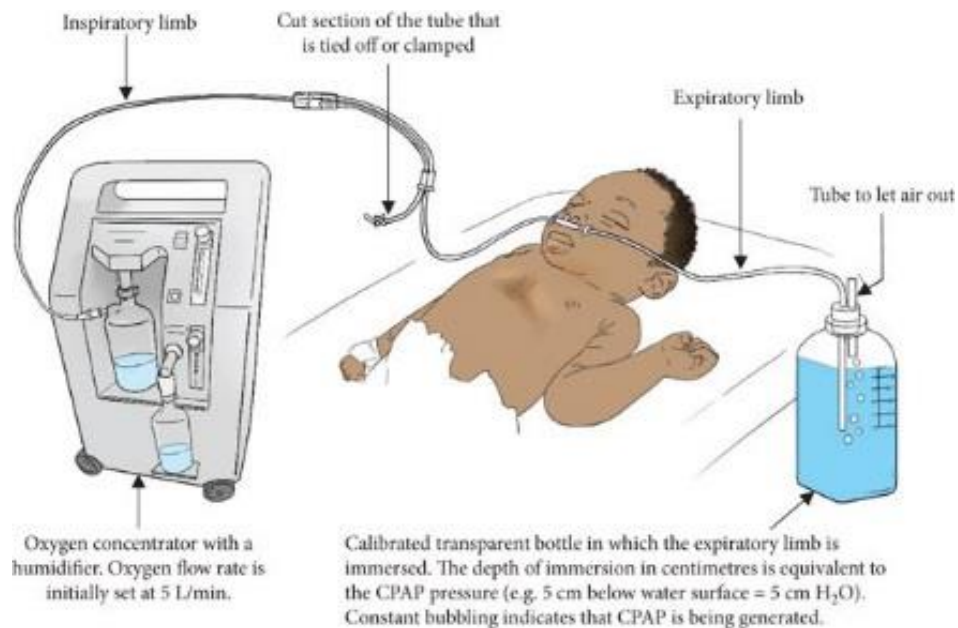
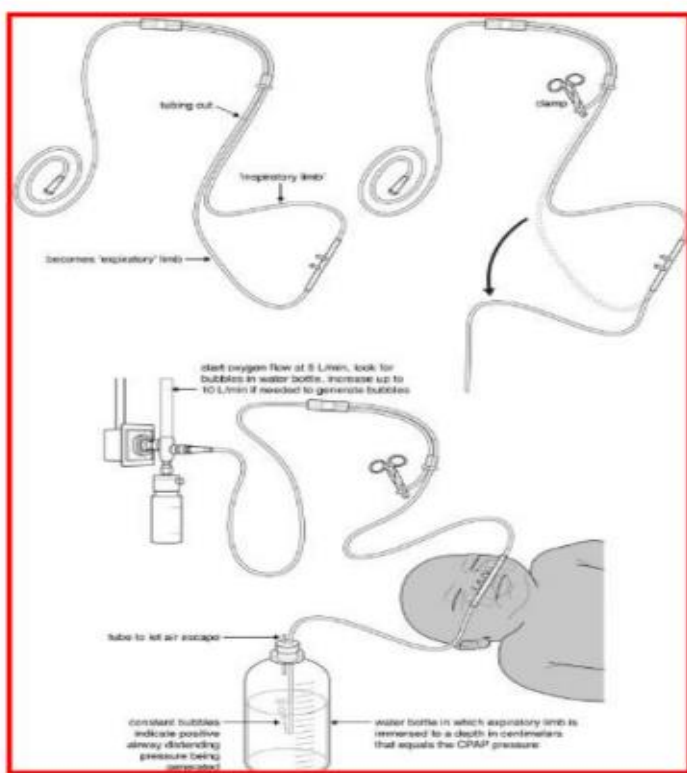
Note: Estimates are rounded and therefore may not add up to 100 per cent. Preterm birth complications refer to complications occurring before the time of birth; intrapartum-related events are complications occurring during the birth process.

Source: WHO and Maternal and Child Epidemiology Estimation Group (MCEE), 2018. Estimates for child causes of death 2000-2016

- ✓ Ambu-bags, used to manually resuscitate newborns who fail to breathe after birth
- ✓ Antibiotics to treat mothers and newborns who have infections
- ✓ Blankets and cloth to keep the baby warm and support skin-to-skin contact, including during breastfeeding
- ✓ Chlorhexidine, a broad-spectrum antiseptic used to prevent infection of the umbilical cord, which can lead to sepsis
- X** Continuous positive airway pressure (CPAP) machines for premature babies whose underdeveloped lungs make it difficult for them to breathe
- ✓ Oxygen concentrator equipment, used to help very low-birthweight babies breathe
- ✓ Phototherapy machines to reduce jaundice in newborns
- ✓ Micronutrient supplements, especially iron and folic acid to prevent iron deficiency anaemia in pregnant women and reduce the risk of low-birthweight babies and complications at birth
- ✓ Tetanus toxoid vaccine to prevent tetanus infection, which can result from unhygienic birth conditions
- ✓ Thermometers, used to closely monitor the temperature of sick newborns

Figure 6  
The 10 most critical  
products for newborn  
survival





Review > [Int J Pediatr.](#) 2020 Sep 8;2020:8871980. doi: 10.1155/2020/8871980. eCollection 2020.

## Bubble Nasal Continuous Positive Airway Pressure (bNCPAP): An Effective Low-Cost Intervention for Resource-Constrained Settings

Walufu Ivan Egesa<sup>1</sup>, William Mugowa Waibi<sup>1</sup>

# Neonatal corner





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# Malnutrition Ward

Tosamaganga Hospital

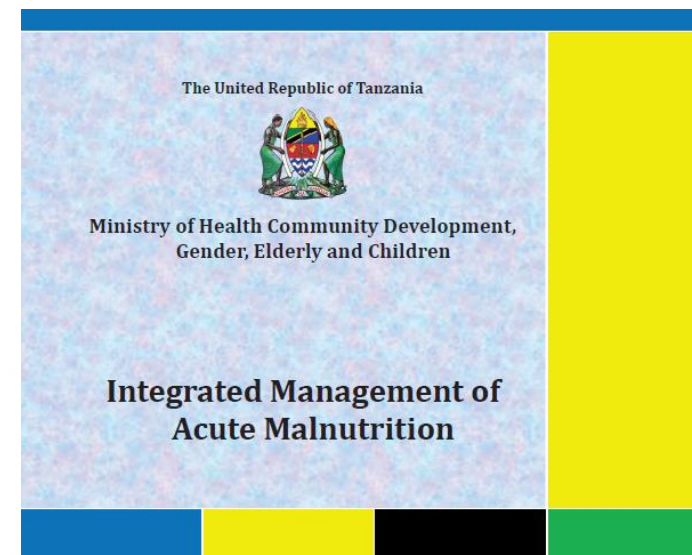


## Nutrition Situation in Tanzania

Infant and child mortality remains high in Tanzania. The under-five child mortality rate is 67 per 1,000 live births and the infant mortality rate is 43 per 1,000 live births (TDHS-MIS 2015 - 2016). One out of twelve children in Tanzania dies before his/her fifth birthday. Around 53% of under-five childhood deaths are associated with malnutrition (UNICEF, 2006).

Acute malnutrition, reflected as wasting and underweight, is present in all regions of Tanzania all the year round. TDHS-MIS (2015 – 2016) shows that 5% of infants and young children are wasted and 1% of them are severely wasted while 14% are underweight. Micronutrient deficiencies are also common. Prevalence of anaemia in under-five children (Hb<11g/dl) was 58%. Among them 30% had moderate anaemia and 2% had severe anaemia. The same TDHS-MIS shows also that prevalence of vitamin A deficiency in under-fives (indicated by Retinol Binding Protein < 0.825 µmol/L) was 33%.

Malnourished children that survive tend to experience adverse effects throughout their life, including growth failure, reflected in stunting. Stunting is still a major public health problem in Tanzania with an estimated 34% of children affected (TDHS - MIS 2015 - 2016). The effects of stunting are largely irreversible and include impairments in cognitive function. Stunted children are therefore less able to learn in school and, as adults, are less economically productive and more likely to be dependent. Evidence suggests that stunted adults, even when their cognitive function is not impaired, are also less economically productive, as they are less able to perform heavy physical tasks. Also, they recover from infections less promptly and less completely (Manary & Solomons, 2004). Malnourished female infants, when they become adults, are more likely to give birth to malnourished babies (Haddad & Geissler, 2005) and so it's a vicious cycle.



|                |    |        |
|----------------|----|--------|
| Total patients | 70 |        |
| M              | 39 | 55.7%  |
| F              | 31 | 44.3%  |
|                | 70 | 100.0% |

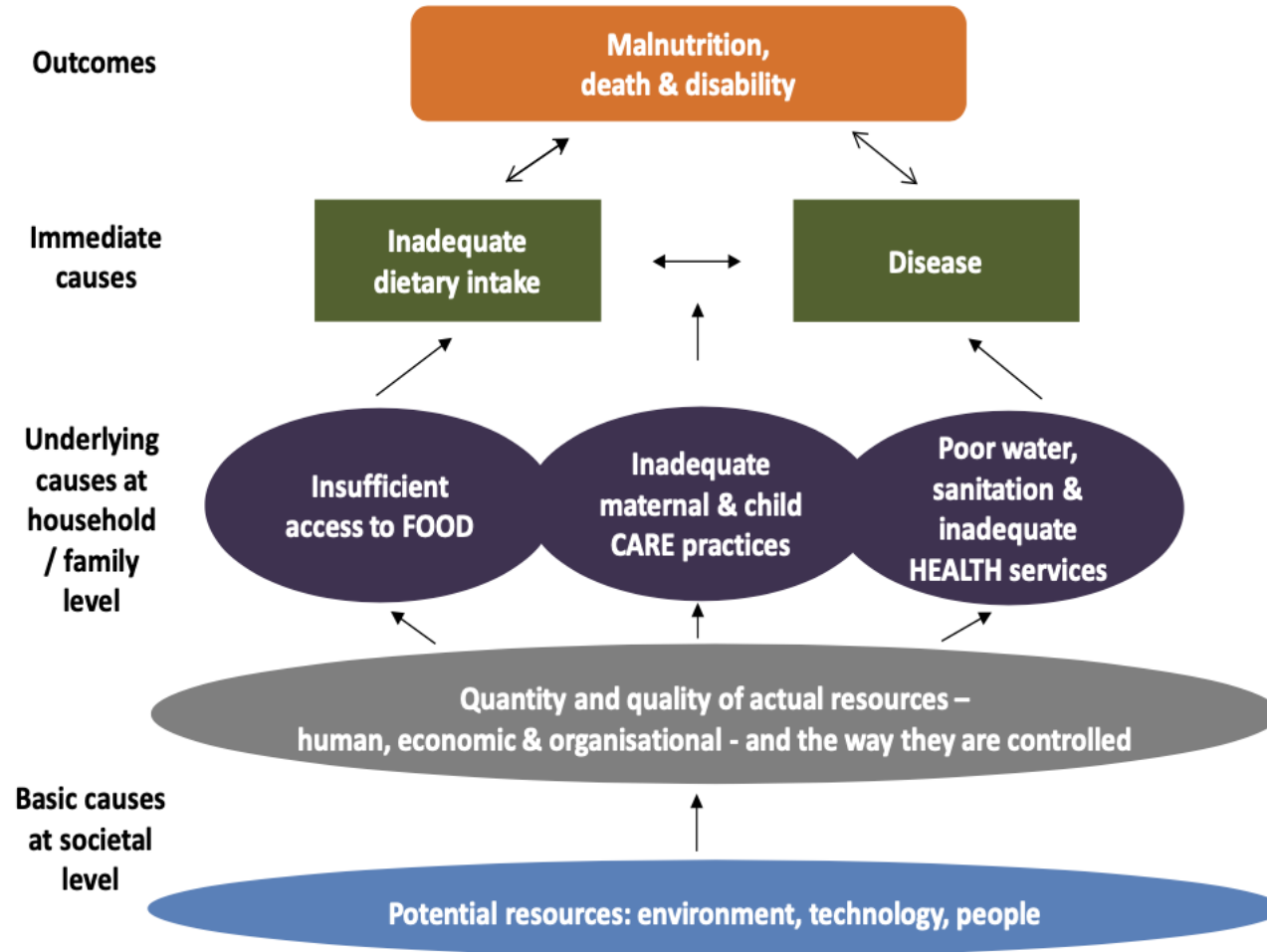
|                    |    |
|--------------------|----|
| Media età (mesi)   | 22 |
| Mediana età (mesi) | 16 |

|                  | on admission | on discharge | $\Delta$ discharge-admission | target | $\Delta$ discharge-target |
|------------------|--------------|--------------|------------------------------|--------|---------------------------|
| Mean weight (kg) | 7.06         | 7.29         | 0.23                         | 7.58   | -0.29                     |
| Mean height (cm) | 72.4         | 72.3         | -0.11                        |        |                           |
| Mean MUAC (cm)   | 11.2         | 11.3         | 0.1                          |        |                           |

|                          | hospitalization | $\Delta$ hosp.-admis. | $\Delta$ hosp.-disch. |
|--------------------------|-----------------|-----------------------|-----------------------|
| Mean minimum weight (kg) | 6.66            | -0.40                 | -0.63                 |

|           |    |
|-----------|----|
| Mean days | 14 |
|-----------|----|

## Conceptual framework for analysing the causes of malnutrition



*Figure 2: Conceptual framework for causes of malnutrition*

*Figure 1: Characteristics of marasmus and kwashiorkor<sup>1</sup>*

Marasmus



- Severe weight loss and wasting
- Ribs prominent
- Limbs very thin
- Muscle wasting
- May have good appetite
- Good prognosis with correct treatment

Kwashiorkor



- Bi-lateral oedema and fluid accumulation
- Loss of appetite
- Brittle thinning hair, and hair colour change
- Apathetic and irritable
- Face may seem swollen
- High risk of death

# Severe acute malnutrition



The management of SAM is divided into three phases:

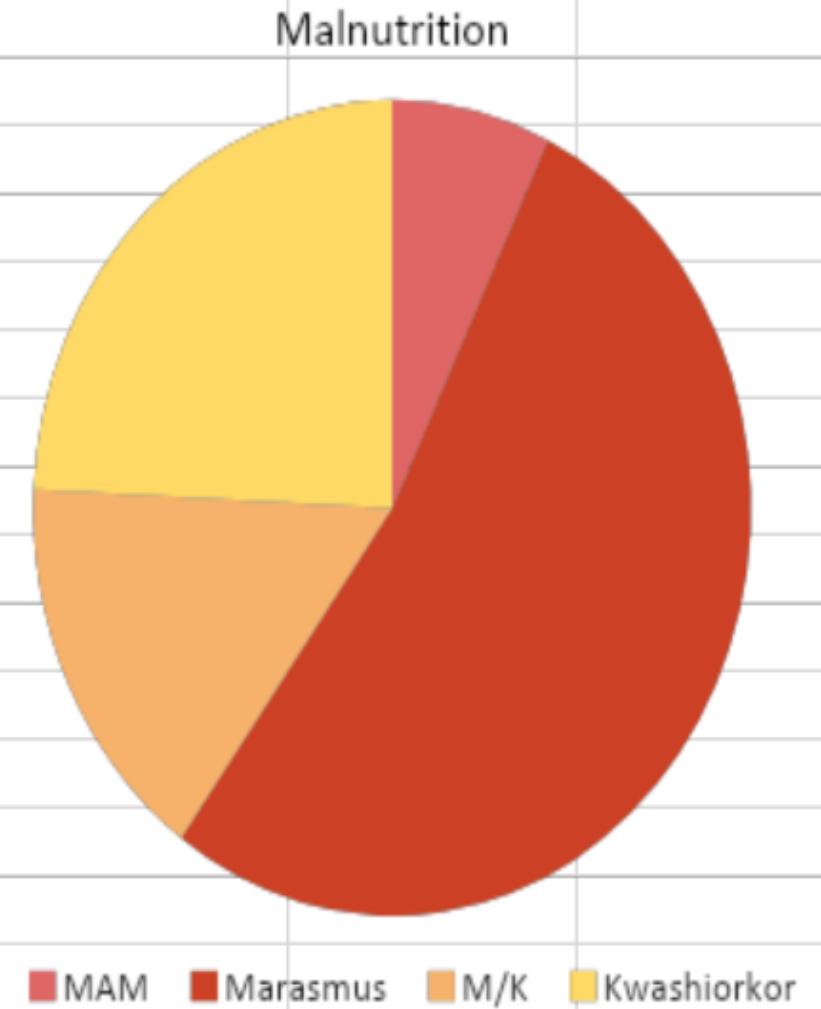
- **Stabilization phase** covers nutrition (including feeding with F75) and medical stabilization, treatment of life-threatening medical complications and correction of micronutrient deficiencies. Patients do not gain weight during this phase. The patient remains in stabilization phase until the medical complications have stabilized and the appetite improves.
- **Transition phase** covers a transition from F75 to F100 or RUTF and a gradual increase in diet leading to some weight gain while preventing complications of overfeeding. Patients normally remain in this phase for two to three days.
- **Rehabilitation phase** is where there is intensive feeding to recover lost weight; emotion and physical stimulation is increased; breastfeeding is encouraged; the mother or caregiver is trained to continue care at home (OTC) or referred to supplementary feeding, if available.



| Oedema |           |               |
|--------|-----------|---------------|
| 0      | 42        | 60.0%         |
| 1      | 4         | 5.7%          |
| 2      | 11        | 15.7%         |
| 3      | 13        | 18.6%         |
|        | <b>70</b> | <b>100.0%</b> |

|             |           |               |
|-------------|-----------|---------------|
| MAM         | 5         | 7.1%          |
| Marasmus    | 37        | 52.9%         |
| M/K         | 11        | 15.7%         |
| Kwashiorkor | 17        | 24.3%         |
|             | <b>70</b> | <b>100.0%</b> |

| Stunting |           |               |
|----------|-----------|---------------|
| Yes      | 56        | 80.0%         |
| No       | 14        | 20.0%         |
|          | <b>70</b> | <b>100.0%</b> |



**Marzo 2022**



**Ottobre 2022**





|                  |    |       |
|------------------|----|-------|
| Hypoglycaemia    | 5  | 7.1%  |
| Hypothermia      | 7  | 10.0% |
| Infection        | 25 | 35.7% |
| Diarrhoea        | 34 | 48.6% |
| Vomiting         | 25 | 35.7% |
| Dehydration      | 9  | 12.9% |
| Shock            | 3  | 4.3%  |
| Severe anemia    | 9  | 12.9% |
| Mean Hb (g/dl)   | 10 |       |
| Heart failure    | 2  | 2.9%  |
| Dermatosis of K. | 9  | 12.9% |
| Abdominal compl. | 1  | 1.4%  |

|                   |    |       |
|-------------------|----|-------|
| Outcome           |    |       |
| Cured             | 3  | 4.3%  |
| Discharged to OTC | 61 | 87.1% |
| Referral          | 1  | 1.4%  |
| Died              | 5  | 7.1%  |
| Absconded         | 0  | 0.0%  |

|                        |   |
|------------------------|---|
| Mean follow-up visists | 1 |
|------------------------|---|

|            |    |       |
|------------|----|-------|
| Outcome    |    |       |
| Open       | 13 | 20.3% |
| Cured      | 23 | 35.9% |
| Defaulted  | 24 | 37.5% |
| Readmitted | 2  | 3.1%  |
| Missing    | 2  | 3.1%  |



**ASANTE SANA!**

