

# Effective antibiotics - essential for children's survival

Antibiotic resistance means antibiotics no longer work to treat illnesses

## Abigail died when she was 1 month old

**Abigail was born prematurely at seven months old weighing little more than a bag of flour. She needed help to breathe and a day after birth, nurses found her unresponsive.**

### Tried 4 different antibiotics but organs started to shut down

Abigail had sepsis, a serious and potentially fatal condition where bacteria get into the blood stream. In response, the body's immune system goes into overdrive and organs begin to shut down. Abigail was given two antibiotics, penicillin and gentamicin, to treat the infection in her blood, but they did not work. She was then given two different antibiotics, ceftriaxone and metronidazole, but there was still no improvement. Like so many babies in Malawi, Abigail had been given antibiotics that did not work against her infection. She remained desperately ill for four days.

### Antibiotics did not work

Lab results taken earlier came back and revealed she was infected with a bacterium called *Klebsiella*. It was resistant to most of the drugs she had been given; they weren't working to kill her infection. Abigail was administered amikacin, the last antibiotic available that could possibly work. Then her family faced a waiting game to see if she would survive. Abigail died when she was just a month old.

Photo and adapted text from article by Madlen Davies, find full article at The Bureau of Investigative Journalism, 2018



## Children are more vulnerable to infections



- It takes time for babies to fully develop a functioning immune system.
- Children are more exposed to germs.
- Children in poverty are even more vulnerable to infections as they live in crowded or suboptimal housing conditions, lack access to safe drinking water, and have poor access to quality health care.

## Effective antibiotics are cornerstones for child care

sepsis      meningitis      pneumonia  
cancer      tuberculosis      surgery  
intensive care      typhoid  
wound infections



**40%**  
of deaths  
in children  
under 5  
across the  
globe  
are due to  
infectious  
diseases

Infectious diseases are a leading cause of death in children under 5.

Children bear the highest burden of infections resistant to antibiotics.

Levels and Trends in Child Mortality Report 2019. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation

# Resistant bacteria affect children in every region of the world

**38%**

of children in a village in Latin America carried bacteria resistant to colistin – a last line antibiotic.

Nordberg V. et al., PLoS One, 2013

**2 of 3**

cases of meningitis and neonatal sepsis in sub-Saharan Africa caused by bacteria resistant to antibiotics.

Okomo U. et al., Lancet Infect Dis, 2019

**30%**

of the burden of resistant infections in Europe falls on children under five.

Cassini A. et al, Lancet Infect Dis, 2018

**90%**

of newborns with sepsis in an intensive care unit in the Middle East had resistant bacteria.

Al Jarousha AM. et al., Int J Infect Dis, 2009

**83%**

of children in South East Asia with sepsis were found to have *E. coli* bacteria resistant to first line antibiotics.

Le Doare K. et al., J Pediatric Infect Dis Soc, 2015



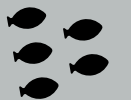
Access to effective antibiotics to treat pneumonia could avert the deaths of

**445,000 children**

- There are few antibiotics children can take easily.
- In some areas, antibiotics may be falsified or substandard.

## Overuse and misuse of antibiotics

- Overuse and misuse of antibiotics in plants, animals and humans leads to resistance.
- Where children do have access to antibiotics, they are often prescribed and used unnecessarily.
- Managing resistant bacteria will require using antibiotics correctly and only when medically necessary.



We need to address the needs of children in policy discussions on antibiotic resistance and through:



### PREVENTION

Invest more in infection prevention activities and better access to clean water, sanitation, hygiene and vaccinations.



### EDUCATION

Include bacterial resistance in education programmes and in awareness campaigns to raise childrens' understanding of the microbial world.



### STEWARDSHIP

Integrate antibiotic stewardship policies and practices into child healthcare programmes.



### RESEARCH

Invest more and ensure that data collection includes a child focus, and that pediatric formulations of antibiotics are developed.