# Global Consultation on Child and Adolescent Health and Development

12-13 March 2002

Stockholm, Sweden

# Mdm. Bruntland Says:

- 11 million children die each year
- 8 million can be averted each year
- Each decade a new large country (80 millions)
- With 66 billion dollars /year
- A life is worth  $ 8250
- One day of an helicopter cost

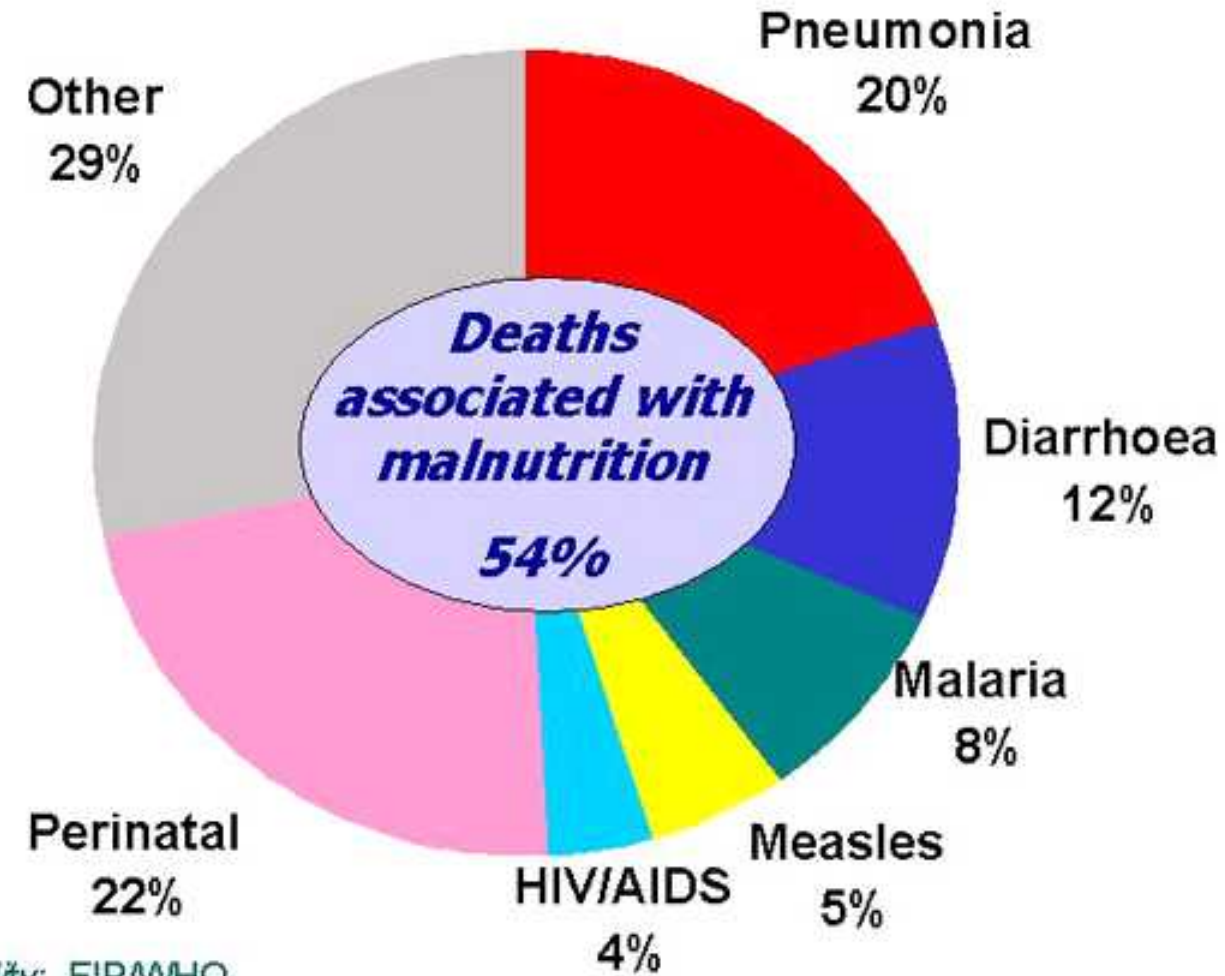
# Her Majesty Queen Silvia of Sweden says :

An average of 5 million children, who would otherwise have died, survive each year due to public health interventions that prevent and treat the main childhood diseases. The challenge in a new agenda for children is to scale up the most effective interventions to save more lives.

# Ms Carol Bellamy says

**These advances, however, failed to reach the more than 11 million children who continue to die each year. “In a global economy worth over $30 trillion,” Ms Bellamy said, “it is clear that the necessary resources and know-how to reach every child are well within our grasp.”**

# Major causes of death among children under five, worldwide, 2000

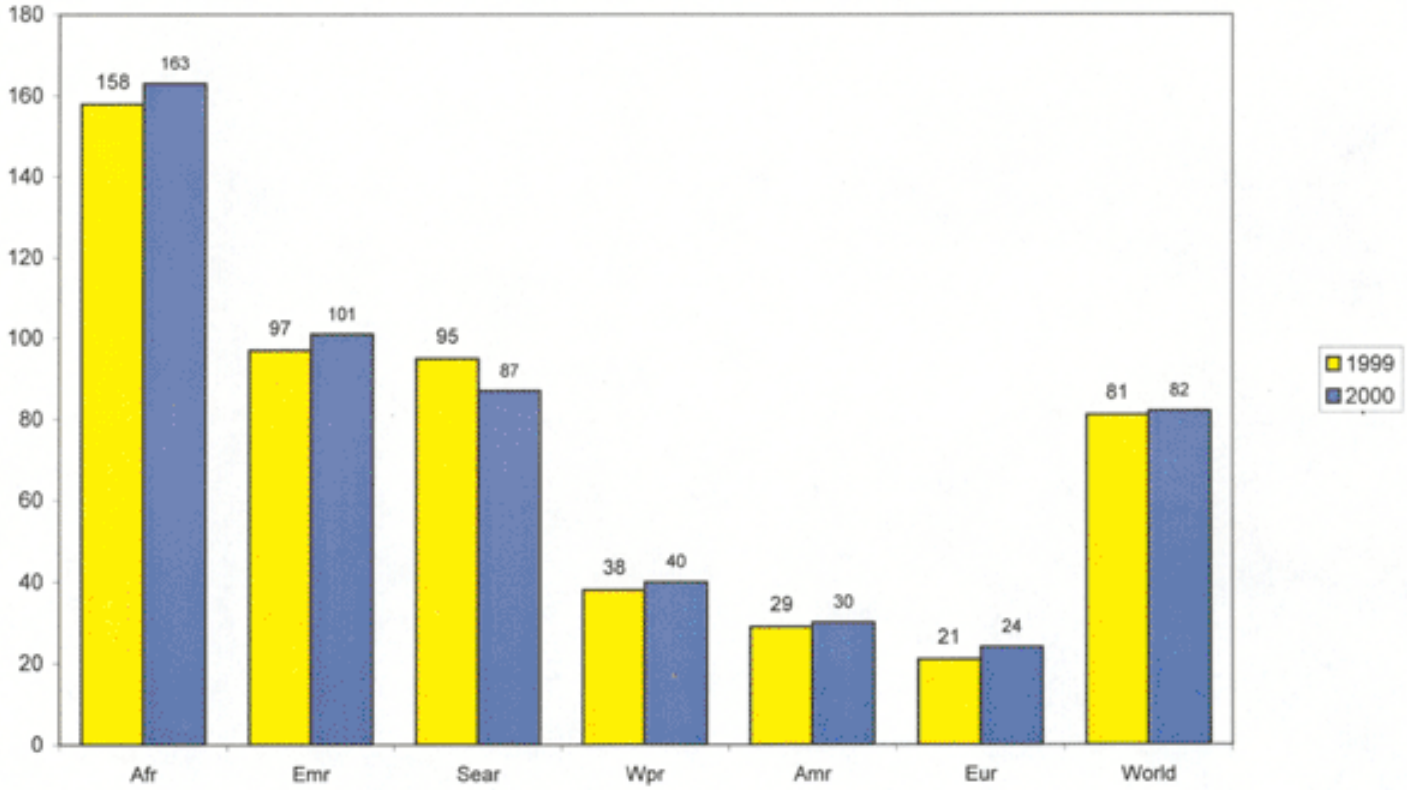



**Sources:**

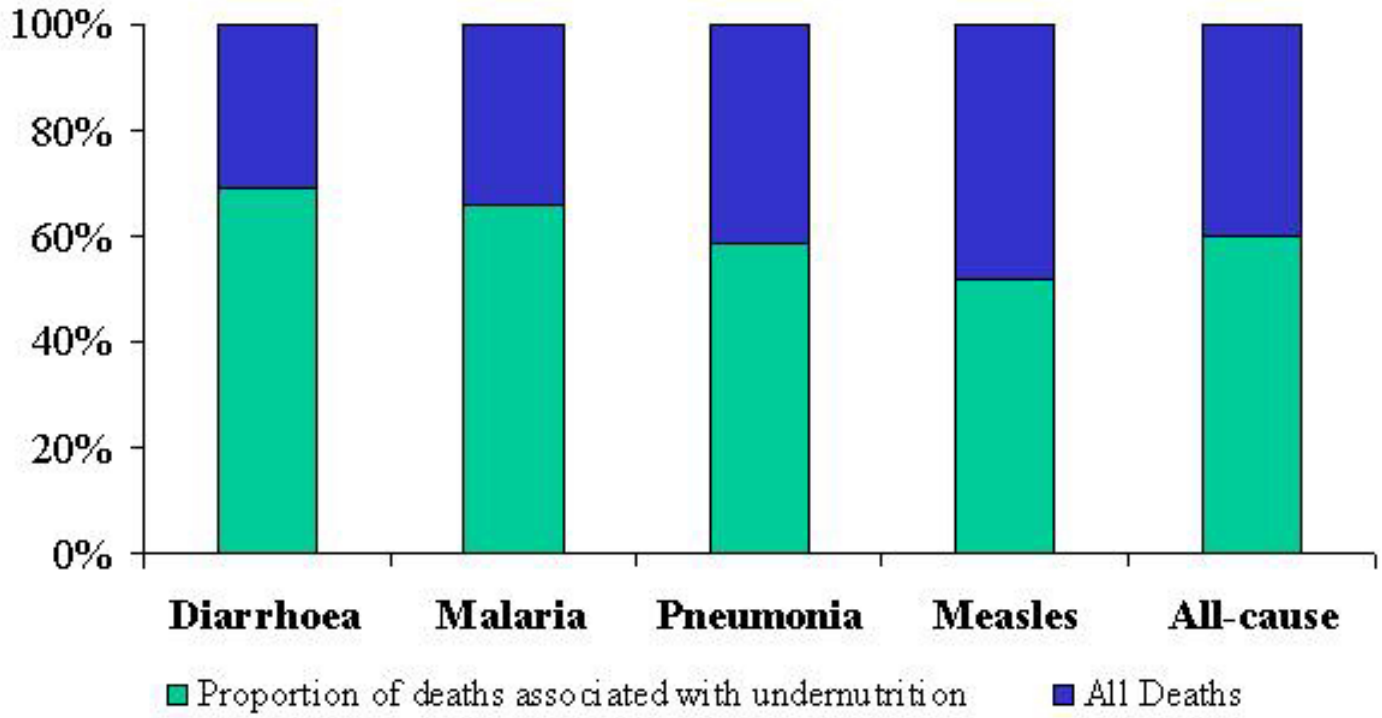
*For cause-specific mortality:* EIP/WHO.

*For malnutrition:* Pelletier DL, et al, AMJ Public Health 1993, 83:1130-1133

## Mortality rates (per 1000 live births) among children under five by WHO regions 1999-2000



# Estimated contribution of undernutrition to under-five mortality by cause, global, 2000




**Sources:**

*For cause-specific mortality*: EIP/WHO using 1999 data.

*For deaths associated with malnutrition*: Caulfield LE, Black RE. Malnutrition and the global burden of disease: underweight and cause-specific mortality.

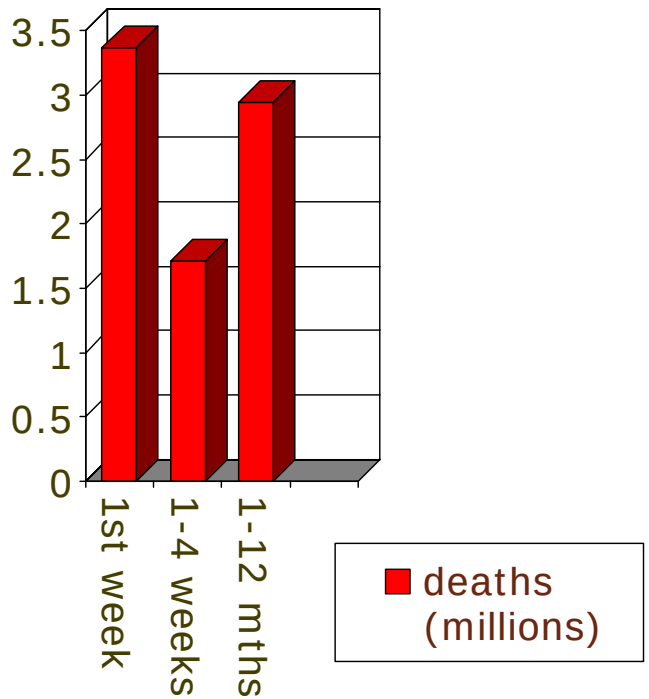
# And add a mother determinant

One in every six births in developing countries is to a mother aged between 15 and 19 years old

Babies born to teenage parents are 30% more likely to be underweight or malnourished, and these children may suffer from social and economic disadvantage throughout their lives

# *Infant Mortality*

- 130 million live births
- 11 million infant deaths
- 4 million neonatal deaths
- 3.5 million early neonatal deaths



# *Infant Mortality*

- Major improvements in “under 5” mortality, mostly after neonatal period
- 5 million newborn deaths each year, 98 percent in developing countries (still an underestimate)
- About 2/3 of the infant mortality occurs in the first month of life
  - from asphyxia, birth trauma, infection, prematurity and malformations during first week
  - from sepsis, pneumonia, meningitis, diarrhoeal disease and tetanus during remainder of first month

# *Neonatal Mortality*

| Region | Live births (thousands) | Neonatal deaths (thousands) | Neonatal mortality rate |
|---|---|---|---|
| Africa | 30,700 | 1,300 | 42 |
| Asia | 83,400 | 3,400 | 41 |
| Latin America | 12,000 | 300 | 25 |
| Oceania | 223 | 5 | 24 |
| Europe | 8,300 | 66 | 8 |
| North America | 4,400 | 26 | 6 |

Weekly Epidemiological Record, October 1996

# *Neonatal Mortality*

- **5 Million Deaths Per Year**
  - Infection - 1.78 million
  - Birth asphyxia/trauma - 1.38 million
    - good antenatal care and safe supervised deliveries could prevent
  - Prematurity - 1.15 million
    - very difficult to improve without major improvements in the socioeconomic situation
  - Congenital anomalies - 0.52 million
  - Other perinatal causes - 0.17 million

## In developing countries Infectious disease are the first cause of death

- 13 million deaths each year
- Six million only in Africa
- Six million are children

## The high death toll is only part of the story

- At any time some hundreds of million people are disabled by infectious diseases
- Some million children are keept away from school for infections
- Some diseases are deforming, mutilating, disabling children

- The burden of diseases in DALY is the greatest
- The economic burden cannot be calculated

# In developed countries mortality is not an appropriate index, but, between 1 and six months:

- ARI and diarrhoea are first cause of hospitalization in Europe

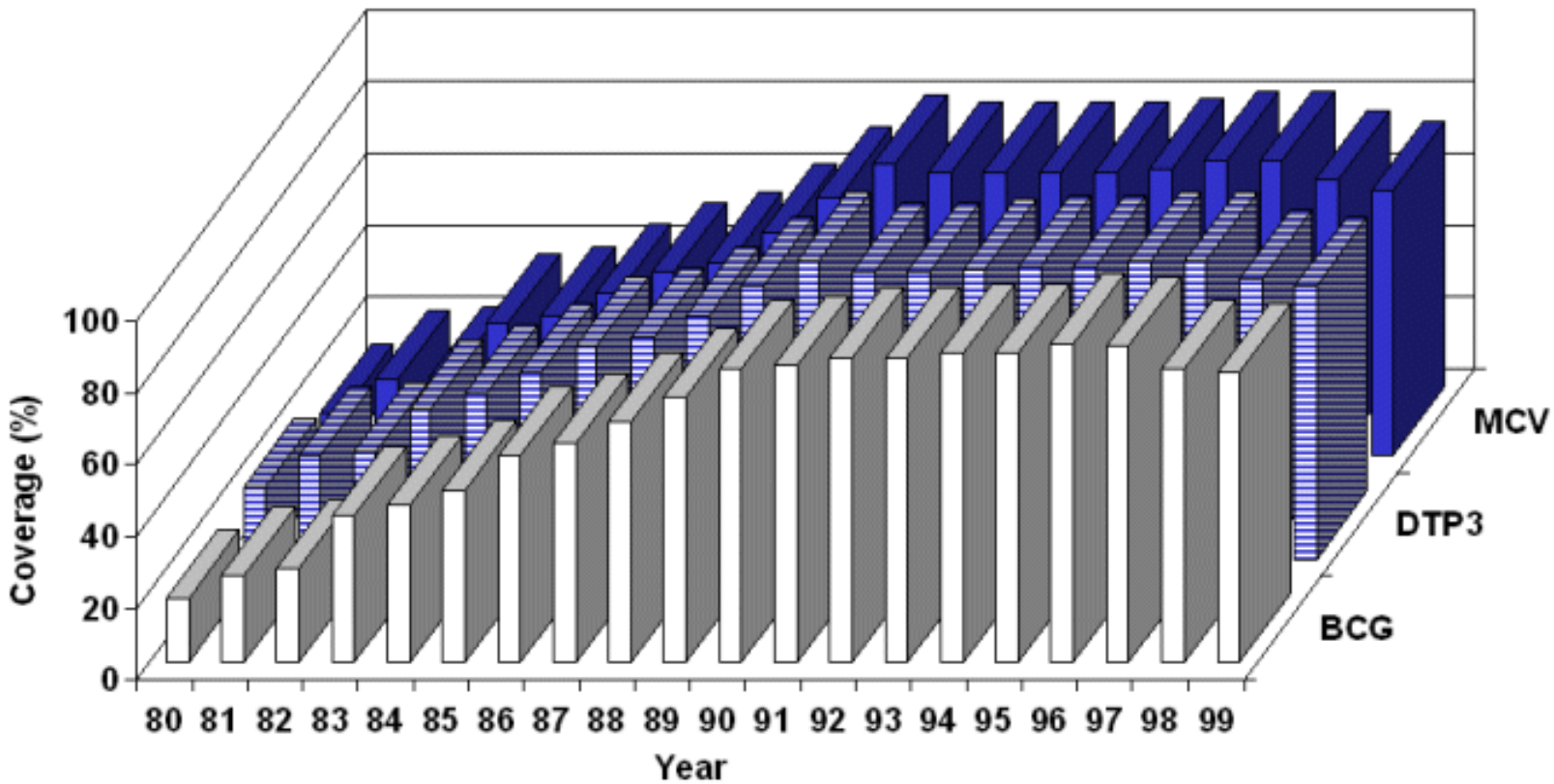
- ARI : Pertussis, RSV, PV3, Varicella, Hib, Influenza, Invasive pneumo infection
- Diarrhoea : Rota, samonella, E. Coli O157

Eurostat 99

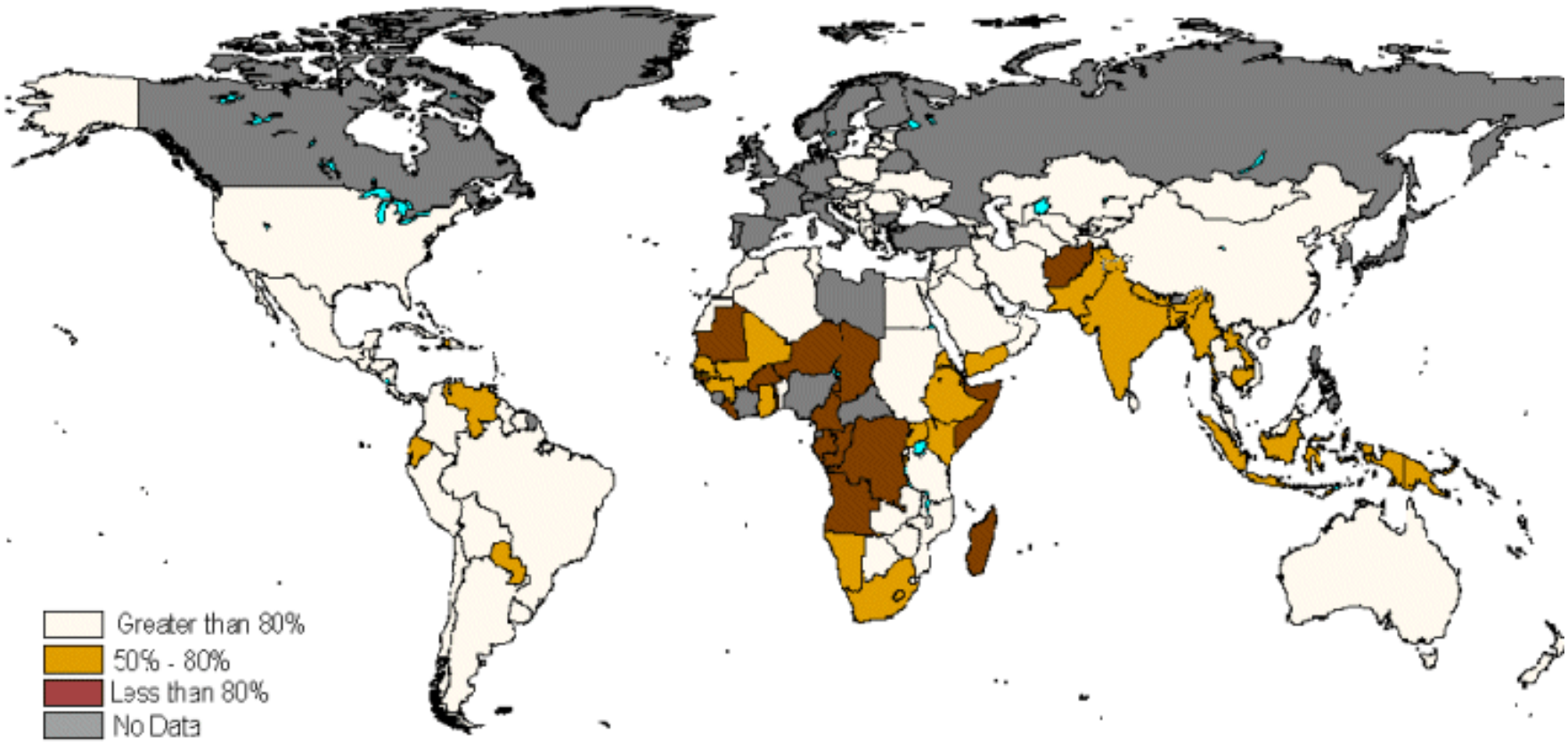
# Successfull stories

- Vaccination has proven to be a leading best prevention intervention
- At least 3 million children are saved from death with current vaccinations

# Global immunization coverage of selected vaccines among infants, 1980-1999



# Immunization Coverage With 3 Doses of DTP in Infants, 1999



# Severe infectious diseases in infants aged one to six months in developing countries

- Diarrhoeal diseases

  Rotavirus, *E.Coli* (ETEC, EAEC),

  Shigella, Salmonella

- Acute respiratory infections

  Pneumo, Hib, Pertussis, RSV, PV3

- Others

  Meningo., goup A strep., Tuberculosis,

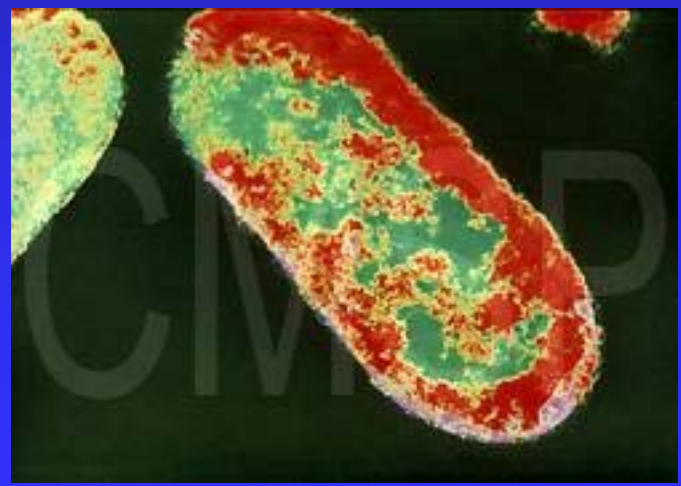
  Malaria, HIV, Herpes……

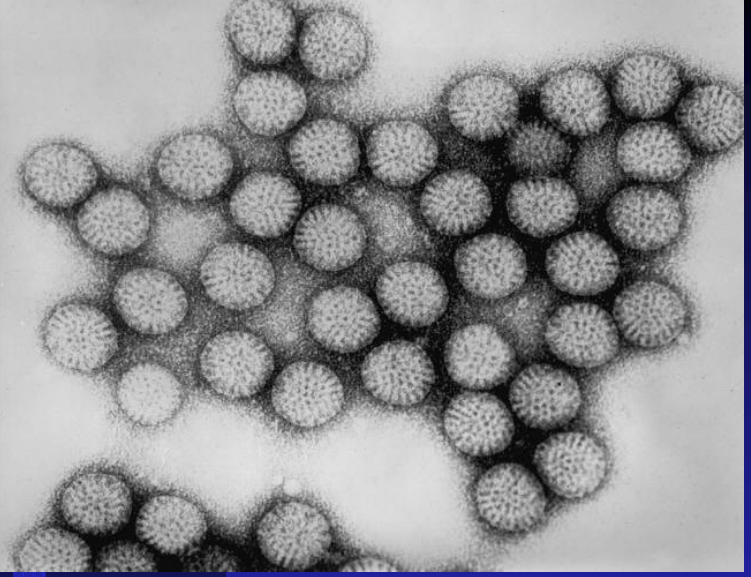
# Diarrhoea

- Kills 2.6 million children each year

# Shigella

- 200 million cases every year
- 730,000 children are killed each year

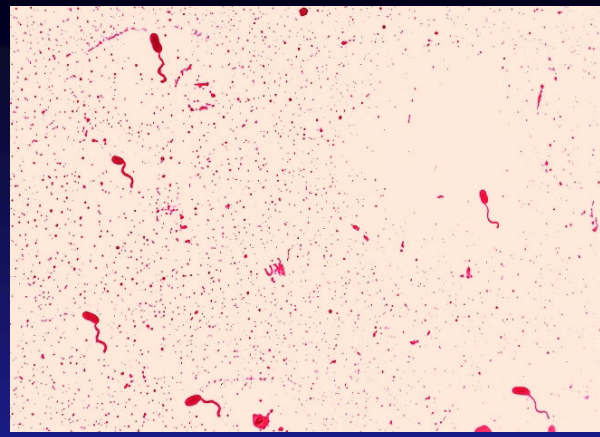




# Rotavirus

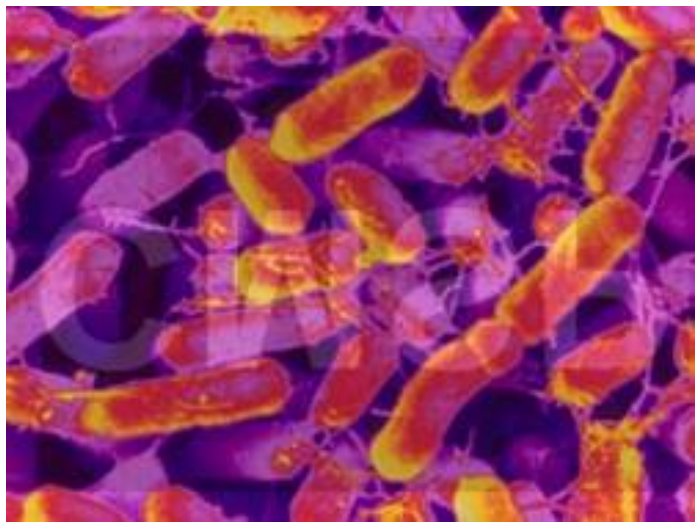
- 125 million cases/year
- 500.000 deaths below 5 years of age
- 25% to 60% of childhood diarrhoea hospitalisations
- Not treatable with antibiotics

# Colera

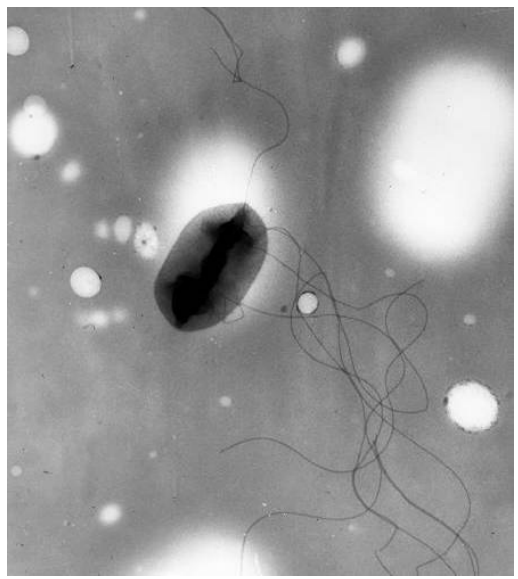


- In 2000  137,071 cases notified
- 87% in Africa
- 5000 deaths
- 10% in children below 1 year

## Salmonella



## E. Coli o 157



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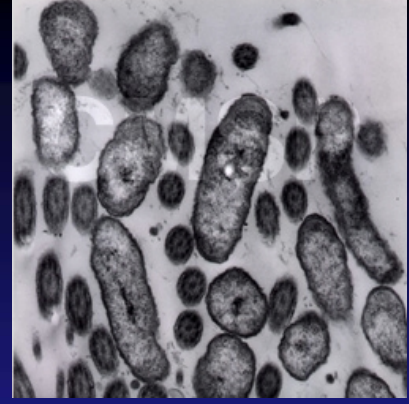
- Others

  Meningo., goup A strep., Tuberculosis,

  Malaria, HIV, Herpes……

WHO/VDR/GEN/98.02

# Pertussis



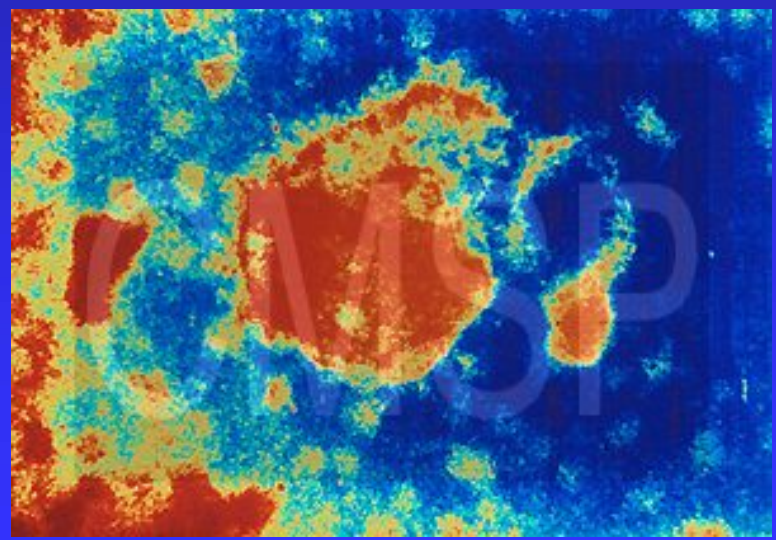
- Each year about 346,000 children are killed by the disease
- At least 20 million suffer non fatal,but serious illness  prolonged up to three months
- Growth retardation  and some neurological damage result.

# Diphteria

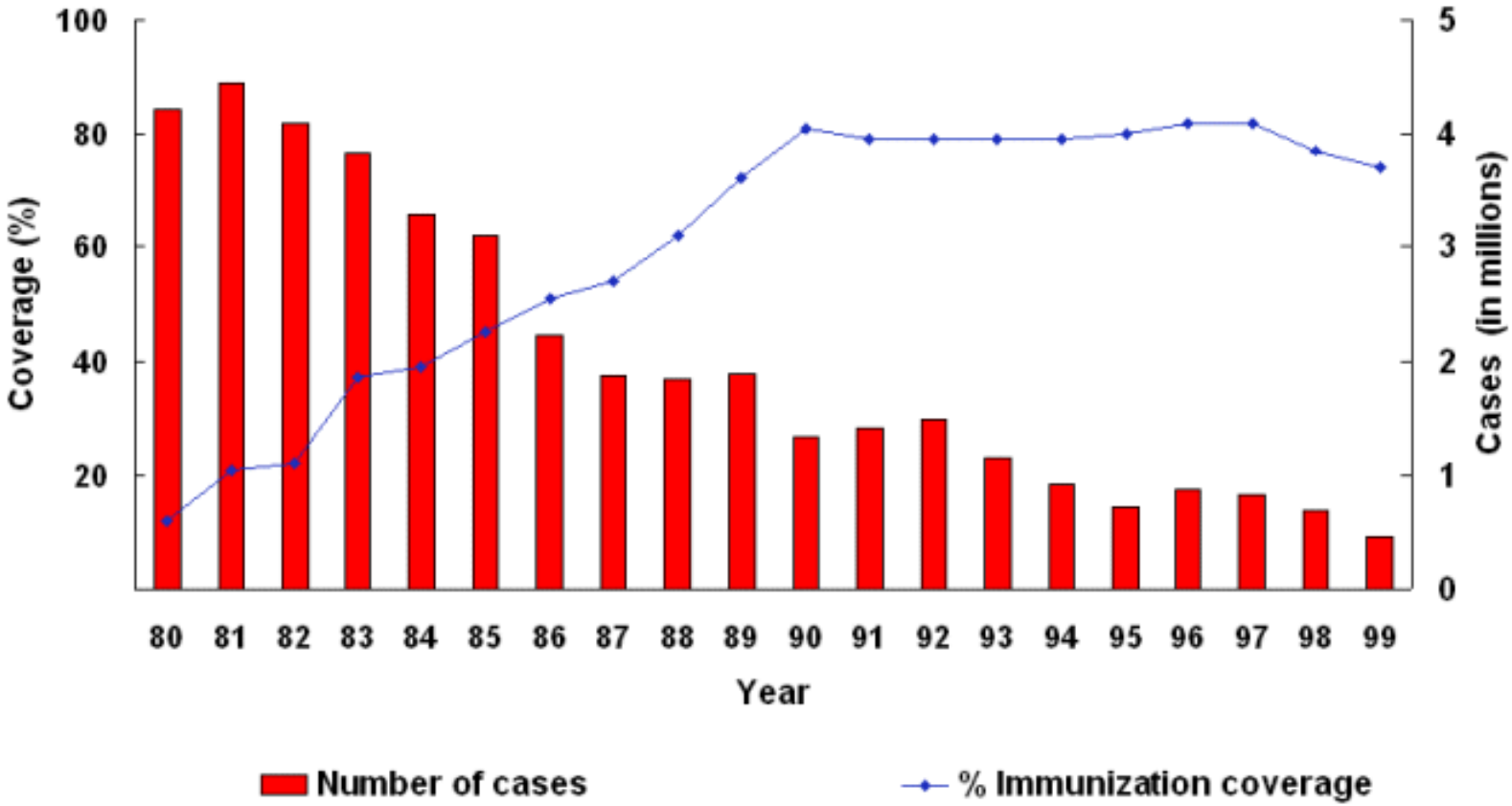
- Half million cases still occur every year
- 5000 deaths ,mostly children
- The disease reoccurs in countries where vaccination has been discontinued (East Europe)

# Measles

- 700,000 children die of measles each year
- Over 40 million cases occur each year

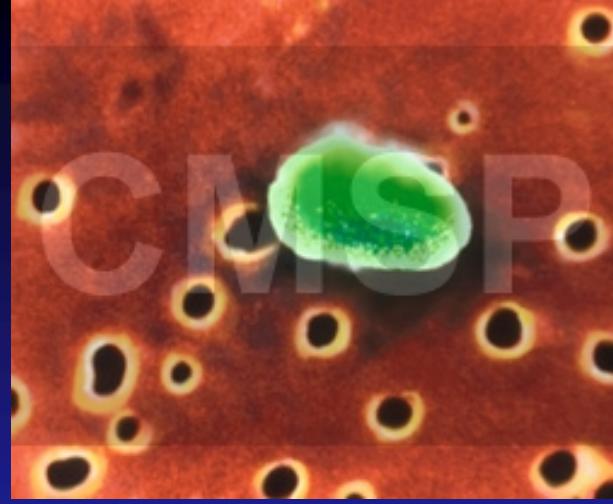


# Global measles vaccine coverage and reported measles cases, 1980-1999



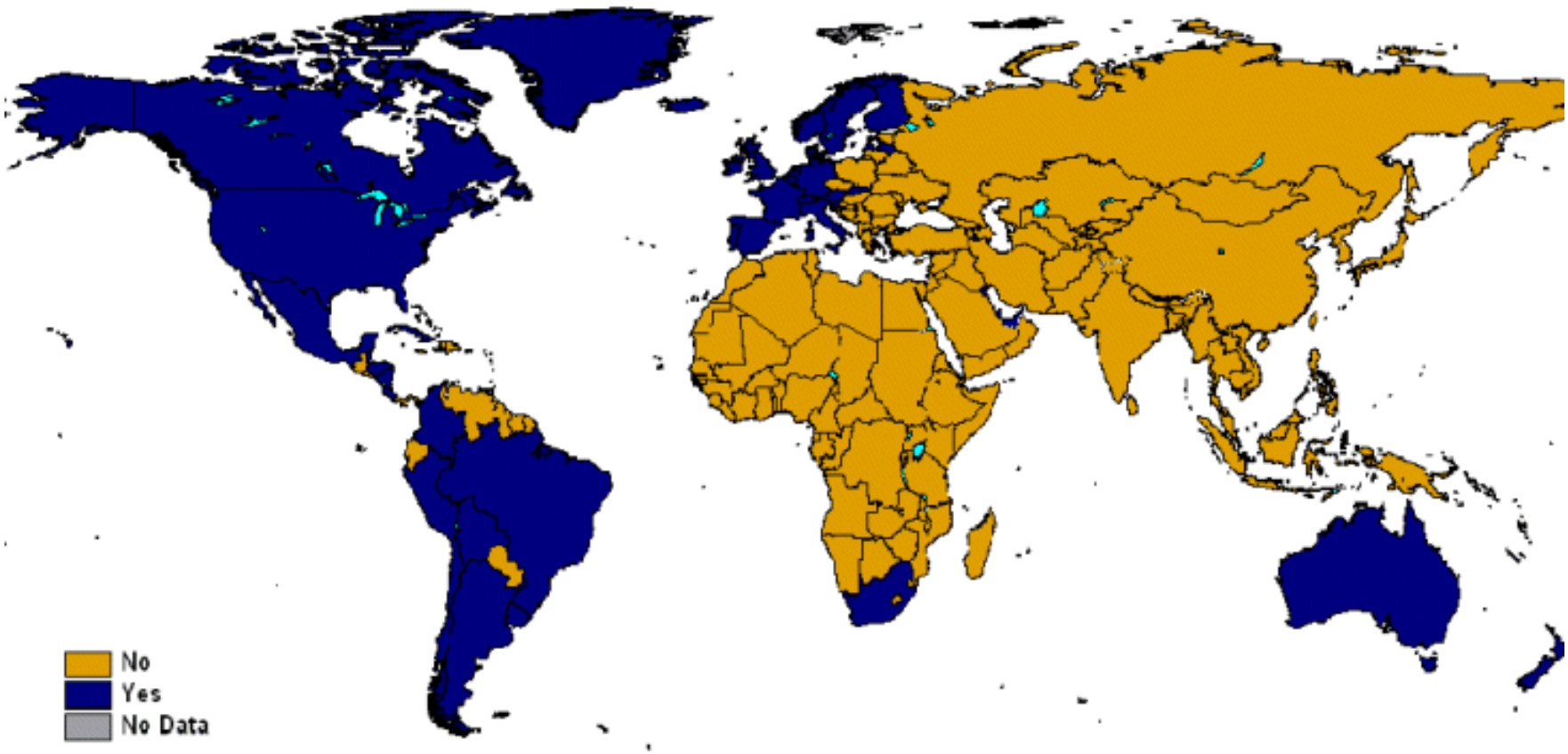

Data as of 5th May 2000

# hib

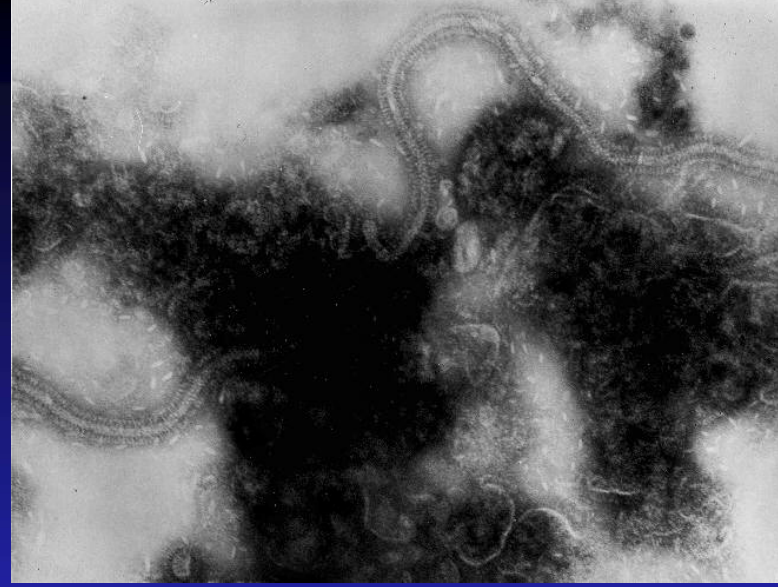


- 500,000 die below 5 years
- The most common cause of bacterial meningitis
- Significant contribution to the burden of severe pneumonia in children

# Countries using Hib vaccine in their national immunization system, 2000



# RSV



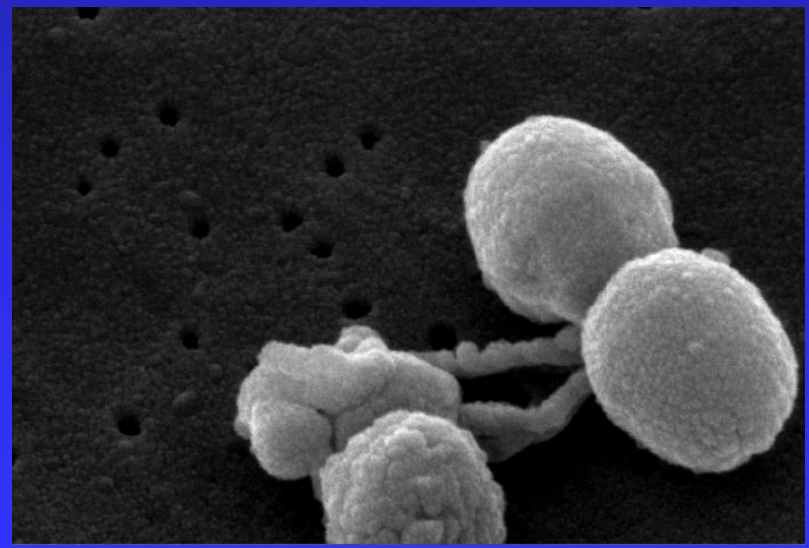
- Causing 25% of pneumonia below 1 year
- More than half of the etiology of hospitalized bronchiolitis

# Parainfluenza Virus Type3

- Second leading cause of bronchiolitis and pneumonia in infants below six months
- 11% of all pediatric hospitalization for ARI.

# Pneumococcal disease

- Kill one million children each year
- 420,000 below six months of age (Levine)



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- Others

  Meningo., goup A strep.,tetanus, Tuberculosis, Malaria, HIV, Herpes……

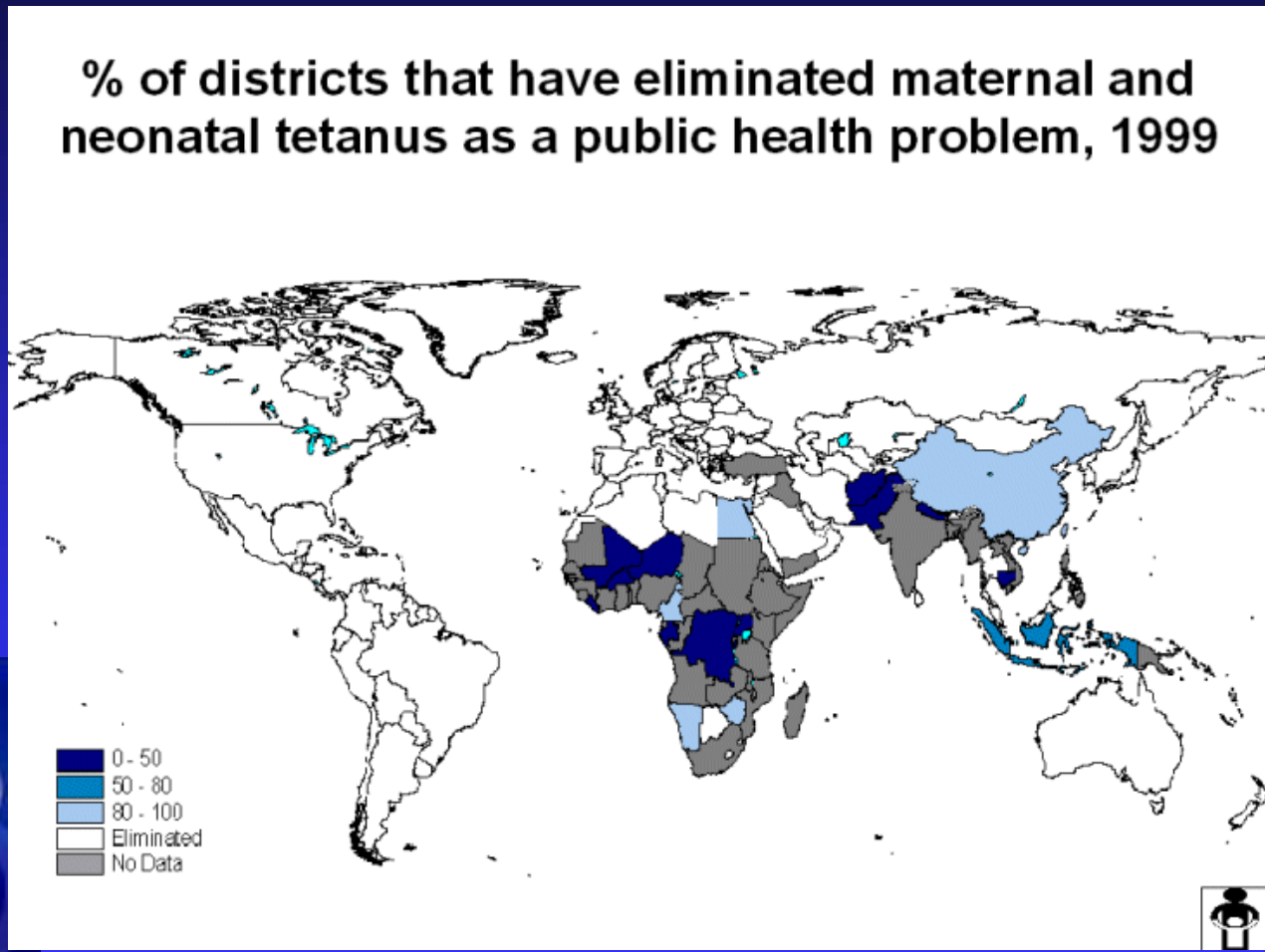
WHO/VDR/GEN/98.02

# meningitis

- At least 1,2 million cases yearly in ciclic epidemics with 135,000 deaths
- 500,000 are meningococcal with 50,000 deaths
- The highest incident rates is in younger children

# Tetanus

- Still kills more than 400,000 each year
- 210,000 of those are neonates



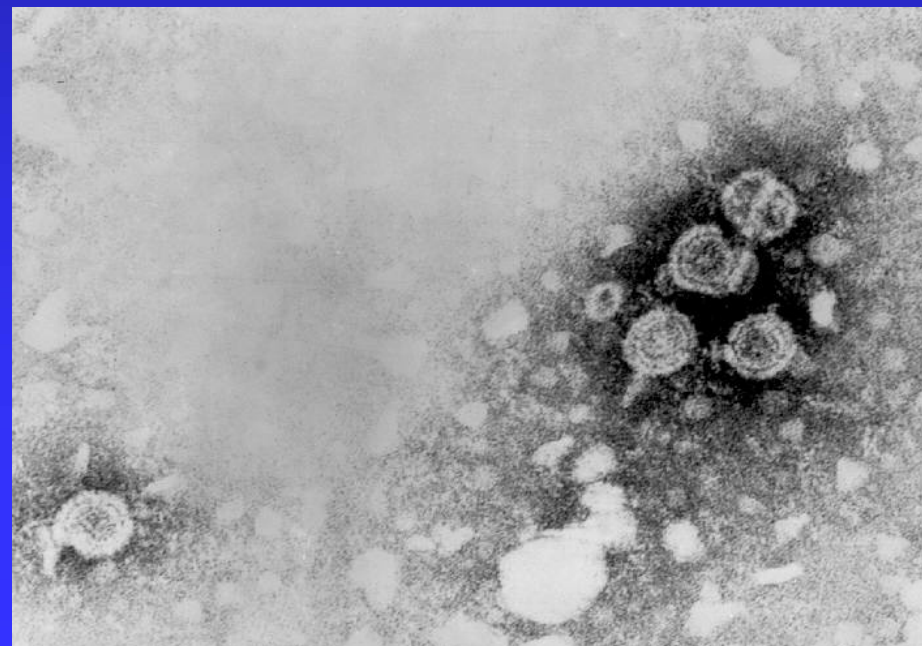
# hepatitis b

Two billion  infected with B Hepatitis

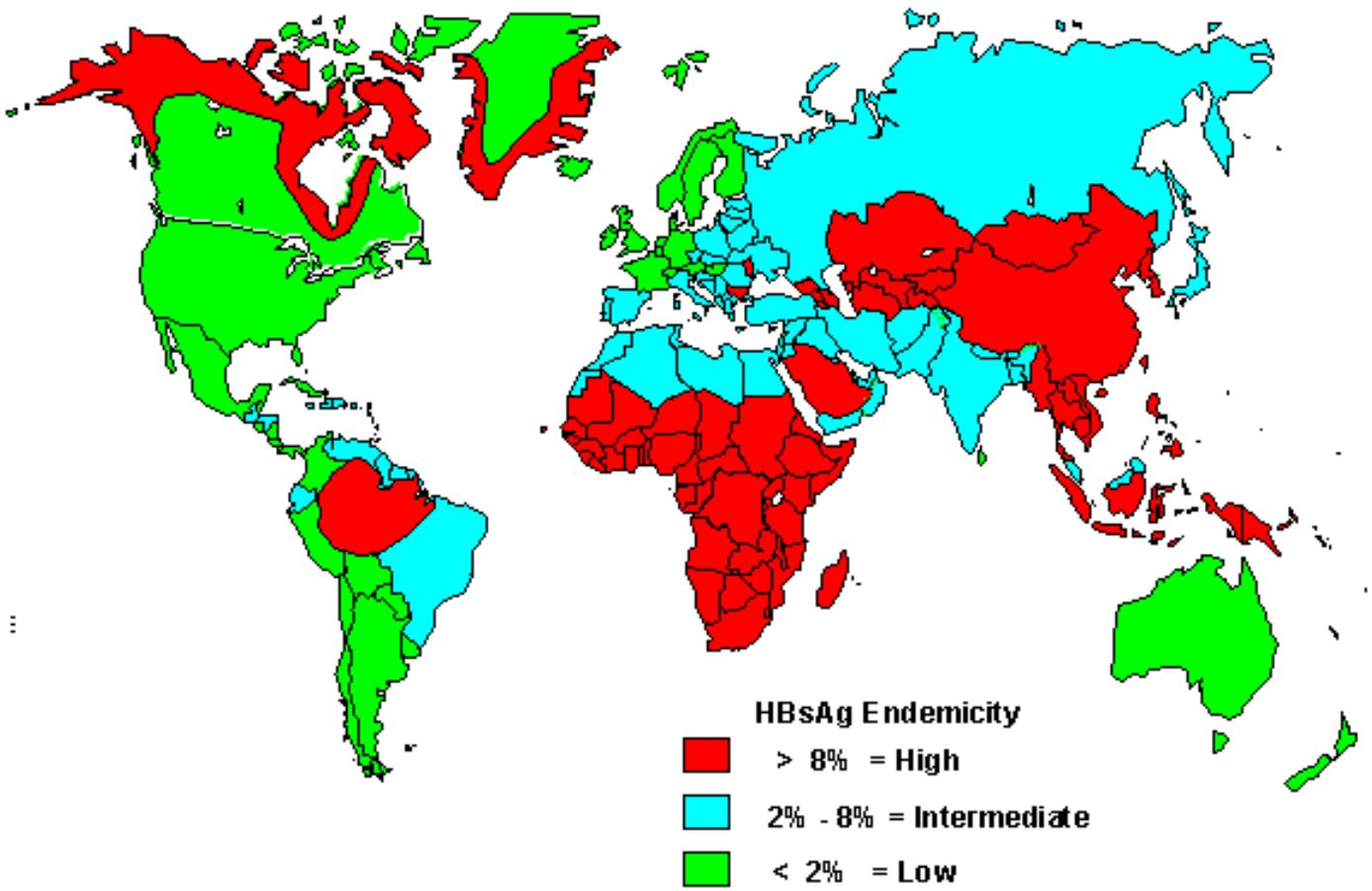
350 million get cronic disease

90% of children infected below 1 year become cronic

Hepatitis C prevalence is 170 million

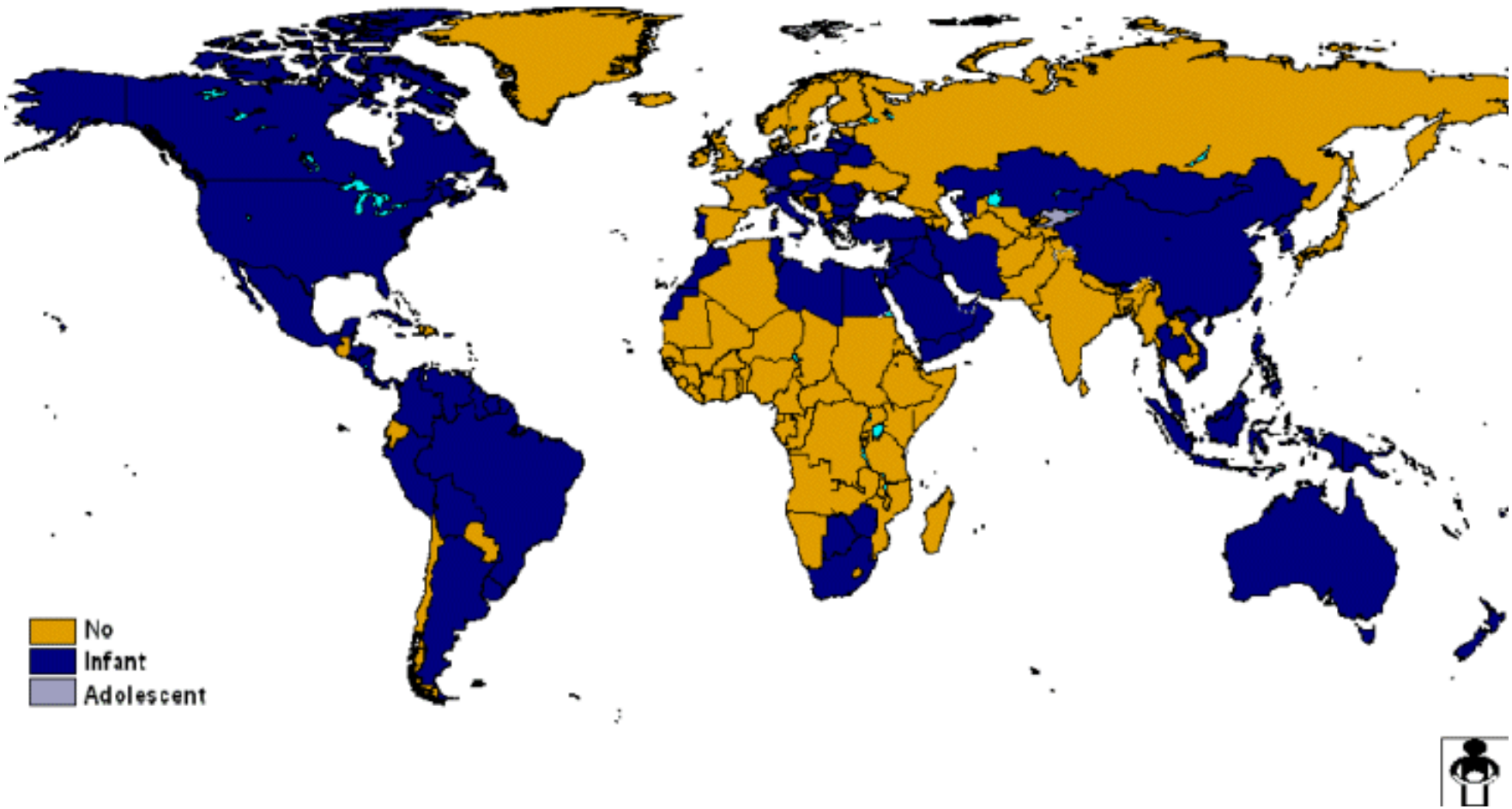


# Geographic Pattern of Hepatitis B Prevalence, 1997



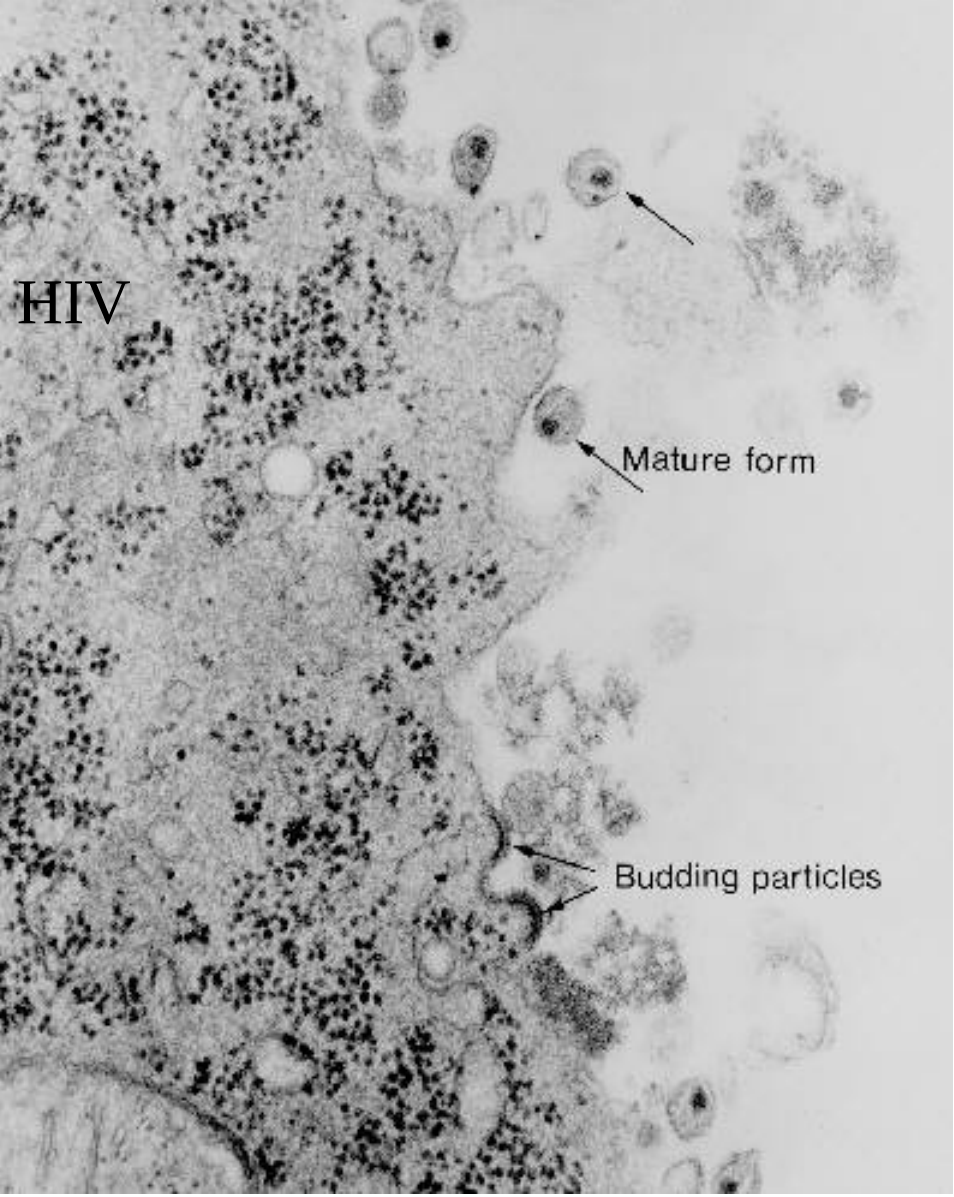

Data as of 06/04/98

# Countries using hepatitis B vaccine in their national immunization system, 2000



# MALARIA

- 300-500 million cases/year
- 700,000 children die each year




# With HIV

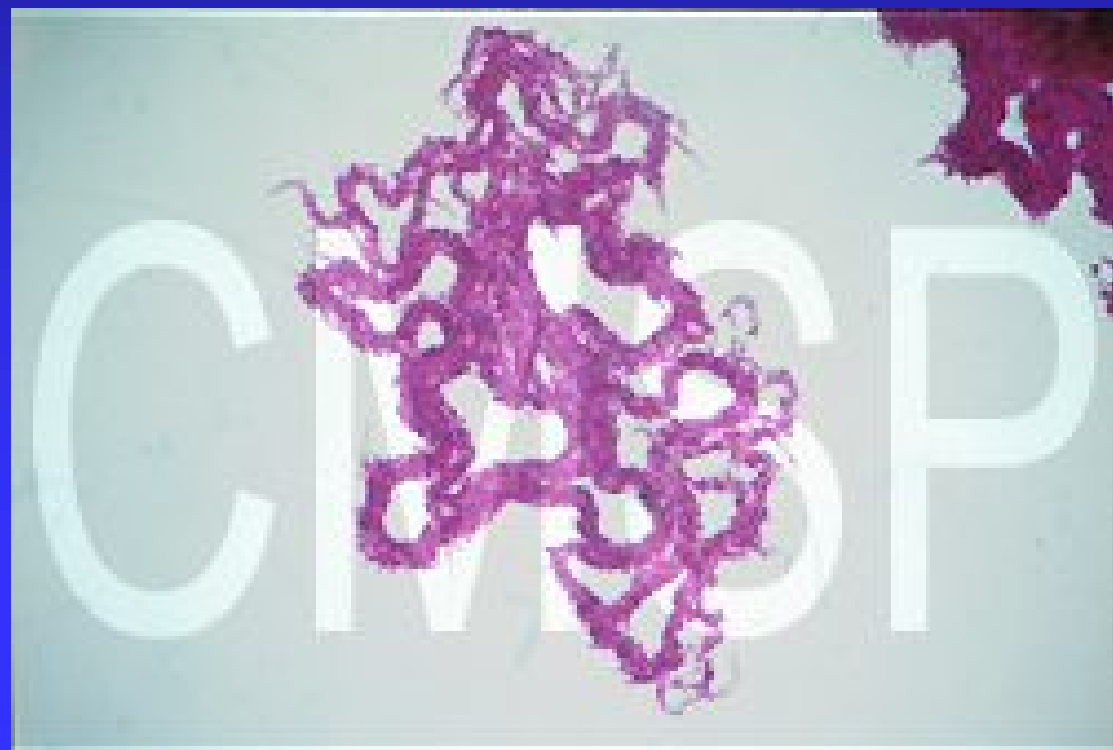
44 million are living

Up to 20% of pregnant woman in many african countries

Already one million children are orphans

# TBC

- Two billion people live with TB
- 8 million become sick with TB each year
- Two million die each year



# LEBBRA

# Rolf M. Zinkernagel, M.D.

- Why mothers heavly  experienced with infections exposure  fail to protect theyr children from early infections ?
- Why mothers with very poor hygienic conditions  fail to protect theyr children agains early infections ??

N Engl J Med, Vol. 345, No.18  November 1, 2001

# Rolf M. Zinkernagel, M.D.

"The outcome in a given child of any of the classic infectious diseases of childhood depends on the mother's history of infectious diseases before pregnancy "

N Engl J Med, Vol. 345, No.18 November 1, 2001

# Rolf M. Zinkernagel, M.D.

- “the development of high standards of hygiene in the developed world has decreased the level of exposure to common infectious agent during childhood to the extent that many infections now occurr only after maternal antibodies in the child have waned”
- “Hygienic conditions may hamper the induction and maintenance of protective maternal antibodies before pregnancy”

N Engl J Med, Vol. 345, No.18 November 1, 2001

# Rolf M. Zinkernagel, M.D.

## Conclusions

” The aim should be to develop strategies that create a persistent low level of infection and of infectious antigens in order to maintain sufficient level of activated T cells and IgG antibodies “

N Engl J Med, Vol. 345, No.18 November 1, 2001

# Who neonatal health management 12 Key Family Practices

1. Breastfeed infants exclusively for at least six months.
2. After 6 months of age feed children , while continuing to breastfeed up to two years or longer.
3. Ensure that children receive adequate amounts of micronutrients (vitamin A and iron in particular),.
4. Dispose of faeces, including children's faeces, safely; and wash hands after defecation, before preparing meals, and before feeding children.
5. Take children as scheduled to complete a full course of immunizations (BCG, DPT, OPV, and measles) before their first birthday.
6. Protect children in malaria-endemic areas with insecticide-treated bednets.
7. Promote mental and social development by responding to a child's needs for care.
8. Continue to feed and offer more fluids, including breastmilk, to children when they are sick.
9. Give sick children appropriate home treatment for infections.
10. Recognise when sick children need treatment outside the home
11. Follow the health worker's advice about treatment, follow-up and referral.
12. Ensure that every pregnant woman has adequate antenatal care. tetanus toxoid vaccination..

# Grazie per la pazienza !!

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# Arrivederci !