



# Strategy for the Elimination of Congenital Syphilis

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# Definitions on Control, Elimination and Eradication

## Strategy Development and Monitoring for Eradication and Elimination (WHO/CDS/CEE)

- The Dahlem Workshop in March 1997 discussed the hierarchy of possible public health intervention with infectious diseases (Dowdle 1998).



# Control

- Reduction of disease incidence, prevalence . Morbidity or mortality to locally acceptable level as a result of deliberate efforts; continued intervention measures are required to maintain the reduction.



# Elimination

- **of disease:** reduction to zero of the incidence of a specific disease in a defined geographical area as a result of deliberated efforts, continued intervention measures required (Example: Measles in the Americas).
- **of infection:** reduction to zero of the incidence of infection caused by a specific agent in a defined geographical area as a result of deliberated efforts, continued intervention measures required (Example: Chagas).
- **as a public health problem:** this term should only be used if clear target definitions are commonly agreed (Example: Target definitions for Leprosy :  $<1$ case/10.00 habitants).



# Eradiation

- Permanent reduction to zero of world wide incidence caused by a specific agent as a result of deliberated efforts, **intervention measures no longer needed.**

Example: Successful smallpox eradication.

Current Initiatives: Poliomyelitis and Dracunculus medinensis (Guinea Worm).



# Extinction

- The specific infectious agent no longer exists in nature or in the laboratory.

Example: none.



# Magnitude of the problem





# Seroprevalence of Syphilis in Pregnancy

- Numerous studies report seroprevalence in antenatal populations
- Seroprevalence rates range from 0.01% (U.K.) - 12.0% (Kenya) – 20% in Papua New Guinea

Mullick et al, unpublished data, WHO



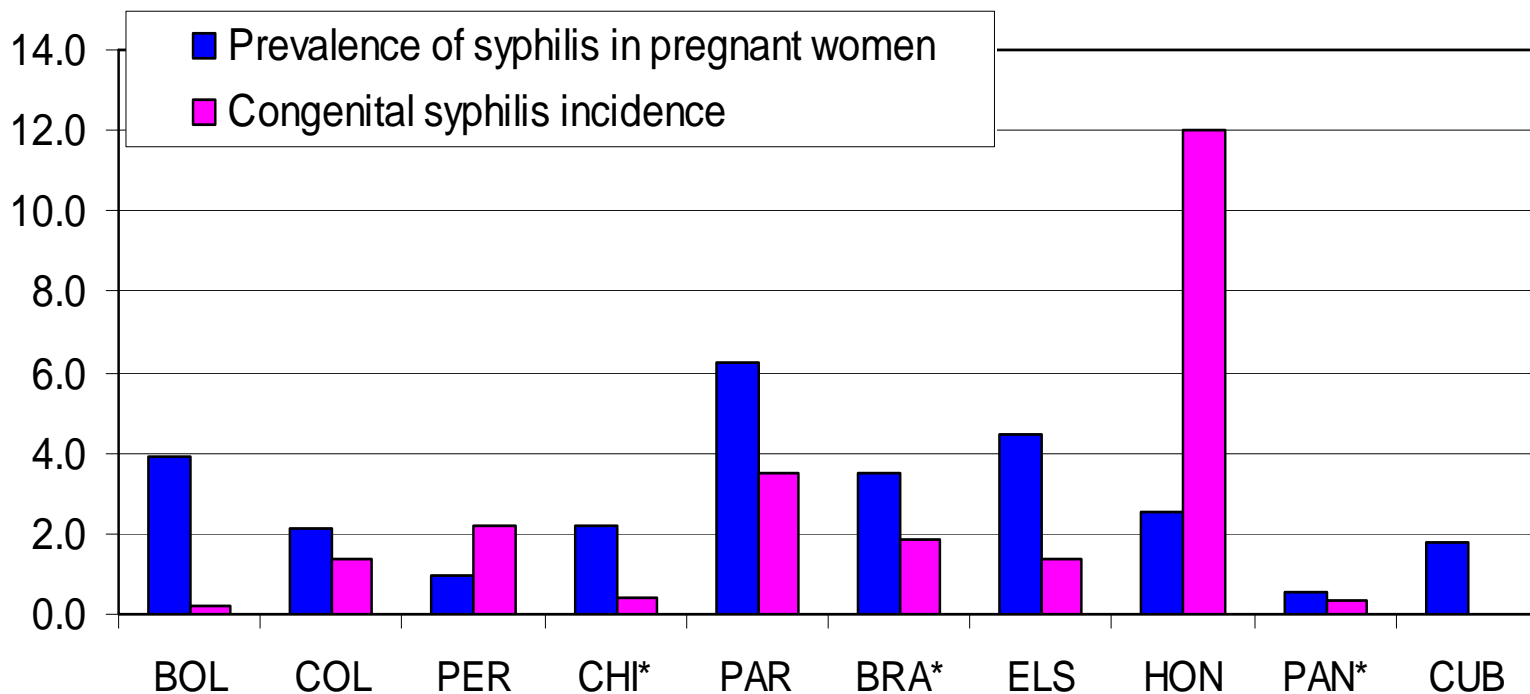
# Syphilis Seroprevalence in Antenatal Populations, Africa (1979-2002)

<u>Country</u>	<u>No. of Studies</u>	<u>Seroprevalence Range</u>
Burkina Faso	3	0.2 – 2.5
Ethiopia	3	3.2 – 18.8
Gambia	3	3.6 – 14.0
Ghana	1	0.7
Ivory Coast	1	1.1
Kenya	3	3.0 – 12.0
Malawi	3	3.6 – 8.5
Mozambique	2	9.0 – 15.0
Rwanda	2	6.3 – 10.0
South Africa	13	2.6 – 20.5
Swaziland	1	13.0
Tanzania	5	2.0 – 10.1
Uganda	2	6.8 – 9.3
Zaire	1	1.0

Mullick et al, unpublished data, WHO



## Maternal (%) and congenital syphilis (x 1,000 live births), 2002



Source: HIV/AIDS/STI National Programs

\* 2000/2001



# Problems with Interpreting Syphilis Serosurveys

- Do serosurveys among pregnant women adequately portray syphilis prevalence?
  - False-positive as well as false-negative tests
  - Variety of different tests used for screening (e.g. RPR, VDRL, TRUST, TP-EIA)
  - Some studies include confirmatory (treponemal) testing, and some do not



# Problems with Interpreting Syphilis Serosurveys

- Even if "true" positive serology, do tests portray magnitude of congenital syphilis risk?
  - Old treated vs. new infection
  - Early vs. late cases
- Sampling issues
  - Consecutive women vs. selective testing
  - Stage of pregnancy



# Global Estimation of the Magnitude of Congenital Syphilis

- Effort to determine global burden of syphilis in pregnancy, and hence, burden of congenital syphilis
- Maternal syphilis associated with adverse pregnancy outcomes
  - **Stillbirth**
  - **Perinatal death**
  - **Serious neonatal infection**
- However, pregnancy outcome estimates are imprecise

Schmid G, *Bull. WHO* 2004; 82:402-9.



# Outcomes of Untreated Maternal Syphilis

	Harman (1917)	Ingraham (1951)	Schulz* (1987)	Hira** (1990)
<b>Stillbirth or miscarriage</b>	17%	22%	30-40%	22%
<b>Perinatal death</b>	23%	12%	10-20%	No data
<b>Infected infant</b>	21%	33%	10-20%	2%

\*mathematical model estimates

\*\*underestimate of neonatal infection; all newborns of sero-reactive mothers treated at birth

Harman N, Staying the Plague, London: Methuen 1917.

Ingraham NR, *Acta Derm Venereol* 1951, 31 (Suppl. 24):60-88.

Schulz KF et al, *Genitourinary Med* 1987;63:320-5.

Hira SK et al, *Genitourinary Med* 1990; 66:159-64.



# Previous Estimates of Magnitude of Syphilis in Pregnancy

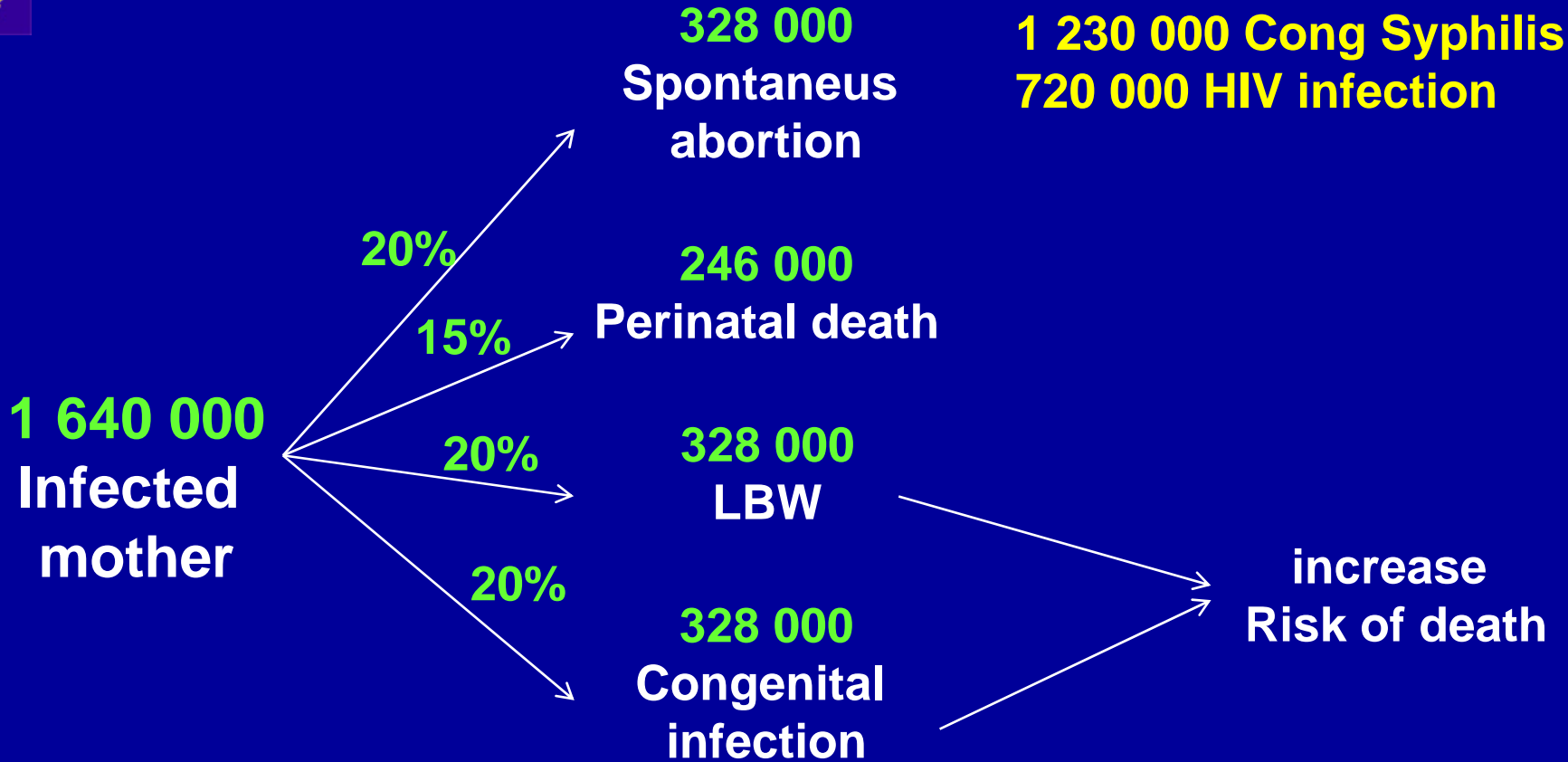
- 1995 estimate: 1,000,000+ cases of incident syphilis in pregnancy worldwide
  - Calculated as (6,000,000 infections / yr among women) X (90% women of reproductive age) X (20% fertility rate per year)
- 2001 estimate: 2,300,000 cases of prevalent syphilis in pregnancy in sub-Saharan Africa alone
  - Up to 1,640,000 remain undetected and untreated

Finelli L et al. *Bull WHO*, 1998; 78(Suppl. 2):126-8.  
Gloyd S et al. *Health Policy Planning* 2001;16:29-33





# Syphilis in Infant



African countries, syphilis is the leading cause of perinatal mortality, causing 21% of perinatal deaths (Schultz et al, Africa Genitourinary Medicine, 1987.)



# Why eliminate congenital syphilis?

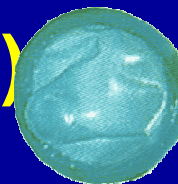


# Policy context

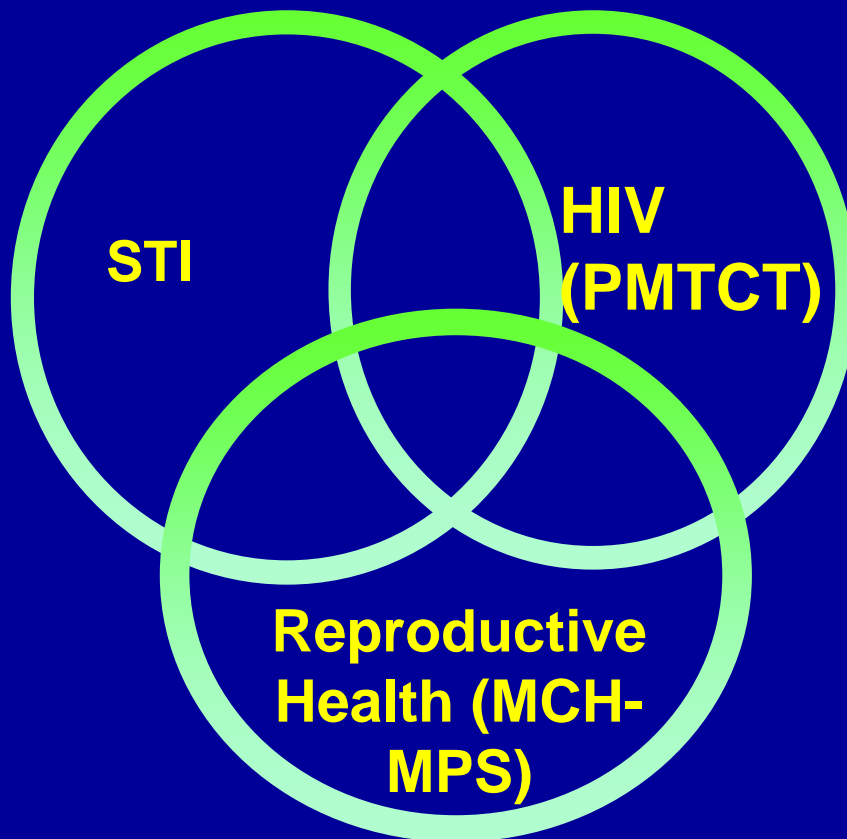
- **The control of congenital syphilis is a priority in the national health policy strategies**
- **Other pressing RH problems such as prevention of MTCT of HIV**
- **Efforts need to be coordinated with other interventions: Making pregnancy safer, control of infectious syphilis, GUD, HIV/PMCT, malaria screening etc.**
- **Overall strengthening of health services**



# Elimination of Congenital Syphilis (CS)



Example for integration of services





# Congenital syphilis is preventable

- Technically simple, proven interventions can prevent congenital syphilis and treat the pregnant woman
- Point of care screening tests
- Single dose treatment



# Evaluation of six rapid tests for syphilis\*

TESTS	Sensitivity	Specificity
<b>DETERMINE</b>	100%	97.9%
SYPHILIS FAST	94.5% 96.3% (after 1hr)	94% 96% (after 1hr)
ESPLINE TP	98% 100% (after 1hr)	100% 100% (after 1hr)
SYPHICHECK- WB	94%	100%
<b>SD BIOLINE SYPHILIS 3.0</b>	100%	100%
VISITECT SYPHILIS	96%	100%

**\*TPHA as reference test**



# Prevention of CS is cost effective

- Screening and treatment of congenital syphilis are inexpensive, simple, and highly cost-effective
- Screening is both cost effective and cost saving
- The issue is not whether to screen but how to screen most effectively



**However....**

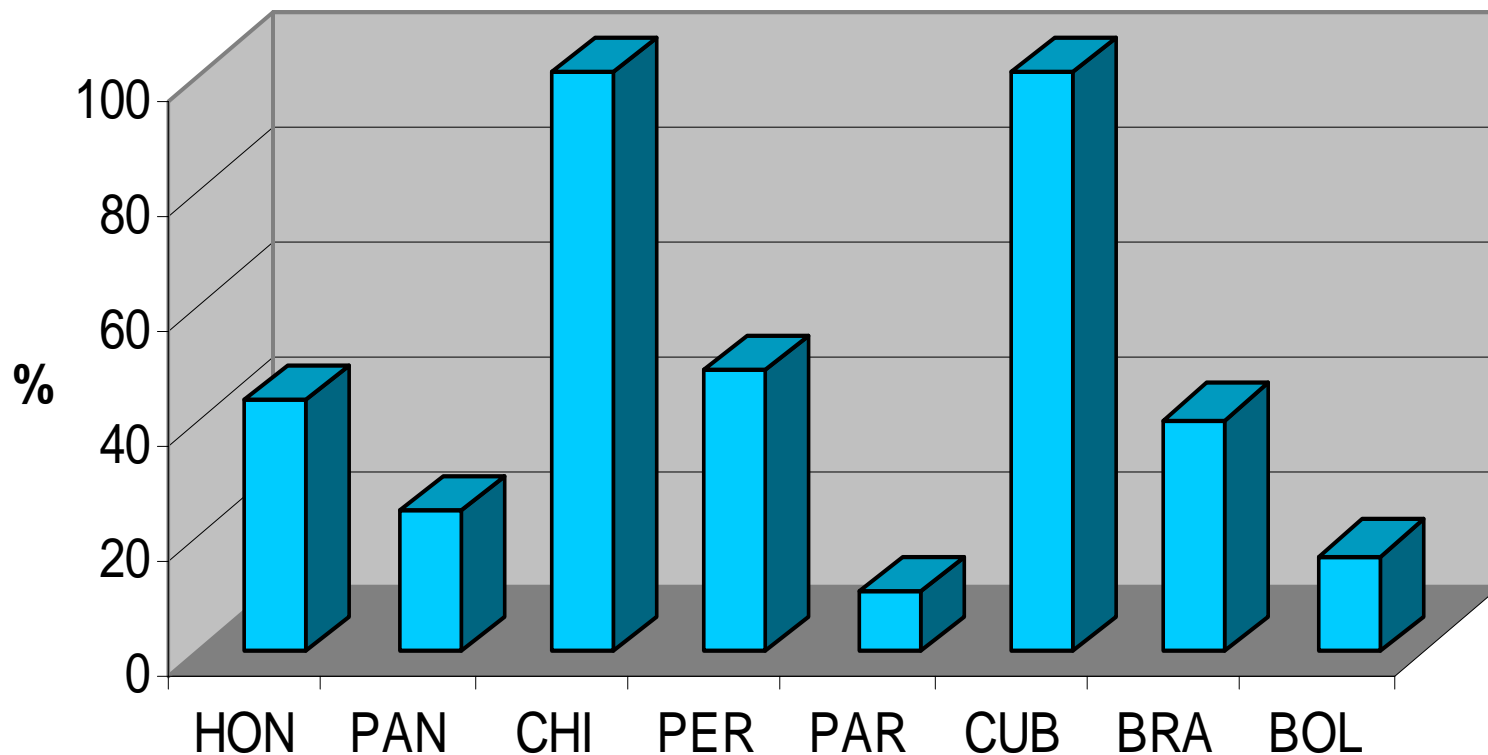






Source: HIV/AIDS/STI National Programs

## Proportion of infected pregnant women detected, 2002





# Conclusions from observational studies in countries

- Policy makers need to be convinced of the problem, the effective intervention and the benefits
- Lack of clear guidelines for service providers
- Early antenatal screening and management of positive cases is difficult
- The time taken for results of tests to be returned
- Unavailability of drugs, notification cards and other consumables



# Why CS is still a problem?



# Review of Existing Policies & Programs

## Why examine Current Policies?

- Reveals the research and implementation gaps that must be addressed today for the creation of recommendations leading to the Elimination of CS.



# Review of Existing Policies & Programs

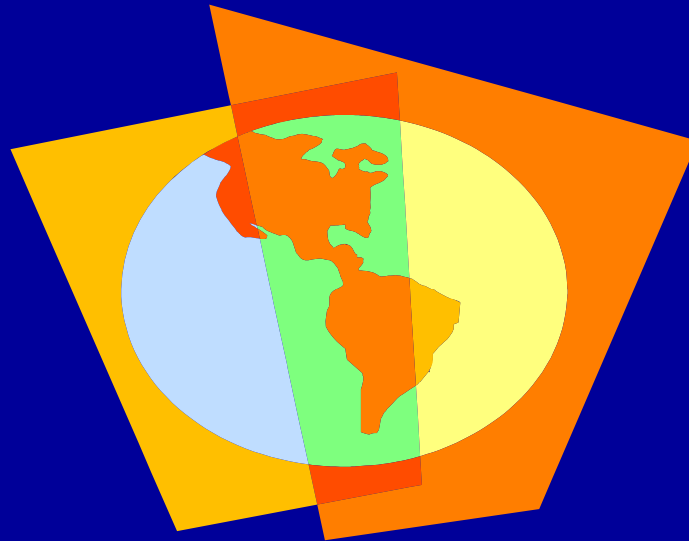
## Goals & Objectives

- To identify and describe national maternal & congenital syphilis (CS) policies for 13 selected countries.
- To present supporting national guidelines, and data on available maternal and CS prevalence, antenatal care (ANC) coverage, and ANC syphilis screening.



# Country Policies

- Australia
- Bolivia
- Brazil
- England
- Ethiopia
- Haiti
- Kenya



- Malawi
- Mozambique
- New Zealand
- Russia
- Tanzania
- United States



# Policy Summary & Conclusions

- Universal ANC screening is a policy in all 13 countries.
- Bolivia, Brazil & US have adopted “elimination” goals.
- Testing at delivery is recommended in Kenya, Brazil, Bolivia, Russia & US.
- Provider screening compliance difficult to measure as syphilis in pregnancy is often not a notifiable disease.
- M&E programs are lacking in most countries.
- Regional governing body responsible for program is not always obvious. Clear leadership is necessary to ensure accountability.
- Sustainability question arises as programs in several countries require scaling-up.



# Lessons Learned

- Today's syphilis strategies are based on control efforts developed over a century ago.
- Basis for STI control model: early identification, effective treatment of index case and partner, follow-up, and behavioral modification of risky sexual practices
- HIV/AIDS control parallels issues faced by syphilis control programs.





# Surveillance Data Summary & Conclusions

- Differences in surveillance figures due to variations in diagnostic procedures & definitions.
- National statistics only available from Australia, New Zealand, England, Russia, and US.
- Regional prevalence studies used for other countries.
- Lack of standardized data limits program evaluation. Baseline data is necessary.



# Recommendations

- **Standardize & strengthen international and national surveillance systems to better assess the magnitude of the situation and place an appropriate emphasis on the issue.**
- **On a national level, identify barriers hindering successful policy implementation in order to design appropriate interventions and address operational & logistical flaws.**
- **Develop & implement appropriate M&E systems in each country to ensure program sustainability.**
- **Incorporate maternal & CS control strategies into existing national MCH and STI efforts to ensure accountability, the development of appropriate interventions, and the efficient allocation of funds in each setting.**



# Strategy for the Elimination of Congenital Syphilis





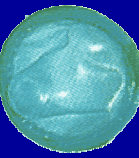
# 1995: PAHO's Resolution for the elimination of congenital syphilis in the Region



“Congenital syphilis will be eliminated as a public health problem when incidence rates are found to be  $\leq 0.5$  cases by 1,000 births”

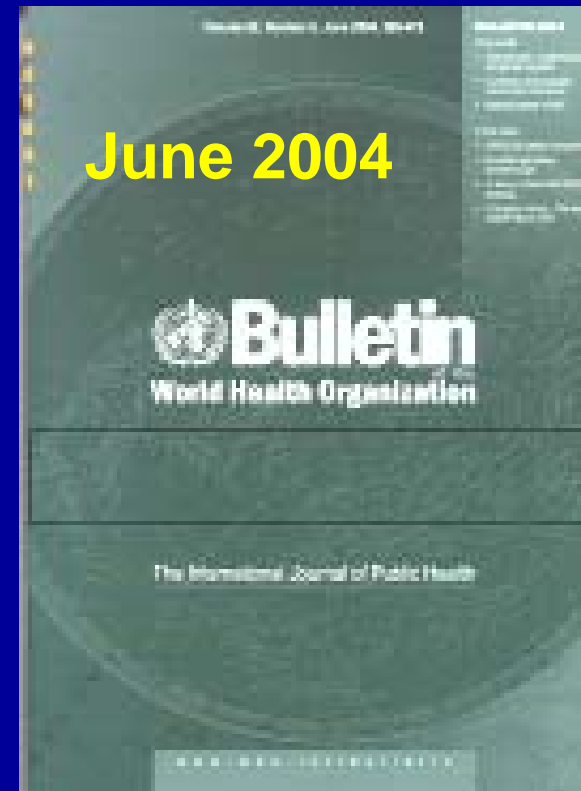


# Elimination of Congenital Syphilis (CS)



## REPOSITION CS ELIMINATION

- Achievable goal
- Cost-effective
- Key to ANC package and beneficiary for HIV & MPS



## CS ELIMINATION: A STRATEGY

- Technical advisory group meeting:  
1 & 2 December 2004

[www.who.int/bulletin/volumes/82/6](http://www.who.int/bulletin/volumes/82/6)



# Aims

- **Elimination of CS as a public health problem**
- **Addressing MDG's for 2015:**
  - Reduce child mortality
  - Improve maternal health
  - Combat HIV/AIDs, malaria and other diseases
- **Improve access and quality of services**



# Goals

- reduce the rate of CS by 90% (country/worldwide)
- 90% maternal and newborn health coverage



# Targets

- Short term goal: 2005
  - Global and country plans ready
- Medium term goal: 2010
  - Implement action in at least 4 countries in order to demonstrate strategy works
  - demonstrate success in pilot countries
- Long term: 2015
  - Scale up by increasing numbers of countries implementing elimination strategy





# Guiding Principles

- **Country driven process**
- **Right based approach for diagnosis and treatment**
- **Emphasis on implementation and adaptation of existing technologies**
- **Partnership and collaboration with other key stakeholders**
- **Integrated approach to ensure sustainability STI control programme (syphilis control) - MPS – PMTCT of HIV )**



# What is the strategy for the Elimination of Congenital Syphilis?

## • Four Pillars

- Political commitment and advocacy
- Increase and improve access to maternal and new born health
- Screening and treatment of pregnant women according to prevalence and resources (*improvement of point of care diagnosis and single-dose treatment*)
- Monitoring and evaluation



# Objectives for countries

- **Improve access to ANC services for all pregnant women**
- **Ensure that syphilis control is included in comprehensive ANC services (screening, diagnosis, treatment and prevention)**
- **Screen all pregnant women**
- **Care and treatment of all infected pregnant women and their partners**
- **Ensure that all women remain uninfected during pregnancy**
- **Improve monitoring and evaluation of the country programme**



# Targets for coverage, uptake and screening

- >80% pregnant women have access to maternal and new born health services
- 100% women attending maternal newborn health services screened for syphilis
- 90% sero-reactive women treated
- 80% partners identified and treated
- 100% woman whose deliveries by skilled birth attendant screened and treated for syphilis
- 100% neonates born to sero-reactive mothers treated (if mother not treated before)



# Implementation component (1/2)

- **Policy Development and Planning - Integrated approach:**
  - Making Pregnancy Safer Initiative
  - MTCT of HIV
  - STI control (Syphilis control in the population)
  
- **Strengthen Health System Management :**
  - Diagnosis
  - Drug supply
  - Training
  - Supervision



# Implementation component (2/2)

- **Make the last 3 Pillars operational:**
  - ANC equipped with adequate resources and commodities to control maternal syphilis
  - Successful access to ANC
  - Screening all pregnant women for syphilis
  - Single-dose treatment
- **Implementation - guidelines and tools:**
  - Strategic Approach
  - Case Management guidelines
  - Programme Management Teams
  - Supervision



# Elimination of Congenital Syphilis – Monitoring and evaluation

- **Strengthen maternal syphilis surveillance**
  - In collaboration with the Making Pregnancy Safer Initiative :  
the coverage of antenatal services among pregnant women,
  - In collaboration with STI control programme
- **Indicators on QoC, maternal and neonatal morbidity and neonatal mortality:**
  - Percentage of pregnant women accessing ANC  
(/ number pregnant women)
  - Percentage of women correctly treated  
(/ number women accessing ANC)
  - Coverage of testing and treatment of pregnant women:  
percent of women with primary syphilis at the time of parturition



**In every society, congenital syphilis has significant emotional, social and financial costs.**

**Compared to prevention of MTCT of HIV, prevention of congenital syphilis is inexpensive, simple, and highly cost-effective.**

**Yet, we often fail to carry out these programmes in middle- or low-income countries.**

**We should.**