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/10,000 inhabitants).
Eradication

- Permanent reduction to zero of worldwide incidence caused by a specific agent as a result of deliberate 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Mullick et al, unpublished data, WHO
<table>
<thead>
<tr>
<th>Country</th>
<th>No. of Studies</th>
<th>Seroprevalence Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>3</td>
<td>0.2 – 2.5</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>3</td>
<td>3.2 – 18.8</td>
</tr>
<tr>
<td>Gambia</td>
<td>3</td>
<td>3.6 – 14.0</td>
</tr>
<tr>
<td>Ghana</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Kenya</td>
<td>3</td>
<td>3.0 – 12.0</td>
</tr>
<tr>
<td>Malawi</td>
<td>3</td>
<td>3.6 – 8.5</td>
</tr>
<tr>
<td>Mozambique</td>
<td>2</td>
<td>9.0 – 15.0</td>
</tr>
<tr>
<td>Rwanda</td>
<td>2</td>
<td>6.3 – 10.0</td>
</tr>
<tr>
<td>South Africa</td>
<td>13</td>
<td>2.6 – 20.5</td>
</tr>
<tr>
<td>Swaziland</td>
<td>1</td>
<td>13.0</td>
</tr>
<tr>
<td>Tanzania</td>
<td>5</td>
<td>2.0 – 10.1</td>
</tr>
<tr>
<td>Uganda</td>
<td>2</td>
<td>6.8 – 9.3</td>
</tr>
<tr>
<td>Zaire</td>
<td>1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Mullick et al, unpublished data, WHO
Maternal (%) and congenital syphilis (x 1,000 live births), 2002

- Prevalence of syphilis in pregnant women
- Congenital syphilis incidence

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

## Outcomes of Untreated Maternal Syphilis

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Stillbirth or miscarriage</td>
<td>17%</td>
<td>22%</td>
<td>30-40%</td>
<td>22%</td>
</tr>
<tr>
<td>Perinatal death</td>
<td>23%</td>
<td>12%</td>
<td>10-20%</td>
<td>No data</td>
</tr>
<tr>
<td>Infected infant</td>
<td>21%</td>
<td>33%</td>
<td>10-20%</td>
<td>2%</td>
</tr>
</tbody>
</table>

* mathematical model estimates  
** underestimate of neonatal infection; all newborns of sero-reactive mothers treated at birth

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

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

STI
HIV (PMTCT)
Reproductive Health (MCH-MPS)
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*

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

*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....
Proportion of infected pregnant women detected, 2002

Source: HIV/AIDS/STI National Programs
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.
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
“Congenital syphilis will be eliminated as a public health problem when incidence rates are found to be < 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

June 2004

* Salooje et al, June 2004

[Link to Bulletin World Health Organization]

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.