

**PHG Needs Assessment Calculator****Sudan****Prenatal care and screening**

Welcome to the PHG Health Needs Assessment Calculator for Prenatal Care and Screening. The contents of this file are listed below.

| Full name of the sheet  | Short name     |
|---|----------------|
| Country demographic, maternal health and socioeconomic indicators                   | Demography     |
| Country health-service data   | HealthServices |
| Risk factors for congenital disorders in pregnant women                             | PNS-NA1.1      |
| Population prevalence and variation for congenital disorders                        | PNS-NA1.2      |
| Effect of PNS and treatment on prevalence of congenital heart disease               | PNS-CHD        |
| Effect of PNS and pregnancy termination on birth prevalence of Down's syndrome      | PNS-DOWNS      |
| Effect of PNS and pregnancy termination on birth prevalence of neural tube defects  | PNS-NTD        |
| Effect of PNS and management on birth incidence of fetal alcohol spectrum disorders | PNS-FASD       |
| Effect of PNS on birth prevalence of rhesus haemolytic disease                      | PNS-RHD        |
| Effect of PNS and pregnancy management on congenital rubella syndrome               | PNS-RUB        |
| Effect of PNS and treatment on birth prevalence of syphilis                         | PNS-SYPH       |
| Effect of PNS and pregnancy termination on birth prevalence of sickle cell disease  | PNS-SCD        |
| Effect of PNS and pregnancy termination on birth prevalence of thalassaemias        | PNS-THAL       |
| Effect of PNS on congenital disorders caused by teratogens                          | PNS-TER        |

**Sudan****Shared Data****Demographic, maternal health and socio-economic indicators**

**Please read first! If you have already completed a needs assessment for a different topic in this country, you will be able to copy the Demography information from that Calculator into here. The information should be the same.**

**By default, the Toolkit contains information at the national level.**

**If you would like to use a different population, then replace country information with that of your specific population of interest.**

| Number of persons by age-group and sex | Estimates             |         |          | Your estimates |        |       | Chosen estimates |        |       |
|--|-----------------------|---------|----------|----------------|--------|-------|------------------|--------|-------|
| Age group                              | Male                  | Female  | Total    | Male           | Female | Total | Male             | Female | Total |
| 0-4 years                              | 3005746               | 2840245 | 5845991  |                |        | 0     |                  |        | 0     |
| 5-9 years                              | 3023603               | 2778173 | 5801776  |                |        | 0     |                  |        | 0     |
| 10-14 years                            | 2689626               | 2346411 | 5036037  |                |        | 0     |                  |        | 0     |
| 15-19 years                            | 2151401               | 2024954 | 4176355  |                |        | 0     |                  |        | 0     |
| 20-24 years                            | 1740076               | 1796936 | 3537012  |                |        | 0     |                  |        | 0     |
| 25-29 years                            | 1466418               | 1648548 | 3114966  |                |        | 0     |                  |        | 0     |
| 30-34 years                            | 1207987               | 1295976 | 2503963  |                |        | 0     |                  |        | 0     |
| 35-39 years                            | 1134069               | 1180296 | 2314365  |                |        | 0     |                  |        | 0     |
| 40-44 years                            | 905533                | 868298  | 1773831  |                |        | 0     |                  |        | 0     |
| 45-49 years                            | 689233                | 614447  | 1303680  |                |        | 0     |                  |        | 0     |
| 50-54 years                            | 581191                | 513515  | 1094706  |                |        | 0     |                  |        | 0     |
| 55-59 years                            | 350041                | 285760  | 635801   |                |        | 0     |                  |        | 0     |
| 60-64 years                            | 380847                | 310256  | 691103   |                |        | 0     |                  |        | 0     |
| 65+ years                              | 748206                | 576698  | 1324904  |                |        | 0     |                  |        | 0     |
| Total                                  | 0                     | 0       | 39154490 | 0              | 0      | 0     | 0                | 0      | 0     |
| Female population aged 15-44 years     |                       | 0       |          |                | 0      |       |                  | 0      |       |
| Data year                              | 2008 reported in 2011 |         |          |                |        |       |                  |        |       |
| Source, Year                           | UN 2011               |         |          |                |        |       |                  |        |       |

**Ethnicity. Please enter data for the main ethnic groups if you are working with a population that is different from that of the country.**

| Ethnic group | Number | % population |
|--------------|--------|--------------|
|              |        |              |
|              |        |              |
|              |        |              |
|              |        |              |
|              |        |              |

| <b>Fertility and mortality</b>                                      | <b>Estimate</b> | <b>Source, Year</b> | <b>Your estimate</b> | <b>Source, Year</b> | <b>Chosen estimate</b> | <b>Source, Year</b> |
|---|-----------------|---------------------|----------------------|---------------------|------------------------|---------------------|
| Crude birth rate: live births (LB) / year / 1000 population         | 32              | Unicef, 2007        |                      |                     |                        |                     |
| Still birth rate (SB): Still births (SB) / year / 1000 total births | 24              | WHO, 2009           |                      |                     |                        |                     |
| Total births in 1000s (LB+SB) per year                              | 1230.00         | Unicef, 2007        |                      |                     |                        |                     |
| Infant mortality rate: infant deaths / 1000 LB / year               | 66.00           | UNICEF              |                      |                     |                        |                     |
| Under-5 mortality rate: U5 deaths / 1000 LB / year                  | 103.00          | (2011), 2010        |                      |                     |                        |                     |
| Percentage births in women >35 years                                |                 |                     |                      |                     |                        |                     |
| Life expectancy at birth (yrs)                                      | 59              | WHO, 2009           |                      |                     |                        |                     |
| % of marriages consanguineous                                       |                 |                     |                      |                     |                        |                     |

| <b>Maternal health</b>                                 | <b>Estimate</b> | <b>Source, Year</b> | <b>Your estimate</b> | <b>Source, Year</b> | <b>Chosen estimate</b> | <b>Source, Year</b> |
|--|-----------------|---------------------|----------------------|---------------------|------------------------|---------------------|
| Prenatal visits – at least 1 visit (%)                 | 64              | WHO, 2006           |                      |                     |                        |                     |
| Prenatal visits – at least 4 visits (%)                |                 |                     |                      |                     |                        |                     |
| Births attended by skilled health personnel (%)        | 49              | WHO, 2006           |                      |                     |                        |                     |
| Contraception prevalence rate (%)                      | 7.6             | WHO, 2006           |                      |                     |                        |                     |
| Unmet need for family planning (%)                     |                 |                     |                      |                     |                        |                     |
| Total fertility rate                                   | 4.1             | WHO, 2009           |                      |                     |                        |                     |
| % home births  |                 |                     |                      |                     |                        |                     |
| % births at health care services                       |                 |                     |                      |                     |                        |                     |
| <b>Newborn health</b>                                  | <b>Estimate</b> | <b>Source, Year</b> | <b>Your estimate</b> | <b>Source, Year</b> | <b>Chosen estimate</b> | <b>Source, Year</b> |
| Number of neonatal examinations by SBA / trained staff |                 |                     |                      |                     |                        |                     |
| % neonatal examinations by SBA/ trained staff          |                 |                     |                      |                     |                        |                     |

| <b>Socio-economic indicators</b>               | <b>Estimate</b> | <b>Source, Year</b> | <b>Your estimate</b> | <b>Source, Year</b> | <b>Chosen estimate</b> | <b>Source, Year</b> |
|--|-----------------|---------------------|----------------------|---------------------|------------------------|---------------------|
| Gross national income per capita (PPP int. \$) | 1920            | WHO, 2008           |                      |                     |                        |                     |
| % population living on < US\$1 per day         |                 |                     |                      |                     |                        |                     |
| Birth registration coverage (%)                | 33              | WHO, 2006           |                      |                     |                        |                     |
| Death registration coverage (%)                |                 |                     |                      |                     |                        |                     |

LB = live births

PPP = purchasing power parity

SBA = skilled birth attendant

**Sudan**  
**Shared Data**  
**Health Services Data**

**Please read first!** If you have already completed a needs assessment for a different topic in this country, you will be able to copy the Health Services information from that Calculator into here. The information should be the same.

This section provides health-service-related information for your country.

**By default, the Toolkit contains information at the national level.**

**If you would like to use a different population, then replace country information with that of your specific population of interest.**

| <b>Health Expenditure</b>  | <b>Estimate</b> | <b>Source, Year</b> | <b>Your estimate</b> | <b>Source, Year</b> | <b>Chosen estimate</b> | <b>Source, Year</b> |
|--|-----------------|---------------------|----------------------|---------------------|------------------------|---------------------|
| Per capita total expenditure on health (PPP int. \$)                                   | 161             | WHO, 2009           |                      |                     |                        |                     |
| Total expenditure on health as percentage of GDP                                       | 7.3             | WHO, 2009           |                      |                     |                        |                     |
| Per capita government expenditure on health (PPP int. \$)                              | 44              | WHO, 2009           |                      |                     |                        |                     |
| External resources for health as percentage of total expenditure on health             | 3.2             | WHO, 2009           |                      |                     |                        |                     |
| General government expenditure on health as percentage of total expenditure on health  | 27.4            | WHO, 2009           |                      |                     |                        |                     |
| Out-of-pocket expenditure as percentage of private expenditure on health               | 96.2            | WHO, 2009           |                      |                     |                        |                     |
| Private expenditure on health as percentage of total expenditure on health             | 72.6            | WHO, 2009           |                      |                     |                        |                     |
| General government expenditure on health as percentage of total government expenditure | 9.8             | WHO, 2009           |                      |                     |                        |                     |

| <b>Health Workforce</b>   | <b>Estimate</b> | <b>Source, Year</b> | <b>Your estimate</b> | <b>Source, Year</b> | <b>Chosen estimate</b> | <b>Source, Year</b> |
|---|-----------------|---------------------|----------------------|---------------------|------------------------|---------------------|
| Number of nursing and midwifery personnel                       | 32439           | WHO, 2008           |                      |                     |                        |                     |
| Nursing and midwifery personnel density (per 10,000 population) | 8.4             | WHO, 2008           |                      |                     |                        |                     |
| Number of physicians  | 10813           | WHO, 2008           |                      |                     |                        |                     |
| Physician density (per 10 000 population)                       | 2.8             | WHO, 2008           |                      |                     |                        |                     |
| Number of obstetricians   |                 |                     |                      |                     |                        |                     |
| Number of paediatricians  |                 |                     |                      |                     |                        |                     |
| Number of paediatric surgeons                                   |                 |                     |                      |                     |                        |                     |
| Number of paediatric cardiac surgeons                           |                 |                     |                      |                     |                        |                     |
| Number of paediatric neurosurgeons                              |                 |                     |                      |                     |                        |                     |
| Number of clinical geneticists                                  |                 |                     |                      |                     |                        |                     |
| Number of genetic counsellors                                   |                 |                     |                      |                     |                        |                     |
| Number of community health workers                              |                 |                     |                      |                     |                        |                     |
| Number of skilled birth attendants (SBA)                        |                 |                     |                      |                     |                        |                     |
| Density of SBA  |                 |                     |                      |                     |                        |                     |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| Number of lab staff providing cytogenetic testing            |  |  |  |  |  |  |
| Number of lab staff providing molecular genetics             |  |  |  |  |  |  |
| Number of lab staff providing biochemical tests for genetics |  |  |  |  |  |  |
| Number of skilled health attendants                          |  |  |  |  |  |  |

| <b>Infrastructure</b>   | <b>Estimate</b> | <b>Source, Year</b> | <b>Your estimate</b> | <b>Source, Year</b> | <b>Chosen estimate</b> | <b>Source, Year</b> |
|---|-----------------|---------------------|----------------------|---------------------|------------------------|---------------------|
| Number of maternity units   |                 |                     |                      |                     |                        |                     |
| Number of services providing specialised care for people with CD            |                 |                     |                      |                     |                        |                     |
| Number of family planning services  |                 |                     |                      |                     |                        |                     |
| Number of preconception services  |                 |                     |                      |                     |                        |                     |
| Number of services providing prenatal care                                  |                 |                     |                      |                     |                        |                     |
| Number of services providing newborn care                                   |                 |                     |                      |                     |                        |                     |
| Number of facilities providing genetic services                             |                 |                     |                      |                     |                        |                     |
| Number of laboratories providing cytogenetics                               |                 |                     |                      |                     |                        |                     |
| Number of laboratories providing molecular genetics                         |                 |                     |                      |                     |                        |                     |
| Number of laboratories providing biochemical tests for genetics             |                 |                     |                      |                     |                        |                     |
| Number of facilities for safe terminations of pregnancies for fetal defects |                 |                     |                      |                     |                        |                     |

PPP = purchasing power parity

GDP = gross domestic product

SBA = skilled birth attendant

CD = congenital disorders

**Sudan****Prenatal care and screening****Risk factors for congenital disorders in pregnant women\***

| <b>Risk factors</b>  | <b>Proportion with risk factor</b> | <b>Variation in number and prevalence</b> | <b>Source of data on number and prevalence</b> | <b>Qualitative assessment of importance of risk factors**</b> |
|--|------------------------------------|---|--|---|
| Obesity  |                                    |   |  |   |
| Diabetes   |                                    |   |  |   |
| Malnutrition   |                                    |   |  |   |
| Teratogen exposure: environmental, agricultural and occupational |                                    |   |  |   |
| Exposure to teratogenic prescribed and non-prescribed medicines  |                                    |   |  |   |
| Syphilis infection   |                                    |   |  |   |
| Rubella susceptibility   |                                    |   |  |   |
| Rubella infection  |                                    |   |  |   |
| Other infections (e.g. HIV, CMV)                                 |                                    |   |  |   |
| Alcohol consumption  |                                    |   |  |   |
| Tobacco use  |                                    |   |  |   |
| Advanced maternal age (>35)                                      |                                    |   |  |   |
| Iodine deficiency  |                                    |   |  |   |
| Folate deficiency  |                                    |   |  |   |
| Other risk factors   |                                    |   |  |   |

\* If data on pregnant women are not available, use estimates for women of reproductive age and please indicate this.

\*\* Complete if numerical data are unavailable. Use numbers from 1 to 5, where 1 = low importance and 5 = high importance.

TB = total births (live births + still births)

**Sudan****Prenatal care and screening****Population prevalence and variation for congenital disorders**

| Condition                       | Prevalence of affected pregnancies per 1000 TB | Birth prevalence per 1000 TB | Prevalence variation and high-risk populations | Tick if PNS available | Type of PNS available | Coverage of PNS | Tick if public ToP services available |
|---------------------------------|--|------------------------------|--|-----------------------|-----------------------|-----------------|---------------------------------------|
| Rhesus incompatibility/ disease |  |                              |  |                       |                       |                 |                                       |
| G6PD deficiency                 |  |                              |  |                       |                       |                 |                                       |
| Thalassaemia                    |  |                              |  |                       |                       |                 |                                       |
| Sickle cell disease             |  |                              |  |                       |                       |                 |                                       |
| Chromosomal disorders           |  |                              |  |                       |                       |                 |                                       |
| Structural disorders            |  |                              |  |                       |                       |                 |                                       |
| Other                           |  |                              |  |                       |                       |                 |                                       |

PNS = Prenatal screening, e.g. carrier screening, membership of high-risk population, ultrasound, other tests

TB = total births (live births + still births)

ToP = termination of pregnancy

**Sudan****Prenatal care and screening****Effect of PNS and treatment on prevalence of congenital heart disease**

|  |       |               |
|--|-------|---------------|
| Baseline prevalence: fetuses affected by CHD, per 1000 TB  |       |               |
| Variables  |       |               |
| Coverage of prenatal screening   |       | Range: 0 to 1 |
| Proportion of diagnosed pregnancies receiving treatment*   |       | Range: 0 to 1 |
| Effectiveness of treatment   |       | Range: 0 to 1 |
| Results  |       |               |
| Proportional reduction of uncontrolled cases of CHD through PNS and treatment <sup>1</sup>       | 0%    |               |
| Prevalence of uncontrolled CHD after PNS and treatment, per 1000 total births <sup>2</sup>       | 0.000 |               |
| Final prevalence: affected live births after PNS & treatment, per 1000 total births <sup>3</sup> | 0.000 |               |

PNS = prenatal screening

TB = total births (live births + still births)

CHD = congenital heart disease

\*Treatment in this case refers to diagnosis and appropriate management of pregnancy

<sup>1</sup>Coverage of screening X Proportion of diagnosed pregnancies receiving treatment X Effectiveness of treatment

<sup>2</sup>Proportional reduction of uncontrolled cases x Baseline prevalence

<sup>3</sup>Baseline prevalence – prevalence of uncontrolled CHD



**Sudan****Prenatal care and screening****Effect of PNS and ToP on birth prevalence of Down's Syndrome\***

Note: this makes the simplifying assumption that still birth is equally likely in cases that are diagnosed as in cases that are not diagnosed.

|  |       |               |
|--|-------|---------------|
| Baseline prevalence: affected pregnancies per 1000 TB  |       |               |
| Variables  |       |               |
| Coverage of prenatal screening   |       | Range: 0 to 1 |
| Proportion of screen-positive cases receiving fetal diagnosis                                      |       | Range: 0 to 1 |
| Proportion of diagnosed cases ending in pregnancy termination                                      |       | Range: 0 to 1 |
| Results  |       |               |
| % prevalence reduction due to PNS & pregnancy termination <sup>1</sup>                             | 0%    |               |
| Prevalence reduction due to PNS & pregnancy termination, per 1000 TB <sup>2</sup>                  | 0.000 |               |
| Final prevalence: affected live births after PNS & pregnancy termination, per 1000 TB <sup>3</sup> | 0.000 |               |

PNS = prenatal screening

TB = total births (live births + still births)

ToP = termination of pregnancy

\* If you want to consider all chromosomal disorders please enter relevant data.

<sup>1</sup>Coverage of screening X Proportion of screen-positive cases receiving diagnosis x Proportion of cases ending in pregnancy termination

<sup>2</sup>% prevalence reduction due to PNS and ToP x Baseline prevalence : affected pregnancies

<sup>3</sup>Baseline prevalence of affected pregnancies – Prevalence reduction due to PNS & ToP

**Sudan****Prenatal care and screening****Effect of PNS and pregnancy termination on prevalence of neural tube defects**

Below you can estimate the potential reduction in NTD incidence through folic acid supplementation for pregnant women.

Please enter a value for population coverage of folic acid supplementation, to determine its potential effect.

| <b>Effect of supplementation (with no fortification)</b>          |              | Notes   |
|---|--------------|---|
| Baseline prevalence with no folic acid intervention (per 1000 TB) |              |   |
| Maximum proportional reduction (assuming 100% coverage)           | 0.72         | This value is fixed at 0.72   |
| Population supplementation coverage                               |              | Range: 0 to 1   |
| Actual proportional reduction                                     | 0            | Maximum proportional reduction x Coverage   |
| Actual prevalence reduction (per 1000 TB)                         | 0.000        | Baseline incidence x Actual proportional reduction  |
| Minimum prevalence  | 0.9          | This value is fixed at 0.9  |
| New prevalence  | 0.000        | Baseline prevalence - ((Maximum proportional coverage X Population supplementation coverage) X Baseline prevalence) |
| % prevalence reduction  | #DIV/0!      | 1 - (New prevalence/Baseline prevalence)  |
| Absolute prevalence reduction (per 1000 TB)                       | 0.000        | Baseline prevalence - New prevalence  |
| <b>Final prevalence following supplementation</b>                 | <b>0.900</b> | Cannot go below 0.9 / 1000 LB   |
|   |              |   |
|   |              |   |

Assumption: prenatal services are equally used for cases which would lead to still births (SB) and live births (LB).

This could overestimate the impact of ToP if in fact ToP is more likely for severe cases that would result in stillbirth.

Conversely, the impact of ToP could be underestimated if screening is only available to high-income women at lower risk.

|  |       |   |
|--|-------|---|
| Baseline prevalence, per 1000 TB (LB+SB)   |       | Use baseline either before or after folic acid interventions. |
| Variables  |       |   |
| Coverage of prenatal screening   |       | Range: 0 to 1   |
| Proportion of screen-positive cases receiving diagnosis                                    |       | Range: 0 to 1   |
| Proportion of diagnosed cases ending in pregnancy termination                              |       | Range: 0 to 1   |
| Results  |       |   |
| % prevalence reduction due to PND & pregnancy termination <sup>1</sup>                     | 0%    |   |
| Prevalence reduction due to PND & pregnancy termination, per 1000 TB <sup>2</sup>          | 0.000 |   |
| Final birth prevalence of NTDs after PND & pregnancy termination, per 1000 TB <sup>3</sup> | 0.000 |   |

PND = prenatal diagnosis

TB = total births (live births + still births)

NTDs = neural tube defects

<sup>1</sup>Coverage of screening X Proportion of screen-positive cases receiving diagnosis x Proportion of cases ending in pregnancy termination

<sup>2</sup>% prevalence reduction due to PND and termination x Baseline prevalence

<sup>3</sup>Baseline prevalence – Prevalence reduction due to PND & termination

**Sudan****Prenatal care and screening****Effect of PNS and management on birth incidence of fetal alcohol spectrum disorders**

|  |  |               |
|--|--|---------------|
| Baseline prevalence of FASD per 1000 total births (live + still)                           |  |               |
| Baseline prevalence of unsafe alcohol consumption in pregnant women per 1000               |  |               |
| Variables  |  |               |
| Proportion of women stopping drinking or reducing to safe levels during pregnancy          |  | Range: 0 to 1 |
| Effectiveness of intervention in pregnancy on the outcome                                  |  | Range: 0 to 1 |
| Results  |  |               |
| % prevalence reduction due to in-pregnancy intervention per 1000 total births <sup>1</sup> |  | 0%            |
| Final prevalence of FASD per 1000 births <sup>2</sup>                                      |  | 0.000         |
| Final prevalence of unsafe alcohol consumption in pregnant women per 1000 <sup>3</sup>     |  | 0.000         |

FASD = fetal alcohol spectrum disorder

<sup>1</sup>Prop. women stopping drinking or reducing to safe levels during pregnancy x Effectiveness of intervention

<sup>2</sup>Baseline prevalence of FASD - (% prevalence reduction due to in-pregnancy intervention X Baseline prevalence of FASD)

<sup>3</sup>Baseline prevalence of unsafe alcohol consumption - (% prevalence reduction due to intervention X Baseline prevalence of unsafe alcohol consumption)

**Sudan****Prenatal care and screening****Effect of PNS on birth prevalence of RHD**

|   |       |               |
|---|-------|---------------|
| Baseline prevalence of RHD per 1000 TB  |       |               |
| Variables   |       |               |
| Coverage of prenatal screening  |       | Range: 0 to 1 |
| Proportion of RhD negative women receiving anti-D   |       | Range: 0 to 1 |
| Effectiveness of anti-D in RhD negative women   |       | Range: 0 to 1 |
| Results   |       |               |
| % prevalence reduction due to PNS & treatment <sup>1</sup>  | 0%    |               |
| Prevalence reduction due to PNS & treatment, per 1000 TB <sup>2</sup>   | 0.000 |               |
| Final prevalence of RHD-affected live births and still births after PNS & treatment, per 1000 TB <sup>3</sup> | 0.000 |               |

RHD = Rhesus Haemolytic Disease of the Newborn

PNS = prenatal screening

TB = total births (live births + still births)

<sup>1</sup>(Coverage of PNS X Proportion of women receiving anti-D) X Effectiveness of anti-D

<sup>2</sup>% prevalence reduction due to PNS and treatment X Baseline prevalence of RHD

<sup>3</sup>Baseline prevalence of RHD – Prevalence reduction due to PNS and treatment

**Sudan****Prenatal care and screening****Effect of PNS and management on CRS**

|  |  |               |
|--|--|---------------|
| Baseline prevalence: fetuses affected by CRS, per 1000 TB                                    |  |               |
| Variables  |  |               |
| Coverage of prenatal screening   |  | Range: 0 to 1 |
| Proportion of diagnosed pregnancies receiving treatment*                                     |  | Range: 0 to 1 |
| Effectiveness of treatment   |  | Range: 0 to 1 |
| Results  |  |               |
| Proportional reduction of uncontrolled cases of CRS through PNS and treatment <sup>1</sup>   |  | 0%            |
| Prevalence of uncontrolled CRS after PNS and treatment, per 1000 total births <sup>2</sup>   |  | 0.000         |
| Final prevalence of CRS-affected live births after PNS & treatment, per 1000 TB <sup>3</sup> |  | 0.000         |

PNS = prenatal screening

TB = total births (live births + still births)

CRS = congenital rubella syndrome

\*Treatment in this case refers to diagnosis and appropriate management of pregnancy

<sup>1</sup>(Coverage of PNS X Proportion of diagnosed pregnancies receiving treatment) X Effectiveness of treatment

<sup>2</sup>Proportional reduction in uncontrolled cases of CRS due to PNS and treatment X Baseline prevalence

<sup>3</sup>Baseline prevalence – Prevalence reduction due to PNS and treatment

**Sudan****Prenatal care and screening****Effect of PNS and treatment on birth prevalence of syphilis**

|  |  |               |
|--|--|---------------|
| Baseline prevalence of syphilis in pregnancy per 1000 TB                       |  |               |
| Variables  |  |               |
| Coverage of prenatal maternal screening  |  | Range: 0 to 1 |
| Proportion of diagnosed cases receiving timely treatment                       |  | Range: 0 to 1 |
| Effectiveness of treatment (proportion of cases prevented among those treated) |  | Range: 0 to 1 |
| Results  |  |               |
| % prevalence reduction due to PNS & treatment <sup>1</sup>                     |  | 0%            |
| Prevalence reduction due to PNS & treatment, per 1000 TB <sup>2</sup>          |  | 0.000         |
| Final prevalence of syphilis-affected pregnancies per 1000 TB <sup>3</sup>     |  | 0.000         |

PNS = prenatal screening

TB = total births (live births + still births)

<sup>1</sup>(Coverage of maternal screening X Proportion of diagnosed women receiving treatment) X Effectiveness of treatment

<sup>2</sup>% prevalence reduction due to PNS and treatment X Baseline prevalence of syphilis in pregnancy

<sup>3</sup>Baseline prevalence of syphilis in pregnancy – Prevalence reduction due to PNS and treatment

**Sudan****Prenatal care and screening****Effect of PNS and ToP on birth prevalence of sickle cell disease**

|   |       |               |
|---|-------|---------------|
| Baseline prevalence: affected fetuses per 1000 TB   |       |               |
| Variables   |       |               |
| Coverage of prenatal screening  |       | Range: 0 to 1 |
| Proportion of positive-screened cases receiving fetal diagnosis                                       |       | Range: 0 to 1 |
| Proportion of diagnosed cases resulting in pregnancy termination                                      |       | Range: 0 to 1 |
| Results   |       |               |
| % prevalence reduction due to PNS & ToP <sup>1</sup>  | 0%    |               |
| Prevalence reduction due to PNS & ToP, per 1000 TB <sup>2</sup>                                       | 0.000 |               |
| Final birth prevalence of babies with sickle cell disease after PNS and ToP, per 1000 TB <sup>3</sup> | 0.000 |               |

PNS = prenatal screening

TB = total births (live births + still births)

ToP = termination of pregnancy

<sup>1</sup>(Coverage of prenatal screening x Proportion of positive-screened cases receiving fetal diagnosis) X  
Proportion of cases resulting in ToP

<sup>2</sup>% prevalence reduction due to PNS and ToP X Baseline prevalence : affected fetuses

<sup>3</sup>Baseline prevalence: affected fetuses – Prevalence reduction due to PNS and ToP



**Sudan****Prenatal care and screening****Effect of PNS and ToP on birth prevalence of thalassaemias**

|  |       |               |
|--|-------|---------------|
| Baseline prevalence: thalassaemia-affected pregnancies per 1000 TB                               |       |               |
| Variables  |       |               |
| Coverage of prenatal screening   |       | Range: 0 to 1 |
| Proportion of positive-screened cases receiving fetal diagnosis                                  |       | Range: 0 to 1 |
| Proportion of diagnosed cases ending in pregnancy termination                                    |       | Range: 0 to 1 |
| Results  |       |               |
| % prevalence reduction due to PNS & ToP <sup>1</sup>   | 0%    |               |
| Prevalence reduction due to PNS & ToP, per 1000 TB <sup>2</sup>                                  | 0.000 |               |
| Final birth prevalence of thalassaemia-affected babies after PNS & ToP, per 1000 TB <sup>3</sup> | 0.000 |               |

PNS = prenatal screening

TB = total births (live births + still births)

ToP = termination of pregnancy

<sup>1</sup>(Coverage of prenatal screening x Proportion of positive-screened cases receiving fetal diagnosis) X  
Proportion of cases resulting in ToP

<sup>2</sup>% prevalence reduction due to PNS and ToP X Baseline prevalence : affected fetuses

<sup>3</sup>Baseline prevalence: affected fetuses – Prevalence reduction due to PNS and ToP

**Sudan****Prenatal care and screening****Effect of PNS on congenital disorders caused by teratogens**

|   |  |               |
|---|--|---------------|
| Baseline prevalence of teratogen-induced congenital disorders per 1000 total births (live + still)                                  |  |               |
| Variables   |  |               |
| Proportion of women reducing teratogen risk to safe levels during pregnancy   |  | Range: 0 to 1 |
| Effectiveness of interventions on the outcome   |  | Range: 0 to 1 |
| Results   |  |               |
| % prevalence reduction due to intervention per 1000 total births <sup>1</sup>   |  | 0%            |
| Final prevalence of teratogen-induced congenital disorders per 1000 births <sup>2</sup>   |  | 0.000         |
|   |  |               |
| <sup>1</sup> Proportion of women reducing teratogen risk to safe levels during pregnancy X Effectiveness of intervention on outcome |  |               |
| <sup>2</sup> Baseline prevalence - (% prevalence reduction due to intervention X Baseline prevalence)                               |  |               |

## Effects of prenatal screening and pregnancy termination

Assumption: prenatal services are equally used for cases which would lead to still births and live births.

This could overestimate the impact of ToP if in fact ToP is more likely for severe cases that would result in still birth.

Conversely, the impact of ToP could be underestimated if screening is only available to high-income women at lower risk.

100% specificity of prenatal diagnosis assumed.

|  |       |               |
|--|-------|---------------|
| Baseline prevalence, per 1000 TB (LB + SB)*    |       |               |
| Variables                                      |       |               |
| Coverage of prenatal diagnosis                 |       | Range: 0 to 1 |
| Choice of ToP in confirmed cases               |       | Range: 0 to 1 |
| Results  |       |               |
| % prevalence reduction due to PNS <sup>3</sup> | 0%    |               |
| Prevalence reduction due to PNS <sup>4</sup>   | 0.000 |               |
| Final prevalence after PNS <sup>5</sup>        | 0.000 |               |

\*Use baseline either before or after effect of controlling teratogenic risk

PNS = prenatal screening

ToP = termination of pregnancy

TB = total births (live births + still births)

<sup>3</sup>Coverage of prenatal diagnosis x Choice of ToP in confirmed cases

<sup>4</sup>% prevalence reduction due to PNS X Baseline prevalence

<sup>5</sup>Baseline prevalence – Prevalence reduction due to PNS