PHG Needs Assessment Calculator
Central African Republic
Neural Tube Defects

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Central African Republic
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	213246	212199	425445			0			0
5-9 years	183662	181437	365099			0			0
10-14 years	143572	130202	273774			0			0
15-19 years	121902	131360	253262			0			0
20-24 years	108575	116530	225105			0			0
25-29 years	94732	103905	198637			0			0
30-34 years	74363	78255	152618			0			0
35-39 years	56723	62420	119143			0			0
40-44 years	46835	51423	98258			0			0
45-49 years	40803	47436	88239			0			0
50-54 years	35144	41001	76145			0			0
55-59 years	29576	32535	62111			0			0
60-64 years	24181	25638	49819			0			0
65+ years	36735	34918	71653			0			0
Total	0	0	2463614	0	0	0	0	0	0
Female population aged 15-44 years		0			-			-	
Data year			1988 reported in 1993						
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

Fertility and mortality	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
Crude birth rate: live births (LB) / year / 1000 population	36	Unicef, 2007				
Still birth rate (SB): Still births (SB) / year / 1000 total births	24	WHO, 2009				
Total births in 1000s (LB+SB) per year	158	Unicef, 2007				
Infant mortality rate: infant deaths / 1000 LB / year	106	UNICEF (2011), 2010				
Under-5 mortality rate: U5 deaths / 1000 LB / year	159	UNICEF (2011), 2010				
Percentage births in women >35 years						
Life expectancy at birth (yrs)	48	WHO, 2009				
% of marriages consanguineous						

Maternal health	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
Prenatal visits – at least 1 visit (%)	69	WHO, 2006				
Prenatal visits – at least 4 visits (%)						
Births attended by skilled health personnel (%)	53	WHO, 2006				
Contraception prevalence rate (%)	19.0	WHO, 2006				
Unmet need for family planning (%)						
Total fertility rate	4.7	WHO, 2009				
% home births						
% births at health care services						
Newborn health	**Estimate**	**Source, Year**	**Your estimate**	**Source, Year**	**Chosen estimate**	**Source, Year**
Number of neonatal examinations by SBA / trained staff						
% neonatal examinations by SBA/ trained staff						

Socio-economic indicators	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
Gross national income per capita (PPP int. $)	730	WHO, 2008				
% population living on < US$1 per day	62.4	WHO, 2003				
Birth registration coverage (%)	49	WHO, 2006				
Death registration coverage (%)						

LB = live births
PPP = purchasing power parity
SBA = skilled birth attendant

Central African Republic
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.

Health Expenditure	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
Per capita total expenditure on health (PPP int. $)	32	WHO, 2009				
Total expenditure on health as percentage of GDP	4.3	WHO, 2009				
Per capita government expenditure on health (PPP int. $)	13	WHO, 2009				
External resources for health as percentage of total expenditure on health	40.4	WHO, 2009				
General government expenditure on health as percentage of total expenditure on health	38.7	WHO, 2009				
Out-of-pocket expenditure as percentage of private expenditure on health	95.0	WHO, 2009				
Private expenditure on health as percentage of total expenditure on health	61.3	WHO, 2009				
General government expenditure on health as percentage of total government expenditure	11.0	WHO, 2009				

Health Workforce	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
Number of nursing and midwifery personnel	1613	WHO, 2004				
Nursing and midwifery personnel density (per 10,000 population)	4.1	WHO, 2004				
Number of physicians	331	WHO, 2004				
Physician density (per 10,000 population)	0.8	WHO, 2004				
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						

Infrastructure	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
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 facillities for safe terminations of pregnancies for fetal defects						

PPP = purchasing power parity
GDP = gross domestic product
SBA = skilled birth attendant
CD = congenital disorders

Central African Republic
Neural Tube Defects
NTD Epidemiology 1.1: Country epidemiology

Epidemiological indicator	Your estimates	Range	PHGDB minimum estimates	Chosen estimates	Range	Source
Year of estimate						
Prevalence at birth and by age-group (/1000)						
Live birth prevalence (LB)			0.94			
Stillbirth prevalence (SB)			0.32			
Total birth prevalence (LB+SB)			1.26			
All age groups			0.03			
<1 year olds			0.13			
1-4 year olds			0.13			
5-14 year olds			0.02			
15-44 year olds			0.01			
45+ year olds			0.00			
Number of cases by age group						
Annual live births			140			
All age groups			120			
<1 year olds			18			
1-4 year olds			66			
5-14 year olds			27			
15-44 year olds			9			
45+ year olds			0			
No. of cases by level of impairment						
No or minor disability			0			
Moderate disability			0			
Severe disability*			120			
Mortality and morbidity						
Mean life expectancy (yrs)			1.8			
No. deaths < 1yr			124			
No. deaths 1-4 yrs			2			
No. deaths < 5 yrs			126			
Infant mortality / 1000 LB			0.82			
Under-5 mortality / 1000 LB			0.84			
Years of life lost			19,307			

LB = live births; SB = stillbirths * Severe disability is defined as: wheelchair dependence, needing help with transfers, continence care and daily living, mostly low IQ, kyphosis, pressure sores, epilepsy and visual defects (a few blind) (Oakeshott and Hunt 2003)

Central African Republic
Neural Tube Defects
NTD Epidemiology 1.2: International comparison

Epidemiological indicator	Your chosen estimates	Comparison		
		Country	Region	World
Prevalence at birth and by age-group (/1000 people)			**(Sub-Saharan Africa, Central)**	
Live birth prevalence (LB)		0.94	0.94	1.70
Stillbirth prevalence (SB)		0.32	0.32	0.56
Total birth prevalence (LB+SB)		1.26	1.26	2.27
All age groups		0.03		
<1 year olds		0.13		
1-4 year olds		0.13		
5-14 year olds		0.02		
15-44 year olds		0.01		
45+ year olds		0.00		
Number of cases by age-group				
Annual live births		140	3,692	226,432
All age groups		120	1369	564261
<1 year olds		18		
1-4 year olds		66	540	126519
5-14 year olds		27	623	243746
15-44 year olds		9	205	193592
45+ year olds		0	0	404
No. cases by level of impairment				
No or minor disability		0		
Moderate disability		0		
Severe disability*		120	1369	564261
Mortality and morbidity				
Mean life expectancy (yrs)		1.8	1.8	7.8
No. deaths < 1yr		124	3,237	182,680
No. deaths 1-4 yrs		2	66	6,250
No. deaths < 5 yrs		126	3,302	188,931
Infant mortality / 1000 LB		0.82		
Under-5 mortality / 1000 LB		0.84		
Years of life lost		19,307	506846	30210052

LB = live births * Severe disability is defined as: wheelchair dependence, needing help with transfers, continence care and daily living, mostly low IQ, kyphosis, pressure sores, epilepsy and visual defects (a few blind) (Oakeshott and Hunt 2003)

Central African Republic
Neural Tube Defects
NTD Epidemiology 2.1: Data on affected pregnancies: Research studies

Study author, year, site	Sample size	Study quality and representativeness	Main findings

Based on the studies listed above (or in section NTD-E2.1 of the Tool), enter the best estimates for the prevalence of affected births and terminations in the country, and a range of values to reflect uncertainty or within-country variation.

If studies are not representative of the national population you may need to weight your data (see the Guide for explanation on weighting and help with the calculations).

Estimates for the total country/territory	Number of affected live births	LB prevalence / 1000 TB	Comments
Best estimate			
Lower estimate			
Higher estimate			
Estimates for the total country/territory	**Number of affected stillbirths**	**SB prevalence / 1000 TB**	**Comments**
Best estimate			
Lower estimate			
Higher estimate			
Estimates for the total country/territory	**Number of terminations of pregnancy due to condition**	**ToP / 1000 TB**	**Comments**
Best estimate			
Lower estimate			
Higher estimate			

TB = total births (live births + stillbirths); ToP = termination of pregnancy

Central African Republic
Neural Tube Defects
NTD Epidemiology 2.2: Data on affected pregnancies: Surveillance

Based on surveillance data, enter the best estimates for the prevalence of the condition in live births, stillbirths and pregnancy terminations in the country. Give a range of values to reflect uncertainty and within-country variation, and use comments for information on data quality, uncertainty and representativeness.
If studies are not representative of the national population you may need to weight your data (see the Guide for explanation on weighting and help with the calculations).

Estimates for the total country/territory	Number of affected live births	Birth prevalence / 1000 TB	Comments
Best estimate			
Lower estimate			
Higher estimate			

Estimates for the total country/territory	Number of affected stillbirths	Stillbirth prevalence / 1000 TB	Comments
Best estimate			
Lower estimate			
Higher estimate			

Estimates for the total country/territory	Number of ToP due to condition	ToP / 1000 TB	Comments
Best estimate			
Lower estimate			
Higher estimate			

TB = total births (live births + stillbirths); ToP = termination of pregnancy

Central African Republic
Neural Tube Defects
NTD Epidemiology 2.3: Data on affected pregnancies: Other sources

	Source 1:	Source 2:	Notes
Enter year and source of data – use last year with information available.			
Basic Numbers			
Number of affected live births / year, from data source			
Total number of live births / year, from data source			
Number of affected still births / year, from data source			
Total number of stillbirths / year, from data source			
Number of ToP for affected fetus / year from data source			
Total number of affected births / year (live and still)	0	0	
Total number of births / year, from data source	0	0	
Total number of ToP / year, from data source			
Total number of women aged 15-44			
Live birth prevalence: recorded and estimated			
Recorded live birth prevalence (affected recorded live births / 1000 recorded total births)	#DIV/0!	#DIV/0!	
Estimated completeness of recording: what proportion of true affected live births in your data source were recorded?			Range: 0 to 1
Estimated coverage of recorded live births (number of recorded live births / total live births in country or territory)			Range: 0 to 1
Estimated live birth prevalence (recorded prevalence / completeness)	#DIV/0!	#DIV/0!	
Estimated true number of affected live births in data source (number of recorded affected live births / completeness)	#DIV/0!	#DIV/0!	
Estimated number of affected live births in total population (number of affected live births from data source / (coverage x completeness))	#DIV/0!	#DIV/0!	
Stillbirth prevalence: recorded and estimated			
Recorded stillbirth prevalence (affected recorded still births / 1000 recorded total births)	#DIV/0!	#DIV/0!	
Estimated completeness of recording: what proportion of true affected stillbirths in your data source were recorded?			Range: 0 to 1
Estimated coverage of recorded stillbirths (number of recorded still births / total still births in country or territory)			Range: 0 to 1
Estimated stillbirth prevalence (recorded prevalence / completeness)	#DIV/0!	#DIV/0!	
Estimated true number of affected stillbirths in data source (number of recorded affected still births / completeness)	#DIV/0!	#DIV/0!	

Estimated number of affected stillbirths in total population (number of affected still births from data source / (coverage x completeness))	#DIV/0!	#DIV/0!

ToP prevalence: recorded and estimated			
Recorded ToP prevalence (ToP in affected fetuses / 1000 women aged 15-44)	#DIV/0!	#DIV/0!	
Estimated completeness of recording: what proportion of true affected pregnancy terminations in your data source were recorded?			Range: 0 to 1
Estimated coverage of recorded ToP (number of recorded ToP / total ToP in country or territory)			Range: 0 to 1
Estimated ToP prevalence (recorded prevalence / estimated completeness)	#DIV/0!	#DIV/0!	
Estimated true number of ToP in data source (number of recorded ToP / completeness)	#DIV/0!	#DIV/0!	
Estimated number of ToP in total population (number of ToP from data source / (coverage x completeness))	#DIV/0!	#DIV/0!	

Based on the sources above, enter the best prevalence estimates for your population, and a range of values to reflect uncertainty of estimates and within country variation.

If studies are not representative of the national population you may need to weight your data (see the Guide for explanation on weighting and help with the calculations).

Estimates for the whole country/territory	Number of affected live births	LB prevalence / 1000 TB
Best estimate		
Lower estimate		
Higher estimate		
Estimates for the whole country/territory	**Number of affected still births**	**SB prevalence / 1000 TB**
Best estimate		
Lower estimate		
Higher estimate		
Estimates for the whole country/territory	**Number of ToP due to condition**	**ToP /1000 TB**
Best estimate		
Lower estimate		
Higher estimate		

TB = total births (live births + stillbirths); ToP = termination of pregnancy

Central African Republic
Neural Tube Defects
NTD Epidemiology 2.4: Summary of affected pregnancies

Indicator	Your estimates	Range	PHGDB minimum estimates	Chosen estimates	Range	Source
Number of annual affected **live births**			140			
Annual birth prevalence / 1000 TB			0.94			
Number of annual affected **still births**			47			
Stillbirth prevalence / 1000 TB/year			0.32			
Number of **terminations of pregnancy** in affected fetuses /year			0			
Affected ToP / 1000 TB			0.00			

If there are specific sub-types of condition, you can repeat this exercise below. However, you should consider (a) whether sub-types would have different implications for advocacy, and (b) whether a sub-type might require a full, specific needs assessment.

TB = total births (live births + stillbirths); ToP = termination of pregnancy

Central African Republic
Neural Tube Defects
NTD Epidemiology 2.5: Sub-population variation in affected pregnancies

If the birth prevalence rates vary by population sub-group (e.g. geographically or by another factor), indicate any population groups with different prevalence estimates from the whole population and describe reasons for variation. If a group is substantially different from the general population, you may wish to conduct a needs assessment for that group alone.

Population sub-group	Number of affected live births	LB prevalence / 1000 TB	Reason for variation

Population sub-group	Number of affected stillbirths	SB prevalence / 1000 TB	Reason for variation

Population sub-group	Number of ToP in affected pregnancies	ToP prevalence / 1000 TB	Reason for variation

TB = total births (live births + stillbirths); ToP = termination of pregnancy

Central African Republic
Neural Tube Defects
NTD Epidemiology 3.1: Mortality data: Research studies

Source, year, site	Sample size	Age group	Study quality and representativeness	Main findings

Based on the studies above, enter the best estimates for the specific mortality by age-group e.g. infant, under-5s, etc., as appropriate, and a range of values to reflect uncertainty of estimates and within-country variation.

If studies are not representative of the national population you may need to weight your data (see the Guide for explanation on weighting and help with the calculations).

Mortality estimates	Number of deaths	Ratio (deaths / 1000 LB)	Comments
Neonatal group (<28 days)			
Best estimate			
Lower estimate			
Higher estimate			
Infant group (<1 year)			
Best estimate			
Lower estimate			
Higher estimate			
Under-5 group (<5 years)			
Best estimate			
Lower estimate			
Higher estimate			
Other age group:			
Best estimate			
Lower estimate			
Higher estimate			

LB = live births

Central African Republic
Neural Tube Defects
NTD Epidemiology 3.2: Mortality data: Vital registration data

Fill in the blank cells based on your vital registration data.	
Enter year and source of data	
Registered data	
Total registered live births	
Registered condition-specific neonatal deaths (first 28 days of life)	
Registered condition-specific infant deaths (first year of life)	
Registered condition-specific under-5 deaths (first 5 years of life)	
Registered condition-specific neonatal mortality ratio (condition-specific neonatal deaths / 1000 live births in the same year)	#DIV/0!
Registered condition-specific infant mortality (condition-specific infant deaths / 1000 live births in the same year)	#DIV/0!
Registered condition-specific under-5 mortality (condition-specific under-5 deaths / 1000 live births in the same year)	#DIV/0!

***Adjustment for under-ascertainment of cause of death and sub-registration of deaths*:** Enter estimates in the highlighted cells. It is not always possible to adjust the estimates, in which case you may give the value '1', accepting that the estimates in these cases will usually be biased towards low values. (Or you may move to the next section.)
It is assumed that under-ascertainment is stable across age-groups; if ascertainment varies by age-group, you could use separate estimates for each age group.

Estimated completeness of recording: what proportion of deaths in affected persons were registered as such?		Range: 0 to 1
Population coverage: what proportion of the total country/territory population is covered by the vital registration?		Range: 0 to 1
Death ascertainment (population coverage x completeness)	0	
Estimated values for the total country/ territory population		
Estimated number of live births in total population	#DIV/0!	
Estimated number of neonatal deaths in total population (number of deaths registered in neonatal period / ascertainment)	#DIV/0!	
Estimated number of infant deaths in total population (number of deaths registered in first year of life / ascertainment)	#DIV/0!	
Estimated number of under-5 deaths in total population (number of deaths registered in under-5s / ascertainment)	#DIV/0!	
Estimated neonatal mortality ratio (estimated neonatal deaths / 1000 live births)	#DIV/0!	
Estimated infant mortality ratio (estimated infant deaths / 1000 live births)	#DIV/0!	
Estimated under-5 mortality ratio (estimated under-5 deaths / 1000 live births)	#DIV/0!	

Central African Republic
Neural Tube Defects
NTD Epidemiology 3.3: Mortality data: Other sources

Source, year, site	Sample size	Age group	Data quality and representativeness	Main findings

Based on data from the sources above, enter estimates for the disease-specific deaths and mortality rates in your population.

If studies are not representative of the national population you may need to weight your data (see the Guide for explanation on weighting and help with the calculations).

	Neonatal mortality		Infant mortality		Under-5 mortality	
Estimates for the total country/territory	**Value**	**Ratio/1000 LB**	**Value**	**Ratio/1000 LB**	**Value**	**Ratio/1000 LB**
Best estimate						
Lower estimate						
Higher estimate						

Central African Republic
Neural Tube Defects
NTD Epidemiology 3.4: Summary mortality estimates

Indicator	Your estimates	Range	PHGDB minimum estimates	Chosen estimates	Range	Source
Year of data collection						
Number of annual deaths in affected persons			126			
Number of annual live births (in 1000s)			149			
Number of annual affected neonatal deaths			80			
Number of affected neonatal deaths / 1000 LB			0.54			
Number of annual affected infant deaths			122			
Number of affected infant deaths / 1000 LB			0.82			
Number of annual affected under-5 deaths			125			
Number of affected under-5 deaths / 1000 LB			0.84			
Mean life expectancy at birth in affected people			1.8			
Other indicators (e.g. survival following surgical procedure, etc)						

If there are specific sub-types of condition, you can repeat this exercise (copy table and paste below). However, you should consider (a) whether sub-types would have different implications for advocacy, and (b) whether a sub-type might require a full, specific needs assessment.

Central African Republic
Neural Tube Defects
NTD Epidemiology 3.5: Sub-population variation in mortality

Age group: neonatal Population sub-group	Number of deaths in affected persons	Cause-specific, group-specific neonatal mortality ratio / 1000 LB	Reason for variation

Age group: infant Population sub-group	Number of deaths in affected persons	Cause-specific, group-specific infant mortality ratio / 1000 LB	Reason for variation

Age group: under 5 Population sub-group	Number of deaths in affected persons	Cause-specific, group-specific under-5 mortality ratio / 1000 LB	Reason for variation

Age group: ..... Population sub-group	Number of deaths in affected persons	Cause-specific, group-specific mortality ratio / 1000 population	Reason for variation

Central African Republic
Neural Tube Defects
NTD Epidemiology 4.1: Population prevalence: Research studies

Study, year, site	Sample size	Study quality and representativeness	Main findings

Based on the studies above, enter the best estimates for population prevalence, and a range of values to reflect uncertainty of estimates and within-country variation.

If studies are not representative of the national population you may need to weight your data (see the Guide for explanation on weighting and help with the calculations).

	Prevalence / 1000 persons	Range	Comments
Best estimate			
Lower estimate			
Higher estimate			

If there are specific sub-types of condition, you can repeat this exercise (copy table and paste below). However, you should consider (a) whether sub-types would have different implications for advocacy, and (b) whether a sub-type might require a full, specific needs assessment.

Central African Republic
Neural Tube Defects
NTD Epidemiology 4.2: Population prevalence: Other sources

Source, year, site	Sample size	Data quality and representativeness	Main findings

Based on data from the sources above, enter estimates for the disease-specific deaths and mortality rates in your population.

If studies are not representative of the national population you may need to weight your data (see the Guide for explanation on weighting and help with the calculations).

	Prevalence / 1000 persons	Range	Comments
Best estimate			
Lower estimate			
Higher estimate			

If there are specific sub-types of condition, you can repeat this exercise (copy table and paste below). However, you should consider (a) whether sub-types would have different implications for advocacy, and (b) whether a sub-type might require a full, specific needs assessment.

Central African Republic
Neural Tube Defects
NTD Epidemiology 4.3: Summary of population prevalence

Source of estimates	Estimated total population number of affected persons	Range	Estimated total population prevalence / 1000 persons	Range
1				
2				
3				
4				
5				
PHGDB				
Chosen estimates				

If there are specific sub-types of condition, you can repeat this exercise (copy table and paste below). However, you should consider (a) whether sub-types would have different implications for advocacy, and (b) whether a sub-type might require a full, specific needs assessment.

Central African Republic
Neural Tube Defects
NTD Epidemiology 4.4: Sub-population prevalence variation

Population sub-group	Number of affected people	Total number of people in population sub-group	Population prevalence per 1000 people	Reason for variation
			#DIV/0!	
			#DIV/0!	
			#DIV/0!	
			#DIV/0!	

If there are specific sub-types of condition, you can repeat this exercise (copy table and paste below). However, you should consider (a) whether sub-types would have different implications for advocacy, and (b) whether a sub-type might require a full, specific needs assessment.

Formula in column D: Number of affected people/ (Total number of people in population subgroup/1000)

Central African Republic
Neural Tube Defects
NTD Interventions 1: Effect of folic acid fortification

This sheet allows you to estimate the potential reduction in NTD prevalence through fortification of food with folic acid.
Please start by entering values reflecting your current situation. If you have no fortification programme, enter 0 for coverage.
Below, you may adjust dosage and coverage levels to demonstrate the effects of different intervention scenarios.

Current situation		Notes
Present estimated NTD prevalence per 1000 TB		
Present dosage (ppm)		Range: 1.5 to 3
Present coverage of fortification		Range: 0 to 1
Baseline NTD prevalence per 1000 TB, with no folic acid fortification*		
Minimum prevalence NTD / 1000 births	0.9	This value is fixed at 0.9

Potential scenarios, based on your present situation		
Vary dosage (ppm)		Range: 1.5 to 3
Vary proportional population coverage		Range: 0 to 1
Estimated NTD prevalence with this scenario, per 1000 TB		<- Do not modify this cell!
Absolute prevalence reduction with this scenario, per 1000 TB		<- Do not modify this cell!

ppm = parts per million
TB = total births (live births + stillbirths)
* Not considering the effects of other interventions on prevalence.

Formula in B13:IF(B10="";"";IF(((B10-(1.07*B12)+(0.15*B11*B12))/(1-0.88*B12))<B15;B15;((B10-(1.07*B12)+(0.15*B11*B12))/(1-0.88*B12))))
Formula in B20: IF(B13="";""; IF(B13=0.9;0.9;IF((1.07*B19+0.12*B13*B19-0.15*(IF(B18="";B11;B18))*B19+B13-B13*B19)<B15;B15;(1.07*B19+0.12*B13*B19-0.15*(IF(B18="";B11;B18))*B19+B13-B13*B19))))
Formula in B21:IF(B20="";"";B13-B20)
See sheet NTD-Appx for explanation of regression.

Central African Republic
Neural Tube Defects
NTD Interventions 2: Effect of folic acid supplementation

This sheet allows you to 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.

Effect of supplementation (with no fortification)		Notes
Baseline prevalence with no folic acid intervention (per 1000 TB)		This can be taken from the appropriate cell (baseline NTD prevalence) in sheet NTD-Interv1.
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 reduction 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
Final prevalence following supplementation	**0.900**	Cannot go below 0.9 / 1000 LB

Now you can see below the potential combined effect of folate fortification and supplementation:

Additional effect of supplementation, given fortification		This value can be changed.
	New prevalence	
After fortification		This value set in sheet NTD-Interv1
After supplementation		
After fortification and supplementation	0.000	Requires input in blank cells above[1]
% reduction	**#DIV/0!**	Requires input in blank cells above[2]
Final prevalence after fortification and supplementation		

TB = total births (live births + stillbirths)

[1]New Prevalence after fortification-(Additional effect of supplementation x Final prev. following supplemen.)

[2]If New prevalence after fortification < minimum prevalence then use (Baseline prev – min prevalence)/baseline prevalence)
Otherwise use: (Baseline prevalence – new prevalence after fortification and supplementation)/baseline prevalence

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Neural Tube Defects
NTD Interventions 3: Effect 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 stillbirth.
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)		See previous two sheets. 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[1]	0%	
Prevalence reduction due to PND & pregnancy termination, per 1000 TB[2]	0.000	
Final birth prevalence of NTDs after PND & pregnancy termination, per 1000 TB[3]	0.000	

PNS = prenatal screening
ToP = termination of pregnancy
TB = total births (live births + still births)

[1]Coverage of screening X Proportion of screen-positive cases receiving diagnosis x Proportion of cases ending in pregnancy termination
[2]% prevalence reduction due to PND and termination x Baseline prevalence
[3]Baseline prevalence – Prevalence reduction due to PND & termination

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Neural Tube Defects
NTD Interventions 4: Combined effects of folic acid interventions and prenatal screening

This sheet will only work if the previous three sheets (NTD-Interv1, 2 3) have been completed.

Variables		Notes
Baseline prevalence (per 1000 TB)		See e.g. Baseline prior to FA interventions in sheet NTD-Interv1
Prevalence reduction through FA interventions (per 1000 TB)	0.000	Set in sheet NTD-Interv2
% prevalence reduction after folic acid[1]	#VALUE!	
Coverage of prenatal diagnosis	0	Set in sheet NTD-Interv3
Prevalence of pregnancy termination in confirmed cases	0	Set in sheet NTD-Interv3
Prevalence reduction through PNS	0.000	Set in sheet NTD-Interv3
% prevalence reduction due to PNS[2]	0%	
Final prevalence after folic acid and PNS (per 1000 TB)[3]	**0.000**	
Combined prevalence reduction (per 1000 TB)[4]	0.000	
Combined % prevalence reduction[5]	#VALUE!	

PNS = prenatal screening
TB = total births (live births + stillbirths)
FA = folic acid

[1]Prevalence reduction through FA interventions/Baseline prevalence
[2]Coverage of prenatal diagnosis x Prevalence of pregnancy termination of confirmed cases
[3]Baseline prevalence = Prevalence reduction through FA interventions – Prevalence reduction through PNS
[4] Baseline prevalence – Final prevalence after folic acid and PNS
[5]1- (Final prevalence after folic acid and PNS/Baseline prevalence)

Central African Republic
Neural Tube Defects
NTD Needs Assessment Calculator 1: Quantitative baseline

Table NTD-NA1a Burden of Neural Tube Defects in pregnancy, at birth and at population level

	Chosen estimates			Notes
Indicator	Number (n)	n/1000 TB	Range of prevalence (/1000 TB)	
Annual affected live births (LB)	0	0	0	Drawn from sheet E2.4
Annual affected stillbirths (SB)	0	0	0	Drawn from sheet E2.4
Annual affected births (LB+SB)	0	0		Drawn from sheet E2.4
Annual affected persons (all age groups)	0	0	0	Drawn from sheet E1.1

Table NTD-NA1b Neural Tube Defects mortality indicators

	Chosen estimates			Notes
Indicator	Number (n)	n/1000 LB	Range of prevalence (/1000 TB)	
Annual overall mortality	0			Drawn from sheet E3.4
Annual neonatal mortality	0	0	0	Drawn from sheet E3.4
Annual infant mortality	0	0	0	Drawn from sheet E3.4
Annual under-5 mortality	0	0	0	Drawn from sheet E3.4
Mean life expectancy at birth among affected people	0		0	Drawn from sheet E3.4

TB = total births (live births + stillbirths)

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Neural Tube Defects
NTD Needs Assessment Calculator 3: Quantitative assessment of interventions

Table NTD-NA3a	Estimated prevalence in the absence of interventions for Neural Tube Defects	
Indicator	Number (n)	Prevalence (n/1000)
Potential live births		
Potential still births		

Table NTD-NA3b	Current situation in relation to interventions before birth		
Intervention	Coverage (%)	Cases averted (n)	Cases averted/1000 TB
Effect of family planning, education			
Effect of folic acid fortification			
Effect of folic acid supplementation			
Effect of prenatal diagnosis			
Overall effect			

Table NTD-NA3c	Target situation in relation to interventions before birth		
Intervention	Coverage (%)	Cases averted (n)	Cases averted/1000 TB
Effect of family planning, education			
Effect of folic acid fortification			
Effect of folic acid supplementation			
Effect of prenatal diagnosis			
Overall effect			

Table NTD-NA3d	Current situation in relation to interventions after birth		
Intervention	Coverage (%)	Cases managed (n)	Cases managed/1000 TB
Effect of newborn diagnosis			
Effect of surgical treatment			
Effect of social care and support			
Effect of rehabilitation			
Overall effect			

Table NTD-NA3e	Target situation in relation to interventions after birth		
Intervention	Coverage (%)	Cases managed (n)	Cases managed/1000 TB
Effect of newborn diagnosis			
Effect of surgical treatment			
Effect of social care and support			
Effect of rehabilitation			
Overall effect			

Table NTD-NA3f	Current and desired outcomes			
	Current situation		Target situation	
Indicator	Annual number (n)	Prevalence (n/1000)	Annual number (n)	Prevalence (n/1000)
Estimated affected pregnancies				
Live births (LB)	0	0		
Stillbirths (SB)	0	0		
Total births (LB+SB)	0	0		
Estimated population prevalence				
All age groups				
Estimated mortality / 1000 live births				
Neonatal deaths	0	0		
Infant deaths	0	0		
Under-5 deaths	0	0		

TB = total births (live births + stillbirths)

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Neural Tube Defects
NTD Needs assessment appendix: Regression estimating effect of folic acid fortification

Data from Wald et al.[1] was used to create a regression. The following output, adapted from Stata, gives the basis for the formula used in cell B13 of sheet NTD-Interv1.
Due to the use of a limited data set, the regression is accurate within a limited range.

Command
regress incid baseline ppm

Output

Source	SS	df	MS	Number of obs = 12
Model	0.282	2	0.141	Prob > F = 0.0164
Residual	0.188	9	0.021	R-squared = 0.5991
				Adj R-squared = 0.5100
Total	0.470	11	0.043	Root MSE = .14468

incid	Coef.	Std. Err.	t	P>|t|	95% Conf.	Interval
baseline	**0.121**	0.071	1.69	0.12	-0.041	0.283
ppm	**-0.154**	0.047	3.25	0.010	-0.261	-0.047
_cons	**1.072**	0.164	6.52	0.000	0.700	1.444

Prevalence = (0.12 x baseline prevalence) – (0.15 x ppm) + 1.07

[1]Wald NJ, Law MR, Morris JK, Wald DS. 2001.Quantifying the effect of folic acid. Lancet 358:2069-73.