

## PHG Needs Assessment Calculator

Bhutan

## Rhesus Haemolytic Disease of the Newborn

Welcome to the PHG Health Needs Assessment Calculator for Rhesus Haemolytic Disease of the Newborn. 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
RHD Epidemiology 1.1: Country epidemiology	RHD-E1.1
RHD Epidemiology 1.2: International comparison	RHD-E1.2
RHD Epidemiology 2.1: Data on affected pregnancies: Research studies	RHD-E2.1
RHD Epidemiology 2.2: Data on affected pregnancies: Surveillance	RHD-E2.2
RHD Epidemiology 2.3: Data on affected pregnancies: Other sources	RHD-E2.3
RHD Epidemiology 2.4: Summary of affected pregnancies	RHD-E2.4
RHD Epidemiology 2.5: Sub-population variation in affected pregnancies	RHD-E2.5
RHD Epidemiology 3.1: Mortality data: Research studies	RHD-E3.1
RHD Epidemiology 3.2: Mortality data: Vital registration data	RHD-E3.2
RHD Epidemiology 3.3: Mortality data: Other sources	RHD-E3.3
RHD Epidemiology 3.4: Summary mortality estimates	RHD-E3.4
RHD Epidemiology 3.5: Sub-population variation in mortality	RHD-E3.5
RHD Epidemiology 4.1: Population prevalence: Research studies	RHD-E4.1
RHD Epidemiology 4.2: Population prevalence: Other sources	RHD-E4.2
RHD Epidemiology 4.3: Summary of population prevalence	RHD-E4.3
RHD Epidemiology 4.4: Sub-population prevalence variation	RHD-E4.4
RHD Interventions 1: Prenatal screening and treatment	RHD-Interv1
RHD Interventions 2: Newborn screening and treatment	RHD-Interv2
RHD Needs Assessment Calculator 1: Quantitative baseline	RHD-NA1
RHD Needs Assessment Calculator 3: Quantitative assessment of interventions	RHD-NA3

(There is no sheet RHD-NA2.)

Bhutan

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 Age group	Estimates			Your estimates			Chosen estimates		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4 years	1748080	1660861	3408941			0			0
5-9 years	1817140	1724927.5	3542067			0			0
10-14 years	2018511	1917126	3935637			0			0
15-19 years	2109310	2001118.5	4110428			0			0
20-24 years	2545196	2432759.5	4977956			0			0
25-29 years	2528976	2441618	4970594			0			0
30-34 years	2477999	2414741.5	4892740			0			0
35-39 years	2471222	2404786	4876008			0			0
40-44 years	3315597	3179768	6495365			0			0
45-49 years	3633688	3483992	7117680			0			0
50-54 years	3195343	3131621.5	6326964			0			0
55-59 years	2729905	2777130	5507035			0			0
60-64 years	2344197	2429642	4773839			0			0
65+ years	7224385	9638037	16862422			0			0
<b>Total</b>	<b>40159544</b>	<b>41638128.5</b>	<b>81797673</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Female population aged 15-44 years		14874791.5			-			-	
Data year	2011 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

	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
<b>Crude birth rate: Live births (LB) / year / 1000 population</b>	20.06	Unicef, 2013				
<b>Still birth rate (SB): Still births (SB) / year / 1000 total births</b>	22.48	WHO, 2009				
<b>Total births in 1000s (LB+SB) per year</b>	15	Unicef, 2013				
<b>Infant mortality rate: infant deaths / 1000 LB / year</b>	42	Unicef, 2013				
<b>Under-5 mortality rate: U5 deaths / 1000 LB / year</b>	53.7	Unicef, 2013				
<b>Percentage births in women &gt;35 years</b>						
<b>Life expectancy at birth (yrs)</b>	67.19	Unicef, 2013				
<b>% of marriages consanguineous</b>						

<b>Maternal health</b>	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
<b>Prenatal visits – at least 1 visit (%)</b>	97.3	Unicef, 2013				
<b>Prenatal visits – at least 4 visits (%)</b>	77.3	Unicef, 2013				
<b>Births attended by skilled health personnel (%)</b>	64.5	Unicef, 2013				
<b>Contraception prevalence rate (%)</b>	65.6	Unicef, 2013				
<b>Unmet need for family planning (%)</b>						
<b>Total fertility rate</b>	2.33	Unicef, 2013				
<b>% home births</b>						
<b>% births at health care services</b>	63.10	Unicef, 2013				
<b>Newborn health</b>	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
<b>Number of neonatal examinations by SBA / trained staff</b>						
<b>% neonatal examinations by SBA/ trained staff</b>						

<b>Socio-economic indicators</b>	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
<b>Gross national income per capita (PPP int. \$)</b>	5480	Unicef, 2013				
<b>% population living on &lt; US\$1 per day</b>	26.2	Unicef, 2013				
<b>Birth registration coverage (%)</b>	99.9	WHO 2010				
<b>Death registration coverage (%)</b>						

LB = live births

PPP = purchasing power parity

SBA = skilled birth attendant

Bhutan

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. \$)	236.2	WHO 2011				
Total expenditure on health as percentage of GDP	4.1	WHO 2011				
Per capita government expenditure on health (PPP int. \$)	198.1	WHO 2011				
External resources for health as percentage of total expenditure on health	46.8	WHO 2011				
General government expenditure on health as percentage of total expenditure on health	83.9	WHO 2011				
Out-of-pocket expenditure as percentage of private expenditure on health	94.7	WHO 2011				
Private expenditure on health as percentage of total expenditure on health	16.1	WHO 2011				
General government expenditure on health as percentage of total government expenditure	7.9	WHO 2011				

Health Workforce	Estimate	Source, Year	Your estimate	Source, Year	Chosen estimate	Source, Year
Number of nursing and midwifery personnel	545	WHO, 2007				
Nursing and midwifery personnel density (per 10,000 population)	3.2	WHO, 2007				
Number of physicians	52	WHO, 2007				
Physician density (per 10,000 population)	0.23	WHO, 2007				
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 facilities for safe terminations of pregnancies for fetal defects						

PPP = purchasing power parity

GDP = gross domestic product

SBA = skilled birth attendant

CD = congenital disorders

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD Epidemiology 1.1: Country epidemiology

Epidemiological indicator	Your estimates	Range	PHGDB minimum estimates	Chosen estimates	Range	Source
Year of estimate						
<b>Prevalence at birth and by age-group (/1000)</b>						
Live birth prevalence (LB)			0.62			
Stillbirth prevalence (SB)			0.62			
Total birth prevalence (LB+SB)			1.24			
All age groups						
<1 year olds						
1-4 year olds						
5-14 year olds						
15-44 year olds						
45+ year olds						
<b>Number of cases by age group</b>						
Annual live births			10			
All age groups						
<1 year olds						
1-4 year olds						
5-14 year olds						
15-44 year olds						
45+ year olds						
<b>No. of cases by level of impairment</b>						
No or minor disability						
Moderate disability						
Severe disability						
<b>Mortality and morbidity</b>						
Mean life expectancy (yrs)			9			
No. deaths < 1yr			7			
No. deaths 1-4 yrs			2			
No. deaths < 5 yrs			9			
Infant mortality / 1000 LB			0.47			
Under-5 mortality / 1000 LB			0.62			
Years of life lost						

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD Epidemiology 1.2: International comparison

Epidemiological indicator	Your chosen estimates	Comparison		
		Country	Region	World
<b>Prevalence at birth and by age-group (/1000 people)</b>		<b>(Asia, South)</b>		
Live birth prevalence (LB)		0.62	0.38	0.25
Stillbirth prevalence (SB)		0.62		
Total birth prevalence (LB+SB)		1.24	0.38	0.25
All age groups				
<1 year olds				
1-4 year olds				
5-14 year olds				
15-44 year olds				
45+ year olds				
<b>Number of cases by age-group</b>				
Annual live births		10	14027	33850
All age groups				
<1 year olds				
1-4 year olds				
5-14 year olds				
15-44 year olds				
45+ year olds				
<b>No. cases by level of impairment</b>				
No or minor disability				
Moderate disability				
Severe disability				
<b>Mortality and morbidity</b>				
Mean life expectancy (yrs)		9	6.37	25.26
No. deaths < 1yr		7	9746	21195
No. deaths 1-4 yrs		2	3248	7064
No. deaths < 5 yrs		9	12994	28259
Infant mortality / 1000 LB		0.47	0.69	0.63
Under-5 mortality / 1000 LB		0.62	0.93	0.83
Years of life lost				

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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 RHD-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			

TB = total births (live births + stillbirths);



## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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 and still births. 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			

TB = total births (live births + stillbirths)

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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.			
<b>Basic Numbers</b>			
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			
Total number of affected births / year (live and still)	0	0	
Total number of births / year, from data source	0	0	
Total number of women aged 15-44			
<b>Live birth prevalence: recorded and estimated</b>			
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!	
<b>Stillbirth prevalence: recorded and estimated</b>			
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!	

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		

TB = total births (live births + stillbirths)

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD Epidemiology 2.4: Summary of affected pregnancies

Indicator	Your estimates	Range	PHGDB minimum estimates	Chosen estimates	Range	Source
Number of annual affected live births			10			
Annual birth prevalence / 1000 TB			0.62			
Number of annual affected still births						
Stillbirth prevalence / 1000 TB/year			0.62			

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)

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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

--	--	--	--

TB = total births (live births + stillbirths)

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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
<b>Neonatal group (&lt;28 days)</b>			
Best estimate			
Lower estimate			
Higher estimate			
<b>Infant group (&lt;1 year)</b>			
Best estimate			
Lower estimate			
Higher estimate			
<b>Under-5 group (&lt;5 years)</b>			
Best estimate			
Lower estimate			
Higher estimate			
<b>Other age group:</b>			
Best estimate			
Lower estimate			
Higher estimate			

LB = live births

Bhutan

Rhesus Haemolytic Disease of the Newborn

RHD 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!	

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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).

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



## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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						
Number of annual live births (in 1000s)			15			
Number of annual affected neonatal deaths			6			
Number of affected neonatal deaths / 1000 LB			0.43			
Number of annual affected infant deaths			7			
Number of affected infant deaths / 1000 LB			0.47			
Number of annual affected under-5 deaths			9			
Number of affected under-5 deaths / 1000 LB			0.62			
Mean life expectancy at birth in affected			9			
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.

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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.

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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.

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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.

## Bhutan

## Rhesus Haemolytic Disease of the Newborn

## RHD 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)

Bhutan

Rhesus Haemolytic Disease of the Newborn

SCD Intervention 1: Effects of prenatal screening and treatment

Baseline prevalence of RHD per 1000 TB		
<b>Variables</b>		
Coverage of prenatal screening		Range: 0 to
Proportion of RhD negative women receiving anti-D		Range: 0 to
Effectiveness of anti-D in RhD negative women		Range: 0 to
<b>Results</b>		
% 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

Bhutan

Rhesus Haemolytic Disease of the Newborn

RHD Intervention 2: Effects of NBS and management on Rhesus Haemolytic Disease of the Newborn

Baseline birth prevalence of RHD, per 1000 LB		
<b>Variables</b>		
Coverage of newborn screening		Range: 0 to 1
Proportion of positive-screened patients receiving treatment		Range: 0 to 1
Effectiveness of treatment		Range: 0 to 1
<b>Results</b>		
Proportional reduction of uncontrolled cases through NBS and treatment <sup>1</sup>	0	
Prevalence of uncontrolled RHD deficiency after newborn screening and treatment, per 1000 LB <sup>2</sup>	0	

LB = live births

NBS = newborn screening

RHD = Rhesus Haemolytic Disease of Newborn

If you don't have data on birth prevalence but do have data on screening, you can estimate birth prevalence by combining the proportion screened positive with the number of total births. (This assumes that screening is randomly distributed in the population).

<sup>1</sup>Coverage of newborn screening X Proportion of screen-positive cases receiving treatment X Effectiveness of treatment

<sup>2</sup>Baseline birth prevalence – (Proportional reduction of uncontrolled cases of RHD X Baseline birth prevalence)



Bhutan

Rhesus Haemolytic Disease of the Newborn

RHD Needs Assessment Calculator 1: Quantitative baseline

Table RHD-NA1a Burden of Rhesus Haemolytic Disease of the Newborn in pregnancy, at birth and at population level

Indicator	Chosen estimates			Notes
	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	0	Drawn from sheet E2.4
Annual affected persons (all age groups)	0	0	0	Drawn from sheet E1.1

Table RCD-NA1b Rhesus Haemolytic Disease of the Newborn mortality indicators

Indicator	Chosen estimates			Notes
	Number (n)	n/1000 LB	Range of prevalence (/1000 TB)	
Annual overall mortality	0	0	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	0	Drawn from sheet E3.4

TB = total births (live births + stillbirths)

Bhutan

Rhesus Haemolytic Disease of the Newborn

RHD Needs Assessment Calculator 3: Quantitative assessment of interventions

Table SCD-NA3a	Estimated prevalence in the absence of interventions for Sickle Cell Disease	
Indicator	Number (n)	Prevalence (n/1000)
Potential live births		
Potential still births		

Table RHD-NA3b	Current situation in relation to interventions before birth		
Intervention	Coverage (%)	Cases averted (n)	Cases averted/1000 LB
Effect of family planning, education			
Effect of anti D prophylaxis			
Effect of prenatal diagnosis and treatment			
Effect of neonatal diagnosis			
Effect of treatment of newborn			
Overall effect			

Table RHD-NA3c	Target situation in relation to interventions before birth		
Intervention	Coverage (%)	Cases averted (n)	Cases averted/1000 LB
Effect of family planning, education			
Effect of anti D prophylaxis			
Effect of prenatal diagnosis and treatment			
Effect of neonatal diagnosis			
Effect of treatment of newborn			
Overall effect			

Table RHD-NA3d	Current situation in relation to interventions after birth		
Intervention	Coverage (%)	Cases managed (n)	Cases managed/1000 LB
Newborn diagnosis			
Phototherapy			
Blood transfusion			
Social care and support			
Overall effect			

Table RHD-NA3e	Target situation in relation to interventions after birth		
Intervention	Coverage (%)	Cases managed (n)	Cases managed/1000 LB
Newborn diagnosis			
Phototherapy			
Blood transfusion			
Social care and support			
Overall effect			

Table RHD-NA3f	Current and desired outcomes			
Indicator	Current situation		Target situation	
	Annual number (n)	Incidence (n/1000)	Annual number (n)	Incidence (n/1000)
<b>Estimated affected pregnancies</b>				
Live births (LB)	0	0		
Still births (SB)	0	0		
All births (LB+SB)	0	0		
<b>Estimated population prevalence</b>				
All age groups				
<b>Estimated mortality</b>				
Neonatal deaths	0	0		
Infant deaths	0	0		
Under-5 deaths	0	0		