

**SAUDI ARABIA**

Last Updated: 2007-10-25

Level	Date	Region and sample descriptor	Sex	Age (years)	Sample size	Haemoglobin (g/L)						Mean	SD	Method	Reference	Notes			
						Proportion (%) of population with haemoglobin below:										General	Line		
						70	100	110	115	120	130								
L	2000	Jeddah City: SAC: Total	B	9.00- 21.99	800									D	3643	*	1		
		Jeddah City: SAC by sex	F	9.00- 21.99	424													2	
		Jeddah City: SAC by sex	M	9.00- 21.99	376													3	
		Jeddah City: SAC by age	B	9.00- 11.99	145				10.3										4
		Jeddah City: SAC by age	B	12.00- 14.99	310					20.6									5
		Jeddah City: SAC by age	B	15.00- 21.99	345														6
L	1999 P	Riyadh City: School girls	F	7.00- 14.99	1210									A	1716	*	7		
L	1997 P	Riyadh City: SAC: Total	F	7.00-NS	1100									A	2040	*	8		
		Riyadh City: SAC by age	F	7.00- 7.99	341					54.9									
		Riyadh City: SAC by age	F	8.00- 8.99	175					59.6	116	16							
		Riyadh City: SAC by age	F	9.00- 9.99	196					56.8	117	16							
		Riyadh City: SAC by age	F	10.00- 10.99	146					53.3	119	20							
		Riyadh City: SAC by age	F	11.00- 11.99	133					52.8	119	18							
		Riyadh City: SAC by age	F	12.00- 12.99	65					48.9	119	25							
		Riyadh City: SAC by age	F	13.00- 13.99	30					50.7	119	17							
		Riyadh City: SAC by age	F	14.00-NS	14					48.4	118	21							
L	1996 P	Riyadh: Female university students	F	NS	460									A	2051	*			
L	1996 P	Riyadh: PW	F	NS	7253			21.5						NS	2253	*	9		
L	1994 P	Jeddah: PW	F	NS	119			23.5			116	1		C	1811	*	10		
L	1993 P	Riyadh: PW	F	17.00- 41.99	201						122	14		C	1814	*	11		
		Riyadh: Newborns	B	0.00	201						156	16							
L	1992 -1994	Tabuk: Infants	B	0.75- 0.82	4751			56.0						D	1812	*			
L	1992	Abha: PW by age and pregnancy number: 1	F	NS- 19.99	NS			9.6						A	1854	*	12		
		Abha: PW by age and pregnancy number: 1	F	20.00- 35.99	NS			12.0											
		Abha: PW by age and pregnancy number: >1	F	NS- 19.99	NS			12.9											
		Abha: PW by age and pregnancy number: >1	F	20.00- 35.99	NS			14.9											
R	1992	Asir Region (Southwest): PW	F	NS	6539			31.9						A	1856	*			

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						Proportion (%) of population with haemoglobin below:										General	Line
						70	100	110	115	120	130						
L	1991 P	Riyadh: Children: Total	B	1.00-NS	954					9.2			D	4963	*	13	
		Riyadh: Children by age	B	1.00- 5.99	64					17.2	125	4				14	
		Riyadh: Children by age	B	6.00- 10.99	292					14.7	132	7				15	
		Riyadh: Children by age	B	11.00- 15.99	337					10.1	132	11				16	
		Riyadh: Children by age	B	16.00-NS	261					0.0	149	12					
L	1988 -1989	Riyadh: Infants: Total	B	0.50- 1.99	366				37.2		103		C	1810	*	17	
		Riyadh: Infants by sex	F	0.50- 1.99	151				34.4								
		Riyadh: Infants by sex	M	0.50- 1.99	215				39.1								
L	1988 -1989	Riyadh: Newborns by sex	F	0.00	1231						154	15	C	2170	*		
		Riyadh: Newborns by sex	M	0.00	1202						156	16					
L	1987 -1988	Abha: SAC: Total	B	6.00- 12.99	717					13.8			D	2282	*		
		Abha: SAC by socioeconomic status: Low	B	6.00- 12.99	130					15.4							
		Abha: SAC by socioeconomic status: Middle	B	6.00- 12.99	405					14.3							
		Abha: SAC by socioeconomic status: High	B	6.00- 12.99	182					11.5							
L	1987 P	Jeddah: Newborns by sex	F	0.00	114						159	23	C	5018	*	18	
		Jeddah: Newborns by sex	M	0.00	117						162	16				19	
		Jeddah: Infants by sex and age	F	0.00- 0.01	80						170	20				20	
		Jeddah: Infants by sex and age	M	0.00- 0.01	107						173	19				21	
		Jeddah: Infants by sex and age	F	0.00- 0.09	10						129	23				22	
		Jeddah: Infants by sex and age	M	0.00- 0.09	14						125	9				23	
		Jeddah: Infants by age	B	0.10- 0.14	14						111	10				24	
		Jeddah: Infants by age	B	0.15- 0.2	15						113	6				25	
		Jeddah: Infants by sex and age	F	0.21- 0.26	41						112	8				26	
		Jeddah: Infants by sex and age	M	0.21- 0.26	45						110	10				27	
		Jeddah: Infants by sex and age	F	0.27- 0.47	47						116	9				28	
		Jeddah: Infants by sex and age	M	0.27- 0.47	56						114	10				29	
		Jeddah: Infants by sex and age	F	0.48- 1.01	59						115	9				30	
		Jeddah: Infants by sex and age	M	0.48- 1.01	83						113	10				31	
		Jeddah: SAC by sex and age	F	5.00- 8.99	NS						130	8					
		Jeddah: SAC by sex and age	M	5.00- 8.99	NS						124	12					
		Jeddah: SAC by sex and age	F	9.00- 11.99	NS						132	9					

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						Proportion (%) of population with haemoglobin below:							Mean	SD	Method	General	Line
						70	100	110	115	120	130						
L	1987P	Jeddah: SAC by sex and age Jeddah: SAC by sex and age Jeddah: SAC by sex and age Jeddah: SAC by sex and age Jeddah: SAC by sex and age	M	9.00- 11.99	NS							128	9	C	5018		
			F	12.00- 15.99	NS							135	10				
			M	12.00- 15.99	NS							137	10				
			F	16.00- 18.99	54							134	9				
			M	16.00- 18.99	65							148	9				
L	1981 -1982	Jeddah: PW	F	14.00- 51.99	217		6.5						C	4802	*	32	

## NOTES

### SAUDI ARABIA

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**Reference No:** 3643

**General Notes:** *Facility based study (governmental and private schools); method: Refletron (Boehringer Mannheim); sampling: 42 boys' and 42 girls' schools were selected out of 692 governmental and 327 private schools using the stratified sampling technique with proportional allocation to type of school and educational level, followed by random selection of classes; exclusion of subjects with sickle cell anaemia and thalassemia; inclusion only of Saudi population; Hb determination only for subsample (800 school children out of 2850).*

**Line note 1** Prevalence of anaemia 20.5% (Hb <115 g/L both sexes 9-11 yrs, Hb <120 g/L both sexes 12-14 yrs, females >=15 yrs, Hb <130 g/L males >=15 yrs); 95% CI: 17.7%, 23.3%; mean (SD) age 14.0 (2.6) yrs; disaggregated data by type of school, mother education/working status, age of mother at child at birth, school grade, body mass index, menarche, dietary habits, vitamin and iron intake.

**Line note 2** Prevalence of anaemia 22.4% (Hb <115 g/L 9-11 yrs, Hb <120 g/L >=12 yrs); 95% CI: 18.3%, 26.4%.

**Line note 3** Prevalence of anaemia 18.4% (Hb <115 g/L 9-11 yrs, Hb <120 g/L 12-14 yrs, Hb <130 g/L >=15 yrs); 95% CI: 14.5%, 22.3%.

**Line note 4** 95% CI: 5.4%, 15.2%.

**Line note 5** 95% CI: 16.1%, 25.1%.

**Line note 6** Prevalence of anaemia 24.6% (Hb <120 g/L females, Hb <130 g/L males); 95% CI: 20.1%, 29.1%.

**Reference No:** 1716

**General Notes:** *Facility based study (25 primary schools).*

**Line note 7** Disaggregated data by age.

**Reference No:** 2040

**General Notes:** *Facility based study (girls' primary schools) in Riyadh City; sampling: first random sampling of 10% (n=25) of schools followed by random selection of 1117 children.*

**Line note 8** Prevalence value calculated.

**Reference No:** 2051

**General Notes:** *Facility based study (King Saud University).*

**Reference No:** 2253

**General Notes:** *Facility based study (antenatal clinic); location not specified.*

**Line note 9** Prevalence of anaemia 6.0% (Hb <90 g/L).

**Reference No:** 1811

**General Notes:** *Facility based study (hospital).*

**Line note 10** PW 2nd trimester.

**Reference No:** 1814

**General Notes:** *Facility based study (hospital).*

**Line note 11** PW at delivery; Hb cut-off levels PW not according to WHO recommendations (please see 'Key to the data tables').

**Reference No:** 1812

**General Notes:** *Facility based study (Well Baby Clinic of North West Armed Forces Hospital); children attending for measles vaccination; method: Technitron H2 analyzer.*

**Reference No:** 1854

**General Notes:** *Facility based study (Primary health care centers).*

**Line note 12** Total sample size 1226.

**Reference No:** 1856

**General Notes:** *Facility based study (69 health care centers); values for other Hb cut-off levels; disaggregated data by pregnancy number, gestational age without sample size indication.*

**Reference No:** 4963

**General Notes:** *Facility based study (varies from nursery to secondary school); method: Hycel Counter 555; sampling: design not explained, 1426 children of different age groups were included; Hb determination only for 954 subjects; inclusion only of apparent healthy subjects; same Hb cut-off level applied to different age groups; Hb cut-off level both sexes 1-11 yrs, males >15 yrs not according to WHO recommendations (please see 'Key to the data tables').*

**Line note 13** Prevalence value calculated.

**Line note 14** Prevalence value calculated.

**Line note 15** Prevalence value calculated.

**Line note 16** Prevalence value calculated.

**Reference No:** 1810

**General Notes:** *Facility based study (University Hospital); children attending for immunization.*

**Line note 17** Disaggregated data by age.

**Reference No:** 2170

**General Notes:** *Facility based study (hospital).*

**Reference No:** 2282

**General Notes:** *Facility based study (schools); method: spectrophotometry.*

**Reference No:** 5018

**General Notes:** *Facility based study (King Abdulaziz University Hospital, Well Baby Clinic, primary and secondary schools); sampling: consecutive newborns born in the hospital and consecutive babies attending the Well Baby Clinic were enrolled, schoolage children were randomly selected; inclusion only of newborns who were clinically normal, were those from a normal singleton pregnancy and delivery (gestational age 38-42 wks), of babies 2-52 wks of age who were healthy and of schoolage children aged 5-18 yrs who were free of gross disease and who had adequate information; only mean Hb values.*

**Line note 18** Blood sample was taken from the placental part after early ligation of the cord.

**Line note 19** Blood sample was taken from the placental part after early ligation of the cord.

**Line note 20** Neonatal unit of King Abdulaziz University Hospital; babies 1-3 days old.

**Line note 21** Neonatal unit of King Abdulaziz University Hospital; babies 1-3 days old.

**Line note 22** Well Baby Clinic; babies 2-4 weeks old.

**Line note 23** Well Baby Clinic; babies 2-4 weeks old.

**Line note 24** Well Baby Clinic; babies 5-7 weeks old.

**Line note 25** Well Baby Clinic; babies 8-10 weeks old.

**Line note 26** Well Baby Clinic; babies 11-13 weeks old.

**Line note 27** Well Baby Clinic; babies 11-13 weeks old.

**Line note 28** Well Baby Clinic; babies 14-24 weeks old.

- Line note 29** Well Baby Clinic; babies 14-24 weeks old.  
**Line note 30** Well Baby Clinic; babies 25-52 weeks old.  
**Line note 31** Well Baby Clinic; babies 25-52 weeks old.

**Reference No:** 4802

**General Notes:** *Retrospective cohort study; facility based study (Armed Forces Hospital); sampling: design not explained, 127 and 90 PW were enrolled in August/September 1981 and in March 1982 respectively, patient's medical records were examined to obtain Hb levels in the 1st, 2nd and 3rd trimester and on the 2nd day postpartum; Hb cut-off level not according to WHO recommendations (please see 'Key to the data tables').*

**Line note 32** Mean age 25 yrs; anaemia at some stage in pregnancy; disaggregated data by gestational age.

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