

Appendix 1. Study characteristics of the trials included in the systematic review of accuracy of pulse oximetry in detecting congenital heart disease in asymptomatic newborns

Study		Population				Test			Outcome	
Study (Year)	Quality	No. of newborns	No. of newborns with CHD	Inclusion criteria	Exclusion criteria	Age at testing	Method of testing	Frequency of testing	Cut off level	
De-Wahl Granelli (2005)	Case control Retrospective Non consecutive enrolment Test described Not blind	266	66	Cases – Normal full term infants		12 hours (controls) Prior to surgery (cases)	Right hand and either foot	Multiple	Functional saturation <95% in right upper and lower limbs and readings in lower limb 3% higher or lower than right hand	Critical Congenital Heart Disease (CCHD) – duct dependant or cyanotic heart disease
Bakr (2005)	Cross sectional Prospective Consecutive Test described Not blind	5211	13	Asymptomatic newborns	Symptomatic newborns NICU admission	Before discharge	Right hand and foot	Multiple	Fractional saturation <95% in right hand or foot	Congenital Heart disease
Arlettaz (2005)	Cross sectional Prospective Consecutive Test described Not blind	3262	15	Healthy newborns ≥35w	GA<35w Symptomatic Respiratory disorder in newborns	6-12 hours	Foot	Multiple	Functional saturation in foot <95%	Congenital Heart disease of functional consequence
Rosati (2005)	Cross sectional Prospective Consecutive Test described Not blind	5292	3	Asymptomatic newborns	Symptomatic prior to screening Prenatal diagnosis of CHD	>24 hours	N/A	Single	Saturation ≤ 95% in foot	Critical Cardio Vascular Malformation (CCVM)
Koppel (2003)	Cross sectional Prospective Consecutive Test not described Not blind	11281	5	Asymptomatic newborns	Symptomatic newborns Prenatal diagnosis of CHD	>24 hours or at discharge	Foot	Single	Functional Saturation ≤ 95% in foot	Critical Cardio Vascular Malformation (CCVM)
Richmond (2002)	Cross sectional Prospective Consecutive Test not described Not blind	5626	40	Asymptomatic newborns	Symptomatic newborns	≥2 hours to before discharge	Foot	Multiple	Fractional saturation <95% in foot	Congenital Heart disease
Reich (2002)	Cross sectional Prospective Consecutive Test described Not blind	2114	3	Asymptomatic newborns	Fetal echocardiogram, Symptomatic newborns NICU admission Birth weight <1500g, assisted ventilation, transfer to a tertiary neonatal unit Consent not provided	As close to discharge as possible	Foot or hand	Multiple	Functional saturation ≤ 95% in foot or hand	Cyanotic Congenital Heart disease
Hoke (2002)	Case control Ambispective Arbitrary recruitment Test described Not blind	2908	36	Cases- Newborns with congenital heart disease Controls- Healthy newborns at least 34	Less than 34 weeks	Less than 6 hours of life, at 24 hours of life and/or at discharge	Right arm and either leg	Multiple	-functional saturation <95% in foot -functional saturation <92% lower limb or 7% lower in foot than hand	Critical Congenital Heart Disease (CCHD) – duct dependant or left heart obstructive disease

weeks
gestational
age at birth

-functional
saturation<94%
foot
-functional
saturation<93%
foot
-functional
saturation<92%
foot
-functional
saturation<91%
foot
-functional
saturation<90%
foot
