B.1.2 Universal screening for abnormalities of the eye

RECOMMENDATION 26

Universal newborn screening for abnormalities of the eye is recommended and should be accompanied by diagnostic and management services for children identified with an abnormality. *(Recommended)*

Remarks

- Universal newborn screening for abnormalities of the eye should be done prior to discharge after a health-facility birth or at the first postnatal care contact in an outpatient setting after a home birth. Ideally, the screening should be done within the first six weeks after birth.
- An external examination of the eye and red reflex test should be done using standard equipment (e.g. a direct ophthalmoscope) by a trained health worker.
- The Guideline Development Group (GDG) acknowledged the evidence reviewed related to screening for a single condition (congenital cataract). However, since the red reflex test can detect a wide range of conditions, the GDG expanded the recommendation to cover all abnormalities of the eye that may be detected on a screening examination.
- The recommendation is based on evidence from studies in all newborns, irrespective of gestation or presence/absence of high-risk factors. However, evidence from studies conducted only in high-risk populations such as preterm newborns or those with congenital anomalies was not considered.
- The extension of the recommendation to include diagnostics and management was made to incorporate the principles of screening *(87)*.
- Systems for screening, referral, diagnosis and management should be established or strengthened to ensure adequate follow-up and management for those who screen positive.

Summary of evidence and considerations

Effects of the interventions (EB Table B.1.2)

Evidence was derived from a systematic review of universal newborn eye screening *(113)*. The review identified 25 non-randomized studies involving 2 289 431 infants, of which three studies were included in this evidence summary.

Two studies were conducted in Sweden (724 523 newborns) using data collected from a paediatric, cataract-specific register. The first study compared two regions using different screening locations and another region where there was no screening, from 1992 to 1998 (total population of included regions covered almost 400 000 newborns). One region established red reflex testing with an external eye examination in the maternity ward during the first few days after birth, a second used the same screening tests performed in well-baby clinics at around 6 weeks of age, and no screening was carried out in the third. The second study added national data from 2007 to 2009 to the first study with eye screening established as routine in 90% of maternity wards (total population 394 438 newborns). Screening was via red reflex testing and an external eye examination by doctors or nurses. The third study was a before-and-after study conducted in Israel (18 872 newborns), evaluating the effect of introducing red reflex testing between 2008 and 2009, and between 2010 and 2011.

Comparison: Universal newborn screening for abnormalities of the eye compared with no screening

Newborn/infant outcomes

Severe neonatal/infant morbidity: Low-certainty evidence suggests universal screening for abnormal eye conditions in maternity wards may increase the proportion of newborns with congenital cataract referred from maternity wards or well-baby clinics in the first year after birth compared with no screening (1 study, 394 438 infants; RR 9.83, 95% CI 1.36 to 71.20). It is uncertain whether universal screening for abnormal eye conditions in well-baby clinics has any effect on the proportion of newborns with congenital cataract referred from maternity wards or