Comparison: Universal newborn hearing screening (UNHS) compared with no screening or selective screening

Source: Universal Newborn Hearing Screening (UNHS) review group. Effectiveness of universal newborn hearing screening: a systematic review and meta-analysis (in preparation).

Certainty assessment							№ of patients		Effect		Certainty (GRADE)	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	UNHS	No screening or selective screening	Relative (95% CI)	Absolute (95% CI)		
In all children born, proportion of screened children who had hearing loss (yield of screening)												
3	observational studies	very serious [a]	not serious	not serious	not serious	none	556/574 797 (0.1%)	433/446 700 (0.1%)	**RR 1.01** (0.89 to 1.14)	**0 fewer per 1000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	CRITICAL
Proportion identified with permanent bilateral hearing loss (PBHL) before 9 months of age												
1	observational studies	serious [b]	not serious	not serious	serious [c]	none	41/68 714 (0.1%)	16/88 019 (0.0%)	**RR 3.28** (1.84 to 5.85)	**0 fewer per 1000** (from 0 fewer to 1 more)	⊕⊕◯◯ LOW	CRITICAL
In children with hearing loss, mean age of identification in months												
2	observational studies	very serious [d]	serious [e]	not serious	serious [c]	none	115	82	-	MD **13.16 lower** (26.31 lower to 0.01 lower)	⊕◯◯◯ VERY LOW	CRITICAL
In children with hearing loss, mean receptive language at 3–8 years of age (z score)												
1	observational studies	very serious [a]	not serious	not serious	serious [c]	none	52	49	-	MD **0.61 higher** (0.07 higher to 1.13 higher)	⊕◯◯◯ VERY LOW	CRITICAL
In children with hearing loss, mean receptive language at 3–8 years of age (development quotient)												
3	observational studies	very serious [a]	serious [e]	not serious	very serious [c,f]	none	174	160	-	MD **7.61 higher** (1.16 lower to 16.38 higher)	⊕◯◯◯ VERY LOW	CRITICAL

Certainty assessment							№ of patients		Effect		Certainty (GRADE)	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	UNHS	No screening or selective screening	Relative (95% CI)	Absolute (95% CI)		
In children with hearing loss, mean expressive language at 3–8 years of age (z score)												
1	observational studies	very serious [a]	not serious	not serious	very serious [c,f]	none	46	41	-	MD **0.39 higher** (0.2 lower to 0.97 higher)	⊕◯◯◯ VERY LOW	CRITICAL
In children with hearing loss, mean expressive language at 3–8 years of age (development quotient)												
3	observational studies	very serious [a]	serious [e]	not serious	serious [c]	none	174	160	-	MD **10.01 higher** (1.77 higher to 18.25 higher)	⊕◯◯◯ VERY LOW	CRITICAL
In children with hearing loss, mean literacy at 5–11 years of age (z score)												
1	observational studies	very serious [a]	not serious	not serious	very serious [c,f]	none	21	20	-	MD **0.58 higher** (0.03 higher to 1.13 higher)	⊕◯◯◯ VERY LOW	CRITICAL
In children with hearing loss, mean literacy at 13–19 years of age (z score)												
1	observational studies	very serious [a]	not serious	not serious	very serious [c,f]	none	31	29	-	MD **0.15 higher** (0.76 lower to 1.05 higher)	⊕◯◯◯ VERY LOW	CRITICAL

CI: confidence interval; MD: mean difference; OR: odds ratio; RR: risk ratio.
a. Pooled effect provided by studies “C”.
b. Most of the pooled effect is provided by studies “B”.
c. Small sample size (less than 300 participants in dichotomous outcomes or less than 400 in continuous outcomes).
d. Most of the pooled effect is provided by studies “C”.
e. Severe, unexplained, heterogeneity ($I^2 \geq 60\%$ or $Chi^2 < 0.05$).
f. Wide confidence interval crossing the line of no effect.