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| **Supplemental Table 1. Visual and hearing outcomes of children with Congenital Zika Syndrome (CZS) with or without microcephaly** |
| **Visual outcomes** |
| **Study design/sample size (n)/reference** | **Age range (months)** | **Type of diagnosis** | **Geographical area** | **Main neurologic outcomes (%)** | **Main structural ocular abnormalities (%)** | **Main visual function outcomes (%)** |
| Cross-sectional, case series: Suspected CZS (10 infants; 20 eyes) / Ventura et al., 2016 | 0.7–2.9 | Clinical findings of CZS | Pernambuco state/ northeast of Brazil | Microcephaly (100) | Structuralb in 17/20 eyes (85); retinalc in 15/20 eyes (75); ONd in 4/20 eyes (45) | Strabismus in 6/10 infants (60); nystagmus in 1/10 infants (10) |
| Case-series: Suspected CZS (29 infants; 17 eyes) / de Paula Freitas et al., 2016 | 1–6 | Clinical findings of CZS | Bahia state/ northeast of Brazil | Microcephaly (100) | Structuralb in 17/58 eyes (29); retinal in 11/17 eyes (65); ON in 8/17 eyes (47); bilateral iris coloboma in 2/17 eyes (12); lens subluxation in 1/17 eyes (6) |  |
| Cross-sectional: Confirmed CZS (32 infants; 64 eyes) / Ventura et al., 2017a | 4–7 | Laboratory testing, infant (MAC-ELISA on CSF) | Pernambuco state/ northeast of Brazil | Microcephaly (100); Seizure (69); brain calcifications (97); cerebellar/brainstem hypoplasia (38); hypoplastic corpus callosum (88).  | Retinal findings in 18/64 eyes (28); ON in 11/64 eyes(17); retinal vessels attenuation in 2/64 eyes (3); straightening retinal vessels in 2/64 eyes (3) | Abnormal binocular visual acuity in 22/30 infants (73); abnormal visual development in 31/32 infants (97); strabismus in 24/32 infants (75); nystagmus in 9/32 infants (28); reduced contrast sensitivity in 20/31 infants (65); hypo-accomodation in 5/14 infants (36) |
| Prospective, case-series: Suspected CZS (43 infants) / Yepez et al., 2017 | 0.2–6.6 | Clinical findings of CZS | Colombia and Venezuela | Microcephaly (100) | Ocular findings in 43 infants (100); Anterior segment (12); structuralb (88);ONd in 5 infants (12); pigment mottling in 27 infants (63); lacunar maculopathy in 3 infants (7); chorioretinal scarring in 3 infants (7); combination of lesions in the posterior pole in 11 infants (26); congenital glaucoma in 5 infants (12). |  |
| Cross-sectional: Suspected CZS (70) / Verçosa et al., 2017 | 1–8 | Clinical findings of CZS | Ceará state/ northeast of Brazil | Microcephaly (100) | Ocular findings in 25 infants (36); structuralb in 18 infants (26); retinal in 15 infants (21) in 27 eyes (19); ON in 10 infants (14) in 17 eyes (12%) | Strabismus or nystagmus in 7 infants (10) |
| Case-series, a cohort: ZIKV exposed in-utero (112) / Zin et al., 2017 | 0–10.2 | Laboratory testing; mother (RT-PCR) | Rio de Janeiro state/ southeast of Brazil | Microcephaly in 20 infants (18); other CNS abnormalitiesa in 31 infants (28); no CNS findings in 61 infants (55) | Structuralb in 24 infants (21); retinalc in 15 infants (13); ONd in 19 infants (79); microphthalmia in 1/112 infants (4) | Nystagmus in 6/24 infants (25) |
| Cross-sectional, case control: Confirmed CZS (119) / Ventura et al., 2018 | 6–13 | Laboratory testing, infant (MAC-ELISA on CSF) | Pernambuco state/ northeast of Brazil | Microcephaly in 100/113 infants (89); severe microcephaly in 73/100 infants (73) | Retinalc in 74/234 eyes (32); ONd in 63/117 eyes (26.9) | Abnormal binocular visual acuity in 107 infants (90); abnormal visual development milestones in 100/108 infants (93); strabismus in 95/119 infants (80); nystagmus in 54/119 infants (45); reduced contrast sensitivity in 87/107 infants (81); visual field defect in 41/91 infants (45) |
| Cross-sectional: Confirmed CZS (60) / Ventura et al., 2017b | 9.0–16.0 | Laboratory testing, infant (MAC-ELISA on CSF) | Pernambuco state/ northeast of Brazil |  Microcephaly in 51/60 children (85); mild microcephaly in 14/51 children (28); severe microcephaly in 37/51 children (73) | Structuralb in 48/115 eyes (42) of 30/58 children (52); Retinalc in 35/115 eyes (30); ONd in 26/115 eyes (23); vessels attenuation in 2/115 eyes (2); cataract, microcornea, microphthalmia in 1 children (2); significant refractive error in 52/119 eyes (44%) in 29/60 children (48) | Abnormal binocular visual acuity in 60 children (100); hypo-accommodation in 17/21 children (81); strabismus in 55/60 children (92); nystagmus in 28/60 children (47) |
| Prospective cohort, Cross-sectional: Suspected or Confirmed CZS (224) / Tsui et al., 2018 | 0.4–3.3 | Laboratory testing, mother (RT-PCR); Clinical suspicion; mother; fetal ultrasound findings; Laboratory testing, infant (RT-PCR); Clinical findings of CZS | Rio de Janeiro state/ southeast of Brazil | Microcephaly in 62/224 infants (28); other CNS abnormalities and microcephaly in 90/224 infants (40) | Eye abnormalities in 57/224 infants (25); retinalc in 37/224 infants (17); ONd in 44/224 infants (20); unilateral microcornea, inferior iris coloboma, and optic nerve coloboma in 1/224 infant (0.4); unilateral microcornea and microphthalmia in 1/224 infant (0.4); ON atrophy, retinal vessel attenuation, and macular chorioretinal scar in 1/224 infant (0.4) |  |
| Retrospective study: Confirmed CZS (70) / Campos et al., 2020 | 0–15.5 | Laboratory testing, infant (MAC-ELISA on CSF) | Pernambuco state/ northeast of Brazil | Neuroimaging: occipital volume loss (95), ON atrophy (12), chiasmal atrophy (4), globe abnormality (1.4) | Structural ocular abnormality in 34/62 infants (55): fundus findings in 34 infants (55), optic nerve findings in 24 infants (39). No anterior segment findings. | Visual impairment identified in 25/25 infants (100): mild in 2 infants (7), moderate in 5 infants (19), severe in 7 infants (27), profound in 3 infants (12), near blindness in 7 infants (27), blindess in 1 infant (4). |
| Retrospective: CZS (469) / Ventura et al., 2021 | 0–36 | Clinical manifestations of CZSand positive reverse transcription polymerase-chain-reaction (RT-PCR) and/or serologyfor the Zika virus | Rio de Janeiro state / southeast of Brazil;Pernambuco and Bahia states / northeast of Brazil | Microcephaly in 214 children; 62 cases were severe | Ocular manifestations were found in 269 of 938 eyes (28.7%; 148/469 children [31.6%]). The main ocular alterations were optic nerve pallor in 122 of 938 eyes (13.0%), focal pigment mottling in 112 eyes (11.9%), and chorioretinal scars in 101 eyes (10.8%) |  |
| **Hearing outcomes** |
| **Study design/sample size (n)/reference** | **Age range (months)** | **Type of diagnosis** | **Geographical Area** | **Main Neurologic outcomes (%)** | **Audiological evaluation (methodology)** | **Main audiological outcomes (%)** |
| Prospective observacional study (78) / Faria et al., 2020 | 0.75–3.25 | Group 1: Laboratory testing, mother (RT-PCR) and Clinical findings of CZSGroup 2: (control) asymptomatic children; negative mothersGroup3: Clinical findings of CZS; mothers with exanthema without laboratory confirmationGroup 4: Clinical findings of CZS; mothes without exanthema without laboratory confirmation | Rio de Janeiro State/ southeast of Brazil | CZS abnormalities:Group1: 9/36 Group2: 0/24Group3: 12/12Group4: 6/6 | NHS: aABR : (test/retest)Diagnosis: ABR specific frequency with 500 and 2000 Hz tone burst CE-Chirp stimuli in air and bone pathway. | NHS: test: 6/78 (7.7); retest: 4/78 (5,1) “FAIL”Diagnosis: 3 children (group 3 and4) with sensorineural hearing loss (3.8) |
| Cross-sectional: CZS (70) / Leal et al., 2016 | 0–10 | Laboratory testing, infant (MAC-ELISA on CSF) | Pernambuco State/ northeast of Brazil | Microcephaly in all children; severe microcephaly in 43/70 children | NHS: a ABR : ( test/ retest)Diagnosis: ABR specific frequency with 500 and 2000 Hz tone burst stimuli in air and bone pathway. | NHS: test: 16/70 (22); retest: 8/70 (11.4) “FAIL”Diagnosis: 4 sensorineural hearing loss (5.8) |
| Cross- sectional: ZIKV exposed *in-utero* (43) / Fandiño-Cárdenas et al., 2019 | 3–24 | Epidemiological and clinical criteria based on maternal symptoms (ZIKV-exposed infants group)  | Cesar, Colombia | ZIKV-exposed infants: 3 with microcephaly | NHS: 1 test DPOAEs; retest: tympanogram and aABRs at 35 dBnHLFollow up (24 month): DPOAEs. | NHS: test: Zika-exposed: 10/43 (23.2); Control: 4/23 (17.4); Retest: 0/10 (0) “FAIL”Follow up 24m: Zika-exposed: 31/43; Control: 12/23No sensorioneural hearing loss |
| **Abreviations:** Visual: MAC-ELISA (antibody-capture enzyme-linked immunosorbent assay); CSF (cerebrospinal fluid); RT-PCR (reverse transcription - polymerase chain reaction); CNS (central nervous system); CZS (congenital Zika syndrome); ON (optic nerve). Auditory: NHS (newborn hearing screening); aABR (auditory brainstem reponse); DPOAEs (distortion product otoacoustic emissions)aOther CNS abnormalities includes ventriculomegaly, cerebral calcifications, posterior fossa abnormalities, pachygyria, and lissencephaly.b Structural abnormalities includes retinal and optic nerve findings.cRetinal includes pigment mottling and chorioretinal atrophy,d Optic Nerve includes hypoplasia, pallor, increased optic cup. |

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