MERG
Microcephaly Epidemic Research Group

Clinical cohort of newborns with microcephaly

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How is the growth and generall development?

How is the neurocognitive development?

What is the frequency of epilepsy?

What are the types of epilepsy?

What are the late complications? How often do they occur?

What is the frequency of ophthalmic and hearing complications and how they evolve?

Sequels?

What are the main demands for assistance?

What is the lethality?

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Why it is important and interesting now?

- unprecedented epidemic
- introduction of a **neurotropic virus** with the potential for major congenital infection in a totally susceptible population.

Health and social services need to know what are the **priorities** for these children to provide extra **support** to them and their families.

Singular epidemiological time:

- we have a large sample of cases that allows us to understand and describe the evolution of these children over time, facilitating the **development of protocols** to guide and monitor their follow-up.

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Objectives

- Characterize the clinical picture and describe the growth and neurocognitive and other development in the first **24 months** of life of a cohort of children identified with microcephaly during the epidemic in Pernambuco, compared with a control group of neonates without abnormalities.
- The same as above for a cohort of **“borderline”** children (without microcephaly but with calcifications at brain imaging or whose mothers reported having had a rash during pregnancy).

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Specifics objectives

- To describe the growth and neurocognitive development during follow-up.
- To estimate the prevalence of epilepsy in the first two years of life as a complication of microcephaly;
- Clinically characterize the types of epilepsy in the sample;
- To describe the frequency and type of late complications that may arise along the cohort follow-up period in both groups.

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Specifics objectives

- To describe the ophthalmological and hearing disorders presented by children with microcephaly during the follow-up of the cohort;
- To describe the lethality throughout the cohort follow-up period.

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Study population and data collection

- Children recruited from the an ongoing case-control study conducted in Pernambuco.
- Follow-up will include: clinical and neurologic evaluation, blood tests, electroencephalogram, echocardiography, abdominal USG, otoacoustic emission test, BERA and ophthalmologic evaluation with additional tests.

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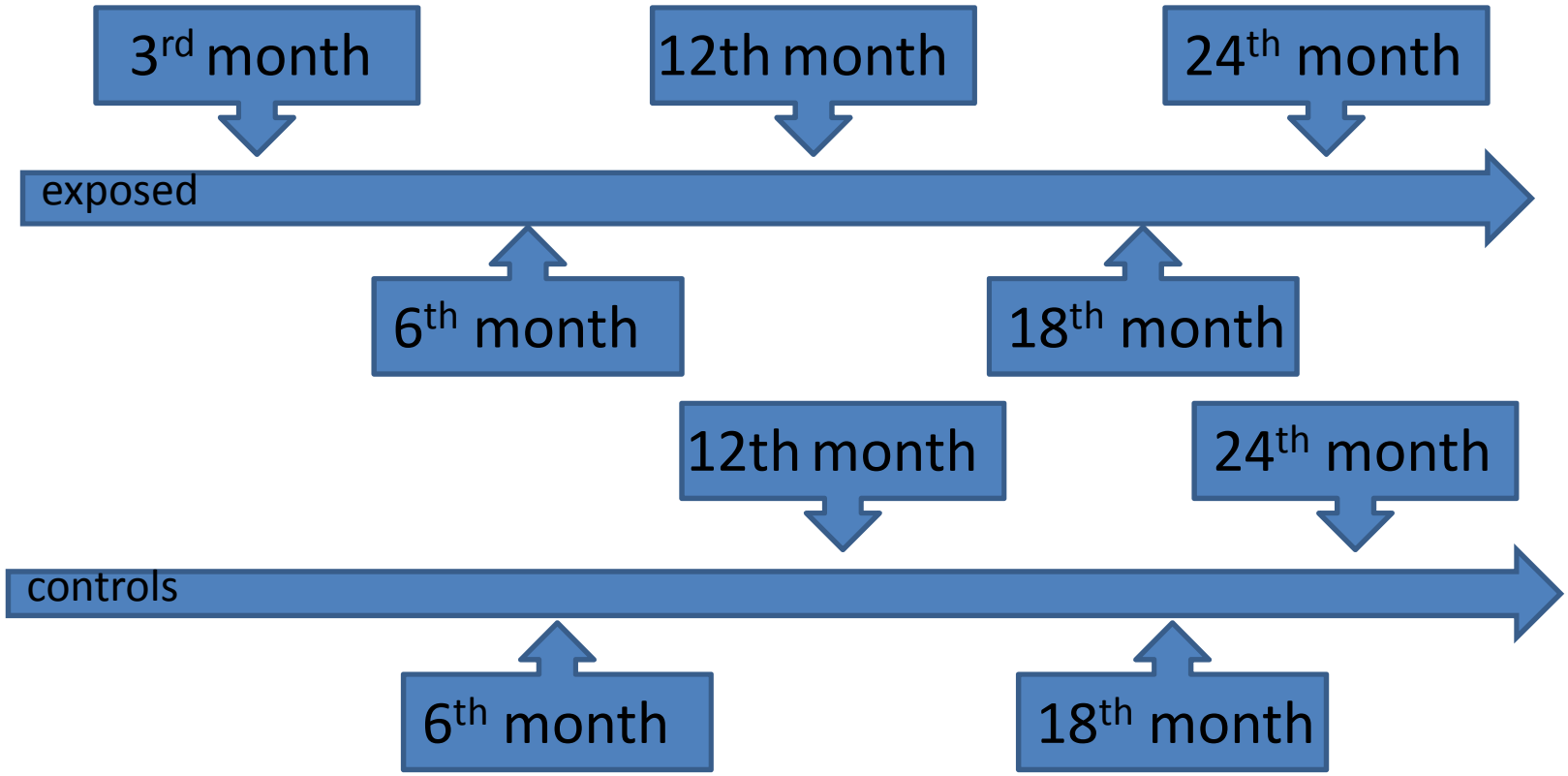
Study population and data collection:

Principal outcomes to be compared are: evolution of head circumference, clinical, dental and neurological disorders, neurodevelopment, epilepsy, ophtalmologic and audiologic impairment, lethality.



Summary of evaluations and tests conducted during the follow up

	Evaluations	Tests
Baseline	Clinical evaluation,including examination at birth and delivery data Neuropediatric evaluation Anthropometry	TORCH, DENV and CHIKV investigation CT-scan FBC, ALT, AST, BUN and creatinine Echocardiography and total abdominal USG
3m	Pediatric infectious diseases evaluation Neuropediatric evaluation Anthropometry Clinical history of epilepsy and other complications Ophtalmologic and audiologic evaluation	EEG; FBC, ALT, AST, BUN and creatinine. Ophtalmologic tests: Retcan, USG ocular, OCT. Audiologic tests: OAE test and BERA
6m	Pediatric infectious diseases evaluation Neuropediatric evaluation Anthropometry Developmental evaluation Clinical history of epilepsy and other complications Ophtalmologic and audiologic evaluation Odontologic evaluation	EEG; FBC, ALT, AST, BUN and creatinine. Ecocardiography; Bayley Scales of Infant and Toddler Development III (Bayley III). Ophtalmologic tests: Retcan, USG ocular, OCT. Audiologic tests: OAE test
12m	Pediatric infectious diseases evaluation Neuropediatric evaluation Anthropometry Developmental evaluation Clinical history of epilepsy and other complications Ophtalmologic and audiologic evaluation	EEG; FBC, ALT, AST, BUN and creatinine. Transtoracic Ecocardiography; Bayley Scales of Infant and Toddler Development III (Bayley III) Ophtalmologic tests: Retcan, USG ocular, OCT. Audiologic tests: OAE test

Summary of visits, evaluations and tests conducted during the follow up.

	Evaluations	Tests
12m	Pediatric infectious diseases evaluation Neuropediatric evaluation Anthropometry Developmental evaluation Clinical history of epilepsy and other complications Ophtalmologic and audiologic evaluation	EEG; FBC, ALT, AST, BUN and creatinine. Transtoracic Ecocardiography; Bayley Scales of Infant and Toddler Development III (Bayley III) Ophtalmologic tests: Retcan, USG ocular, OCT. Audiologic tests: OAE test
18m	Pediatric infectious diseases evaluation Neuropediatric evaluation Anthropometry Developmental evaluation Clinical history of epilepsy and other complications Ophtalmologic and audiologic evaluation	EEG. CBC, ALT, AST, BUN and creatinine. Transtoracic Ecocardiography. Bayley Scales of Infant and Toddler Development III (Bayley III). Ophtalmologic tests: Retcan, USG ocular, OCT. Audiologic tests: OAE test
24m	Pediatric infectious diseases evaluation Neuropediatric evaluation Anthropometry Developmental evaluation Clinical history of epilepsy and other complications Ophtalmologic and audiologic evaluation Odontologic evaluation	EEG. CBC, ALT, AST, BUN and creatinine. Transtoracic Ecocardiography. Bayley Scales of Infant and Toddler Development III (Bayley III). Ophtalmologic tests: Retcan, USG ocular, OCT. Audiologic tests: OAE test MRI

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Wellcome Trust

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MERG TEAM - STEERING COMMITTEE

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Thank you