



**12TH WORLD CONGRESS OF THE WORLD
SOCIETY FOR PEDIATRIC INFECTIOUS DISEASES**
22-24 FEBRUARY 2022 | VIRTUAL CONGRESS

**ZIKACTION PAEDIATRIC REGISTRY:
MATERNAL CHARACTERISTICS AND
CLINICAL, RADIOLOGICAL, AND FOLLOW-UP
FEATURES OF CHILDREN BORN WITH
CONGENITAL ZIKA INFECTION IN BRAZIL**



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<input checked="" type="checkbox"/>	No, nothing to disclose
<input type="checkbox"/>	Yes, please specify:

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ZIKACTION PAEDIATRIC REGISTRY: MATERNAL CHARACTERISTICS AND CLINICAL, RADIOLOGICAL, AND FOLLOW-UP FEATURES OF CHILDREN BORN WITH CONGENITAL ZIKA INFECTION IN BRAZIL



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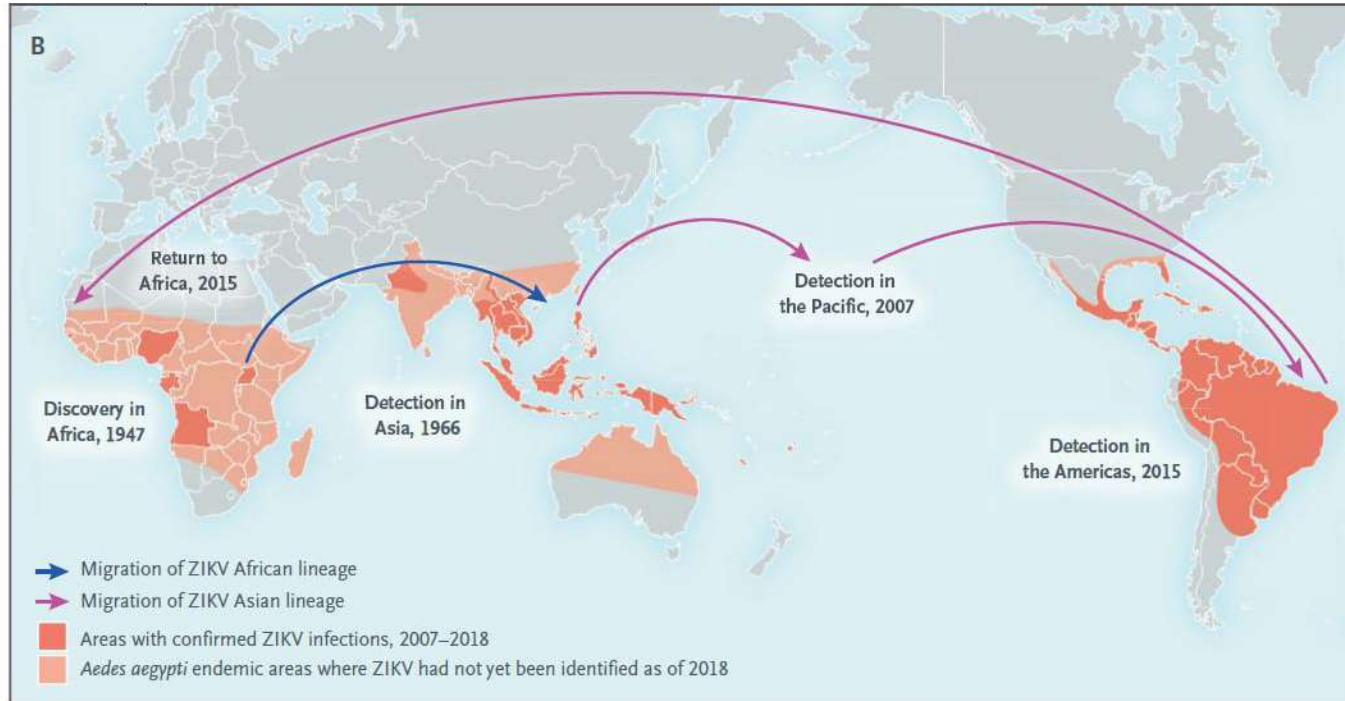
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Zika Infection Timeline

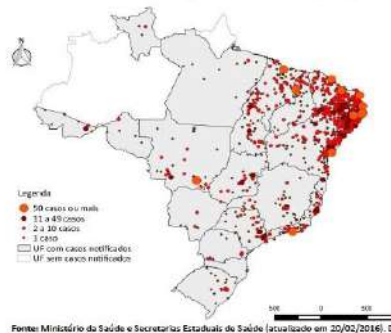
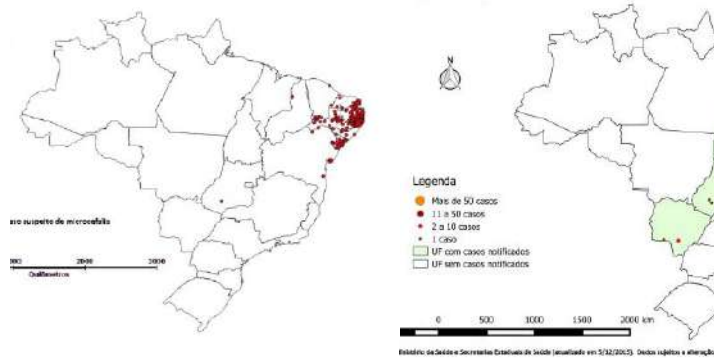


Musso, Ko & Baud, 2019.

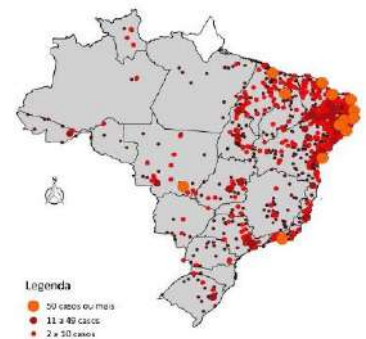
November ,2015
739 Microcephaly cases reported
01 newborn death

December ,2015
1761 Microcephaly cases reported
19 newborn death

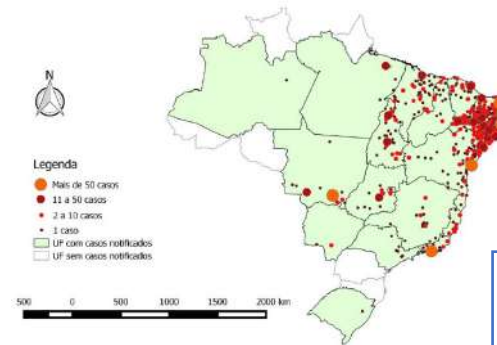
January ,2016
3174 Microcephaly cases reported
38 newborn death



February, 2016
5640 Microcephaly cases reported
120 stillbirths and neonatal deaths



March, 2016
6906 Microcephaly cases reported
186 stillbirths and neonatal deaths



April, 2016
7150 Microcephaly cases reported
246 stillbirths and neonatal deaths

2020
19492 Microcephaly cases reported
3563 confirmed cases

- November 2015, the Ministry of Health of Brasil declared a Public Health Emergency of National Importance
- February 2016, the WHO declared a Public Health Emergency of International Concern, which was maintained until November of the same year.

Congenital Zika Syndrome

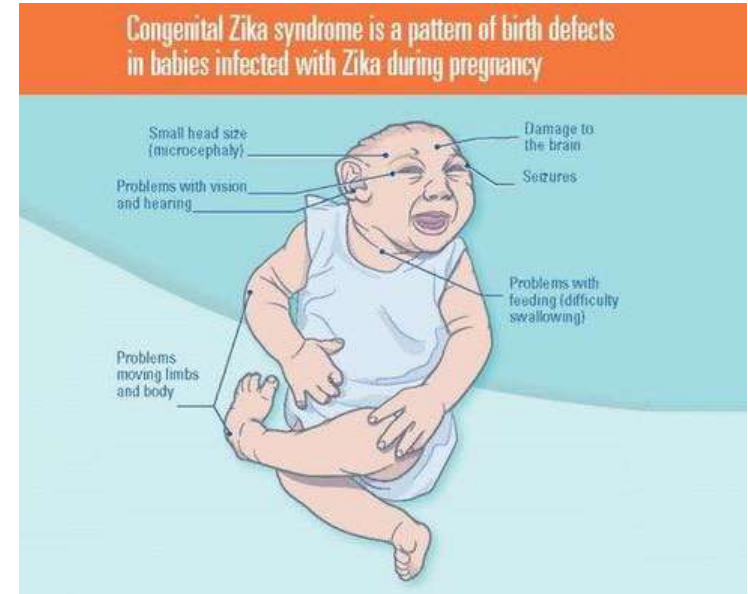
- **Microcephaly** is defined as a head circumference two standard deviations below the mean for gestational age and sex. **Severe microcephaly** is defined as a head circumference three standard deviations below the mean for gestational age and sex.

WHO, 2016.



CDC, 2016.

- Congenital Zika Syndrome comprises a set of birth defects and disabilities found in children exposed to ZIKV during pregnancy due to direct neurological damage.



Moore et al., 2017



Microcephaly



Facial-cranial disproportion



Ventriculomegaly , cerebral atrophy, calcifications



Arthrogryposis

- The cohort of children born with congenital zika syndrome are now around 5-6 years old and experiencing an ongoing impact on their health and development.
- Gaps in our understanding remain regarding the outcomes of ZIKV exposure in utero and the consequences of congenital zika syndrome for health throughout childhood.

Preparedness, research and action network on maternal-paediatric axis of ZIKV infection in Latin America and the Caribbean (ZIKAction) Pediatric Registry Study



- International, multicenter study, part of the ZIKAction consortium (Preparedness, research and action network on maternal-paediatric axis of ZIKV infection in Latin America and the Caribbean)



Objectives



- General
 - To describe the clinical presentation of the disease and epidemiological features of infants and children with Congenital ZIKV Infection.
- Specific
 - a) to characterize the clinical, radiological and neurodevelopmental features of included children;
 - b) to collect observational follow-up data to describe subsequent outcomes, longer-term sequelae and management in specific groups of children;



Methods

- Inclusion criteria:
 - Intrauterine exposure to ZIKV (confirmed maternal diagnosis);
 - Laboratory-confirmed congenital ZIKV infection, with or without CZS;
 - **Suspected CZS** even without laboratory evidence, but at least with one of the features below:
 - Congenital or postnatal microcephaly
 - Fetal brain disruption sequence
 - Intracranial calcifications
 - Cortical development malformations in neuroimaging
 - Arthrogryposis or joint contracture

ZIKAction Paediatric Registry Study

Multi-centre registry of infants and children with documented ZIKV exposure in utero and/or with confirmed or suspected congenital ZIKV infection



- Activities were conducted from August 2020 to July 2021.
- Overall, 192 children have been enrolled.
- **Retrospective data:** sociodemographic, maternal, pregnancy and delivery info.; newborn and paediatric assessments (physical, neurological, developmental, ophthalmological, audiological), and lab results.
- **Prospective data** available about follow-up assessments
- **Pseudoanonymised** data into REDCap database.



Jamaica

- University of the West Indies
- 60 participants

Brazil

- Fiocruz Bahia
- 129 participants

Argentina

- Hospital J.P.Garrahan
- 3 participants



Methods

CEPRED- Reference
rehabilitation center



Hospital SARAH



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Reference Rehabilitation
center – Feira de Santana



Results

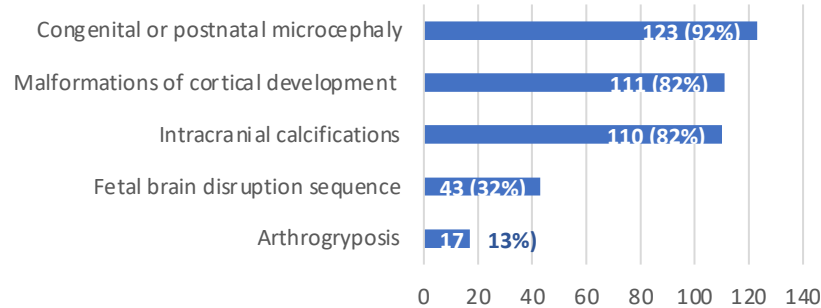
- Maternal characteristics during pregnancy

Characteristics	Total
Age at delivery Median (IQR) (Range) n=129	27 (21,32) (15, 39)
Marital status n=126	
Married	46 (36.5%)
Cohabiting	25 (19.8%)
Single	52 (41.3%)
Divorced/ Separated	3 (2.4%)
Type of delivery n=128	
Vaginal	67 (52.3%)
Elective caesarean	49 (38.3%)
Emergency caesarean	12 (9.4%)

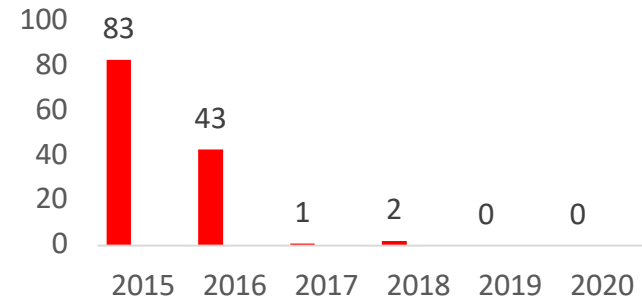
Results

- Infant characteristics at birth

CZS criteria



Year of birth from 129 participants



Results

- Infant characteristics at birth

Clinical characteristics	N=129
Sex female	74 (57%)
Gestational age	38 (32-41)
Prematurity	19 (15%)
Crown-to-heel length (cm) median (variation)	46 (36-54)
Birthweight (g) median (variation)	2690 (1086-4018)
Small for gestational age	55 (43%)
Cardiovascular abnormalities	24 (19%)
External genitalia abnormalities	11 (9%)
Hernia	6 (4.7%)
Arthrogryposis	17 (13%)
Neonatal ICU admission (n=124)	37 (30%)
Follow-up	
Hospitalizations	54 (42%)
Emergency room visits (>24hs)	45 (35%)
Deaths	2 (1.5%)

Results



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Evaluations and main features	Total	Normocephalic	Microcephaly	Severe Microcephaly
	129	15 (11.6%)	30 (23.3%)	84 (65.1%)
Abnormal ophthalmologic exam n=119	74 (62.2%)	9 (12.2%)	10 (13.5%)	55 (74.3)
Abnormal hearing assessment n=129	34 (26.4%)	3 (8.8%)	8 (23.5%)	23 (67.6%)
Abnormal EEG N=117	94 (80.3%)	9 (9.6%)	19 (20.2%)	66 (70.2%)
Neuroimaging abnormalities n=129				
Calcifications	109 (84.5%)	14 (12.8%)	24 (22.0%)	71 (65.1%)
Ventriculomegaly	108 (83.7%)	12 (11.1%)	25 (23.2%)	71 (65.7%)
Cortical atrophy	83 (64.3%)	11 (13.3%)	19 (22.9%)	53 (63.9%)
Lissencephaly	73 (56.6%)	10 (13.7%)	15 (20.6%)	48 (65.8%)
Dysgenesis corpus callosum	56 (43.4%)	4 (7.1%)	14 (25.0%)	38 (67.9%)
Cerebellar hypoplasia	14 (10.9%)	2 (14.3%)	3 (21.4%)	9 (64.3%)
Cisterna Magna Enlargement	11 (8.5%)	1 (9.1%)	2 (18.2%)	8 (72.7%)
Hydrocephalus	6 (4.7%)	0	1 (16.7%)	5 (83.3%)



25
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Conclusions

- CZI is a disease that has been shown to have a very diverse spectrum. Several impairments and complications are observed, requiring multidisciplinary follow-up and rehabilitation;
- Careful surveillance is needed to identify cases with few or no symptoms at birth and close follow-up is required for early detection of clinical manifestations of CZI and timely intervention;
- In conclusion, the purpose of this study is to represent a valuable resource, providing comprehensive and accurate clinical data in CZI cases, as well as providing a source for future studies.

Acknowledgements



ZIKAction



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