Data sharing among EU Zika consortia

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### 3 EC-funded ZIKA Consortia

<table>
<thead>
<tr>
<th>ZIKAlliance</th>
<th>ZIKAction</th>
<th>ZIKAPlan</th>
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<tbody>
<tr>
<td>- 2016-2019</td>
<td>- 2016-2021</td>
<td>- 2016-2020</td>
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<tr>
<td>- Coordinating Inst.: INSERM (France)</td>
<td>- Coordinating Inst.: Penta Foundation (Italy)</td>
<td>- Coordinating Inst.: UMEA Univ. (Sweden)</td>
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<tr>
<td>- Asymptomatic PW cohorts:</td>
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<td>- Brazil, Colombia, Venezuela, Ecuador, Cuba, Mexico, French Caribbean, Suriname, Dutch Caribbean</td>
<td>- Haiti, Jamaica, Brazil, Argentina</td>
<td>- Brazil &amp; Colombia</td>
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<td>- Children cohorts</td>
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<td>- ...</td>
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<td>- Preparedness network</td>
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ZIKAlliance project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement N. 734548
Objectives:

1. To harmonize the protocols and standardize the tools for data capture and data management
   - 1.1. Harmonization of protocols
   - 1.2. Standardization of data capture tools and data management

2. To set up joint harmonized platforms for clinical research
   - 2.1. To set up a reciprocal clinical monitoring platform
   - 2.2. To set up a joint laboratory diagnostics EQA platform
   - 2.3. To set up a virtual joint biobanking platform
   - 2.4. Establishing principles of governance for the joint virtual biobanking platform

3. To share data in real time in the collaborative environment of the three EC-funded consortia
   - 3.1. Establishing principles of data sharing
   - 3.2. Defining core datasets to be shared in real time, developing a decentralized virtual data sharing platform
   - 3.3. Monitoring enrolment and accrual of patients across geography
   - 3.4. Joint analysis plan

4. To prepare for sharing data with the scientific community and public health officials
   - 4.1. Developing the ‘cahier des charges’ / specifications for future data sharing
   - 4.2. Contribution to IPD meta-analysis based on pooled data sets
   - 4.3. Metadata cataloguing and publication
### 1st STEP: HARMONIZED PROTOCOLS

<table>
<thead>
<tr>
<th>Study protocol to address public health question</th>
<th>Primary objectives of standardised protocol</th>
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<tbody>
<tr>
<td>What are the risk factors for microcephaly (and/or congenital Zika virus syndrome)?</td>
<td>Case-control study for microcephaly Identify and quantify risk factors for microcephaly (and congenital Zika virus syndrome when clear definition is available)</td>
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<tr>
<td>What are the risk factors for Guillain-Barré syndrome?</td>
<td>Case-control study for Guillain-Barré syndrome Identify and quantify risk factors for Guillain-Barré syndrome</td>
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<td>What is the clinical presentation spectrum of Zika virus infection in pregnant women? What is the absolute risk of microcephaly and other birth defects by gestational age, rash, viraemia, and other co-factors?</td>
<td>Cohort study of pregnant women Measure Zika virus infection in pregnant women Describe the clinical spectrum of Zika virus infection in pregnant women Identify, describe, and quantify the spectrum of congenital deficiencies, including microcephaly, in the fetuses/newborns of Zika virus-infected women</td>
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<td>What are the characteristics, grade of neurological impairment, evolution, complications, and mortality of newborns with microcephaly? What are the longer-term health consequences for infants with microcephaly or born from a mother with Zika virus?</td>
<td>Cohort study of newborns of pregnant women with documented Zika virus infection Identify, describe, and quantify the spectrum of congenital deficiencies, including microcephaly, in the fetuses/newborns of Zika virus-infected women Follow-up of infants with microcephaly or born to mothers infected with Zika virus</td>
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<td>What is the risk of sexual transmission of Zika virus?</td>
<td>Study of the persistence of Zika virus in body fluids Measure Zika virus in different body fluids of confirmed Zika virus patients at different timepoints</td>
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<td>What is the prevalence of Zika virus infection? What is the role of natural immunity particularly in the regions with previous outbreaks?</td>
<td>Zika virus seroprevalence study in the general population Estimate seroprevalence of Zika virus in all age groups of the general population living in exposed and non-exposed areas</td>
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<td>What is the natural history of Zika virus infection and the associated risk of severe complications and other outcomes in the context of co-circulating arboviruses?</td>
<td>Clinical characterisation protocol* Analyse the full spectrum and frequency of disease manifestations associated with Zika virus across all age groups Identify clinical and/or simple laboratory parameters, which differentiate between Zika virus, chikungunya virus, and dengue virus Perform serial samples in a subgroup of patients infected with Zika virus to determine shedding profiles over time and in different body fluids</td>
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*Not discussed at the Mexico WHO/PAHO meeting in June, 2016, but added to the package of standardised protocols being developed to support member states for Zika virus research. This protocol was developed by the International Severe Acute Respiratory and Emerging Infection Consortium, the International Research Consortium of Dengue Risk Assessment, Management, and Surveillance, WHO, and partners, and its development is based on previous experience of developing and implementing clinical protocols/tools for pre-approval and preparedness of pandemics.

**Table: Seven study protocols, their objectives, and the public health questions each study will address**

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1) HARMONIZATION OF PREGNANT WOMEN / CHILDREN PROTOCOLS

- Protocols
- Clinical & laboratory SOPs
- Data capture - CRFs
- Data dictionaries (CDASH)
- Data management
  - Including logical and range checks
- Clinical monitoring and lab EQA platforms
- Joint virtual biobanking platform

At a later point in time: Individual Patient Data Meta-Analysis (WHO Initiative)
Data sharing within the collaborative environment of the three EC-funded Zika-Consortia

- Real time data sharing of core data sets
- Governance: Data Protection and Sharing Committee
- Decentralized hosting at each of the three consortia – plus virtual platform
- Technology: RedCap API to access and analyze shared data sets

ZIKAllliance network for clinical cohorts, superimposed on the map by Messina et al., eLife 2016
„Cahier de charges“ for future data sharing

• Developing specifications for future data sharing
  – Recommendations for wider sharing
  – Platform requirements
  – Governance

• Contributing to IPD meta-analysis based on pooled data sets
  – WHO platform for IPD meta-analysis

• Metadata cataloguing and publication in open access registry