Pregnancy care as an opportunity for a sustainable population-based surveillance system

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Epidemiologic surveillance systems are designed and implemented to provide valid, reliable, and timely information on health events to support the planning, implementation, and evaluation of public health interventions and programs. Active surveillance can complement routine passive surveillance systems by providing important public health data and insights into complex epidemiology of different pathogens, providing information about symptomatic and asymptomatic individuals. However, a certain level of organization, logistics and infrastructure, are needed and these can require some unaffordable costs and resources. Prenatal and delivery care offer a unique opportunity to collect population-based data. Umbilical cord blood samples could be collected from birth to perform specific pathogen testing and other analyses. Collecting cord blood from the placental side after cutting the cord is non-invasive. IgG antibodies cross the placenta, allowing maternal antibodies to be measured in cord blood without having to perform a venous puncture to the mother. In 2016, we started a cohort to assess Zika Infection in Pregnant women in Honduras (ZIPH study), which has evolved to Zero Infection in Pregnant women in Honduras. We are enrolling women at their first prenatal care visit at a health center in Tegucigalpa and are following them up until delivery in two hospitals. We have enrolled 4,795 women from July 2016 until May 2022. About two thirds of the enrolled women are <14 weeks of gestational age and the follow up rate at delivery is 94%, with 4,302 women being followed up. The analysis carried out have provided, or have the potential to provide, information on neonatal outcomes (Zika, syphilis, American trypanosomiasis) as well as information on diagnostic challenges (Zika, dengue, chikungunya, syphilis, COVID-19). The interdisciplinary, interinstitutional and international collaborators of the ZIPH study have contributed to the sustainability of the cohort during the pandemic times. The maintenance of the cohort to a low intensity modality, with institutional support and IRB approval in place, allows for a rapid response within days when new surveillance and research studies are needed. Assembling resources to include this valuable complement to passive surveillance systems could be highly effective and should be a priority.