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Zika Virus Linked Microcephaly and other Neurological Anomalies Epidemic on Neonatal-Perinatal Medicine: Perspective

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Editorial

Zika virus has been isolated from the brains and cerebrospinal fluid of neonates born with congenital microcephaly and other neurological anomalies; and identified in the placental tissue of Zika virus infected women who suffered from consistent clinical symptoms and signs during their pregnancies [1,2]. It started in Brazil in 2015, where Zika virus infection linked unprecedented and unusual cluster cases of microcephaly and other neurological anomalies epidemic during pregnancy was declared as a Public Health Emergency of International Concern by WHO in February 2016 [1,2]. Subsequently, reported in other countries in Caribbean and Atlantic Islands (e.g., Brazil, Colombia, Cuba, Puerto Rico, Martinique, Panama French Polynesia (2013-2014 outbreak of Zika virus), and Africa (Cape Verde) estimated to about 1300 cases led to the robust collective scientific consensus that Zika virus is implicated in congenital abnormalities [2]. Existing evidence and congenital microcephaly, cranio-facial disproportion, spasticity, seizures, irritability and brainstem dysfunction, calcification cortical and ventriculo-megaly neuroimaging, hearing and ocular abnormalities findings, data sharing associated with Zika virus infection in utero acquisition according to WHO [3,4]. Moreover, Zika virus infections that occur later in pregnancy have been associated with poor intrauterine growth, still birth or fetal death and documented acquired in-utero prenatal defects on X-rays and ultrasonography imaging reports in some babies have been reported neurological abnormalities and with/without microcephaly with varied degree of severity in Brazil, Cuba, Colombia and Panama to Cape Verde [2,3,5-8].

However, in absence of safe and effective vaccine and therapeutic agents, knowledge gasps and challenges in understanding and defining the local and global short and long lasting public health consequences and cost [1,3]. Aedes linked Zika virus emergence, spread of epidemics remain nightmare, worrisome requires promotion neonatal epidemiology, health services research, clinical investigation research and research translation into point of care practices in remotes and resources limited settings on most vulnerable populations in the America, Caribbean, Asian Pacific and Africa [1,2,4].

Ensuring complete coverage of exposure to the full range of Zika and other high risk perinatal and children population illness is fundamental in underlying the neonatal-perinatal and maternal consequences. Further in improving comprehensive, state-of-the-art approach and practice to optimize the diversity of clinical experiences [5,6]. Also, in addressing competencies clinical ad medical knowledge gaps, practice-based Zika complication management learning and improvements; while boosting risk communication individual, survivors and other vulnerable communities critical reprisal, appraisal and service delivery. Leveraging on lessons learnt and experiences gotten from recent past Zika virus complications and related health systems surveillance strengths, weaknesses and impact on neonatal-perinatal and maternal interventional research [2,7,8]. This is of critical importance in understanding and accelerating newborn epidemiology and clinical research and its applicability to newborns and children based on studies quantitative RT-PCR result in neonates assessment of other potential risk factors Zika virus-specific based IgM/IgG detection during pregnancy confirmed Zika virus infection strength of association in a larger sample size of newborn with microcephaly and other neurological consequences [3,5,6].

Hence, encouraging active of next generation of paediatrics or neonatal scientists and clinical capable of exploring factors that influence and explain new-born and infant health includes antenatal morbidity and mortality. As well as novel surveillance and policy approaches and strategies on neonatal and neonatal-perinatal intensive care management, convalescent care, coordination of community consultation delivery on longer-term outcomes of Zika survivors populations and future epidemic events in over 75 vulnerable countries worldwide. This collective commitment and responsibility is core, urgent and imperative; should local and global community to avert or reject to witness another similar future notorious thalidomide birth defects dilemma in the 21st century, which history for every one of all ages will not forgive.

Enhancing effective local private-public stakeholders partnership commitment and investment including international philanthropic organizations and research institutions is crucial in improving Zika congenital anomalies epidemic data and findings

sharing for evidence policy and resilient prevention care delivery programs [2,7]. Furthermore, bridging together interdisciplinary collaboration and innovations is crucial boosting inter-sectorial and multidisciplinary approach including neonatal, paediatric, O&G, epidemiology, health policy, quality Zika patient-centered communication for quality care delivery improvements and outcomes. Zika population-based operational research on longitudinal cohorts on direct and indirect transmission linked pregnant women and affected families' mental and psychosocial services analysis should be fully resourced to understand and establish improved integrated vector management (IVM), sexual and reproductive interventions and measures. Strengthening Zika routine health system surveillance-response systems and research programs/projects is critical in prevention and control of pregnancy outcomes in prone settings and territories [6,9,10]. In addition, elucidating Aedes and sexual transmission related Zika virus transmission ecological, adaptation and human health threat and complications requires coordinated approach to data sharing, surveillance and research is needed in defining the full spectrum of congenital Zika virus syndrome and issues on maternal-child health [11-13]. Innovative approaches in Zika vaccines and therapeutic targets discovery and development should be explored coupled with in silico phylogenetics and phylogeography modelling in understanding its evidence about Zika virus infection congenital abnormalities public health threats [14,15].

The evidence-based causal relationship between Zika virus and microcephaly and other brain anomalies public health and economic impact calls for an urgent need to establish contextual and effective local and global neonatal-perinatal and postnatal longitudinal surveillance-response system policies and interventions implementation [1-3,11-16]. Enhancing robust laboratory data and information and analysis findings to appropriately define Zika viral infection syndrome pre, during and post pregnancy. Important, mapping the expanded spectrum of Zika virus congenital malformations and associated maternal intrauterine effects in guiding need-based clinical and epidemic response interventions and particularly, Zika vaccines for effective and coordinated national and global immunization programs roll out.

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