

Editorial

Emerging Infectious Diseases Affecting PregnancyBassam H. Rimawi^{1,*}¹Obstetrics and Gynecology, Division of Maternal Fetal Medicine, WakeMed Health & Hospitals, Raleigh, NC 27539, USA*Correspondence: Bassamrimawi@yahoo.com (Bassam H. Rimawi)

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Infectious diseases have played a major role during pregnancy, not only affecting the mother, but also the unborn fetus(es) and this can easily be dated back to the time of Hippocrates in which he described “childbed fevers” during pregnancy and the adverse outcomes associated with this [1]. Fortunately, over the years, the importance of aseptic technique and hand washing during pregnancy was well recognized as a major contribution to the reduction of some of these infections and the rates of puerperal sepsis [2]. Furthermore, with advancement of different medications and vaccines, this further declined the rates of puerperal sepsis cases [3].

Medical care providers caring for pregnant women have come to realize that many of the emerging infectious disease threats have led to adverse pregnancy outcomes, including but not limited to severe acute respiratory syndrome (SARS); West Nile virus; anthrax; influenza, Zika virus, Ebola and now Coronavirus disease 2019 (COVID-19) [4]. With regards to these infections in pregnancy, we must keep in mind that there are several changes during pregnancy, either in isolation or as a combination of mechanical, physiological and immunologic changes that can result in these pregnant women being more susceptible to acquiring these infections [5]. For example, with COVID-19 in pregnancy, there have been concerns of intrauterine transmission; however, this transmission is felt to be rare and likely secondary to placental enzymes that prevent most of this transmission [5]. We have found that pregnant women are more likely to be admitted to the hospital, especially in the intensive care units and subsequently require active respiratory monitoring and ventilation [5]. These women were also at high risks for mortality as well due to progressive respiratory failure. At this time, there are three COVID-19 vaccines available in the United States of America and based on evidence, all three have been found to be safe and effective against COVID-19 and although we are finding out more regarding the overall safety of these in pregnancy, additional research is needed to assess birth outcomes and following these children in time to assess for any long term sequelae.

With regards to Ebola in pregnancy, the outbreak was from 2014 to 2016 and was mainly identified in the West African countries; however, this led to a world-wide crisis given how highly contagious this infection was [6]. The perinatal mortality rate amongst both the mother and neonates affected with Ebola were very high since majority

of these women and children were care for in smaller hospitals with limited resources; however, there was limited information regarding if the survival rate would be better if these individuals were care in higher care facilities with intensive care units and aggressive management.

Influenza was another majority outbreak that affected pregnant women. For example, in 2009, the hemagglutinin type 1 and neuraminidase type 1 (H1N1; influenza strain; swine flu) pandemic not only demonstrated how severe influenza can be for any individual, specifically, this pandemic demonstrated how pregnant women were very vulnerable to this infection which led to very high morbidity and mortality for the mother and her baby [7]. Shortly after, the influenza vaccination clearly demonstrated how effective this was against influenza infection and when these pregnant women were vaccinated, the morbidity and rates of mortality significantly decreased [7]. The question that arises is since we understand how effective this vaccine is, why are pregnant women still vulnerable to this infection and what new strategies can be taken to help protect pregnant women and their infants from influenza.

Fortunately, there are very few cases, if any of anthrax and West Nile infections these days; however, we must never be too comfortable, as emerging infections are constantly arising and therefore the basic approach to understanding these emerging infections during pregnancy should be similar to the approach taken in non-pregnant women, in that, any available treatments available, for the most part, can be reliably used during pregnancy, and thus simply being pregnant should not deter the decision of these medical providers. Firstly, recognizing that there is something wrong with a pregnant patient, who presents with signs/symptoms of an infection, is the most important initial approach. Subsequently, this would allow them to obtain a more thorough detailed history (e.g., sick contacts, recent travel, hobbies, activities and even unusual pets) and physical examination and ultimately to the correct tests and orders needed to establish a diagnosis [8].

Unfortunately, though medicine is constantly evolving and the understanding and management of these emerging infections has improved over time, it is very likely that additional novel threats will continue to emerge, not only in the United States of America, but globally, as seen in these emerging infections listed above [9]. For obstetricians and gynecologists, they are placed on the front line when these



pregnant women present to the hospitals for care and thus these astute medical providers should always formulate a plan for how to quickly gather as much information regarding these threats, therefore reducing as much risk not only the mother and her unborn child, but also everyone who surrounds these individuals.

The long road of training to be an astute medical provider leads to better care of patients that they encounter. At the end of their work day, they may feel very accomplished that they medically cared for a handful of patients. Keeping this in mind, many people see research as a period in which one sits and formulates an idea or theory and aims to assess if that idea/theory works. The information that comes out from this research can be so powerful and can affect the lives of thousands of people, and not just a handful. Therefore, as emerging infectious diseases continue to become a threat to human civilization, the advancement of research and medical knowledge is never ending. Submission of valuable research projects and other manuscripts to journals, such as this one, can open up the doors for medical advancement and improvement of human civilization.

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Conflict of Interest

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