

## Innovation in Prenatal Screening System as a Strategy to Control the Transmission of Diseases during Pregnancy

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### Short Communication

In territorial extension, Brazil is the fifth largest country in the world and the longest in South America and Latin America. Their territorial area is 8:51 million km<sup>2</sup> (equivalent to 47% of South American territory) [1], including 55,455 km<sup>2</sup> of water [2]. Its population is around 205 million people, dispersed in 5,570 cities, being one of the most multicultural and ethnically diverse nations as a consequence of strong immigration from several places around the world [3].

As a continental country, there are metropolitan areas with very high population density, but also has extensive swamp areas and vast forests, such as the Amazon, which is the largest of the world [4,5].

Even with the current trends, there is contrast between the easy access to health services in large centers and the difficulties in remote areas such as forests, scrublands and Pantanal [5]. Those differences between the various regions of Brazil, with the south being more developed than the north, are also seen among these regions.

The Brazilian Ministry of Health recommends performing at least six prenatal consultations, and preferably one in the first trimester, two in the second and three in the third trimester of pregnancy [6].

However, a difficulty in the convenient and adequate access to health services makes difficult this achieving goal. In an attempt to overcome these barriers, a technological innovation has been proposed in the state of Mato Grosso do Sul, located in the Midwest region of Brazil, having borders with Paraguay and Bolivia. In this state, it was implemented in an innovative technique way of blood collection on filter paper to perform prenatal screening on a large scale and in a timely manner, this way allowing early diagnosis and institution of preventive measures to prevent the occurrence of congenital infections. It was structured the Protection Program for Pregnant Women (PPG), through which are performed 13 tests that diagnose among other diseases Chagas disease, hepatitis B, hepatitis C, HTLV, rubella, HIV, syphilis, and toxoplasmosis during pregnancy. The use of filter paper made it possible for pregnant women from populations groups further from the urban centers, who habited localities of difficult access, such as indigenous, residents of the Pantanal and african-descendants communities could perform the above tests.

The starting point was the installation of the laboratory of the Associação de Pais e Amigos dos Excepcionais (APAE) from Campo Grande, Mato Grosso do Sul, with its idealization, in the late 1990s, is a program that used as a biological material for screening dried blood of pregnant women collected on filter paper [7].

Inducing the opportunity to perform tests in mass, as improved very much the adherence of patients to prenatal care, and with the same quality made in serology [7].

The program of Mato Grosso do Sul was implemented in late 2002, and the very next year was being implemented in the State of Goiás [8], later in Rio Grande do Sul, Rio de Janeiro, Sergipe, Alagoas and the Federal District among others.

Among the screened diseases is HIV, Chagas disease, HTLV, hepatitis "B" and "C", maternal phenylketonuria, syphilis, and congenital toxoplasmosis [8].

The screening coverage in the period 2003-2016 reach 67.4% in the state of Goiás to 93% in Mato Grosso do Sul, its attractive is the facility of logistics, because the collection can be performed anywhere indigenous villages, quilombos, villages. With biological material in dried blood on filter paper (SS903), the tests are carried out in record time, they can be sent by mail in envelopes themselves, thus reaching diagnoses, confirmations and control of the diseases studied [9].

The PEPG is a program of extremely importance to the populations from large cities, to small towns, indigenous people, quilombolas in Brazil, as ethnic and epidemiological population differences are not only from region to region but also from state to state. The program seek to epidemiological, clinical and laboratory aspects that reveal prevalent observing infection in the region, leading to public health services, taking into account the percentage of coverage. This systematized characterization data and information serve as a guide in the control actions and prevent new infections. In practice it has been extremely important the work done during the daytime by PEPG.

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