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Estimating the risk of transfusional transmission of Toxoplasma gondii by blood products

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Background: The prevalence of infection by Toxoplasma gondii is high worldwide and different routes of transmission of this parasite are known. Among them, the use of blood products collected from blood donors at the acute infection has been appointed as one of the causes of transfusional transmission of T. gondii. However, measurements of the risk of transfusional transmission of T. gondii by blood products are scarce. The aim of this study was to estimate the risk of transfusional transmission of T. gondii from blood products.

Methods & Materials: Blood samples from 1.729 blood donors able to donation were screened by serology to identify anti-T. gondii antibodies (ELISA IgM and IgG). Those blood donors presenting serological evidence of acute infection (IgM+/IgG-) and recent infection (IgM+/IgG+) were evaluated by ELFA and IgG avidity was determined (VIDAS system). Additionally, all blood donors were screened by Real Time PCR (qPCR) using specific primers targeting the T. gondii B1 gene. A mathematical model that considers low (one day) and high (21 days) parasitemia was applied to calculate the risk of transfusional transmission of T. gondii by blood products.

Results: The prevalence of anti-T. gondii antibodies (IgM and/or IgG) was 48.3% (n = 835). From the overall blood donors, 8 (0.46%) presented IgM+/IgG- serology, and only blood products from 3 (37.5%) were used for transfusion purposes. From the overall blood donors, 30 (1.7%) presented IgM+/IgG+ serology, and only blood products from 25 (83.3%) were for transfusion purposes. All blood donors presenting IgM+/IgG+ serology confirmed by ELFA presented IgG with high avidity. The risk of transfusional transmission of T. gondii estimated from serology was 9.1 considering low parasitemia, and 260.6 considering high parasitemia, per 100.000 donations. In all cases, none of them presented evidence of parasitemia when investigated by qPCR.

Conclusion: The data showed a high prevalence of infection by T. gondii among Brazilian blood donors from the northeast region of São Paulo State. According to the used mathematical model, the risk of transfusional transmission of T. gondii by blood products increases with the time of parasitemia. However, no evidence of T. gondii infecting blood products was demonstrated by qPCR.

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HIV, hepatitis B and C, syphilis and Tuberculosis prevalence in people deprived of liberty for criminal reasons in Argentina. Final results of a national study.

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Background: One of the sanitarian policies implemented by the Ministry of Health of Argentina in the last decade was to improve health conditions and access to care for incarcerated people. For this reason, between 2015 and 2017, a nationwide study was conducted to determine the prevalence of HIV, syphilis, hepatitis B and C and Tuberculosis in federal prisons in Argentina.

Methods & Materials: An observational cross-sectional study was designed based on a representative sample of the universe of 10300 imprisoned people in federal prisons. Extractions were made to study HIV (fourth generation ELISA), HBV (HBsAg and Anti-HBc), HCV and syphilis (VDRL confirmed by TF-PA). Samples were taken from those who had TB-related symptoms to perform a baciloscopy. A self-administered survey was conducted on sexual practices, care history and drug use. The fieldwork was carried out in 2016. The study was approved by a bioethics committee and was supported by UNAIDS, PAHO and UNODC. The Ministries of Health and Justice signed an agreement that made it possible to enter into prisons.

Results: 2181 blood samples were taken and 2277 surveys were carried out in 6 federal prisons (89% men, 10% women and 1% trans). All estimates and prevalence values presented here were adjusted based on prison population structure, through sample weights (taking in account 6 variables). The weighted prevalence of HIV was 2.7% (CI: 2.4% -3%); syphilis 6.8% (5.8%-7.7%); positive HBsAg was 0.51% (0.37%-0.65%); positive Anti-HBc and negative HBsAg was 6.1% (5.5%-6.5%); HCV was 3.3% (3%-3.6%). In one case baciloscopy was positive, so a TB prevalence was 29.6 × 100000.

Conclusion: The findings demonstrate the high prevalence of the infections studied in prison population and reinforce the need to develop interventions that facilitate access to prevention, diagnosis and care in this population. This investigation also allowed improving the diagnosis and care circuits of the prisons where it was developed. Federal prisons house 15% of the total number of people incarcerated in Argentina. It is possible that the prevalence of the infections studied is a little higher in the rest of the prisons.

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Using spatiotemporal analysis to Identify high-risk areas of Dengue in Medellin, Colombia

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Background: Dengue is a vector-borne disease transmitted to humans by *Aedes* mosquitoes. Medellin is the second largest city in Colombia with more than 2.6 million inhabitants and its annual dengue incidence ranged 161-745 cases per 100,000 inhabitants during the last 10 years.

