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1- BMC Public Health, 25(1):60, 2025.

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Syphilis reactivity among blood donors in Brazil: associated factors and implications for public health monitoring

Natalia A Braga[1], Sheila de Oliveira Garcia Mateos[2,3], Renata Buccheri[4,5], Vivian I Avelino-Silva[2,4,6], Donald E Warden[7], Cesar de Almeida-Neto[2,8], Maisa Ribeiro[9], Luiz Amorim[10], Paula Loureiro[11], Nelson Fraiji[12], Marcio K Oikawa[3], Eduard Grebe[4,5,13], Mars Stone[4,5], Ester C Sabino[2,3], Brian Custer[4,5]; NHLBI Recipient Epidemiology and Donor Evaluation Study-IV-Pediatric (REDS-IV-P)

1. Faculdade de Medicina da Universidade de Sao Paulo, Sao Paulo, Brazil; 2. Faculdade de Medicina da Universidade de Sao Paulo, Sao Paulo, Brazil; 3. Universidade Municipal de Sao Caetano Do Sul, Sao Caetano Do Sul, Brazil; 4. Vitalant Research Institute, San Francisco, USA; 5. Department of Laboratory Medicine, University of California San Francisco, San Francisco, USA; 6. Department of Epidemiology and Biostatistics, University of California San Francisco, San Francisco, USA; 7. Westat, Rockville, USA; 8. Fundação Pro-Sangue Hemocentro de Sao Paulo, Sao Paulo, Brazil; 9. Fundação Hemominas, Belo Horizonte, Brazil; 10. Fundação Hemorio, Rio de Janeiro, Brazil; 11. Fundação Hemope, Recife, Brazil; 12. Fundação Hospitalar de Hematologia E Hemoterapia Do Amazonas, Manaus, Brazil; 13. South African Centre for Epidemiological Modeling and Analysis (SACEMA), Stellenbosch University, Stellenbosch, South Africa.

Background: Increasing syphilis infection rates are a concerning issue worldwide. Blood donation screening is an opportunity to monitor the burden of asymptomatic infections, providing information on contemporary factors associated with infection and public health insights into transmission.

Methods: Blood donations collected at five Brazilian blood centers between January 2020 and February 2022 were screened with treponemal or non-treponemal assays according to local protocols, followed by alternate Enzyme-Linked Immunosorbent

Assay (ELISA); samples with reactive or indeterminate results in the alternate ELISA were further tested with the rapid plasma reagin (RPR), and categorized as RPR-positive or RPR-negative. RPR-positive donations were also grouped according to RPR titers (< 1:8 or ≥ 1:8). We report the prevalence of syphilis in first-time donors (FTD) and repeat donors (RD), as well as incidence in RD. Multivariable models were used to assess factors associated with RPR-positive syphilis. Additionally, we explored the relationship between syphilis positivity in FTD and syphilis cases registered by the Brazilian public health surveillance system from 2012 to 2022.

Findings: Of 862,146 donations, 10,771 (1.3%) were reactive or indeterminate on screening; 7,541 available samples underwent additional testing. Of those, 5,876 (77.9%) tested positive or indeterminate on the alternate ELISA; 907 (12.0%) were RPR-negative, 2,980 (39.5%) were RPR-positive < 1:8, and 1,989 (26.4%) were RPR-positive with titers ≥ 1:8. The prevalence of syphilis including RPR-positive and RPR-negative cases was 2.5% among FTD and 0.6% among RD. The incidence of syphilis in RD was $90/10^5$ person-years (95% CI 86-95), with younger age, male gender, Black and Mixed race (relative to White) and lower education associated with incident syphilis in RD. Blood donors had lower rates of syphilis compared to the general population, with correspondence between numbers in blood donors and congenital syphilis rates registered by the Brazilian surveillance system between 2012 and 2022.

Conclusion: The prevalence of syphilis was < 3% among FTD and < 1% among RD. We found wide variability according to donor characteristics, with gender, age, race, and schooling significantly associated with prevalent and incident RPR-positive syphilis in multivariable models. Syphilis occurrence among blood donors can be used to assess disease patterns in low-risk populations.

2- PLoS One, 20(2): e0315933, 2025.

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Syphilis seroprevalence and risk factors among first-time blood donors in Brazil: A comprehensive repeated cross-sectional analysis spanning a decade

Andre Lazzeri Cortez[1], Vivian I Avelino-Silva[1,2,3], Barbara Labella Henriques[1], Sebastian Vernal[1], Cesar de Almeida-Neto[4], André Rolim Belisário[5], Paula Loureiro[6], Claudia de Alvarenga Maximo[7], Sheila de Oliveira Garcia Mateos[1,8], Philippe Mayaud[9], Ester Cerdeira Sabino[1]

1. Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil; 2. Vitalant Research Institute, San Francisco, California, United States of America; 3. Department of Epidemiology and Biostatistics, University of California San Francisco, San Francisco, California, United States of America; 4. Fundação Pró-Sangue Hemocentro de São Paulo, São Paulo, Brazil; 5. Hemominas, Brazil; 6. Hemope, Brazil; 7. Hemorio, Brazil; 8.

Universidade Municipal de São Caetano do Sul, São Caetano do Sul, Brazil; 9. Department of Clinical Research, London School of Hygiene and Tropical Medicine, London, United Kingdom.

Background: Syphilis remains a global health challenge, with rising incidence rates worldwide. Prevalence surveys conducted in Brazil over extended periods of time are scarce. This study examines the secular trends and risk factors for syphilis seroprevalence among first-time blood donors in Brazil.

Methods: A retrospective analysis was conducted as part of a multicenter, repeated cross-sectional survey of blood donors from four major Brazilian blood centers, covering the period from 2007 to 2020. First-time donors who had undergone valid treponemal screening tests were included in the final dataset. Demographic characteristics and serological results were analyzed to identify risk factors for syphilis seroprevalence using multivariate Poisson models. An interaction term between age group and donation year was added to the final model. Model comparisons were performed using Likelihood Ratio Tests (LRT) and Akaike Information Criterion (AIC).

Results: 1,424,850 donations from first-time donors were included during the study period. The overall syphilis seroprevalence was 2.19%, with significant heterogeneity across centers. Risk factors for increased seroprevalence included male gender, older age, lower education level, and self-reported black or mixed skin color. Notably, an increasing trend in syphilis seroprevalence was observed among younger donors and those born after 1990. Interaction analyses revealed significant effects between visit period and key demographic variables (age group, gender, education, and ethnicity), with the interaction between age group and donation year indicating higher seroprevalence among younger age groups in recent years.

Conclusion: The study highlights a high syphilis seroprevalence among first-time blood donors in Brazil, which has significant implications for blood safety and public health. The increasing trend among younger donors suggests a shift towards newer infections, warranting continued surveillance in this demographic.

3- Transfusion. Feb 24, 2025.

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Assessing HIV trends among blood donors in five Brazilian blood centers: The impact of individual donor assessment

Renata Buccheri[1,2], Donald E Warden[3], Marcio Oikawa[4], Eduard Grebe[1,2], Carolina Miranda[5], Luiz Amorim[6], Paula Loureiro[7], Maisa Ribeiro[5], Nelson Fraji[8], Cesar de Almeida-Neto[9], Ester Sabino[4,10], Brian Custer[1,2]

1. Vitalant Research Institute, San Francisco, California, USA; 2. University of California San Francisco, San Francisco, California, USA; 3. Westat, Rockville, Maryland, USA; 4. Universidade Municipal de São Caetano do Sul, São Paulo, Brazil; 5. Fundação Hemominas, Belo Horizonte, Brazil; 6. Fundação Hemorio, Rio de Janeiro, Brazil; 7. Fundação Hemope, Recife, Brazil; 8. Fundação Hemoam, Manaus, Brazil; 9. Fundação Pro-Sangue Hemocentro de São Paulo, São Paulo, Brazil; 10. Universidade de São Paulo, São Paulo, Brazil.

Background: In many countries, including Brazil, time-based blood donation deferral policies for gay, bisexual, and other men who have sex with men (gbMSM) have been replaced by individual donor assessment (IDA). We examined HIV prevalence and incidence among first-time (FTD) and repeat donors (RD), comparing data from ~3.5 years before and after the IDA policy implementation in 2020.

Study design and methods: The Recipient Epidemiology and Donor Evaluation Study-IV-Pediatric (REDS-IV-P) Brazil component collects blood donor screening data from five public centers. From January 2017 to December 2023, we report frequencies, rates, and 95% confidence interval (CI) of confirmed HIV-positive donations among FTD, HIV NAT-yield rates for FTD and RD, and the incidence of confirmed HIV among RD before and after the policy change. We also report multivariable regression analysis results.

Results: Confirmed HIV prevalence in FTD was 79 per 100,000 (95% CI 72-87) before and 100 per 100,000 (95% CI 90-109) after the policy change, with differences between centers. HIV NAT-yield rates decreased for RD (p = .0025), with no change for FTD (p = .3). HIV incidence in RD did not increase (12.4 [95% CI: 11.1-13.9] vs. 10.3 [95% CI: 9-11.7] per 100,000 person-years).

Discussion: Our findings showed no significant difference in HIV incidence among RD. Although HIV prevalence among FTD increased, there was no rise in HIV NAT-yield donations. The analysis highlights challenges in interpreting changes within specific groups and blood centers, underscoring the importance of multicenter monitoring of transfusion-transmitted infections.

TRANSPLANTES, ENXERTOS E TERAPIA CELULAR (1 artigo)

1- HLA, 105(2): e70051, 2025.

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Common, Intermediate and Well-Documented HLA Alleles in the Brazilian Population: An Analysis of the Brazilian Bone Marrow Donor Registry (REDOME)

Jose Samuel da Silva[1], Jeane Eliete Laguila Visentainer[2], Raquel Aparecida Fabreti-Oliveira[3,4], Felipe Carlos Brito de Souza[5], Marcio Nogueira Pereira Silva[6], Alexandre da Costa Sena[6], Monica Goldenstein[7], Renata Esterque Claudino[8], Patricia Jeanne de Souza Mendonça-Mattos[9], Juliana Pessanha Rodrigues Motta[6], Danielle Angst Secco[6], Danielli Oliveira[8], Luís Cristóvão Porto[6]

1. Instituto de Imunogenética - IGEN, Associação de Fundo de Incentivo à Pesquisa - AFIP, São Paulo, Brazil; 2. Universidade Estadual de Maringá, Maringá, Brazil; 3. Faculdade Ciências Médicas de Minas Gerais, Belo Horizonte, Brazil; 4. Laboratório Imunolab, Belo Horizonte, Brazil; 5. Fundação HEMOMINAS, Belo Horizonte, Brazil; 6. Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil; 7. Hospital Israelita Albert Einstein, São Paulo, Brazil; 8. Instituto Nacional do Cancer, Rio de Janeiro, Brazil; 9. Fundação Centro de Hemoterapia e Hematologia do Pará, Belém, Brazil.

This study investigates the HLA allele diversity in Brazil, a reflection of the country's unique history of population admixture. The international comparison of findings emphasises the importance of incorporating underrepresented populations into global HLA databases. We present a comprehensive analysis of HLA alleles within the Brazilian population, utilising high-resolution sequencing data from 298,000 unrelated haematopoietic stem cell volunteer donors registered with the Brazilian Bone Marrow Donor Registry (REDOME). Our research encompasses donors from all regions of Brazil, identifying HLA alleles that are catalogued as common, intermediate or well-documented (CIWD Version 3.0). We evaluated the alleles of HLA-A, HLA-B, HLA-C, HLA-DRB1, HLA-DQA1, HLA-DQB1, HLA-DPA1 and HLA-DPB1. At a two-field resolution, we identified 1969 alleles: 418 were classified as common, 358 as intermediate and 1193 as non-CIWD in Brazil. Notably, we report HLA alleles that, while not classified as common or intermediate in the CIWD 3.0 catalogue, are prevalent within the Brazilian population. A detailed list of alleles from the registry, presented at a two-field resolution and supplemented with grouped ARD levels, including three- or four-field resolution when available, serves as an essential reference for HLA typing frequencies specific to the Brazilian population.

HEMOGLOBINOPATIAS (1 artigo)

1- World Journal of Clinical Pediatrics, 14(1): 97537, 2025.

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Importance of neonatal screening: A case study of sickle cell disease and cystic fibrosis coexistence

Nathalia Noyma Sampaio Magalhães[1], Lucas Barra Mathiasi[2], Daniela de Oliveira Werneck Rodrigues[3,4]

1. Department of Pediatrics, Faculdade de Ciências Médicas e da Saúde de Juiz de Fora, Juiz de Fora, Brazil; 2. Department of Internal Medicine, Rede D'Or Rio de Janeiro, Rio de Janeiro, Brazil; 3. Department of Hematology, Fundação Hemominas, Juiz de Fora, MG, Brazil; 4. Department of Internal Medicine, Universidade Presidente Antônio Carlos - Faculdade de Medicina Juiz de Fora, Juiz de Fora, Minas Gerais, Brazil.

Background: Neonatal screening (NS) is a public health policy to identify genetic pathologies such as cystic fibrosis (CF), sickle cell disease, and other diseases. Sickle cell disease is the comprehensive term for a group of hemoglobinopathies characterized by the presence of hemoglobin S. CF is an autosomal recessive multisystemic disease with pathophysiology involving deleterious mutations in the transmembrane regulatory gene that encodes a protein that regulates the activity of chloride and sodium channels in the cell surface epithelium. NS is crucial for early diagnosis and management, which ensures a better quality of life.

Aim: To report a case of the coexistence of sickle cell anemia (SCA) and CF and perform an integrative literature review.

Methods: This is an observational study and a review of the literature focusing on two rare genetic pathologies identified simultaneously in NS from the perspective of a clinical case. The authors identified only 5 cases of SCA associated with CF. No clinical trials or review articles were identified considering the rarity of the coexistence of these two pathologies.

Results: Herein, the authors reported the case of a girl who after undergoing NS on day 8 of life was diagnosed with SCA with an alteration in the dosage of immunoreactive trypsin. The diagnosis of CF was confirmed by the Coulometry Sweat Test. The rarity of the co-occurrence of these two severe genetic pathologies (CF and SCA) is a challenge for medical science.

Conclusion: This study adds to the few case reports present in the literature that highlight the identification of two severe diseases via NS.