

RATES AND REASONS FOR THE REJECTION OF THE FULL BLOOD COUNT AT AN ACADEMIC LABORATORY IN GAUTENG, SOUTH AFRICA.

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BACKGROUND AND OBJECTIVES: Full blood count (FBC) testing is a cornerstone of clinical care, guiding diagnosis, monitoring, and treatment decisions. Despite its routine use, specimen rejection remains a significant challenge, leading to delayed diagnoses, increased healthcare costs, and compromised patient safety. Understanding the rates, reasons, and sources of rejected FBC specimens is therefore essential to optimise laboratory operations and improve clinical outcomes.

METHODS: A cross-sectional, retrospective study was conducted. All FBC requests registered on the National Health Laboratory Service Laboratory Information System (TrakCare®) between 1 January 2023, and 31 December 2024 were included. Data on specimen rejection, reasons, and originating clinical locations were extracted and analysed using Stata version 18 software.

RESULTS: A total of 280 706 FBC requests were received and 8 281 (2.8%) were rejected. The majority of rejections occurred in the pre-analytical phase (90.6%), with clotted samples (50.7%), insufficient specimens (10.7%), unreceived samples (9.6%), old samples (9.2%), and incorrect tubes (8.1%) accounting for over 88% of all rejections. Paediatric wards (30.7%) and antiretroviral (ARV) clinics (34.3%) were the largest contributors. Temporal trends showed a steady decline in rejections in 2023, followed by a sharp increase in late 2024 caused by a cybersecurity breach in the laboratory information system, which elevated post-analytical errors.

CONCLUSION: Pre-analytical errors remain the dominant contributor to FBC specimen rejection, while operational and systemic disruptions exacerbated post-analytical errors. Targeted interventions such as enhanced phlebotomy training, optimized specimen transport networks, robust laboratory information systems, and careful clinical demand management are essential to reduce rejection rates, improve patient safety, and preserve healthcare resources. This study provided critical insights into the operational, clinical, and systemic factors driving FBC specimen

rejection in a high-volume academic laboratory and offered a practical roadmap for quality improvement in similar resource-constrained settings.