

## **Effective Blood Distribution in Rural Hospitals through ICT Service Oriented Architecture (SOA) Framework: A Case Study in Rural Hospitals in South Africa**

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**ABSTRACT** Blood is a vital product in healthcare services as most surgical and emergency activities in hospitals depend on blood transfusion. Blood inventory management in rural hospitals at North West Province of South Africa has become a cause of concern to medical practitioners who need blood supplies to save lives. This study investigated various methods used in blood management at rural hospitals. A case study approach was used. Data was collected using semi-structured open-ended interview questions. The interviews were recorded, transcribed and coded. The findings revealed that blood is ordered according to a strict policy. Blood requisition is sent to hospital administrators who order blood from the South African National Blood Service (SANBS) by telephone, postal services and sometimes traveling to SANBS' offices. Challenges like constant electricity power outages and lack of e-health application software to support e-stock management of blood were revealed. An ICT Service Oriented Architecture (SOA) framework based on the principles of integration of services and interoperability of ICT systems was proposed.