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An informatics infrastructure to support tissue banking and research

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Since its inception in 1997, the Tayside Tissue Bank at Ninewells Hospital, Dundee has become an essential resource for research. It houses a collection of more than 13,000, primarily cancer-related, samples from more than 3,000 patients. These samples provide the basis for a large number of investigations, with over 45 separate projects requesting tissue resources in the last 12 months.

Managing such a collection, and collating external information requires a sophisticated data management system. Over the past twelve months the database has progressed from prototype to a fully functional tissue cataloguing system with corresponding patient information. The replacement of the paper-based tissue request system into a fully automated system is currently under testing. The next phase of the development will see the integration of lab and array data to create an integrated data analysis tool.

The system is implemented using Java Servlets with Apache Tomcat. Local persistence is achieved with a PostgreSQL database, accessed via a Java Data Objects layer. Long term data integrity is ensured by backup to an XML file, ensuring a future-proof repository for the collected information. The technology selected will facilitate integration with future initiatives for data sharing between geographically distinct tissue banks.