



Position Description

Position title:	Clinical Data Engineer
Salary range:	Professional & Administrative Salaries
Reporting manager:	Project and Infrastructure Lead
Direct reports:	0
Home group:	Software Systems and Integration Unit

Who we are

Victorian Clinical Genetics Services (VCGS) is a not-for-profit subsidiary of the Murdoch Children's Research Institute. We aim to provide and continually improve clinical care, support, genetic screening and diagnostic testing for children, adults and families at risk of, or living with a genetic condition. Our purpose is to deliver exceptional care and service to our patients, and the community, while shaping the future of genetics and genomics care in Australia.

Our values

People at VCGS follow our values



Value people first

People are at the core of our business. We lead with empathy. We display compassion and respect towards each other, our patients and the community.



Build trust

We communicate and act with transparency, sincerity, and truthfulness in all aspects of our work.



Pursue excellence

We share a commitment to delivering high-quality, sustainable science and services. We acknowledge mistakes and encourage each other to learn and grow.



Be innovative

We encourage curiosity, collaboration and critical thinking. We value new ideas, and continuous improvement.

Position Overview

VCGS operates a growing suite of data platforms and tools across its clinical and laboratory services, supporting data-driven decision-making in genomics. Working closely with MCRI IT and specialist clinical and bioinformatics teams, the organisation brings together experts across science, technology and healthcare to deliver world-leading genetic services.

The Clinical Data Engineer plays a key role in building data pipelines, systems and dashboards that transform complex laboratory and clinical data into actionable insights. This role supports scientists and clinicians to monitor performance, assess quality metrics and interpret results.

In addition, the role contributes to the development of scalable and auditable data infrastructure, with opportunities to support emerging AI-enabled analytics and decision-support tools within a regulated clinical environment.

Strong practices in data governance, validation, and compliance are essential to ensure reliable and secure data solutions.

Key Accountabilities

- Develop and support data tools, pipelines, and dashboards for near real-time monitoring of machine performance, QC metrics, and patient result data.
- Design, build, and maintain scalable, reliable, and auditable data workflows integrating laboratory instruments, LIMS, APIs, and other clinical systems.
- Ensure data quality, traceability, interoperability, and structured storage across clinical and operational datasets.
- Create intuitive visualisation and exploratory tools to support QC monitoring, trend analysis, and result review.
- Develop and evaluate AI-assisted and statistical tools to identify trends, anomalies, and quality signals in clinical and laboratory data.
- Work with clinical and laboratory stakeholders to translate domain knowledge into practical data, analytics, and AI solutions.
- Ensure AI-enabled tools are implemented with appropriate governance, privacy safeguards, transparency, auditability, and human oversight.
- Apply best practices in data engineering, including modular design, version control, code review, testing, and documentation.
- Collaborate with software, infrastructure, and operational teams to troubleshoot issues, support deployment, and improve reporting workflows.
- Act as a subject matter expert in clinical data systems, promoting accountability, ethical data use, patient confidentiality, and continuous improvement.
- Contribute to VCGS goals through collaboration, knowledge-sharing, compliance, and alignment with organisational values and priorities.

Selection Criteria

Essential

- Tertiary qualification in data science, computer science, bioinformatics, software engineering, or a related field, or equivalent relevant experience.
- Demonstrated experience in data engineering, including building and maintaining reliable data pipelines and workflows.
- Proficiency in Python or another relevant programming language for data processing, analysis, and visualisation.
- Strong experience with relational databases and SQL, including schema design and query optimisation.
- Experience using version control tools such as Git in collaborative development environments.
- Ability to work effectively with technical, scientific, and operational stakeholders to translate business or clinical needs into practical data solutions.

- Strong written and verbal communication skills, including the ability to explain technical concepts to non-technical audiences.
- Demonstrated experience in data quality, validation, and governance practices.

Desirable

- Experience with clinical, laboratory, or genomic data systems, such as LIMS or HL7.
- Experience with data warehouse design, ETL/ELT pipelines, and performance optimisation.
- Experience developing dashboards, visualisations, or reporting tools for operational or scientific users.
- Experience developing or evaluating machine learning, statistical models, or AI-assisted analytics tools.
- Experience with cloud platforms, particularly AWS.
- Understanding of model validation, monitoring, reproducibility, or MLOps concepts in regulated or high-trust environments.

Conditions of employment

- Keeping children safe is our highest priority. We maintain rigorous safeguarding standards and employ comprehensive screening processes to ensure the safety of the children we work with. This includes mandatory screening processes for all successful candidates, including:
 - Valid Working with Children Check (or equivalent)
 - Satisfactory criminal record check
- The right to reside and work in Australia and you meeting any applicable visa conditions

Health, Safety & Wellbeing

- We are committed to providing and maintaining a working environment which protects the health, safety and wellbeing of our people, partners and the community
- Employees conducting duties on behalf of VCGS are expected to meet the environment, health and wellbeing requirements and responsibilities specifically required for the role
- We are committed to supporting children in their right to be safe and adhere to the responsibilities we have to ensure their protection and safety as per the Child Safety Policy
- The Institute is committed to the safety of children and young people, and takes a zero-tolerance approach to all forms of child abuse, exploitation and harm. The Institute prioritises child safety in our decision-making at all levels of the Institute and supports our employees to understand and enact their safeguarding responsibilities
- We are committed to a diverse, inclusive workplace where all staff are supported to reach their full potential, regardless of gender, career status, age, disability, cultural background, religion or sexual orientation
- Specified positions may be subject to medical review to ensure that the inherent requirements of the role can be undertaken safely

As VCGS evolves to meet its changing strategic & operational needs and objectives, so will the roles required of its employees. As such, this document is not intended to represent the position which the occupant will perform in perpetuity. This position description is intended to provide an overall view of the incumbent's role as at the date of this statement.