

# SHAPE YOUR STORY

## Recruitment Information Pack



**Lead Cloud Engineer**



## Our Vision

To be a high-performing group of NHS hospitals, renowned for excellence and innovation, providing safe and compassionate care to our patients in east London and beyond.

## WeCare about our ambition for excellence

Our WeCare values shape everything that we do, every single day. They are visible in every interaction we have with each other, our patients, their families and our partners.

WeCare about everything from the appointment letters our patients receive, to the state of our facilities when they walk through the door, to the care and compassion they receive when they are discharged. WeCare that the people who join our trust will hold the same values as we do, so our values are embedded within our recruitment and selection processes. WeCare that you feel valued working here, so our values also guide our training and development and performance and talent management. WeCare about working with suppliers that live and breathe our values too.

We have come a long way on our journey to delivering safe and compassionate care. By embracing these values as the way we behave around here, we will achieve our ambition for excellence.

Value	Key behaviours
<b>W</b> WELCOMING	<ul style="list-style-type: none"> <li>Introduce yourself by saying "Hello, my name is ..."</li> <li>Smile and acknowledge the other person(s) presence</li> <li>Treat others as you would wish others to treat you</li> <li>Ensure the environment is safe and pleasant for our patients, our colleagues and our visitors</li> </ul>
<b>E</b> ENGAGING	<ul style="list-style-type: none"> <li>Get involved in making improvements and bring others with you</li> <li>Encourage feedback from patients and colleagues and respond to it</li> <li>Acknowledge efforts and successes; say thank you</li> <li>Use feedback to make improvements, and empower colleagues to do this without needing to seek permission</li> <li>Appreciate that this may be a new experience for patients and colleagues; help them to become comfortable</li> </ul>
<b>C</b> COLLABORATIVE	<ul style="list-style-type: none"> <li>Give time and energy to developing relationships within and outside own team</li> <li>Demonstrate pride in Team Barts Health</li> <li>Respect and utilise the expertise of colleagues</li> <li>Know your own and others' part in the plan</li> </ul>
<b>A</b> ACCOUNTABLE	<ul style="list-style-type: none"> <li>Always strive for the highest possible standard</li> <li>Fulfil all commitments made to colleagues, supervisors, patients and customers</li> <li>Take personal responsibility for tough decisions and see efforts through to completion</li> <li>Admit mistakes, misjudgements, or errors; immediately inform others when unable to meet a commitment; don't be afraid to speak up to do the right thing</li> <li>Do not pretend to have all the answers; actively seek out those who can help</li> </ul>
<b>R</b> RESPECTFUL	<ul style="list-style-type: none"> <li>Be helpful, courteous and patient</li> <li>Remain calm, measured and balanced in challenging situations</li> <li>Show sensitivity to others' needs and be aware of your own impact</li> <li>Encourage others to talk openly and share their concerns</li> </ul>
<b>E</b> EQUITABLE	<ul style="list-style-type: none"> <li>Value the perspectives and contributions of all and ensure that all backgrounds are respected</li> <li>Recognise that individuals may have different strengths and needs, and that different cultures may impact on how people think and behave. Be curious to find out</li> <li>Work to enact policies, procedures and processes fairly</li> <li>Be open to change and encourage open, honest conversation that helps foster an inclusive work and learning environment</li> <li>Remember that we all have conscious and unconscious bias; get to know what yours are, and work to mitigate them</li> </ul>



## Barts Life Sciences

Launched in 2018, Barts Life Sciences is a powerful partnership between Barts Health NHS Trust and Queen Mary University of London. It brings world-leading researchers, scientists, clinicians and industry together to collaborate and accelerate the latest healthcare innovations from bench to bedside.

Building on our existing strengths in basic science, epidemiology, genomics and translational medicine, we intend to focus on the development of AI, machine learning and medical devices. This will help us to tackle complex challenges in cancer, trauma and cardiovascular diseases, further supporting the realisation of the NHS Long-term Plan.

Find out more at: [www.bartslifesciences.org](http://www.bartslifesciences.org)

## Precision Medicine Programme

Barts Health NHS Trust has recently been awarded an additional £5M over 4 years (building on the previously funded £1M scoping study) from Barts Charity. This will support the Barts Life Science Precision Medicine Programme to better utilise the large datasets being collected in the Trust (and elsewhere) to find new and personalised ways to treat patients.

It is also expected that around eight million data points will be collected by Barts Health NHS Trust every day from across primary, secondary and community care once the Trust goes paperless later in 2023. The existing – and future data – will now be integrated and optimised for analysis with data driven technologies such as Artificial Intelligence (AI).

You will be mainly working to support the Precision Medicine Programme workstreams relating to the Analysis Data Core (making hospital data ready for research) and the provision of a Secure Data Environment for researchers to undertake their analysis work. The team is enabling the wider use of healthcare data for research, while protecting patient and public rights to confidentiality and choice about how their data is used.

By offering such a secure integrated analysis environment, Barts Life Sciences will be at the forefront of data-led innovation, developing its role as a key player in the life sciences economy and in turn, improve patient care and experience.

### 1. Job Particulars

<b>Job Title</b>	<b>Precision Medicine – Lead Cloud Engineer</b>
<b>Reference Number</b>	
<b>Pay Band</b>	8B
<b>Location</b>	Royal London Hospital
<b>Hours</b>	1.0 WTE
<b>Reports to</b>	Precision Medicine Cloud Technical Architect
<b>Responsible to</b>	Deputy Chief Information Officer – Precision Medicine



## 2. Job Purpose

The Barts Life Sciences Precision Medicine Platform will use modern cloud technology to build a new 'Secure Data Environment' (SDE) containing Barts Health NHS Trust patient data that complies with all necessary security and governance requirements. The SDE will need to be adaptable and usable for a range of different users supporting a range of analysis activities. We will look to source components of our SDE from other open-source work taking place in the community and make our own work publicly available. The Barts Life Science SDE is funded over the next 4 years by Barts Charity to support precision medicine research and patient care in Barts Health.

Together with the Precision Medicine Deputy CIO, and the rest of the Precision Medicine team, this post will be responsible for scoping, designing, planning, maintaining/scaling and supporting the cloud infrastructure that supports the Analysis Data Core where data is both transformed for research and the SDE where the data is analysed by user projects. This role is an opportunity for a talented experienced and enthusiastic cloud engineer or research software engineer, who has used Infrastructure as Code to build public cloud solutions and is now willing to take operational leadership of the SDE and related cloud environments. We are looking for someone who become a subject matter expert in the operation of the SDE and related services, supporting users by resolving complex issues and developing related training programs, leading the technical evolution of the service and contributing their knowledge to the wider UK community.

Ideally you will also have experience of working in open-source projects as these will be used to build our research data assets and the user environments that will undertake the analysis work. Your role will be to maximize the security and usability of the data within the platform for current and potential users. You will work with multiple collaborators (both internal and external) from contractors to research projects, research initiatives and clinical users to develop, implement and support the SDE and ensure it has a suitable and resilient infrastructure to deliver clinical and research data analysis capabilities.

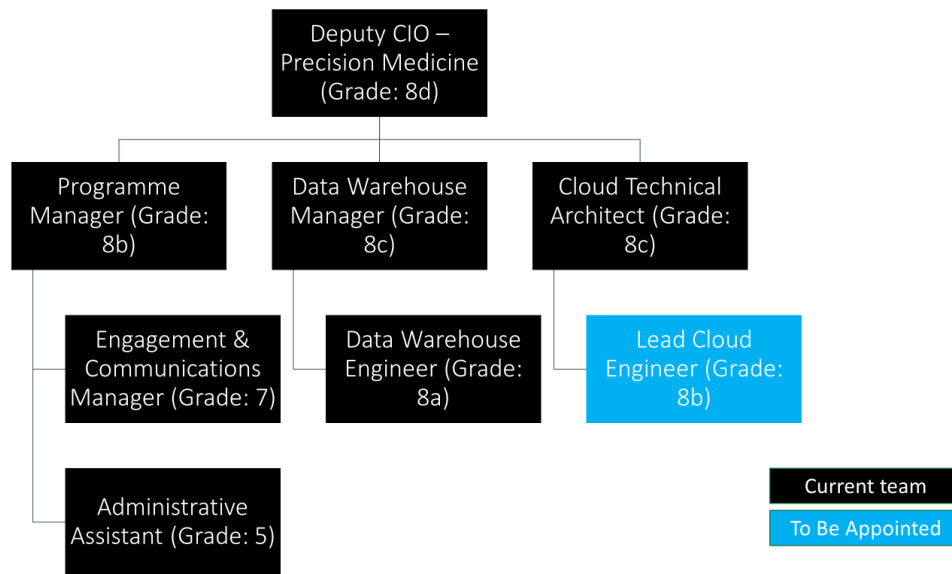
## 3. Key Working Relationships

Internal	External
<b>Precision Medicine Team</b>	<b>Users of the Secure Data Environment</b>
Deputy Director of Infrastructure	Third party suppliers and vendors
Barts Health clinical & research teams	QMUL research teams
Barts Life Sciences Programme team	Barts Charity
	Other NHS organisations

## 4. Structure Chart







## 5. Main duties, responsibilities and results areas

- Works to identify, investigate, implement and be responsible for the software services and associated cloud computing services and data management systems that comprise the public SDE service for Barts Health.
- Plan, design and organise customisations of the SDE for researchers and clinicians who have been approved to access patient data without compromising the security of patient data.
- Create and deliver training either for groups (internal and external) or for individual consultations to support users in having safe and secure access to the sensitive data analysis environment.
- Implement user driven changes to the SDE by deploying tools for different data analysis methodologies, responding to urgent and routine user support queries or by specifying work to the contracted development team and deploying tested updates.
- Plan and undertake network changes in response to security threats in collaboration with the network team and relevant network policies to maintain the security of patient data, potentially in response to immediate threats.
- Continually evaluate the suitability and integrate as required open-source software and services into the SDE ensuring the security of patient data is maintained while delivering the best possible user service in terms of capability and responsiveness.
- Be responsible for specifying, planning and overseeing the work of the appointed contractors maintaining and supporting the SDE and overseeing the quality of the



externally developed work ensuring testing (e.g., functionality, security, reliability) before production use.

- Lead in establishing operational policies in collaboration with the technical team to maintain a secure SDE, ensure DevOps practices for Infrastructure as Code and securely operate the SDE to ensure compliance with NHS's DSPT and departmental Service Management Framework.
- Continually monitor the SDE to identify opportunities for performance, cost and efficiency improvement in the use of the cloud-based platform and to advise individual users where their costs can be reduced.
- Responsible for managing £1M development contract placed with an external development team delivering to the defined specification and quality of multiple technical components that interoperate with each other and our established systems.
- Ability to work independently and make decisions based on knowledge of the available cloud systems and related technology platforms within the scope of the assigned work programme, NHS & community best practice, and the Trust systems and policies.
- Provide consultancy and support to the researchers and clinicians undertaking their data analysis tasks within the SDE Service.
- Be able to focus intensively on understanding and resolving complex IT issues (e.g., performance, security, reliability, etc.) potentially involving interactions between different services and systems.

### Key result areas:

#### Technical Design

- Take a lead in proposing changes, establishing plans and implementing changes for developing the SDE service and supporting cloud infrastructure (including cloud, connectivity, security) to support the Precision Medicine Programme.
- Developing technical responses to complex user requests to make use of the SDE to analyse sensitive patient data that is sensitive to the criticality of their proposed analysis work.
- Define the strategic development and planning of the service through a published roadmap to consistently produce high quality, efficient and effective technology solutions as the needs of the users evolve ensuring these complement the Trust's IT technologies and policies.
- Work with the wider Trust Informatics team to ensure the SDE, the Azure cloud infrastructure and the clients it serves work alongside and are integrated with the Trust's infrastructure and design principles.
- Lead the Precision Medicine Programme's technical function, being responsible for introducing changes including; incident, change, problem management and deployments, within the agreed Service Level Agreements by supervising the work of contracted vendors responsible for the SDE software infrastructure.
- Ensure adequate infrastructure availability and capacity are in place; to develop and deliver services to meet the changing demands of the SDE within agreed service levels, technical standards and policies and allocated infrastructure budget.
- Lead the development of standard operating processes within the Trust's Service



Management Framework in conjunction with other team members around upgrades and how our infrastructure must be configured and deployed to ensure consistency, security and maintainability.

- Responsible for the on-going compliance of all associated infrastructure standards and ensuring all security audits including the NHS DSPT and ISO27K are successfully completed.
- Develop and support through the approval process of business cases and technical design documents to deliver the Precision Medicine Programme's strategy.
- Act as an escalation point for support activities and high priority incidents which may need to be rapidly and safely resolved if there is a risk of sensitive data being exposed.
- Any other duties as required, commensurate with the nature of the post.

### Budget Management

- Define, generate and provide the reports on infrastructure and system cost, capacity and utilisation of the SDE for the Precision Medicine Programme upgrading these reports over time as requirements change.
- Manage the work of the contracted external development team as part of a £1M tender and oversee our spending on cloud services (£150K+/year).
- Monitor the cost of cloud resources and provide advice on how the cost of these cloud services can be optimised for both the SDE services and the projects using the SDE.

### Governance

- Propose new or additions to technical strategies and policies around SDE operations that will be approved through the BLS Programme Board, Informatics Change Advisory Board and BH Data Access Committee as appropriate.
- Interpret policies relating to the Precision Medicine Programme, the Trust, the Health Data community and elsewhere into operational processes relating to the SDE Services.
- Support the team through compliance within the Trust's policies and procedures relating to general IT infrastructure and the security of patient data through the prompt application of critical fixes in an overall secure environment.
- Ensure that all Trust governance policies and procedures are understood, implemented and are adhered to with regular audits.
- Ensure that matters for escalation (risks, issues, changes, incidents) are raised and escalated following the correct governance procedures. That remediation and mitigation plans are developed and implemented in a timely fashion and that a root cause analysis is undertaken.
- Ensure that the principles of Information Security are understood and implemented through compliance with ISO27001 and NHS's DSPT.
- Ensure any breaches in security or policies and procedures are logged and escalated following the appropriate policies and procedures.



- Ensure that all complaints are promptly investigated, resolved, lessons learnt fed back to staff, and remedial action plans implemented.
- Ensure that asset registers are kept up to date and audited regularly.
- Ensure that business continuity plans are kept updated and are reviewed regularly.

The job description is not intended to be exhaustive, and it is likely that duties may be altered sometimes due to changing circumstances and after consultation with the postholder.

The postholder might be required to work across the Trust at any time throughout the duration of his/her contract, which may entail travel and working at different hospitals.

## 6. Working conditions

Criteria	Description
<b>Physical</b>	The role may require frequent travel between Trust sites and sitting at a computer station for prolonged lengths of time.
<b>Emotional</b>	Working under pressure to tight deadlines.
<b>Working Conditions</b>	The role is undertaken in an office environment with frequent PC use.
<b>Mental</b>	Concentration for prolonged periods to deploy complex software and infrastructure solutions, identify and resolve technical issues which may lie within different systems, etc. Intense concentration to respond to security threats, working on live public services, and responding to urgent user requests, Ability to handle unpredictable work patterns, interruptions, and the need to balance priorities to meet deadlines.

## Safeguarding adults and children

Employees must be aware of the responsibilities placed on them to maintain the wellbeing and protection of vulnerable children and adults. If employees have reason for concern that a patient is 'at risk' they should escalate this to an appropriate person i.e., line manager, safeguarding children's lead, matron, ward sister/change nurse, site manager, consultant (October 2002). [www.nmc-uk.org/](http://www.nmc-uk.org/)

## Person Specification

Domain	Essential Criteria	Desirable Criteria
<b>Experience</b>	Substantial experience in leading the analysis of different complex technical/architectural solutions (e.g., cost, time, complexity, suitability, usability, etc.), around unique cloud deployments and selecting an option that is aligned with the agreed policy and strategy.	Translating the requirements of NHS and ISO security practices into IT practices.  Experience of working within a research organisation.





	<p>Experience in communicating complex technical solutions relating to securing sensitive patient data to users undertaking difficult data analysis tasks.</p> <p>Experience in adapting or formulating new technical strategies and policies for a service and using their persuasion/negotiation skills to change these through the relevant governance structures and communicating these changes to users.</p> <p>Experience in taking technical leadership around delivering a data and compute infrastructure on a public cloud provider using their cloud and software engineering knowledge that meets agreed requirements.</p> <p>Experience in managing development projects of new custom services of at least £1M through internal staff or external contractors and approving related payments for work delivered as a responsible budget holder.</p> <p>Experience of monitoring, managing and optimising the costs incurred by different workloads in public clouds within a defined budget of at least £150K/year.</p> <p>Experience in leading discussions with end-users to understand and to deliver on their requirements even when the proposed solution may require negotiation and persuasion for the user to accept the outcome.</p> <p>Experience in establishing networking environments and monitoring cloud security in networks which contain sensitive patient data that must remain secured.</p> <p>Experience of managing direct reports, staff working under contract, and working collaboratively with distributed technical teams in a matrix management model.</p> <p>Experience of leading technical work within a team by breaking down a larger technical problem into smaller tasks and managing the delivery of these individual tasks from the team.</p> <p>Experience in developing and delivering technical training around the use of a data analysis environment to researchers and clinicians.</p> <p>Experience in leading architectural cloud design processes leading to the operation and delivery of large-scale complex cloud solutions (including public, private and hybrid platforms) through a team.</p>	<p>Experience with utilizing high performance computing or other specialized compute resources for analysis.</p> <p>Experience with cloud-based analysis environments for research or data analysis workloads.</p> <p>Experience in handling healthcare datasets, (e.g., electronic patient records, Genomics, PACS images, etc.)</p> <p>Experience of working in technology-reliant organization through the process of change, maturity and innovation uplift.</p> <p>Experience in API design and usage, command line interface and SDKs for writing applications.</p> <p>Experience in open-source projects and development models.</p> <p>Experience with the Azure TRE or equivalent systems (i.e., TREs or SDEs).</p> <p>Experience of working with external contractors, service providers or consultants.</p>
--	---	--



	<p>Experience in interpreting complex policies, potentially from multiple sources, into clear operational processes for IT services, with a demonstrable record of communicating these within a team.</p> <p>Experience in using an agile methodology to deliver projects within an organization that uses a structured design methodology.</p> <p>Demonstrable scripting or programming skills (e.g., Python, BASH, Terraform, GitHub, etc.)</p> <p>Ability to use continuous integration and distribution pipelines (DevOps) to deploy applications using Infrastructure as Code model and the use of containers in support such a process.</p> <p>Ability to code, deploy and debug complex software and infrastructure environments and to upgrade systems rapidly to implement essential security measures.</p> <p>Demonstrated ability to assimilate new ideas and work with problem owners to turn ideas into practical, applied techniques, and willingness to continue to learn new techniques.</p> <p>Experience in assembling long-term strategic technology plans for an IT service to meet the complex user requirements coming from multiple stakeholders in the organisation.</p> <p>Demonstrable experience of leading one's own work, including planning and execution.</p>	
<b>Skills</b>	<p>High level interpersonal and organization skills – a self-starter.</p> <p>Ability to analyze and interpret complex information and produce regular reports on the current status, trend analysis and service improvement of an IT Service.</p> <p>Ability to lead in the development of technical design proposals.</p> <p>Excellent verbal and written communication skills, including preparing/reviewing technical documentation, report writing and presentations.</p> <p>Able to present complex or technical information clearly to technical peers at large workshops, to communicate technical issues to the public, and to lead interactive training sessions in person or remotely for non-experts.</p>	<p>Official certification (or at least thorough knowledge) of Cyber Essentials, Cyber Essential+, Data Security and Protection Toolkit, ISO/IEC17799:2005 and ISO/IEC 27001:2005</p>



	<p>Be an effective team player while being able to engage and lead technical teams.</p> <p>Able to support the researchers and clinicians making use of the SDE service by finding and introducing new capability that helps them undertake their research activities.</p> <p>Ability to work with users to understand their complex IT needs in order to resolve their analysis challenges and balance these needs with others to deliver a service for all.</p> <p>Ability to rapidly develop strong working relationships and gain the confidence of others.</p> <p>Self-motivated, hardworking and able to organise tasks within a team.</p> <p>Willingness to work flexibly in order to achieve project demands.</p> <p>Able to use the tools and applications that reside in Windows and UNIX/Linux computing environments through the use of desktop/laptop devices for most of the working day.</p>	
<b>Knowledge</b>	<p>Highly developed and demonstrable enterprise architecture and cloud architecture framework knowledge across multiple deployments.</p> <p>Technical understanding of key scripting languages (Python, BASH, etc.), cloud networking, data storage, security.</p> <p>Aptitude to design technical/security solutions that will fit into long-term business objectives and strategy.</p>	<p>Understanding of digital health innovations.</p> <p>Awareness of emerging technologies and potential implications on business objectives.</p>
<b>Qualifications</b>	<p>A university Masters qualification in Computer Science or a related subject or equivalent experience.</p> <p>Professional cloud and training certifications in Azure, or equivalent public cloud provider that provides the architectural and engineering skills needed for the role.</p>	<p>A postgraduate qualification in Computer Science or equivalent experience, ideally involving cloud computing</p>
<b>Other</b>	<p>Willingness to work occasionally outside normal hours (but within conditioned hours) to meet deadlines.</p>	



## 7. Summary of Terms & Conditions and Employee Benefits

Domain	Summary
Salary Band and Range	AfC arrangements
Annual Leave Entitlement	AfC arrangements
Pension	AfC arrangements

