

## 1. JOB DETAILS

**Job Title:** *Data Scientist*

**Band:** 6

**Department:** *Information Services*

**Location:** *Royal Cornwall Hospital*

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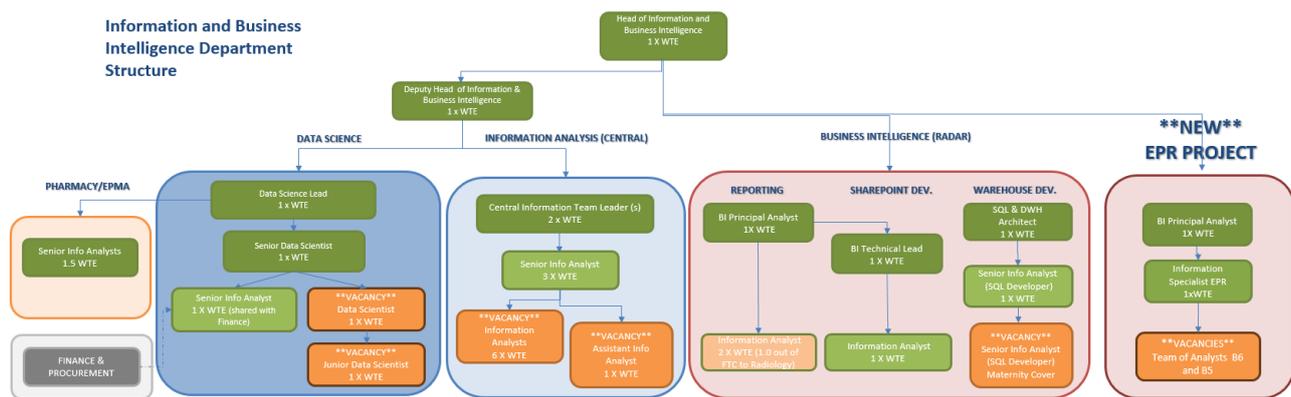
## 2. JOB PURPOSE

- To be part of the Data Science team supporting the Senior Data Scientist and key stakeholders through the use of data analytics and modelling.
  - To provide comprehensive statistical insight through interrogation of complex NHS datasets to identify trends and highlight areas of good practice as well as areas for improvement.
  - Use mathematical, statistical, and operational research methodologies to model and analyse a wide range of NHS data. You will make recommendations based on your findings to improve existing operational and/or strategic business decisions.
  - Support the development of the team's data visualisation techniques.
  - To line manage within the Information and Business Intelligence Department.
  - Supporting the Royal Cornwall Hospital's NHS Trust (RCHT) and Cornwall's Integrated Care System (ICS) in the achievement of corporate objectives, underpinning managers decision making and influencing planning of local services and patient care.
  - To lead on developing professional working standards and practices for team members.
  - To provide advice to team members, investigating and solving complex queries of a technical or Healthcare information related nature.
  - To train Team members in the use of different Information Systems and the production of complex information reports. To have responsibility in developing and maintaining cohesive and effective working relationships both within and external to the Information and BI Team.
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## 3. DIMENSIONS

- Using computer programming languages, you will assist the Senior Data Scientist and key stakeholders in all manners of deep-dive investigations, data analytics and modelling, providing evidence for strategic and operational decisions.
  - 24 people in the department
  - Line Management - This is expected to be one member of staff.
  - No budget responsibility
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## 4. ORGANISATION CHART



## 5. KNOWLEDGE, SKILLS & EXPERIENCE REQUIRED

- See Person Specification

## 6. MAIN DUTIES & RESPONSIBILITIES

- Work closely with other members of the department's management team, particularly the Data Science Lead, Head of Information and Business Intelligence, Deputy Head of Information and Associate Director for Contracting, Performance and Intelligence.
- Use data science methodologies and techniques effectively to model and analyse a range of healthcare information.
- Carry out complex analysis of complex patient flows using a variety of analytical methods and tools and be able to convey complex situations and analysis to a wide-ranging audience.
- Create new predictive systems to improve forecasting and demand planning.
- Provide in depth analysis of performance issues, highlighting any variation and providing insight.
- Assist in the development of data visualisation techniques to present analytical results.
- Use simulation modelling techniques for operational research work, using open-source tools such as Python and R.
- Lead on the creation, adaptation and maintenance of complex information solutions utilising tools such as; SQL queries and processes, the Microsoft BI Stack (SSIS/SSRS/SSAS), Access databases and intricate Excel spread sheets, in order to analyse and present highly complex and specialised information in varied formats.
- Create short term demand models for non-elective care.
- Create longer term forecasting models on performance against key NHS constitutional standards, e.g. RTT.
- Ensure new models are regularly tested and validated to maintain accuracy.
- Ensure regular routine models are automated.

- To clearly document the business rules for each project
  - Implement coding standards to ensure consistency across all projects and team members.
  - Provide support to the Information and Business Intelligence Department and wider organisation/ICS in the interpretation and analysis of statistical results.
  - Work on longer term projects as well as provide an ad hoc service for the organisation for modelling queries.
  - Work to the standards of the existing Data Science team and contribute towards its continued improvement.
  - Build on existing relationships with neighbouring NHS organisations for shared learning on modelling techniques.
  - Support the Integrated Care System with their modelling requirements.
  - Assist work with Primary Care Networks to aid place-based population health management.
  - Continued professional development with health science networks and data science teams in Plymouth and Exeter Universities to ensure ongoing learning and research regarding best practice.
  - Be reactive to the changing needs of the organisation and re-prioritise workload accordingly.
  - Ensure that Personal Confidential Data and sensitive information is always kept confidential within the team and promote this requirement to the wider audience.
  - Lead on the training of new staff members, organise and provide cover during leave.
  - Awareness of data warehousing, database design and implementation.
  - Manage the provision of highly complex information to support government and NHS England returns, executive, performance, and operational reports, within strict deadlines and to customer specification in a consistent and uniform manner, adhering to NHS, Trust, and department templates as appropriate. This will involve liaison with the Trust's Commissioners, NHS England etc.
  - Interpret and implement national information policies, for example in response to Information Standard Notices, working with Care Group teams and system suppliers to understand requirements, adjusting information procedures and information systems for agreed local variations where necessary whilst adhering to the requirements of the NHS Data Dictionary and national returns such as those delivered via Unify or SDCS.
  - Ensure consistency in the interpretation of NHS definitions within the team, referring to the NHS Data Dictionary where appropriate.
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## **7. COMMUNICATIONS & WORKING RELATIONSHIPS**

The post-holder will be required to develop excellent working relationships with the following;

- Clinicians and their teams
- Care Group Managers and their teams
- All Team members within Information and Business Intelligence as well as the wider CPI function
- Senior Managers /Information Leads within and outside the RCHT
- Finance Department
- Cornwall IT Services (CITS) Teams including Database Management Service (DBMS), Data Quality, Clinical and Business systems support, Project managers.

- Quality Improvement Hub

## KEY COMMUNICATION CHANNELS

- Face to face meetings
  - Telephone
  - Email
  - Presenting data appropriately and in corporate style
  - Written reports
  - Flow diagrams
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## 8. MOST CHALLENGING PART OF THE JOB

- Providing significant input into the delivery of an information service that rapidly responds to the complex and challenging information needs of the Trust and other relevant NHS organisations (e.g. Cornwall & IOS ICB, NHSE/I, DH), whilst ensuring that all deadlines are met.
  - Assisting in the delivery of an information service that can continue supporting the objectives of the Trust and statutory reporting requirements, specifically through offering innovative and forward-thinking solutions to problems.
  - Responsibility for line managing member/s of the Information and BI Team. This includes managing the team, allocating workloads, conducting appraisals, career development, handling grievance and disciplinary matters, sickness absence, and playing a key role in recruitment and selection. Supporting and enabling the members of the data science team to maintain a high-quality service, meet deadlines and maintain service delivery during a time of changing priorities will be a key outcome for the post holder.
  - Pro-actively contributing to the continual improvement of information extraction processes, report outputs and analysis, providing support and knowledge of both a technical and specialist NHS Information related nature to other colleagues within Information and BI, and customers of the Information Service at RCHT.
  - Developing and implementing new analytical and modelling outputs to meet customer needs whilst adhering to Trust strategies regarding IT software and Data Science, ensuring work is translatable by others to negate the potential risk of a single point of failure.
  - Contributing to developing and implementing new predictive and modelling capabilities within the BI system and providing training, support, and guidance on using the outputs of such techniques to colleagues and customers of the Information Service at RCHT.
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## 8. OTHER

## PROGRAMMING LANGUAGES AND SYSTEMS

The job is specialised in terms of the technical capabilities of the post holder and the ability to develop skills and experience in the following would be considered core requisites to undertake the role:

- SQL
- Python (e.g. Pandas, SciKit Learn)
- AI/Machine Learning
- PowerBI
- SSIS / SSRS
- R
- Microsoft SQL Server (multiple versions)

## GENERAL COMPLIANCE

- The post holder must at all times carry out his/her duties with due regard to the Trust's Equal Opportunities Policy
- It is the responsibility of all employees to maintain a safe and healthy environment for patients, visitors and staff.
- It is the responsibility of the post holder to ensure that all duties are carried out to the highest possible standard, and in accordance with current quality initiatives within the area of work.
- All staff who have access to or transfer data are responsible for that data and must respect confidentiality and comply with the requirement of the Data Protection Act 1998, in line with the Trust's policies
- The post holder is responsible for data quality and complying with the policies, procedures and accountability arrangements throughout the Trust for maintaining accuracy and probity in the recording of the Trust's activities
- Staff are required to comply with the requirements of the Freedom of Information of Act 2000 in line with Trust Policy
- The Post holder must comply with all RCHT Policies and Procedures.
- The Post holder must comply with the current regulatory framework that applies to NHS provider trusts.
- The Post holder must comply with the RCHT Mandatory Training policy.
- The Post holder must comply with all RCHT Risk Management & Health & Safety policies & procedures, including undertaking associated training as per the RCHT Mandatory Training policy. ***NB: A post-holder who has managerial accountability will have the added responsibility for the management and maintenance of the department/division/directorate risk register[s], ensuring that all appropriate risks are suitably identified, recorded via the appropriate routes, and acted upon. Specific duties are outlined in the Risk Management Policy to which you must comply with.***
- The Post holder must comply with all aspects of confidentiality, professional codes of conduct [where relevant], and the NHS Managers/Code of Conduct.

- Any breaches of a code of professional conduct and/or the Managers Code of Professional Conduct, will be investigated in line with the Trust's disciplinary policy as a matter of personal misconduct. Where there appears to be a case to answer a disciplinary hearing will take place. At any stage of the process the Trust may refer the matter to your professional registering body for their consideration under their own registration review procedures.
- The Post holder must work within infection control guidelines to ensure that work methods do not constitute a risk of infection either to the health care professional, to the client or to any persons working/visiting in RCHT premises.
- This job description will be subject to regular review and amended to meet the changing needs of the Trust.
- This job description is subject to the Terms and Conditions of service of Royal Cornwall Hospitals NHS Trust, and the post holder will undertake any other duties which may be required from time to time.

THIS JOB DESCRIPTION IS SUBJECT TO REVIEW IN CONSULTATION WITH THE POST HOLDER

## 10. JOB DESCRIPTION AGREEMENT

Job holder's Signature:

Date:

Head of Department Signature:

Date:

Title:

\*\*Please only include the following paragraph in job descriptions relating to vacancies that require CRB – please refer to CRB policy if you are unsure:

Please note:

Rehabilitation of Offenders Act

This post is exempt from the Rehabilitation of Offenders Act 1974. A provisional offer of employment will be subject to a criminal record check from the Criminal Records Bureau before the appointment is confirmed. This will include details of cautions, reprimands, final warnings, as well as convictions.

**The Royal Cornwall Hospitals Trust is a non-smoking organisation. Smoking will not be permitted on any of the sites by staff in trust uniform and/or wearing a trust identification badge in any location, in vehicles owned or leased by the Trust or in the homes (including gardens) of any patients visited at home.**

## 11. PERSON SPECIFICATION:

### Data Scientist

All requirements listed in this specification must be (a) essential to the post and (b) assessable within the selection process.

ATTRIBUTES	REQUIREMENTS	
	ESSENTIAL	DESIRABLE
<b>QUALIFICATIONS</b>	<p>The following (or equivalent knowledge gained through work experience.)</p> <ul style="list-style-type: none"> <li>• Degree in data science, operational research, data analytics or similar discipline</li> <li>• Computing related qualification (e.g. ECDL).</li> </ul>	<ul style="list-style-type: none"> <li>* Proven Evidence of postgraduate study in numerate/ informatics subject</li> <li>* Certificate in Management or equivalent.</li> </ul>
<b>EXPERIENCE</b>	<ul style="list-style-type: none"> <li>* Experience in multiple modelling techniques including discrete event simulation, machine learning, forecasting, and multivariate statistics.</li> <li>* Proven knowledge of Python/R Studio coding</li> <li>* Significant experience in the use of information systems e.g. SQL, OLAP, Access databases.</li> <li>* Significant experience of working with MS Office tools particularly Excel's advanced functionality.</li> <li>* Experience of working effectively in a team and collaboratively across departments/organisations</li> <li>* Ability to interpret complex and often ambiguous guidance to deliver reporting requirements.</li> <li>* Proven ability to work creatively and analytically in a complex problem-solving environment. Ability to find answers that aren't always immediately obvious.</li> </ul>	<ul style="list-style-type: none"> <li>* Demonstrable NHS Acute Trust experience in an analytical role.</li> <li>* Specialist knowledge and experience of business intelligence software both from a customer and technical viewpoint (particularly SharePoint and the Microsoft BI stack).</li> <li>* Experience managing staff and conducting Staff appraisals.</li> </ul>
<b>PRACTICAL AND INTELLECTUAL SKILLS (INCLUDING ANY SPECIAL KNOWLEDGE)</b>	<ul style="list-style-type: none"> <li>* Excellent communication skills, both written and verbal, including presenting complex information to large groups of staff</li> <li>* Excellent numerical and statistical skills</li> <li>* Able to adapt to new software and programming languages.</li> <li>* Influencing others effectively</li> <li>* Ability to explain analytical/complex concepts to lay persons.</li> </ul>	

	<ul style="list-style-type: none"> <li>* Ability to prioritise workloads.</li> <li>* Teaching and mentoring skills</li> <li>* Analytical mind</li> <li>* Advanced and accurate key board skills</li> <li>* Attention to detail.</li> <li>* Time management skills</li> <li>* Ability to review and improve team processes and procedures</li> </ul>	
<p><b>DISPOSITION/ ADJUSTMENT/ ATTITUDE</b></p>	<ul style="list-style-type: none"> <li>* Friendly and approachable, supportive to colleagues</li> <li>* Team player</li> <li>* Ability to work under own initiative to deliver agreed objectives with minimal managerial supervision and lead on specialist projects when given outline brief.</li> <li>* Ability to create networks effectively and develop a range of contacts that will support in the delivery of own key objectives.</li> <li>* Ability to work to tight deadlines, constantly changing priorities and pressure.</li> <li>* Handle sensitive information (performance / political / patient level) with appropriate discretion.</li> <li>* Dedicated</li> <li>* Frequent requirement for high levels of concentration to be sustained for long periods with the ability to deal with frequent interruptions from customers.</li> <li>* Ability to cope with long periods of VDU usage.</li> <li>* Ability to motivate others.</li> <li>* Positive attitude in all circumstances</li> </ul>	
<p><b>TRAINING</b></p>	<ul style="list-style-type: none"> <li>* Willing to undertake training and health informatics related personal development as required.</li> <li>* IT training in Windows applications; (MS-Office).</li> <li>* Training in the use of Hospital Systems such as EPR, PAS, ICS, CRIS, Pharmacy and Encore.</li> </ul>	

<b>ADDITIONAL CIRCUMSTANCES</b>	<ul style="list-style-type: none"><li>* Flexibility in working hours to suit varying pressures of the post.</li><li>* Use of VDU equipment daily for prolonged periods of time.</li><li>* Flexibility to cover for colleagues.</li><li>* This is an office-based post and requires significant periods of time spent sitting, working on a computer.</li><li>* Ability to travel between sites.</li><li>* Annual mandatory training</li></ul>	
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