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Helen Luff
Business Intelligence Manager, National Cancer Registration and Analysis Service, Public Health England

Promoting better outcomes for people with cancer

Public Health England's National Cancer Registration and Analysis Service provides rich insight to help clinicians lead the fight against cancer

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Challenge

Cancer is one of the most widespread diseases in the UK. To improve patient care and identify new treatments, physicians must deepen their understanding of cancer by studying the disease in detail.

Cancer is one of the biggest challenges facing the NHS. Half of people in the UK will develop the disease at some point during their life, and more people are diagnosed every year.

To develop new treatments and provide better patient care, healthcare professionals require deep insight into the disease. To support them, information about cancer diagnoses, treatments and outcomes is collected via a process called cancer registration, which in England is managed by Public Health England's National Cancer Registration and Analysis Service (NCRAS).

Every year, NCRAS collects information on over 300,000 cases of cancer, including detailed patient data about the type of cancer, how advanced it is and the patient's treatment. To paint a complete picture, NCRAS gathers data from diverse sources, including Multidisciplinary Team (MDT) information, pathology and haematology services, imaging data, medical records, radiotherapy and chemotherapy, independent hospitals, screening services and death certificates. The NCRAS registration team uses their expertise to assemble a 'true' version of the complete patient pathway across NHS Trusts to ascertain the whole story of each patient's cancer journey; from diagnosis to treatment and beyond.

Until recently, the NCRAS portal only presented tabulated counts of data to NHS users including cancer specialists, NHS Trusts, Commissioners, clinicians, radiotherapy teams, cancer services teams, and pharmacists. Data was displayed in huge tables, and it was difficult to see trends and gather useful insight. The portal was an in-house development, and if users' reporting requirements changed, the reports had to be re-coded by the IT team. Owing to constraints on development resources, the portal was only updated periodically, and some reports desired by users lingered on the wish list for long periods.

Refresh and relaunch

Eager to provide better support to medical professionals treating cancer, NCRAS launched a new secure version of its portal underpinned by SAS® solutions. Within just a few months, the new portal has acquired 600 authorised NHS users, all of whom regularly access the tool to uncover insight into their specialist areas of cancer.

Helen Luff, Business Intelligence Manager at NCRAS, explains: "We decided to build the new portal on SAS because it allowed us to deliver rich analysis to a

Public Health England

massive user base. In addition, many key stakeholders already had experience using SAS, so the platform offered a familiar interface and functionality.

"With SAS, it's easy to cut data into different views and generate new reports which exactly meet the tailored needs of different stakeholder groups. As a result, we were able to take user requirements that had been on the wish list for 12-18 months, and build the desired reports within a few hours."

Richer insight for people on the frontline of cancer care

The new secure portal, powered by SAS solutions, enables medical professionals involved in cancer treatment to generate reports using NCRAS' rich data-set on a self-service basis. For example, users can drill down to focus on counts of cases within a specific geographical area with a particular type of cancer who have had any number of different types of treatment. Users can include demographic data in their analyses – for example, concentrating on patients within a certain age range or socioeconomic status. With such rich insight, NCRAS helps clinicians to paint a detailed picture of their practice, as well as deepen their understanding of the diagnosis, treatment and outcomes of cancer patients.

"Self-service reporting has marked a huge improvement in the quality of support we provide to healthcare professionals," says Helen Luff. "Via our previous portal, users could view some aggregate measures, but had to submit requests for detailed and specific data to our analytical team and wait for the results. With the new portal built on SAS, users can generate most reports independently, obtain instant insight, and output their findings as a PDF. Users have access to much more granular data, whilst still maintaining patient confidentiality, so they can answer highly specific questions. Self-service is a real win-win – it's great for users and reduces the pressure on the analytical team."

The secure portal features pre-built reports – such as tumour staging completeness by anatomical site, benchmarking reports for NHS Trusts, Commissioners and Cancer Alliances to review performance; and reporting to support national audits. Each NHS Trust can assess its performance against the national average and review its treatment methods. For example, if a trust treats more cancer patients using surgery rather than chemotherapy compared to its peers, it can study the impact on patient outcomes and ascertain if it is following best practice. In addition, NCRAS has close working relationships with a number of charities such as Cancer Research UK and Macmillan who, despite being unable to access the site directly, do benefit greatly from the data completeness improvements it facilitates. The secure portal also assists in national audits of certain types of cancer, which look to provide an independent benchmark of treatment. When requirements change, NCRAS can update reports within hours.

Improving data quality

SAS solutions also help NCRAS to improve data quality. For example, each NHS Trust can review which data items it did not complete accurately or comprehensively – perhaps due to imperfect data capture or transfer – and identify areas to improve.

Furthermore, the NCRAS registration team uses SAS to contrast raw incoming data with the data that has been through its quality-assurance process, to determine its own effectiveness. For example, raw data from NHS feeds may show that 50 percent of patients have stage II cancer, whereas the registration team may have identified that the true figure is around 70 percent. The NCRAS data liaison team feed back these findings to NHS Trusts to help them improve their data-collection methods in the future.

Barry Plewa, NCRAS Head of Registration for London, concludes: "SAS has a very strong user base, including a great user community and numerous online forums. The SAS team is highly responsive, and is always ready to help us fix problems and keep us thinking ahead. As a next step, we are looking to move to SAS Viya, which will take our analytical capabilities to even greater heights."