



COVID-19 national testing programme

The role of technology to support testing: COVID-19 Test and Protect dashboards

Extensive COVID-19 testing of Scotland's population results in a lot of important data. To help decision makers interpret the data, a number of dashboards have been built by National Services Scotland's Digital and Security team (DaS). The dashboards provide an easily-digested format to help identify patterns in COVID-19 infection rates.

Who created Scotland's COVID-19 testing dashboards, and who uses them?

There are currently 12 dashboards which provide insights into testing and tracing. Each operates by grouping data collected along various dimensions, such as care homes or the stages of the contact tracing process.

Within these 12 areas users can select various metrics through which to view the data, some of which can be quite granular; sex, testing route, health board, individual hospital or care home. The data updates every two hours providing an almost real-time summary for around 400 users, including clinicians, academics, government staff and contact tracers.

The dashboards are built and maintained by the 'Seer' team in DaS, and it seems they're aptly named: "because the dashboards provide the ability to spot trends in the changing coronavirus infection rates, the December lockdown restrictions came as no surprise," explains Principal Engineer Ajay Kumar.

What challenges have the Seer team faced?

Where the public-facing dashboards report on number of cases, the NSS dashboard numbers reflect total positive tests. It's a complex process because there are so many possible ways to present the data.

Variables include the type of test that was done – lateral flow, PCR, Lumira DX, tests and more – as well as through which route – UK Government, NHSScotland labs, regional hub laboratories etc. These different data feeds need to integrate together into a single source, so you reliably get the same answer whatever route you take to it.

"Of course, there are also multiple timeframes to consider: when the test was done, when the lab received it, when the lab finished processing the results and so on," Ajay notes. "Each of these variables can affect the overall picture." Decisions around what data points to use are carefully considered between Scottish Government, PHS and National Services Scotland.

How have the dashboards evolved through the addition of new features?

As it emerged that care home testing was vital to fighting the pandemic, Seer created a new dedicated dashboard. It looked at how many staff were tested, and how many residents. You can also view percentage of positive individuals by health board or council, which helps local authorities allocate resources appropriately.

The care home dashboard isn't the only new one that's been delivered by Seer, and 'recreating the wheel' has kept them on their toes. Ajay reflects how "usually dashboards would take weeks to plan and construct, as the team map out questions users want answered to create a minimum viable product. But Seer have worked with turnarounds of just a few days to build new dashboards as needed."

Once live, the team go on to make tweaks and improvements. The dashboards also require constant maintenance and updates, such as when new technologies like lateral flow come online, or when new testing cohort such as schools are established.

How have the DaS team worked to improve user experience?

Whilst all the dashboards are configured differently at the back end, the team work hard to ensure that a single level of data on the top gives a consistent appearance for users. Seer also monitors how users interact with the dashboards and make upgrades in response. For example, they've added downloadable data tables and reports, and made the dashboards mobile friendly.

From frequently asked questions, they've also added descriptions of metrics so users can better understand the graphs they're looking at, as well as user guidance notes.

"It's essential that the dashboards serve a purpose in Scotland's Test & Protect programme, and for that users must be able to quickly and easily find the value in them," Ajay commented. "Seer is proud to deliver this service and will continue to improve what we do."

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