

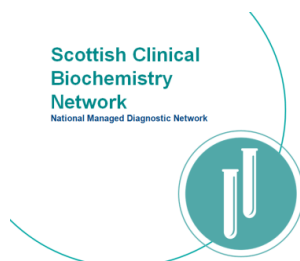
National Demand Optimisation Group (NDOG)

**Demand Optimisation in
Laboratory Medicine
Phase V Final Report
June 2022**

April 2023



Healthcare Science



**Genetics / Molecular
Pathology Consortia**

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1 Foreword

The work of the National Demand Optimisation Group (NDOG) aligns with the ethos of the Realistic Medicine approach¹; strengthening the relationships between those who provide and receive care and ensuring that people receive appropriate and beneficial care that is evidence-based and in line with their preferences. Using evidence intelligently to continuously improve and challenge existing healthcare models, the approach taken by the NDOG is aligned with the principles of the National Performance Framework², in particular contributing to the associated health outcomes as it aims to ensure appropriate diagnostic testing for the Scottish population.

Throughout Phase V, the NDOG has continued to work collaboratively with a range of stakeholders to deliver key outcomes and outputs that will result in a reduction in unwarranted variation in diagnostic laboratory tests in primary care, throughout Scotland.

This report details the main outputs of the Phase V programme of work, including national rollout of the primary care Atlas of Variation (AofV) for diagnostic laboratory tests and associated education toolkit on 1 April 2022.

The Atlas of Variation contains monthly data on primary care requesting for a suite of diagnostic laboratory tests from cancer, cardiac, diabetes and other general pathways. The Atlas of Variation consists of three separate dashboards that allow GP practices to compare request rates with their cluster, health board, peer group and Scotland overall.

The education toolkit will contribute towards the delivery of standardised diagnostic testing practices across all boards in Scotland, with the aim to reduce harm, waste and unwarranted variation to improve health outcomes by providing advice for selected tests on; background; when to test; when not to test and when to repeat a test. The work of the NDOG strongly aligns with the Realistic Medicine policy.

Laboratory testing continues to play a vital role in healthcare delivery and improved outcomes in patient care. With the Atlas of Variation and associated education toolkit now live across Scotland, the focus will now shift towards quality improvement initiatives.

We fully support the continued work of the NDOG and look forward to the anticipated outputs of Phase VI over 2022-2023.

Catherine Ross
Chief Healthcare Science Officer
Scottish Government

¹ [Information about the Realistic Medicine programme](#)

² [Health | National Performance Framework](#)

2 Executive Summary

Demand Optimisation is defined as the process by which diagnostic test use is optimised to maximise clinical utility, which in turn optimises clinical care and drives more efficient use of associated scarce NHS resources.

There is considerable variation in the use of laboratory diagnostic tests across primary care. Some of this variation can be attributed to clinical and demographic differences. However, some variation can be attributable to differences in practice processes and pathways or individual requester preferences.

It should be noted that demand optimisation focuses not only on potential over-requesting, but also on under-requesting. Therefore, it is not necessarily about reducing request numbers, rather it is about reducing variation in requesting patterns.

Whilst wholesale implementation of demand optimisation will have an element of cost avoidance through avoiding unnecessary testing and repeat testing, there will also be cases where testing increases.

The Scottish Government has funded the National Demand Optimisation Group (NDOG) work since its establishment in 2016, originally under the auspices of the Healthcare Science National Delivery Plan (NDP). Since then, the NDOG has established itself as a national programme of work.

This report highlights the many achievements in Phase V of the programme, including:

- Publication of the primary care Atlas of Variation for diagnostic laboratory tests
- Development and publication of an education toolkit on the 'Right Decision' platform
- Development and implementation of a user guidance manual and videos
- Delivery of a number of presentations and Atlas of Variation demonstrations to a wide range of key stakeholders
- Development of a template for primary care flash reports
- 12 NHS Boards now contributing Atlas of Variation data, which allows for a more comprehensive comparison of data
- Examples of quality improvement work such as blood glucose testing in NHS Fife
- Poster presentation at the NES Annual Virtual Conference - "*An Educational Toolkit for Demand Optimisation when using the Atlas of Variation in Laboratory Diagnostic Testing.*"

3 Aims

3.1 Demand Optimisation Programme Aims

It has been widely accepted and demonstrated that there is considerable variation in the use of diagnostic tests across the NHS.³ While some of this variation may be attributed to clinical and demographic differences, the degree of variation suggests an element of over-requesting and under-requesting, or unnecessary repeat testing. This is amplified by lack of availability or awareness of certain tests within some NHS Boards.

The demand optimisation programme aims to minimise over-requesting and under-requesting as well as reducing unnecessary repeat testing, all of which may be detrimental to patient care.

In addition to more efficient use of resources within diagnostics, optimisation of diagnostic testing is associated with more effective patient care pathways, driving appropriate and timely patient diagnoses and impacting patient flow and treatment.

In some cases, earlier testing can improve patient outcomes. Equally, unnecessary over-requesting can lead to a detrimental impact on clinical pathways. Unnecessary testing also costs money that could be utilised more effectively at other stages of the pathways of care.

3.2 Phase V Objectives

The work of the NDOG aligns with the ethos of the Realistic Medicine approach; ensuring that people receive appropriate and beneficial care that is evidence-based and in line with their preferences.

The objectives for Phase V of the programme are outlined below.

National Team Objectives:

- Establishment of QI toolkits to be utilised within all Health Board QI projects and teams
- Embed Primary Care QI portal into Health Improvement Scotland (HIS) platform
- Develop and roll out flash reports and test feedback reports
- Refine Primary Care Atlas of Variation and recovery monitoring dashboards
- Ongoing national data collection and population of data
- Strengthen links with Realistic Medicine leads and Demand Optimisation teams across Scotland
- Formal national rollout of the Primary Care Atlas of Variation and recovery monitoring dashboards
- Re-engage with Local Improvement Support Teams (LIST) to develop plans for tackling variation.

Network / Clinical Stakeholder Objectives:

- Identify relevant clinical pathways to target for streamlining processes and tackling variation across all Health Boards where appropriate

³ [Driving improvement, delivering results: healthcare science national delivery plan 2015–2020](#)

Board Level objectives:

- All Health Boards to submit data for the Atlas of Variation and recovery monitoring dashboards
- Actively promote use of QI toolkits and embed within local practice

Phase V milestones and progress against these are outlined in Annex 1.

4 Approach

Phase V has been the “implementation phase” of the national demand optimisation programme. The revised governance structure incorporated three separate short life working groups (SLWG) which allowed more focus on specific workstreams and associated actions. The figure 1 below outlines the structure.

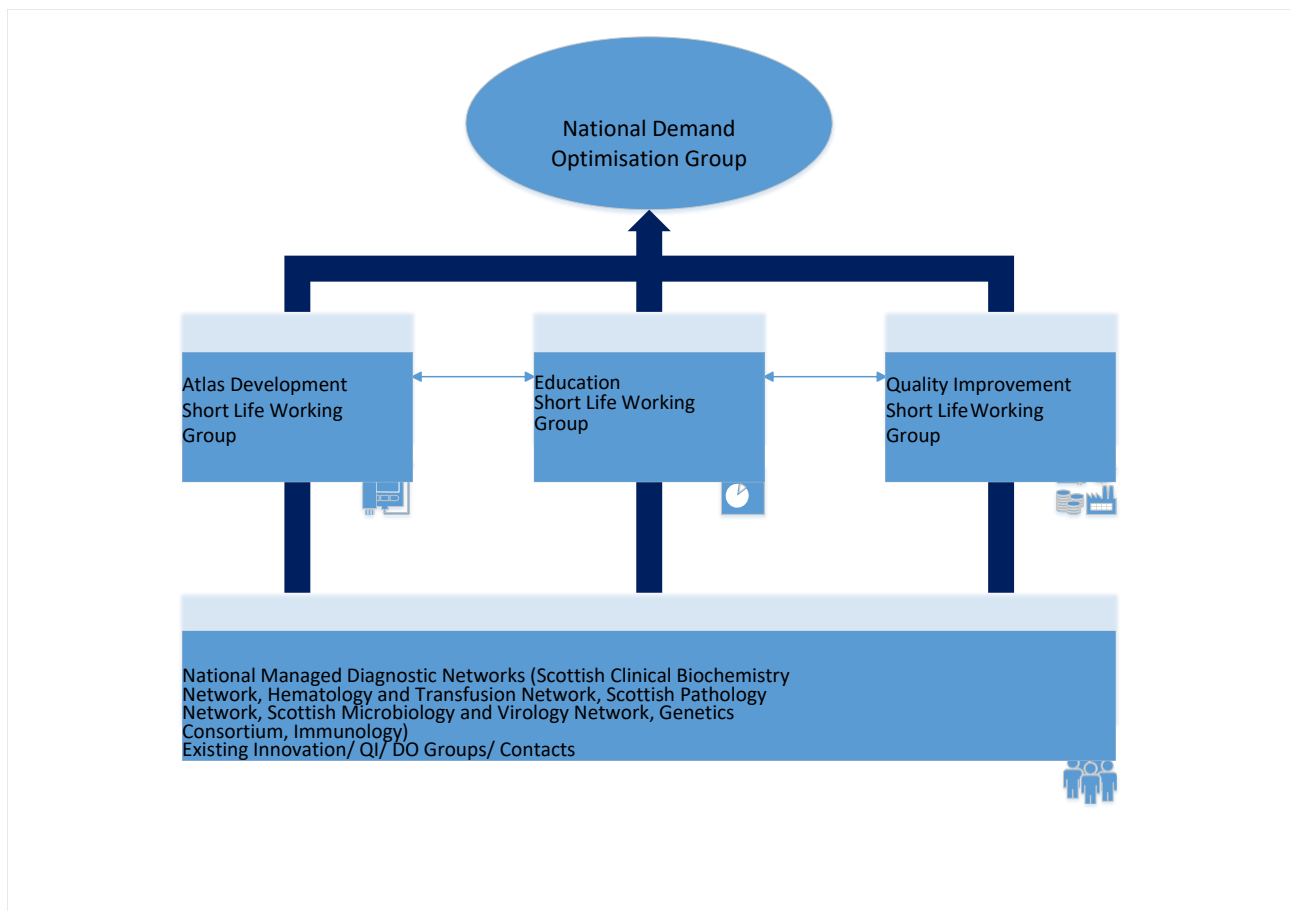


Figure 1: NDOG Phase V Reporting Organisational Structure

5 Outputs

5.1 Primary Care Atlas of Variation

The primary care Atlas of Variation for diagnostic laboratory tests was launched nationally on 1 April 2022.

5.1.1 Atlas Development

The Atlas Development short life working group (SLWG) included General Practitioners from NHS Tayside and NHS Shetland, together with Laboratory and Realistic Medicine representation.

In March 2022 the Atlas of Variation held a soft pilot launch in NHS Fife, NHS Tayside and NHS Grampian, and subsequent feedback from stakeholders enabled the SLWG to develop an updated 'statement of requirements.'

Improvement work included: –

- Updating dashboard labels to clarify the content
- The “cohort” dropdown label was changed to “comparator”, which was seen as a more accurate descriptor of the function provided
- A new automated function was added to ensure that the same practice is already pre-selected when moving between dashboards, to allow smoother transition
- A percentage rate on the summary of all tests dashboard was added as an alternative selection option to rate per 100 of the population. This was seen as a more helpful comparison. Prior to this change, one user commented, “tests with the highest request rates (e.g., Full Blood Count, sodium) are nearly always at the extremes as small relative differences will always be larger than for tests with low request rates.”

A prioritisation exercise was undertaken to identify additional diagnostic tests that could be included within the Atlas of Variation. This can be used to inform any future developments.

A number of stakeholders requested a landing page to provide a high-level overview of the dashboards with a more user-friendly way into the Atlas of Variation. This page was developed (shown in figure 2 below) to provide an overview of the three dashboards as well as buttons to all the other main features within the Atlas of Variation.

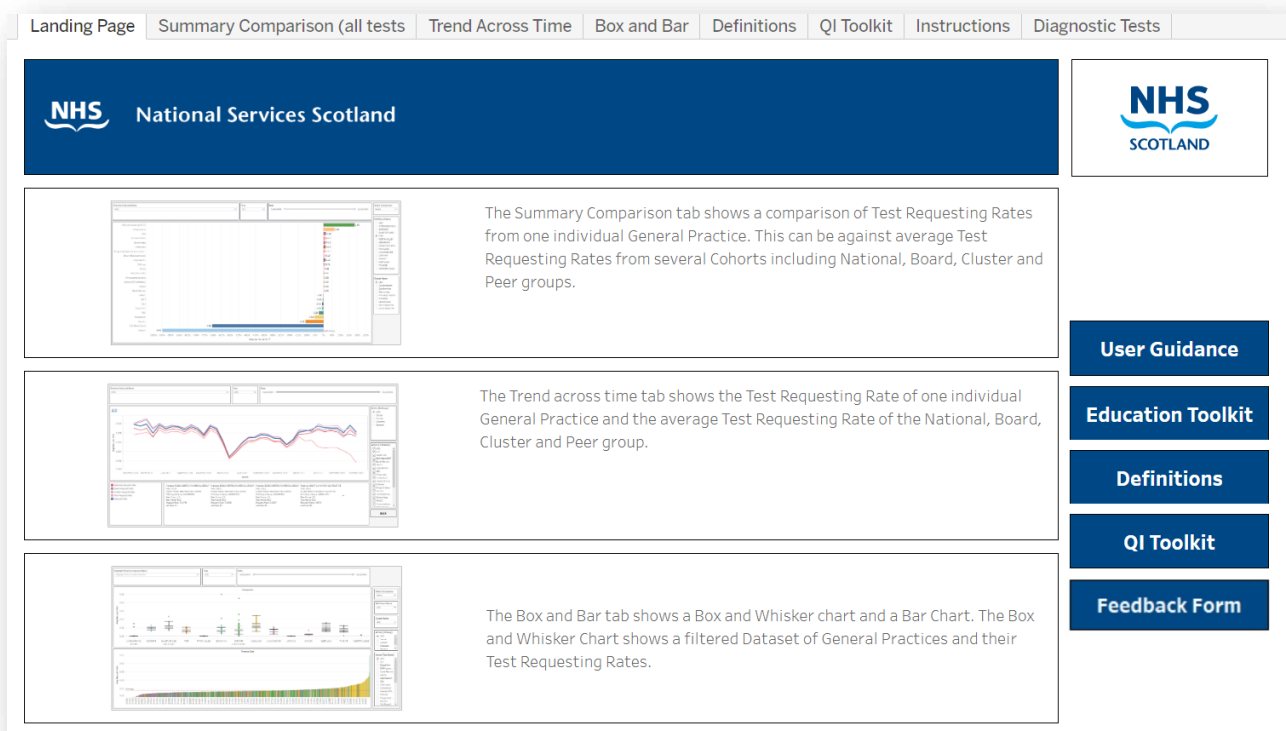


Figure 2: Atlas of Variation Landing Page

Three separate dashboard views allow the data to be interpreted in a variety of different ways.

The ‘Summary Comparison’ provides an overview of all the diagnostic tests within the Atlas of Variation suite. This view shows a comparison of test requesting rates from one individual general practice against the selected comparator (national, health board, cluster⁴ or peer group⁵), allowing a snapshot of tests requested above and below the average rate of the selected comparator.

The ‘Trend Across Time’ view allows a general practice to compare their request rates for an individual test (or group of tests) against all four comparators at the same time and provides these rates over a specified timeline. This provides a quick snapshot of how the practice compares to others, and also clearly demonstrates the impact of COVID-19 and the subsequent recovery period. As one user commented, “these graphs are useful for

⁴ GP clusters are typically groups of between five to eight GP practices in a close geographical location

⁵ The technique Principal Component Analysis (PCA) was used to draw together a number of key variables which describe the practice populations. The variables included in the analysis were selected due to their statistical significance in explaining the variation seen within GP practice populations.

Variables included in the peer grouping model:

1. Percentage of the practice population aged 65 and over
2. Number of patients in each Scottish Index of Multiple Deprivation (SIMD) quintile
3. Urban or Rural classification

As well as the raw prevalence (number of patients on the disease register for this condition, divided by list size, multiplied by 100) of

1. Asthma
2. Atrial fibrillation
3. Cancer
4. Coronary Heart Disease (CHD)
5. Diabetes
6. Hypertension
7. Stroke

telling the story of impact of COVID on diagnostics, both the reduction in requests during the first (and to a lesser extent second) lockdown. Variation in speed and extent of recovery of both specific tests and for particular practices can also be observed.”

The ‘Box and Bar’ view provides two separate charts. The whisker chart provides a snapshot that highlights any outlier general practices for specific test (or group of tests). The bar chart shows all of the general practices (within the selection) on a side-by-side scale in order of those that are under-requesting the most to those that are over-requesting the most, against the average of the selected comparator. Service users commented that this was especially helpful for comparing practices within the cluster and also allowed for comparison within and between Health Boards to start to identify where specific pathways differ in addition to different practices of individual surgeries.

5.1.2 User Guidance

It was acknowledged that the complexity of the Atlas of Variation necessitated the development of user guidance.

A user guidance manual was created in March 2022, which is provided in Annex 2. Several short videos were also created to cover each feature and dashboard view within the Atlas of Variation.

5.1.3 Flash Reports

The Atlas Development Short Life Working Group worked on the Phase V Flash Report template (see Annex 3), which was subsequently circulated to the pilot Health Boards (NHS Tayside and NHS Grampian) for feedback. The flash reports were designed to prompt the reader to consider what actions they could possibly take to address this. It also includes a link to the relevant educational advice for that test.

The NDOG have been in discussions with Local Intelligence Service Team (LIST) Analysts to determine the feasibility of incorporating the Atlas of Variation Flash Report information into their existing quarterly GP cluster reports.

5.1.4 Engagement

Throughout Phase V, the NDOG has engaged with a wide range of interested stakeholders to gather feedback, demonstrate the Atlas of Variation (and associated education toolkit) and share general communications about the rollout of the Atlas of Variation.

Stakeholders have included:

- Diagnostics in Scotland Strategic Group (DiSSG)
- Laboratories Executive Board (LEB)
- Scottish Government & Realistic Medicine Leads
- National Services Scotland (NSS) and the National Managed Diagnostic Networks (NMDN)
- Health board laboratory services
- General Practitioners
- Local Intelligence Support Teams (LIST)
- Digital Health and Innovation Centre (Dhi) Scotland
- Royal College of General Practitioners (RCGP)
- NHS Education Scotland (NES)

- Scottish Government Pathway Policy Leads (National Cancer Recovery Group, Cardiac, Diabetes etc.)
- Patients.

See Annex 4 for a high-level stakeholder overview.

The group continues to maintain and regularly update its website with pertinent programme information and links (www.demandoptimisation.scot.nhs.uk) and interacts with colleagues regularly via the National Managed Diagnostic Networks (NMDN) Twitter account (@NMDNSoect).

Throughout the year, NDOG core team members have presented to:

- Institute of Biomedical Science (IBMS) Congress
- National Cancer Recovery Group
- Realistic Medicine Leads, Primary Care Policy Leads and Pathway Policy Leads
- Medical Directors
- Primary Care Leads
- The Improving Together Advisory Group
- LIST.

5.1.5 Primary Care Atlas of Variation Recommendations

It is recommended that Phase VI of the Demand Optimisation programme:

- Ensures ongoing national data collection and population of data from all Health Boards
- Continues to link with PathNexus and LIMS projects to explore how synergies might support automation
- Continues to deliver against agreed Comms plan
- Delivers training modules of how to use the Atlas
- Reviews the current suite of test in order to ensure that the Phase VI test suite is fit for purpose going forward.

5.2 Education

At the beginning of Phase V of the programme it was recognised that the Atlas of Variation presented powerful data but raised questions about practice, providing no direct strategy for behavioural change. The development of an education toolkit would provide information and direction around appropriate test use, translating into change in practice.

The NDOG was tasked with developing and implementing an education toolkit to expedite and maximise the utility, impact and implementation of the Atlas of Variation. An educational toolkit will contribute towards the delivery of standardised diagnostic testing practices across all boards in Scotland, with the aim to reduce harm, waste and unwarranted variation to improve health outcomes.

The toolkit can be accessed here - [Diagnostic Atlas of Variation - education toolkit \(scot.nhs.uk\)](http://www.demandoptimisation.scot.nhs.uk)

5.2.1 Value Improvement Fund

The NDOG was awarded funding through the Realistic Medicine Improvement Fund (VIF) to develop a suite of educational materials to support the Atlas of Variation.

An Education Short Life Working Group (SLWG) was established to take this work forward, chaired by Ian Godber (Consultant Clinical Scientist, NHS Greater Glasgow & Clyde) Lead Healthcare Scientist. The group has representation from microbiology and virology, biochemistry and haematology.

5.2.2 Education Toolkit Implementation

The decision was made that the [education toolkit](#) would be developed on the Right Decision platform and linked via the NDOG website and Atlas of Variation itself. The Right Decision Service is a Once for Scotland platform for health and social care. It delivers evidence-based guidelines, pathways, shared decision aids and risk scoring tools directly into the hands of health and social care staff. The service is accessible online and via mobile apps. It is funded by the Scottish Government and has been developed in partnership with health and social care staff across Scotland. A template was developed and refined to capture the key sections of the proposed guidance, including the e-learning questions.

The educational guidance covers the following key areas:

- Background
- When to test
- When to repeat a test
- When not to test
- Further references and reading
- Quiz questions

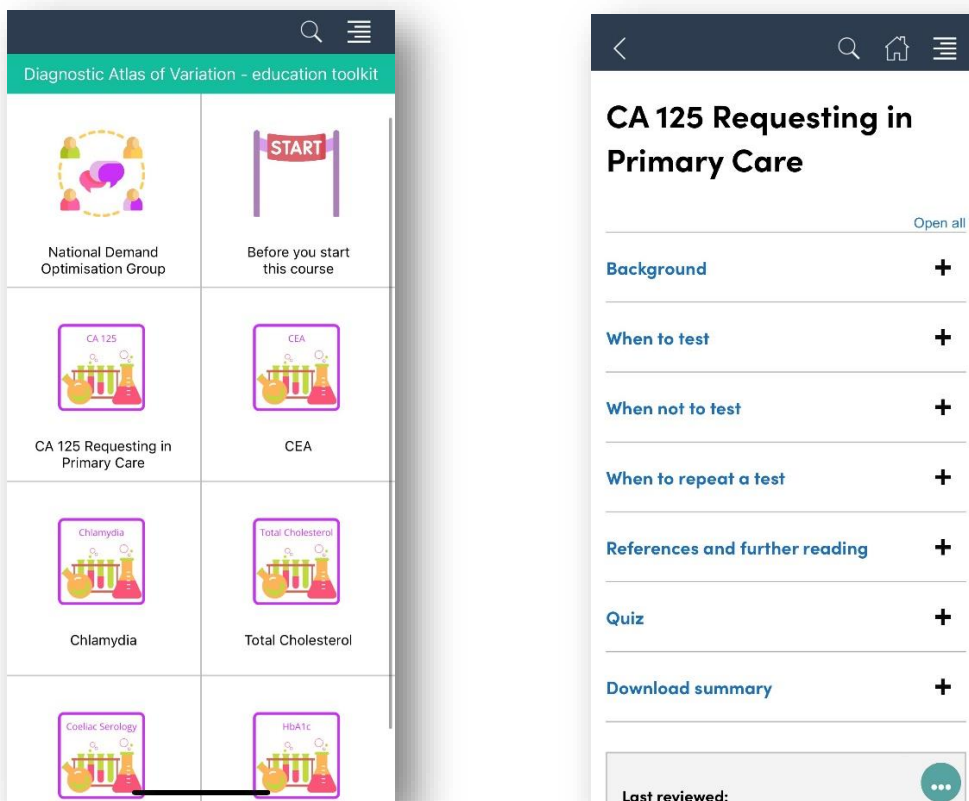


Figure 3: Screenshot examples of Education Toolkit on Right Decision App

5.2.3 Benefits of an Education Toolkit

Anticipated benefits of the educational toolkit include:

- Contributing towards the delivery of more standardised diagnostic testing practices across all boards in Scotland
- QI work informed by the data in the and associated education toolkit should emerge and complement work on care pathways including diabetes, heart disease, cancer and respiratory Atlas of Variation Cost efficiency – resources expended on testing can be optimised
- Encouraging those that may have been hesitant to request a test to do so in line with the advice provided, leading to appropriate diagnoses and improved outcomes
- Support General Practitioners (GPs) in requesting the most appropriate diagnostic test.

The success of the educational toolkit will be measured as follows:-

Process Measures

1. The % of the identified top 20 tests with guidelines in place on appropriate use
2. The % of agreed NHS Boards receiving reports on test requesting patterns

Outcome Measures

1. Optimisation of test requesting across identified tests (% reduction in variation to be agreed within individual quality improvement plans), i.e. standard deviation should decrease
2. Toolkit in use across 50% of GP practices across participating areas

3. Number of GPs accessing toolkit within participating boards increasing through quarterly reporting

Balance Measures

1. Data collection remains at 95% of current levels
2. Fewer than 10% of labs raise issues of increased testing beyond current capacity
3. No decrease in number of people accessing the Atlas

A poster titled “*An Educational Toolkit for Demand Optimisation when using the Atlas of Variation in Laboratory Diagnostic Testing*” was displayed at the NES Annual Virtual Conference, further promoting its use and importance.

An education-themed newsletter was also shared in June 2022 to promote the education toolkit, highlight progress to date and encourage feedback.

5.2.4 Education Recommendations

It is recommended that the NDOG and Education Short Life Working Group focus on the following, during the next phase of the programme:

- Continued engagement with the Right Decision app to complete suite of education materials
- Ongoing Educational advice developed and embedded in the Atlas
- Align targeted unwarranted variation from the primary care Atlas to the availability of educational advice available

5.3 Quality Improvement

A Quality Improvement (QI) SLWG has been established which includes NHS Education for Scotland Quality Improvement course alumni who can support GPs to deliver projects within their practice or clusters. GP clusters are typically groups of between five to eight GP practices in a close geographical location.

The NDOG has also been working with a number of policy teams from Scottish Government (Cancer, Diabetes, Cardiac) to look at synergies across pieces of work. In particular, the NDOG is supporting national work around diabetes pathways, providing HbA1c cluster-level requesting information and data examples for inclusion in a report that will enable clusters to see all diabetes pathway data in one place. Below are a couple of examples of QI work now in progress.

5.3.1 Example: HbA1c

NHS Fife were given access to an early version of the Atlas of Variation as part of a pilot exercise, one practice in particular noticed that their HbA1c request rates were significantly higher on average than all of their comparators.

The ‘Trends Across Time’ dashboard allows practices to drill down into specific tests and lets them compare their request rates with the average rates of their health board, cluster, peer group and the national rate. This was where it became clear that there was significant variation for the practice in question, as shown in figure 4 below.

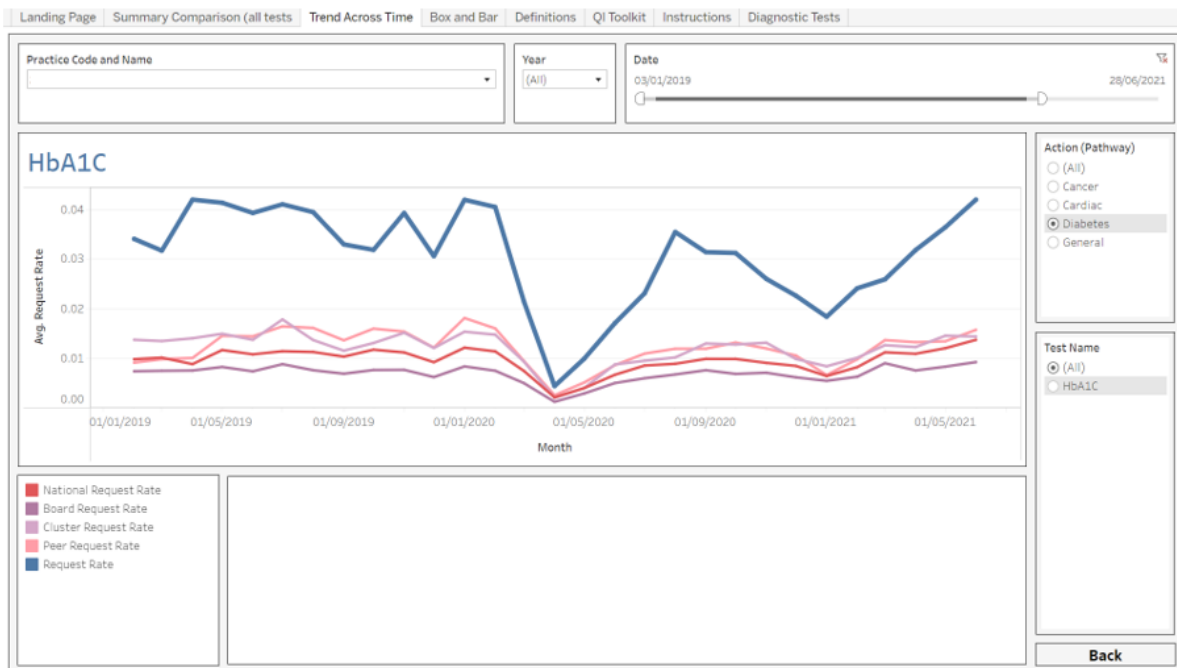


Figure 4: Example practice HbA1c request rates (/100 patient) from 03/01/19 to 28/06/21 against comparators

The practice manager provided the following insight:

“We made changes to our requesting template in cyberlabs, removing the HbA1c test due. This change came after figures were shared of NHS Fife testing rates and we were shocked to find that [example practice] were substantially more than other practices.

We removed the HbA1c testing from our regular chronic disease template to ensure it was only used when required.”

The results of this change can be seen in figure 5 below.

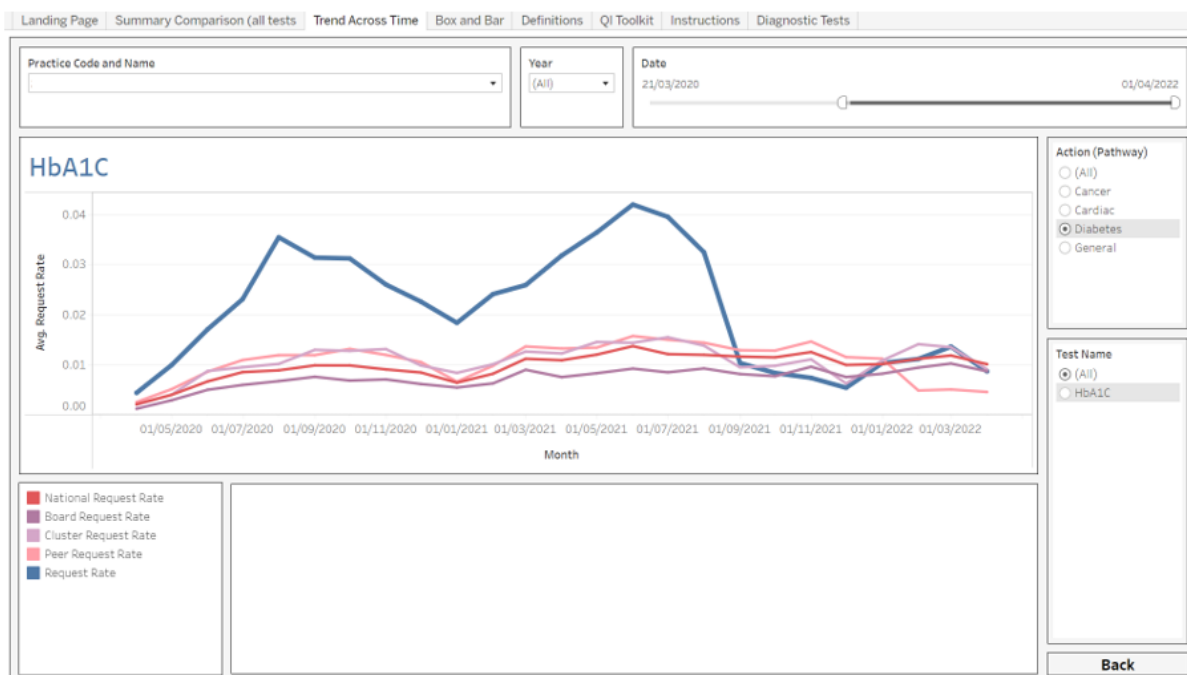


Figure 5: Example practice HbA1c request rates (/100 patient) from 01/05/20 to 01/03/22 against comparators

As the above graphic demonstrates, after implementing this change, the practice is now very much in line with its comparators. From 1st September 2021 to 31st March 2022 around 882 unnecessary tests were avoided, (or an average of 1,512 per annum). The average cost of an HbA1c test is £4.20. When considering a drop in average test requests from 183 to 57. This generates an annual saving of £6,350.40.

This is just an example of one test, for one practice in Scotland.

5.3.2 Example: NHS Grampian Practice Variation

A QI project is underway in NHS Grampian to look at the underlying causes of unwarranted variation in requesting patterns. Practices within a single cluster have been approached to take part in this work and the following objectives have been outlined:

- Identify practices at the lower and higher ends of request rate scale to understand and assist with associated issues, leading to a reduction in unwarranted variation and allowing the support of service efficiency and sustainability within the system.
- Investigate local challenges and promote a just healthcare system for all, attempting to mitigate potential risks of health inequalities.
- Promote the Atlas of Variation as a tool to support a personalised approach to care, reduce unwarranted variation, reduce harm and waste and manage risk better in primary care blood testing.
- Develop multiple points of access to the Atlas of Variation database via TRACK care, Realistic Medicine, ISD Primary Care, iHub – to promote awareness and assist with informed decision making.
- Communicate and encourage Minimum Testing Intervals (MTI), the right test for the right patient at the right time approach.
- Provide support and guidance to practices and cluster leads to explore variation in request rates, identified through data analysis.

5.3.3 Quality Improvement Recommendations

It is recommended that the NDOG and Quality Improvement Short Life Working Group focus on the following, during the next phase of the programme:

- Develop quality assurance process of regular reporting of analytical data associated with the Atlas that highlights unwarranted variation across primary care
- Align Atlas data with improvement plans in Primary Care with targeted reporting to GPs of the test(s) highlighted, and monitor impact over 6 months
- Scope automation of flash reports, ensuring the data shared is meaningful (i.e., reports are only generated where variation is present)
- Work with the national Improving together Advisory Group to contribute to a refreshed national framework for Clusters
- Connect laboratory Atlas data for diabetes to the wider datasets from Scottish Care Information – Diabetes Collaboration (SCI-DC), Public Health Scotland (PHS), Scottish Therapeutics Utility (STU) for each cluster, which allows them to understand their prevalence, referral, prescribing and management of type 2 diabetes, alongside a narrative with tools and resources to support Realistic Medicine approach to person centred care and planning.
- Explore where demand optimisation could add value to programmes in cancer and diabetes diagnosis and monitoring
- Actively promote use of QI toolkits and embed within local practice

6 Benefits Realisation

Based on the recommendations outline in section 4, the below table outlines the benefits realisation plan for the next phase of the programme.

Benefit name	Benefit description	Who will receive the benefit
Health Savings	Ensuring appropriate testing will contribute to improving population health through, for example, earlier diagnosis on sexual health testing we reduce unnecessary spread of disease	Population
Patient Benefit	Through our programme, ensuring each patient has the right test at the right time in the patient pathway, we improve their care and reduce unnecessary repeat testing	Population
Pathway Savings	As well as cost savings within diagnostic services, there will be savings elsewhere in the system, for example unnecessary hospital admissions due to lack of appropriate monitoring	Whole System
Data Availability	Robust data will be available to support identification of variation in requesting/referral for a range of lab tests	Primary Care
Data Analysis	Analysed data demonstrating variation at practice, cluster, NHS Board, regional and national levels will be publicly available	Primary Care
Education	A range of educational materials to guide referrers on the most appropriate use of tests will be available to all referrers within NHS Scotland	Primary Care
Recovery Monitoring	Data demonstrating variation in the recovery of cellular pathology services will be readily available	NHS Boards, Scottish Government
Quality Improvement	A range of quality improvement tools (and QI support) will be available for referrers to use to tackle variation	Primary Care
Reduced Variation	Unwarranted variation in testing requesting will be reduced.	NHS Boards, Scottish Government
Cost Savings	Reducing unnecessary testing will save laboratory consumable and overheads	NHS Boards, Scottish Government
Staff Savings	Reducing unnecessary testing will reduce the burden on lab staffing, potentially improving turnaround times and/or contributing to service sustainability	Lab management

7 Annex


Annex 1: Milestones

No.	Milestones	Start Date	End date	Jun-22
1	Develop a plan in partnership with Primary Care to engage with Primary Care colleagues, promote the Atlas of Variation and begin to identify QI projects	01/07/2021	30/11/2021	C
2	Develop and publish agreed Genetics data recovery monitoring dashboard in consultation with relevant stakeholders.	01/01/2022	30/06/2022	R
3	Establish sub-group to identify and map existing educational resources and to agree suite of additional accompanying educational guidance to be developed. All educational guidance to be linked to the Primary Care Atlas and recovery monitoring dashboards.	01/07/2021	31/12/2021	C
4	Produce initial suite of educational resources – limited to selected tests for each discipline. To be published on NDOG website and widely publicised via NDOG Steering Group, National Managed Diagnostic Networks and other stakeholder contacts.	01/10/2021	31/12/2021	C
5	Publish and promote the Demand Optimisation educational toolkit – to be hosted on the NDOG website.	01/01/2022	30/06/2022	C
6	Relaunch Primary Care Atlas of Variation data collection to pilot group.	01/07/2021	30/09/2021	C
7	Actively embed recovery monitoring dashboards into Scottish Government policy areas where appropriate.	01/10/2021	31/12/2021	C
8	Extend relaunch Primary Care Atlas of Variation to more Health Boards	01/10/2021	31/12/2021	C
9	Carry out agreed Primary Care engagement plan, including further formal roll out of the updated Atlas of Variation to Primary Care.	01/01/2022	30/06/2022	C
10	Primary Care Atlas of Variation relaunched to all participating Health Boards	01/01/2022	30/06/2022	C
11	Formalise links with Scottish Government policy teams.	01/07/2021	30/09/2021	C
12	Agree a Genetics data set to add to the suite of available information and begin data collection.	01/07/2021	30/09/2021	R
13	Collate formal feedback on the existing Atlas of Variation and recovery monitoring dashboards, develop a statement of requirements to implement improvements.	01/07/2021	31/12/2021	C
14	Map Realistic Medicine and Demand Optimisation team infrastructure (including remit) in each Health Board	01/07/2021	30/11/2021	C

Annex 2: User Manual

Here is a link to the user guidance manual and videos - [Phase5 Primary Care Dashboard | Tableau Public](#)

National Demand Optimisation Group



Primary Care Atlas of Variation for Laboratory Diagnostic Tests

User Guidance

This guidance is designed to help navigate users through the Primary Care Atlas of Variation for Laboratory Diagnostic Tests, developed by the National Demand Optimisation Group (NDOG). Some background information is provided, followed by guidance on each of the tabs and dashboard views within the Atlas. A 'Frequently Asked Questions' section has also been included along with contact details for the NDOG team.

Here is a direct link to the Atlas: [Phase5 Primary Care Dashboard | Tableau Public](#)

What is Demand Optimisation?

Demand Optimisation is defined as the process by which diagnostic test use is optimised to maximise appropriate testing, which in turn optimises clinical care and drives more efficient use of NHS resource.

What is the National Demand Optimisation Group?

Under the auspices of the Healthcare Science National Delivery Plan (NDP), the Scottish Government funded the establishment of a National Demand Optimisation Group (NDOG) to review the third deliverable of the NDP, which states:

NHS Board Healthcare Science Leads will work with stakeholders to develop local improvement plans to reduce unnecessary testing across primary and secondary care. This will free up capacity to address rising demand and deliver testing that positively affects the patient pathway, supports primary care preventative measures and reduces hospital referrals and admissions.

The NDOG is a multi-disciplinary group comprised of individuals from the main diagnostic disciplines within Laboratory Services, the Scottish Government, NHS National Services Scotland (NSS) and the National Managed Diagnostic Networks (NMDNs).

Why Does the Group Exist?

There is considerable variation in the use of laboratory diagnostic tests across primary care. Some of this variation can be attributed to clinical and demographic differences. However, some variation can be attributable to differences in practice processes and pathways or individual requester approaches or preferences.

What is the Primary Care Atlas of Variation for Laboratory Diagnostic Tests?

The Atlas of Variation contains monthly data on NHS board primary care requesting totals for a specific suite of blood science tests from cancer, cardiac, diabetes and other general pathways. The Atlas consists of three separate dashboards that allow GP practices to compare their request rates with their cluster, health board, national totals and peer group.

What else can I get out of using the Atlas of Variation?

The Atlas of Variation also contains links to educational advice, developed by the National Demand Optimisation Group's Education Short Life Working Group members. The advice, available for selected tests, is hosted on the Right Decision platform, with direct links from the Atlas. Information [includes](#) background, when to test, when not to test, when to repeat a test and any further reading recommendations. There is also an opportunity for users to test their knowledge.

A quality improvement toolkit of resources can also be accessed via the Atlas, should any users wish to scope and implement any quality improvement projects.

Who can I contact for more information?

If you have any further questions or would like more information, you can get in touch with the NDOG team via nss.nationaldemand@nhs.scot
You can also visit the website - [National Demand Optimisation Group \(scot.nhs.uk\)](#)

1. The Landing Page

When you first enter the Atlas of Variation, you will be able to see a landing page, which provides a screenshot and overview of each of the three dashboard views options, as well as buttons to take you to the Education Toolkit, Definitions and Quality Improvement Toolkit.

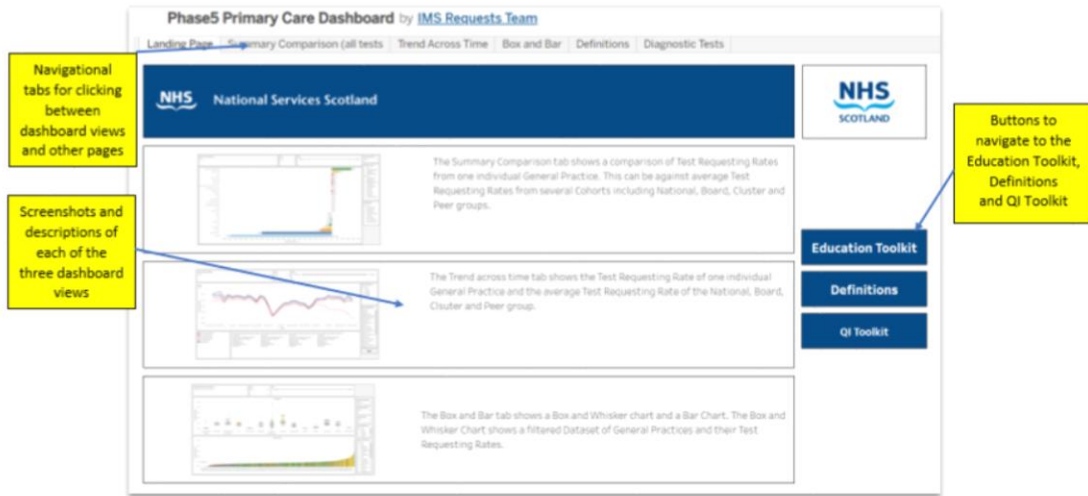


Figure 1 Atlas of Variation Landing Page

2. Dashboard 1 – Summary Comparison (All Tests)

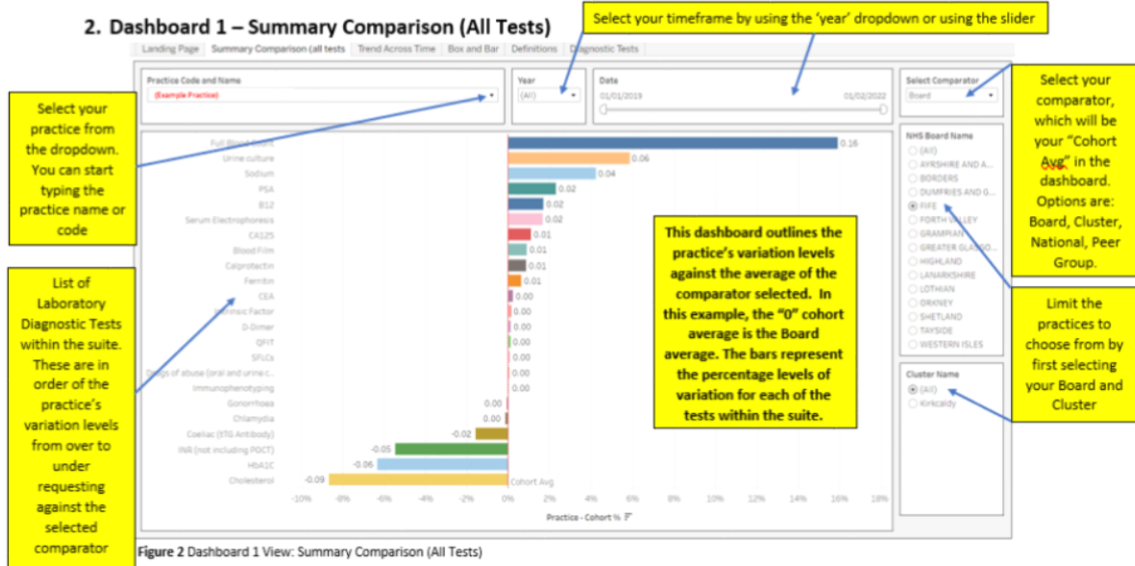


Figure 2 Dashboard 1 View: Summary Comparison (All Tests)

3. Dashboard 2 – Trends Across Time



Figure 3 Dashboard 2 View: Trends across Time

This dashboard allows you to compare your practice with all four comparators at the same time, over a selected period of time.

4. Dashboard 3 – Box and Bar

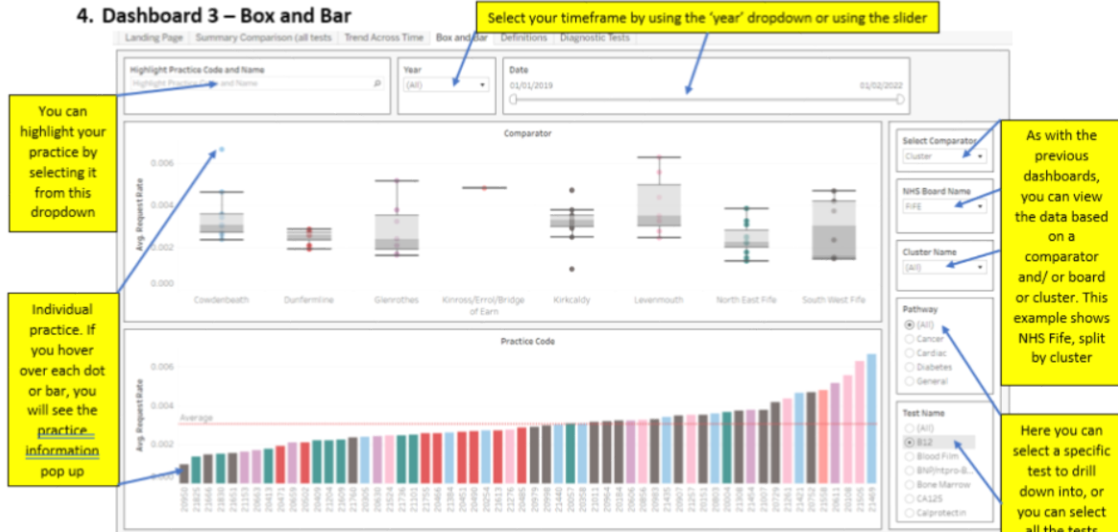


Figure 4 Dashboard 3 View: Box and Bar

This dashboard shows two separate outputs. The top is a box graph, which has each practice represented by a dot. In the above example, these are split into clusters within the selected health board. The bar chart in the lower half of the dashboard shows all the practices within the board, side by side. This ranges in ascending order from the practice that has the highest under-request rate to the practice with the highest over-request rate, compared to the selected average, which in this example is the board.

5. Education Toolkit

Landing Page | Summary Comparison (all tests) | Trend Across Time | Box and Bar | Definitions | Instructions | Diagnostic Tests

Diagnostic Tests		
B12	Lab Test Online Page	
Blood Film	Lab Test Online Page	
BNP/ntpro-BNP	Lab Test Online Page	
Bone Marrow	Lab Test Online Page	
CA125	Lab Test Online Page	Education Toolkit
Calprotectin	Lab Test Online Page	Keep Only Exclude
CEA	Lab Test Online Page	Test Name: CA125
Chlamydia	Lab Test Online Page	CA 125 measurement is part of the ovarian cancer diagnostic pathway
Cholesterol	Lab Test Online Page	Toolkit link: https://gptoolkitapp.azurewebsites.net/diagnostic-atlas-of-variation-education-toolkit-requesting-in-primary-care/
Coeliac (tTG Antibody)	Lab Test Online Page	
D-Dimer	Lab Test Online Page	
Drugs of abuse (oral a...	Lab Test Online Page	
Ferritin	Lab Test Online Page	
Full Blood Count	Lab Test Online Page	
Gonorrhoea	Lab Test Online Page	
HbA1C	Lab Test Online Page	
Immunophenotyping	Lab Test Online Page	
INR (not including ...)	Lab Test Online Page	
Intrinsic Factor	Lab Test Online Page	
PSA	Lab Test Online Page	
QFIT	Lab Test Online Page	
Serum Electrophoresis	Lab Test Online Page	
SFLCs	Lab Test Online Page	
Sodium	Lab Test Online Page	
Urine culture	Lab Test Online Page	

Figure 5 Diagnostic tests overview and links to the associated educational advice

Service

Calculator suite | App library | Build RDS tools | About | Contact us

Home > Diagnostic Atlas of Variation - education toolkit > CA 125 Requesting in Primary Care > When not to test

When not to test

CA 125 should not be measured in any of the following situations:

- During early pregnancy
- During menstruation
- For the investigation of suspected endometriosis
- As part of a tumour marker screen
 - CA 125 within the reference range does not exclude ovarian cancer
 - CA 125 may be raised in other malignancies in addition to other non-malignant pathologies
- In a male patient

Previous page | Next

Figure 6 Example of educational advice layout on Right Decision platform

A number of tests within the Atlas will have associated educational advice.

The advice includes:

- Background
- When to test
- When not to test
- When to repeat a test

This is followed by a quiz to test knowledge gained.

Once in the Right Decision platform, all available advice can be explored. A homepage for NDOG will also provide further information.

Downloadable PDF versions of the advice will also be available.

6. Definitions

Landing Page | Summary Comparison (all tests) | Trend Across Time | Box and Bar | Definitions | Diagnostic Tests

Definitions	NHS Scotland	NHS National Services Scotland
Request Rate	The Request Rate comprises of the monthly Test Request for a General Practice divided by the Population size of the General Practice.	
General Practice	Practice Details and List Size https://www.scotland.nhs.uk/Health-Topics/General-Practice/Defn/	
Clusters	The General Practice Cluster is geographic group of General Practice. More info can be found here: https://www.scotland.nhs.uk/Health-Topics/General-Practice/GP-Clusters/	
Peer Group	The Peer Group is a way of grouping General Practice with with similar underlying populations. Further information can be found here: https://www.scotland.nhs.uk/Health-Topics/General-Practice/GP-practice-over-comparisons/index.asp	

This page provides a glossary of definitions found within the Atlas of Variation.

Figure 7 Definitions page

7. Quality Improvement Toolkit

The National Demand Optimisation Group (NDOG) has a Short Life Working Group that has been tasked with scoping and developing quality improvement projects, through the utilisation of data held within the Atlas of Variation. This work is in the early stages of development at the moment, however a quality improvement zone will be set up on the NDOG website in the near future, which will contain examples of projects, resources and templates.

In the meantime, a link has been set up from the Atlas of Variation 'Landing Page', which will take the user to an existing Quality Improvement Zone managed by NHS Education for Scotland (NES).

8. Instructions/ User Guidance

A tab and button can be accessed from the 'Landing page', which takes you to this guidance, as well as several informative videos.

9. Frequently Asked Questions

1. **What do I do if the data looks wrong?**
 - a. Drop the NDOG team an email with as much information as possible (i.e. GP Practice name, test name etc.) – nss.nationaldemand@nhs.scot
2. **Can I share this with other NHS colleagues?**
 - a. Yes – please do
3. **How often is the Atlas of Variation updated?**
 - a. We request data on a monthly basis from NHS Boards
4. **Can I suggest changes to the Atlas of Variation?**
 - a. Yes, using the feedback form on the NDOG website, under the "Dashboards" tab, you can select from a dropdown of topics and provide feedback in a free text box. This will be picked up by the NDOG Atlas Development Short Life Working Group for discussion and follow up.
5. **Is there a change control process?**
 - a. Yes, the Demand Optimisation Core Team record all changes made to the Atlas of Variation
6. **How do I find out more about Demand Optimisation?**
 - a. Please visit our website <https://www.demandoptimisation.scot.nhs.uk/>
7. **Which internet browser should I use to access the Atlas of Variation?**
 - a. Please use Chrome, Edge or Firefox. Do not use Internet Explorer.
8. **If I have local / national guidelines relating to tests on the Atlas of Variation, can I send them in?**
 - a. Yes – please send [in to](mailto:nss.nationaldemand@nhs.scot) the Demand Optimisation mailbox nss.nationaldemand@nhs.scot
9. **Where do I go if I have any other questions?**
 - a. Please email us using the Demand Optimisation mailbox nss.nationaldemand@nhs.scot

Annex 3: Flash Report Example

Laboratory Test Requesting in Primary Care Flash Report (Dec 2021)

Practice: EXAMPLE

Test: B12

Why is this report being sent to your practice?

There is considerable variation in the use of diagnostic tests across primary care. Some of this variation can be attributed to clinical and demographic differences. However, some variation may not be explained and can be attributable to variation in practice processes and pathways or individual requester approaches or preferences.

This report highlights requesting trends for a specific test, which has been identified as potentially having variation in requesting. It must be stressed that these requesting trend comparisons are not an exact science, therefore a requesting level above or below your Health Board or Scotland average does not necessarily imply appropriate or inappropriate test use. The aim of this report is to prompt reflection, provide an opportunity for education and possibly act as a source for quality improvement activity.



Figure 1: The above graphic demonstrates request rates for your practice over time [labelled as 'Request Rate'], compared with the National, Board, Cluster and Peer group request rates.

What could you do now?

- Consider discussing at a Practice or Cluster meeting to try and understand any variation
- Consider any changes that could be made, which would potentially improve requesting by either appropriately increasing or decreasing test numbers
- Explore other diagnostic testing rates at the Primary Care [Atlas of Variation](#) for Diagnostic Testing
- Provide feedback on the Atlas of Variation via the National Demand Optimisation website, [here](#)
- Let the team know if you would like to develop some QI work around this test via nss.nationaldemand@nhs.scot

Educational Guidance

More guidance on this test can be found [here](#).

Further Information

If you would like to comment on any of the trends outlined in this report or have any questions/ requests, please contact the team via, nss.nationaldemand@nhs.scot.

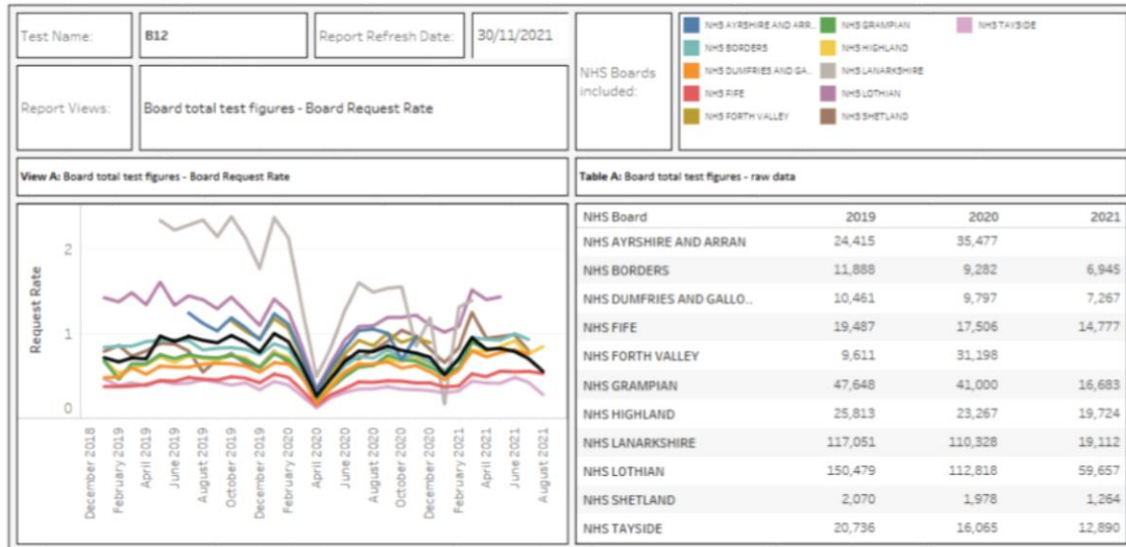
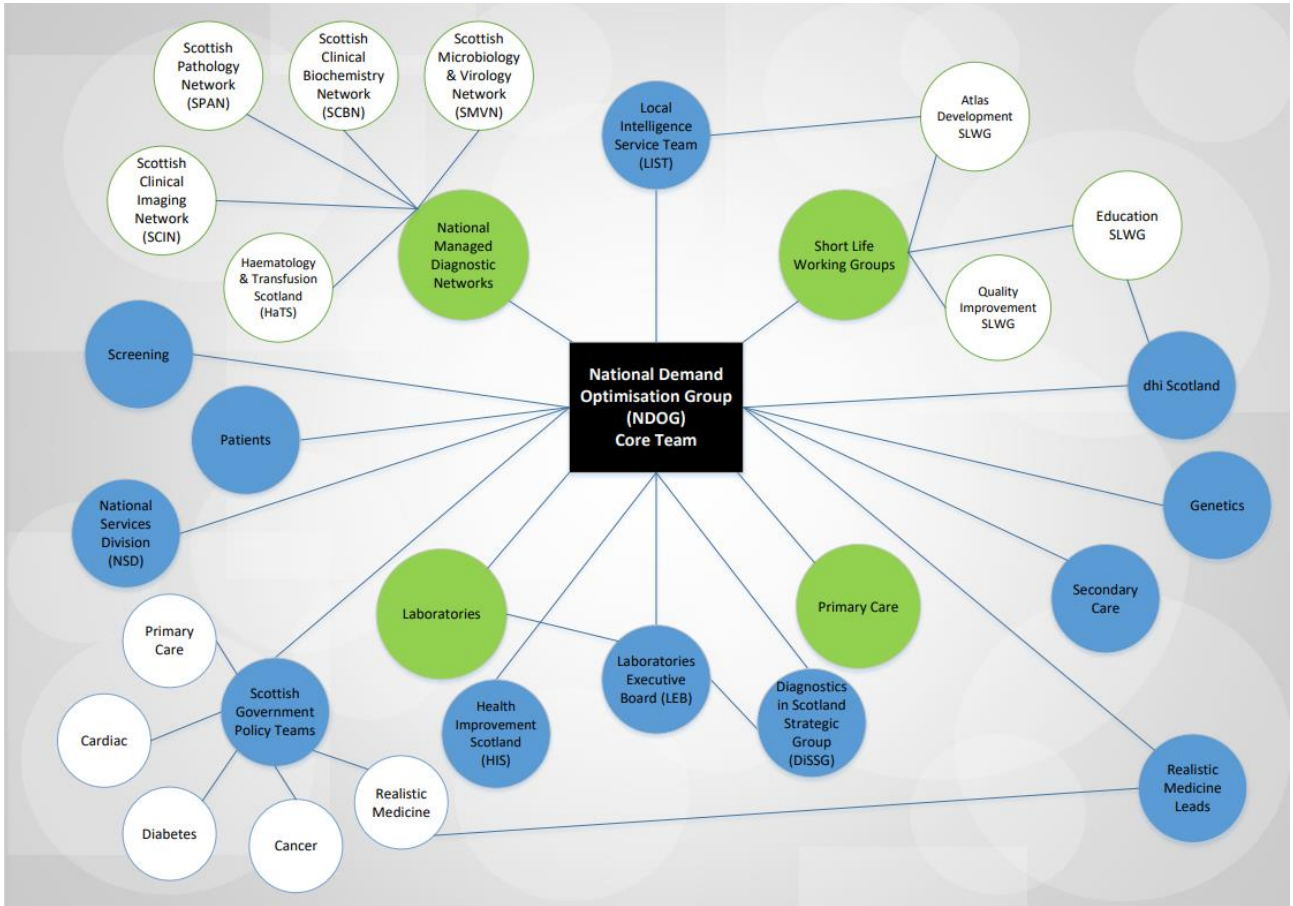


Figure 2: Crib sheet demonstrating test request patterns for Health Board level, as well as annual request figures

DRAFT

Annex 4: Stakeholder Map



Annex 5: Useful Links

Atlas of Variation - [Phase5 Primary Care Dashboard | Tableau Public](#)

Education Toolkit - [Diagnostic Atlas of Variation - education toolkit \(scot.nhs.uk\)](#)

User Guidance - [Phase5 Primary Care Dashboard | Tableau Public](#)

NDOG Website - [National Demand Optimisation Group \(scot.nhs.uk\)](#)

Reports and Resources - [Resources – National Demand Optimisation Group \(scot.nhs.uk\)](#)



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This publication is available at www.gov.scot

Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80525-554-3 (web only)

Published by The Scottish Government, April 2023

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1245602 (04/23)

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