# Grant Thornton

# NHS Lothian

Internal Audit 2024/25

## Performance Data Integrity Review

January 2025

## FINAL REPORT

**Emily Mayne**
Head of Internal Audit
T:  0121 232 5309
E: emily.j.mayne@uk.gt.com

**Hannah McKellar**
Internal Audit Manager
T: 0131 659 8568
E: hannah.l.mckellar@uk.gt.com

**Matt Lee**
Assistant Manager
T: 0121 232 8784
E: matt.d.lee@uk.gt.com

# Contents

This report is confidential and is intended for use by the management and directors of NHS Lothian. It forms part of our continuing dialogue with you. It should not be made available, in whole or in part, to any third party without our prior written consent. We do not accept responsibility for any reliance that third parties may place upon this report. Any third party relying on this report does so entirely at its own risk. We accept no liability to any third party for any loss or damage suffered or costs incurred, arising out of or in connection with the use of this report, however such loss or damage is caused.

It is the responsibility solely of NHS Lothian management and directors to ensure there are adequate arrangements in place in relation to risk management, governance, control and value for money.

## Report Distribution

**Executive Lead:**

• Jim Crombie, Deputy Chief Executive

**For action:**

• Lauran Wands, Performance and Business Manager

**For Information:**

• Caroline Hiscox, Chief Executive

• Craig Marriott, Director of Finance

• Andrew Jackson, Associate Director – Analytical Services

• Amanda Kirkpatrick, Programme Manager – Waiting Times Governance

• Audit and Risk Committee

2/14

# Executive summary

## Background

Effective performance management is an essential component in ensuring that healthcare services within NHS Scotland adhere to the required standards of care, efficiency, and regulatory compliance. It provides a structured approach to monitoring, evaluating, and improving service delivery. Using key performance indicators (KPIs), performance management helps identify areas for improvement, ensure accountability, optimise resource allocation, and enhances patient outcomes.

However, the accuracy of performance reporting and the effectiveness of decision-making are critically dependent on the integrity of the underlying data. Poor data integrity can lead to misguided decisions, non-compliance with standards, and erosion of trust. The Patient Rights (Scotland) Act 2011 and subsequent regulations, including the NHS Scotland National Access Policy, highlight the importance of maintaining high standards in data collection, validation, and reporting, to support decisions that ensure timely and equitable access to healthcare services.

Our internal audit review focused on assessing the effectiveness of performance management through three key performance indicators (KPIs) relevant to both Mental Health and Acute services. Specifically, this review evaluated the following KPIs:

- 18-week referral for psychological therapies (Mental Health)

- 12-week outpatient appointments (Acute)

- 4-hour waiting time for unscheduled care (Acute)

The scope of the review included examining the processes for data collection, validation, and reporting of these KPIs.

# Executive summary

## Objectives

Our review focussed on the following key risks:

- Clear guidance does not exist detailing KPI measurement criteria leading to unreliable performance data.

- Lack of well-documented data validation processes and/or the inconsistent application of internal controls for KPIs, resulting in potential inaccuracies in reporting.

- Reporting processes provide insufficient assurance of data quality dimensions, such as accuracy, completeness, and timeliness, resulting in reducing confidence in performance reports.

## Limitations in scope

Our findings and conclusions will be limited to the risks identified above. The scope of this audit does not allow us to provide an independent assessment of all risks and controls linked to this review.

Where sample testing is undertaken, our findings and conclusions will be limited to the sample tested only.  Please note that there is a risk that our findings and conclusions based on the sample may differ from the findings and conclusions we would reach if we tested the entire population from which the sample is taken.

The review provides assurance on the processes around the data quality of key performance indicator data, specifically the three agreed KPIs in the audit scope. The assurance rating does not consider actual performance against the national targets.

This report does not constitute an assurance engagement as set out under ISAE 3000.

## Acknowledgement

We would like to take this opportunity to thank your staff for their co-operation during this internal audit.

# Headline messages

| Significant Assurance |
|:---:|

We have reviewed the processes and controls around (KPI) Performance Data Integrity and have concluded that the processes have provided **Significant Assurance**. This was confirmed through testing in specific areas of the organisation and through discussions with management. The assurance opinion is based on an assessment of data integrity and does not cover NHS Lothian's actual performance against national targets.

The review evaluated the internal controls supporting the measurement and reporting of Key Performance Indicators (KPIs) within NHS Lothian. The primary focus was to assess whether clear criteria, reliable data management practices, and robust reporting frameworks exist to ensure accurate performance data is reported. A key component of the review was sample testing of performance data for three KPIs using the TRAK system. For each of the three KPIs chosen by NHS Lothian management, a sample of 25 patient journeys was selected, with all referral and treatment dates matching supporting clinical notes, system time stamps and dates, confirming the accuracy of the reported data.

We confirmed the availability of clear and sufficient waiting time guidance on NHS Lothian's intranet, aligned with the latest Scottish Government standards (updated December 2023). This guidance defines processes for clock starts, pauses, restarts, and stops, supporting consistent understanding of KPI criteria across the organisation.

The August 2024 Performance Report (latest available at the time of our testing) was reviewed against the six key data quality dimensions, as defined in frameworks such as the UK Government Data Quality Framework and ISO 8000 (Data Quality Standard), to assess the reliability of KPI reporting. No reportable issues were identified.

Our one recommendation relates to changes in the criteria for A&E waiting time reporting and ensuring readers of the Performance Report are assured of the changes and their impact. In October 2024, the Four-Hour Emergency Access Standard Expert Working Group Recommendations Report was published, providing detailed guidance to standardise and enhance the accuracy of reporting the 4-hour A&E waiting time metric across NHS Scotland. The report's key recommendations, including revised definitions and the inclusion of planned attendances, aim to address inconsistencies and improve data reliability. Non-compliance with these recommendations presents a risk to the accuracy and comparability of KPI statistics. The Board should be provided with assurance on the implementation of the Four-Hour Emergency Access Standard recommendations, along with clarity on how the changes may impact compliance levels. The revised definitions and expanded inclusion criteria could impact reported performance metrics, potentially causing misunderstandings regarding changes in compliance figures.

5/14
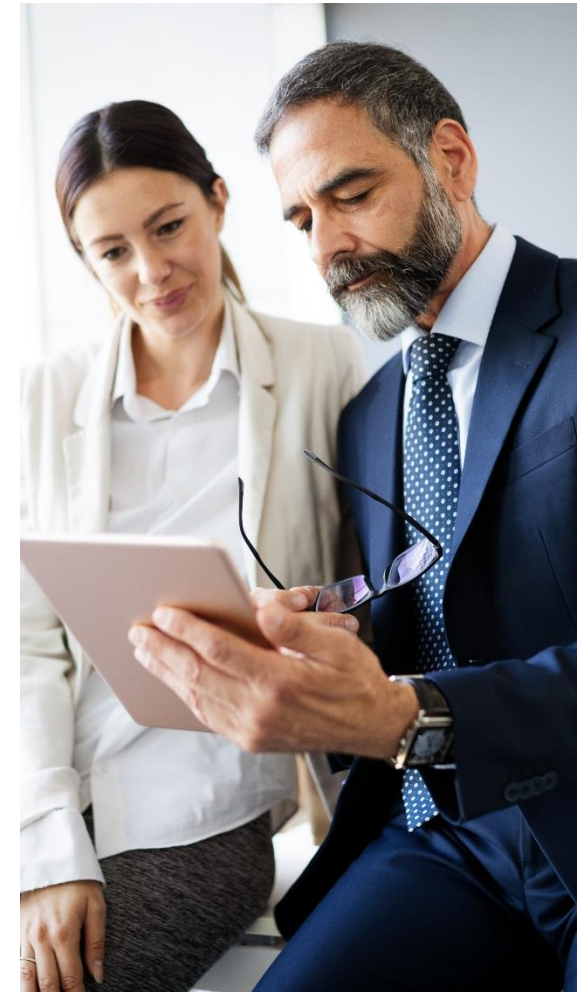
# Headline messages

## Conclusion

We have raised one recommendation. The grading of this recommendation, based on risk, is summarised in the table below.

| Objectives | Assurance rating | Number of recommendations | | | |
|---|---|---|---|---|---|
| | | High | Medium | Low | Imp |
| Clear guidance does not exist detailing KPI measurement criteria leading to unreliable performance data. | Significant Assurance | - | - | - | - |
| Lack of well-documented data validation processes and/or the inconsistent application of internal controls for KPIs, resulting in potential inaccuracies in reporting. | Significant Assurance | - | - | - | - |
| Reporting processes provide insufficient assurance of data quality dimensions, such as accuracy, completeness, and timeliness resulting in reducing confidence in performance reports. | Significant Assurance | - | - | 1 | 1 |

# Summary of findings

## Examples of where recommended practices are being applied

- NHS Lothian has well-documented guidelines for waiting times clock calculations which supports accurate measurement of key performance indicators (KPIs). These are aligned with national standards, including specific rules for "clock starts," "pauses," and "stops" in patient pathways, ensuring consistent measurement and reporting.

- Analytical expertise is available within Lothian Analytical Services (LAS). LAS has approximately 40 analysts supporting KPI measurement through data extraction, mapping, and validation.

- Data integrity was confirmed through testing. For each of the three KPIs in the audit scope a sample of 25 patient journeys were selected, with all referral and treatment dates matching supporting clinical notes, system time stamps and dates, confirming the accuracy of the reported data.

- The August 2024 Performance Report, which was the latest available on the NHS Lothian website when we did the testing, was reviewed to assess whether KPI reporting to the Board provides sufficient assurance against the data quality dimensions, as defined in frameworks such as the UK Government Data Quality Framework and ISO 8000 (Data Quality Standard). The Board's Performance Report meets national reporting requirements, and no reportable issues were identified against the six data quality dimensions.

- The Performance Report provides a good overview of most key waiting time standards, including Referral to Treatment (RTT), Treatment Time Guarantee (TTG), new outpatient appointments, and the 4-hour emergency access standard.

# Summary of findings

## Areas requiring improvement

- The Corporate Management Team has been briefed by the Associate Director, Analytics on the reporting changes introduced through the Four-Hour Emergency Access Standard Expert Working Group Recommendations Report (October 2024). These changes aim to standardise and improve the consistency of A&E performance monitoring across NHS Scotland. Key Changes are:

  o **Amending the Definition of A&E Care**
    The definition now includes all acute, medical, surgical, and mental health emergencies. This revised approach focuses on the facilities available rather than patient conditions, creating a clearer and more consistent national framework.

  o **Including Planned Attendances**
    Planned attendances, specifically New Planned attendances, will now be included in the Four-Hour Emergency Access Standard (EAS). Virtual consultations and Return Planned visits are excluded. This change promotes equity of care between planned and unplanned patients and supports standardised reporting across Health Boards.

  o **Clarifying Admission Alternative Pathways Reporting**
    Reporting for pathways such as Ambulatory Emergency Care, Acute Assessment Units, and Same Day Emergency Care has been clarified. Trolleyed assessment areas are temporarily excluded pending further guidance from the Society of Acute Medicine on their eligibility for inclusion under the EAS.

The Board of Directors should be assured that Key Performance Indicator (KPI) statistics fully comply with the Expert Working Group's recommendations, that the revised reporting methodology is implemented within the nationally agreed timeframe (to be published for the first time on the 4th February 2025), and that any changes in reported compliance or performance figures are clearly explained to avoid confusion or misunderstanding.

# Detailed findings & action plan

| 3.1 | Significant Assurance | Reporting processes provide insufficient assurance of data quality dimensions, such as accuracy, completeness, and timeliness resulting in reducing confidence in performance reports. |
| --- | --- | --- |

| Finding and implication | Audit recommendation | Management response, including actions |
| --- | --- | --- |
| **Risk to Accuracy of 4-Hour A&E Reporting Metrics.**<br><br>The Four-Hour Emergency Access Standard Expert Working Group Recommendations Report (October 2024) was developed by clinical experts from Scotland's Health Boards, information and data representatives, Data Management and Analytical Teams from Public Health Scotland, the Royal College of Emergency Medicine, and officials from the Scottish Government's Health and Social Care Directorate. The group focused on clarifying which patients should or should not be included in the Four-Hour Emergency Access Standard to enhance consistency and accuracy in reporting across NHS Scotland.<br><br>Key recommendations include amending the definition of A&E care to include all acute, medical, surgical, and mental health emergencies, incorporating planned attendances, and clarifying reporting for ambulatory and acute pathways. NHS Lothian may need to update reporting processes to meet these changes.<br><br>The Corporate Management Team has been informed of the reporting changes under the Four-Hour Emergency Access Standard recommendations, including instances where it has not been possible to comply with national recording guidance or where the use of proxy values has been necessary. However, the Board requires assurance on their implementation and clarity on the potential impact on compliance levels to avoid misunderstandings regarding shifts in compliance figures. It is currently understood that Public Health Scotland will implement the new methodology from 4 February 2025. Any delays or early implementation risk creating discrepancies in national reporting between Health Boards against A&E standards. | **Recommendation 1**<br><br>The Board should be provided with assurance that KPI statistics for the 4-hour Emergency Access Standard fully comply with the recommendations outlined in the Expert Working Group report, are implemented within the nationally agreed timeframe, and that any resulting changes in compliance are clearly explained. | **Actions:**<br><br>The Board will receive its first performance paper including the reporting changes at its meeting in April 2025. A summary of the steps taken and implications arising from the changes will be included, drawing on the information provided to the Corporate Management Team and Public Health Scotland.<br><br>**Responsible Officer:**<br><br>Lauren Wands, Performance and Business Manager<br><br>**Executive Lead:**<br><br>Jim Crombie, Deputy Chief Executive<br><br>**Due Date:**<br><br>23rd April 2025. |

# Detailed findings & action plan

| 3.3 | Significant Assurance | Reporting processes provide insufficient assurance of data quality dimensions, such as accuracy, completeness, and timeliness resulting in reducing confidence in performance reports. |
|---|---|---|

| Finding and implication | Audit recommendation | Management response, including actions |
|---|---|---|
| **Enhancing Assurance Through a Data Quality Kite Mark.**<br><br>The Board's Performance Report meets national reporting requirements and provides compliance data for three KPIs in a standard format. While this demonstrates alignment with recognised frameworks, introducing a "Data Quality Kite Mark" or validation summary would strengthen assurance across data quality dimensions such as accuracy, completeness, and timeliness.<br><br>The UK Government Digital Service (GDS), through its Government Data Quality Framework, emphasises the importance of clear communication about data quality in performance reports. This framework offers a structured approach to understanding, documenting, and improving data quality. Although it does not mandate the use of specific visual tools such as kite marks, these tools can effectively acknowledge data variability and assess the quality of evidence supporting performance metrics. For example, some Trusts in England uses kite marks to provide readers with clear and standardised assurance of data quality.<br><br>Adopting a similar approach in NHS Lothian's reports could enhance Board confidence, offering a practical tool to demonstrate commitment to robust data validation practices. This addition would align the Performance Report more closely with frameworks such as ISO 8000 and further reinforce trust in KPI reporting. | **Improvement Recommendation**<br><br>Including a "Data Quality Kite Mark" or validation summary could further enhance assurance, strengthening confidence in the reliability of the metrics | This finding has attracted an 'Improvement Point' as opposed to a formal recommendation, and as such does not require a management response. |

# Appendices

# Appendix 1:
# Our assurance levels

The table below shows the levels of assurance we provide and guidelines for how these are arrived at. We always exercise professional judgement in determining assignment assurance levels, reflective of the circumstances of each individual assignment.

| Rating | Description |
|---|---|
| Significant Assurance | The Board can take reasonable assurance that the system(s) of control achieves or will achieve the control objective. There may be an insignificant amount of residual risk or none at all.<br><br>There is little evidence of system failure and the system appears to be robust and sustainable. The controls adequately mitigate the risk, or weaknesses are only minor (for instance a low number of findings which are all rated as 'low' or no findings) |
| Moderate Assurance | The Board can take reasonable assurance that controls upon which the organisation relies to achieve the control objective are in the main suitably designed and effectively applied. There remains a moderate amount of residual risk.<br><br>In most respects the "purpose" is being achieved. There are some areas where further action is required, and the residual risk is greater than "insignificant".<br><br>The controls are largely effective and in most respects achieve their purpose with a limited number of findings which require management action (for instance a mix of 'medium' findings and 'low' findings) |
| Limited Assurance | The Board can take some assurance from the systems of control in place to achieve the control objective, but there remains a significant amount of residual risk which requires action to be taken.<br><br>This may be used when:<br>• There are known material weaknesses in key control areas.<br>• It is known that there will have to be changes that are relevant to the control objective (e.g. due to a change in the law) and the impact has not been assessed and planned for.<br><br>The controls are deficient in some aspects and require management action (for instance one 'high' finding and a number of other lower rated findings) |
| No assurance | The Board cannot take any assurance from the audit findings. There remains a significant amount of residual risk.<br><br>The controls are not adequately designed and / or operating effectively and immediate management action is required as there remains a significant amount of residual risk (for instance a number of HIGH rated recommendations) |

12/14

# Appendix 2:
# Our recommendation ratings

The table below describes how we grade our audit recommendations based on risks:

| Rating | Description | Possible features |
|---|---|---|
| High | Findings that are fundamental to the management of risk in the business area, representing a weakness in the design or application of activities or control that requires the immediate attention of management | • Key activity or control not designed or operating effectively<br>• Potential for fraud identified<br>• Non-compliance with key procedures/standards<br>• Non-compliance with regulation |
| Medium | Findings that are important to the management of risk in the business area, representing a moderate weakness in the design or application of activities or control that requires the immediate attention of management | • Important activity or control not designed or operating effectively<br>• Impact is contained within the department and compensating controls would detect errors<br>• Possibility for fraud exists<br>• Control failures identified but not in key controls<br>• Non-compliance with procedures/standards (but not resulting in key control failure) |
| Low | Findings that identify non-compliance with established procedures, or which identify changes that could improve the efficiency and/or effectiveness of the activity or control but which are not vital to the management of risk in the business area. | • Minor control design or operational weakness<br>• Minor non-compliance with procedures/standards |
| Improvement | Items requiring no action but which may be of interest to management or which represent best practice advice | • Information for management<br>• Control operating but not necessarily in accordance with best practice |

13/14

**Grant Thornton**

grantthornton.co.uk