



Office for
Statistics Regulation

The importance of involving statisticians in the evolution of NHS performance measures

Foreword by the Director General for Regulation

As the King’s Fund has said¹, “A&E waiting times are often used as a barometer for overall performance of the NHS and social care system”.

Over the past two years, my team has investigated concerns and asked statisticians in England, Scotland and Wales to improve the trustworthiness, quality and value of statistics about accident and emergency (A&E) performance. Our aim has been to increase public confidence in the statistics, enabling more effective public debate to hold the government to account about the performance of the NHS.

This review summarises our recent interventions about statistics on attendances and waiting times in A&E departments, but can serve as a vehicle to learn and innovate in the collection and presentation of performance measures more widely.

Official statistics should be compiled to the highest standards of quality to ensure decision-making is based on sound evidence. All statistics should be sourced from accurate data and quality assured, with rigorous analysis and insight. And anything published should include clearly explained methods of compilation. If these fundamental principles are not met, then this can lead to data that is not fit for purpose which in turn leads to poor understanding and poor decision-making.

As well as statisticians, the *Code of Practice for Statistics*² applies to everyone working in an organisation that produces official statistics, including senior leaders, policy professionals, communications staff and other analysts. As we said in our review *Official statistics, performance measurement and targets*³, “where performance measures, targets and official statistics (such as A&E waiting times) draw on the same underlying data, statisticians play a key role in helping to develop performance management systems to support policy”.

¹ <https://www.kingsfund.org.uk/projects/urgent-emergency-care/urgent-and-emergency-care-mythbusters>

² <https://www.statisticsauthority.gov.uk/code-of-practice/guidance/helpful-resources-working-in-an-organisation-that-produces-official-statistics/>

³ <https://www.statisticsauthority.gov.uk/publication/official-statistics-performance-measurement-and-targets/>

As these cases show, organisations that produce NHS statistics are powerful agents of change, standing up for statistical good practice and putting into practice the lessons learned. The review has two simple pieces of advice for decision makers to build on this experience:

- support the work of statisticians and other analysts in the health system. They will help address the risks surrounding A&E statistics and enhance public confidence in the statistics published by your organisations.
- be clearer that it is a legitimate purpose of A&E statistics to support public debate. Doing so will minimise the tensions that can lead to the triple challenges facing these high-profile statistics: misunderstanding, misstatement and misleading use of statistics.

Ed Humpherson

28 November 2018

Contents

Title	Page
Foreword	2
Executive summary	5
Introduction - OSR Regulatory Pillars	9
Discussion and case studies	11
Annex – Summary of Recommendations	22

Executive summary

A&E statistics serve many purposes and are widely reported publicly. As a result, they are among the most prominent official statistics produced by Government in the UK. They help inform public understanding of the performance of the health service, are of major interest over the winter months, and provide the basis for political debate and the NHS's operational decision-making in all four administrations of the UK.

It is important, therefore, that the public can have confidence in these statistics. The Code of Practice for Statistics sets out the foundations for this confidence. The Office for Statistics Regulation supports confidence by recognising when statistics live up to this ambition, and challenging publicly when they do not.

This review sets out a series of interventions we have made in the production and use of statistics on A&E, illustrating the different ways in which public confidence in these statistics can be damaged. We have brought them together in this review to highlight the risks to public confidence in A&E statistics and identifying how those risks can be reduced. The lessons outlined have wider applicability to the development of performance measures and the publication of organisational performance more generally.

The four case studies

The case studies outline the statistical issue, what we did, what happened as a result and the implications for the future. They are:

1. *A&E Attendances and Emergency Admissions* statistics in England

This case study shows that professional statistical advice is critical to successfully developing and implementing new performance measures or making changes to existing measures.

2. Scotland's *A&E waiting times* statistics

This case study highlights the importance of working closely with data suppliers to understand the issues they face and ensure the reporting of harmonised data.

3. The timeliness and coherence of *A&E performance* statistics in England

This case study shows the importance of ensuring that trustworthy, timely statistics are the first and best sources of information about A&E performance.

4. The comparability of *A&E waiting times* across the UK administrations

This case study shows the value of presenting and interpreting comparable statistics within the operational context for each administration.

Positive response

Following our interventions, we have seen further improvements made to the production and reporting of A&E statistics, but we want to see a greater focus on some areas. For example, professional statistical and analyst advice is critical to successfully developing and implementing new performance measures or making changes to existing measures.

Our review draws out the lessons that emerge from these cases and from the measures put in place by statisticians following our intervention. The lessons are relevant to all who use these statistics to form judgments, and to commission and deliver services. This includes (but not limited to):

- producers of official statistics
- policy makers
- NHS leaders

Our main findings are:

- **Performance measures are most likely to serve the public interest when they are produced by multi-disciplinary teams with analysts at their heart.** Statisticians have a unique skill-set, over and above number crunching. This is that they can design robust data collection methods and quality assurance tests; they can perform tests on the data to understand correlation and possible causation and provide insight; they can test for significance of changes and explain uncertainty; and they can advise on the best ways to disseminate data for public understanding. Working with operational managers and other analysts they can support the most appropriate design, communication and use of performance measures.
- **The high-profile nature of performance measures can lead to a *perception* that external pressures have influenced the production and presentation of official statistics.** From the four case studies, we know this perception risk can arise. Some people believe that A&E statistics are subject to outside influences – whether from a perceived desire to achieve operational targets or from the perceived aim to manage political messages. Given this, it is important that the statisticians who produce the statistics, and those who lead the relevant organisations, place a very high priority on demonstrating that the statistics are produced through a trustworthy set of organisational processes.
- **Risks arise to the *quality* of data and statistics from the design and operation of a performance measurement regime.** Two of our case studies (NHS Lothian; and changes to operational guidance in England) highlight performance measurement for individual hospitals as an area of risk to good quality statistics. This arises from different interpretations of what counts as an A&E attendance, and the potential for operational pressures to distort data reporting and performance. In this context, it is very important that those

publishing official statistics work closely with their data suppliers (at the hospital level) to understand the difficulties they face in capturing the data that goes to produce official statistics. They also need to put in place sufficient quality assurance measures themselves to identify problems with the data.

- **Data being leaked to, and then published by, the media causes confusion and the loss of public confidence in official statistics resulting from disorderly release of data.** Given the public prominence of A&E statistics, there is always a risk of those statistics being leaked ahead of their pre-announced publication date. As our case study on leaks shows (paragraphs 3.1-3.4), leaks may be more likely where the planned publication date is not as timely as it could be. Leaked data is the opposite of everything the Code of Practice for Statistics looks to achieve. We reiterate the importance of orderly release of statistics to a pre-planned timetable, and that statisticians must ensure official statistics keep pace with user need for timely, frequent data.
- **Waiting time comparisons between UK administrations remain difficult.** Across the UK, health and health services are devolved matters and each administration has power to choose its own priorities, targets and performance measures. Nevertheless, there is demand from the media and parliaments to compare A&E statistics from the different parts of the UK and improve the value of public debate. Users may be frustrated if they are told that different operational environments or data definitions lead to statistics that cannot be meaningfully compared. In our view, the ability to compare is a legitimate user need that the organisations publishing statistics should look to address.

Clarity of purpose

Underlying these statistical issues appears to be a lack of clarity on what A&E statistics are for. A&E statistics appear to perform at least three roles simultaneously to support public debate:

- as a performance measure for individual hospitals: performance against the four-hour standard is used to measure how effective individual hospitals are performing and how they compare to other hospitals
- to signal pressures on the entire system and to benchmark within the system to prioritise investment: the four-hour standard is also used as a barometer to assess pressure on the NHS as a whole and to determine both the level of demand and the supply capacity within the system to meet that demand
- to measure the population experience of emergency care: the four-hour standard also indicates the experience of individuals who need emergency care, setting out how long they should wait before receiving treatment

These roles may sometimes be in tension with one another. For example, using the statistics to benchmark performance emphasises the need for comparability, so that like is compared with like. This use may pull against the need for an examination of the experience of the patient at a local level, which encourages the development of innovative delivery models that may be difficult to compare. These different purposes are not necessarily mutually exclusive, but the current suite of A&E statistics will continue to encounter periodic challenges unless there is a more conscious attempt to define how these different purposes interact and which ones take priority.

As the UK's statistics regulator, we look forward to working with providers, commissioners, policy makers and analysts in all four countries to develop this clarity of purpose.

Introduction – OSR Regulatory Pillars

Trustworthiness

The Code of Practice for Statistics defines trustworthiness as confidence in the people and organisations that produce statistics and data.

Trustworthiness is shown by the people, systems and processes that support the production of statistics, so that users have confidence that the statistics represent the best professional judgment of the statisticians and not simply the vested interests of the organisation that produces them.

Trustworthiness is the essential bedrock for confidence in A&E statistics, because of their high public profile. In the A&E context, the high-profile nature and controversy surrounding some performance measures has led to the possibility of, or at least the perception of, external pressures influencing the production and presentation of official statistics. This could make producers of official statistics appear less trustworthy and could reduce public confidence in their statistics.

To combat this perception, it is important that statistical producers are an integral part of any team developing or modifying performance measures, particularly where official statistics also draw on the data. It is important to apply statistical thinking to the development of performance measurement regimes, and of course vital that statisticians work independently to ensure that the relevant statistics are presented appropriately. This supports their credibility and allows the focus of public debate to be on what the statistics show.

In the evolution of NHS waiting time performance measures, we expect to see statisticians closely involved in all aspects of development. We consider they are particularly well placed to advise on:

1. Data sources, such as:
 - which data source is of suitable quality for use in measuring performance
 - the best way to collect data where no suitable source already exists
2. Design of performance measures, including:
 - definitions and wording
 - the use of complex performance measures
3. The appropriateness of a performance measure to stimulate the required outcome, whilst having regard to the risk of unintended consequences
4. The implementation of some of the core disciplines of the Code of Practice for Statistics – around orderly release, honesty and integrity, and professional capability – by producer organisations in the health system.

Quality

Turning to quality, this review highlights the importance of working closely with data suppliers to understand the issues they face in capturing the data that goes to produce official statistics.

Quality means the use of data and methods that produce assured statistics, so that statistics:

- Fit their intended uses
- Are based on appropriate data and methods
- Are not materially misleading

A&E statistics are based on recording separate visits to A&E within individual hospitals. In England, for example, these data form the basis for two sets of data returns for the purposes of producing official statistics to provide a hospital-level, regional or national picture of A&E performance.

Because the statistics are embedded in the operational environment of the health system, it is essential that statisticians and other analysts understand the pressures, dynamics and realities of the operational front line. As noted in the UK Statistics Authority's review *Official Statistics, performance measurement and targets*⁴ "Statisticians always need to understand the quality of the source data used to measure performance, and this understanding needs to be particularly strong when targets have been set".

Value

Value is about the usefulness of the statistics to society. When statistics and data have value, it means that they are useful, easy to access, remain relevant and support public understanding of important issues.

A&E statistics are clearly of high public interest. They are used intensively in public debate and in the accountability process of individual hospitals.

In this environment, it is important that the producers of the statistics consider carefully how their statistics serve the public as well as operational needs. The risk is that statistics focus too much on day-to-day operational drivers, and consider less the need to support the public's understanding of A&E services – for example, for statistics that enable cross-UK comparisons to be made. This can in turn limit public debate and reduces the opportunity for public accountability.

⁴ Refer to footnote 3

Discussion

1. Transparency is vital when making changes to data recording

Case study 1 – *A&E Attendances and Emergency Admissions* statistics in England

The Issue

1.1 We were concerned that an unpublished letter about the inclusion of new ways to seek emergency medical help (such as ambulatory ‘pathways of care’), issued by NHS Improvement in October 2017⁵, did not take into account the implications for official statistics. The advice in the letter was leading trusts to change the way they reported their activities, to the detriment of the statistics.

This case study shows that professional statistical advice is critical to successfully developing and implementing new performance measures or making changes to existing measures.

1.2 There are three main types of A&E departments in England that are reported on in *A&E Attendances and Emergency Admissions*⁶:

- Type 1 departments are major emergency departments that provide a consultant-led 24-hour service with full facilities for resuscitating patients.
- Type 2 departments are consultant-led facilities but for single specialties, for example, eye conditions or dental problems.
- Type 3 departments treat minor injuries and illnesses, can be routinely accessed without an appointment, and include minor injury units and walk-in centers.

1.3 We were concerned about whether data was being captured consistently by all trusts when recording A&E performance. We felt there was a lack of transparency about exactly what data trusts were adding to their returns. This lack of transparency meant that any changes to the time series measuring A&E performance could not be clearly explained. While the ultimate statistical impact was small, this was not made immediately clear to users. Any information on what was included in the time series or the impact of changes had not been shared outside the NHS.

⁵ <https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2018/03/UEC-Pathways-Commentary-January-2018-Final.pdf>

⁶ <https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/ae-attendances-and-emergency-admissions-2017-18/>

Our Actions

1.4 In January 2018, we wrote to NHS England⁷, saying that the published statistics from October 2017 should have been clearer about the impact (on the statistics) of the changes to recording practice and how those using the statistics should interpret them.

1.5 Following some improvements in the March publication, we wrote to NHS England again in May 2018⁸ outlining our remaining concerns. We emphasised the need for clarity on the issues and what this meant for how the statistics could be used.

What changed?

1.6 In February 2018, the Head of Profession for Statistics at NHS England wrote to us⁹ highlighting the new guidance that had been provided on A&E performance reporting and how he felt this would support more consistent reporting, which would feed through to improving the quality and trustworthiness of the official statistics.

1.7 Following this, NHS England published¹⁰ a commentary, explaining the problem and outlining the follow up actions they planned to take. This included a summary of the estimate of the scale of the issue and potential impact on performance measures (Table 1).

Table 1: Potential impact of urgent and emergency care pathway previously reported

Date	Original attendances	Estimated attendances	Original performance %	Estimated performance %	Difference percentage point
October 2017	2,061,874	2,035,767	90.03	89.92	-0.11
November 2017	1,991,271	1,995,164	88.85	88.72	-0.13
December 2017	2,016,104	1,995,462	85.07	84.90	-0.18

Source: UEC Pathways Commentary, NHS England

1.8 In June 2018 NHS England followed this up with revised estimates for the whole of the financial year 2017/18 in its *A&E Attendances and Emergency Admissions* publication. This was a welcome development, which should improve the value of the statistics.

⁷ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/01/AE-statistics-in-England-Ed-Humpherson-to-Mark-Svenson.pdf>

⁸ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/05/A-and-E-statistics-Ed-Humpherson-to-Mark-Svenson.pdf>

⁹ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/02/AE-statistics-in-England-Mark-Svenson-to-UKSA.pdf>

¹⁰ <https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2018/03/UEC-Pathways-Commentary-January-2018-Final.pdf>

Lessons for the future

1.9 This case study demonstrates that professional statistical advice is critical to successfully developing and implementing new performance measures or making changes to existing measures. Involving statisticians and other analysts in the development of administrative systems at an early stage has benefits for the systems themselves and the quality of the data that can be published based on these systems. It enables statisticians to promote the use of administrative data for statistical purposes and to encourage the adoption of common classifications and definitions, without damaging the primary purpose of the system.

1.10 In future, all statistical producers should make sure that statisticians and other analysts are able to advise other key participants involved in developing and using performance measures including: Ministers and officials engaged in policy making; practitioners, performance managers, data managers and suppliers; external regulators and auditors; and academics, analysts and researchers.

1.11 In the evolution of performance measures for the NHS and more widely, we expect to see statisticians closely involved in all aspects of development and we consider they are particularly well placed to advise on:

- I. Data sources, such as:
 - which data source is of suitable quality for use in measuring performance
 - the best way to collect data where no suitable source already exists
- II. Design of performance measures, including:
 - definitions and wording
 - the use of complex performance measures
- III. The appropriateness, or any unintended consequences, of a performance measure to stimulate the required outcome

1.13 While working closely with a range of key participants, it is vital that statisticians can give advice to ensure that the relevant statistics are available and presented appropriately to a wider audience. This supports the credibility of the statistics and allows focus to be on decision-making rather than the accuracy of the statistics.

2. Harmonised data reporting essential for good quality official statistics

Case study 2 – Scotland’s A&E waiting times statistics

The Issue

2.1 NHS National Services Scotland (ISD Scotland) were contacted by colleagues at the Scottish Government, with the information that a whistleblower had disclosed that some of the A&E waiting times data that NHS Lothian¹¹ had submitted to ISD Scotland had been incorrectly recorded. ISD Scotland acted quickly to instigate its own review, prior to informing OSR.

This case study highlights the importance of working closely with data suppliers to understand the issues they face and ensure the reporting of harmonised data.

2.2 As noted in *Emergency Department Statistics Background Information and Glossary*¹², “NHS Boards in Scotland are required to submit data on all attendances for emergency care” and a waiting time is defined as “the time of arrival until the time of admission, transfer or discharge”. The most high-profile measure of A&E performance is the four-hour standard. This refers to the pledge¹³ set out that at least 95 per cent of patients attending A&E should be admitted to hospital, transferred to another provider or discharged within four hours.

2.3 The Scottish Government’s independent review report¹⁴ found that there had been a two-year period of changing data to reflect local interpretation of national guidance. This unharmonised data recording on the part of one data supplier led to poor quality official statistics about NHS Lothian’s performance.

Our Actions

2.4 We reviewed the statistics against the Code of Practice and published our plans on our website to ensure transparency¹⁵.

2.5 We found that NHS Lothian had not recorded A&E discharge times accurately and national guidance on the completion of the data fields was not being followed.

2.6 In a letter published in March 2018¹⁶, we called for better quality assurance processes to be implemented to assure users about the quality of A&E waiting times

¹¹ <https://www.nhsllothian.scot.nhs.uk/MediaCentre/PressReleases/2017/Pages/Report-into-emergency-department-waiting-times-concludes.aspx>

¹² <https://www.isdscotland.org/>

¹³ <https://www.gov.scot/About/Performance/scotPerforms/NHSScotlandperformance/AE-LDP>

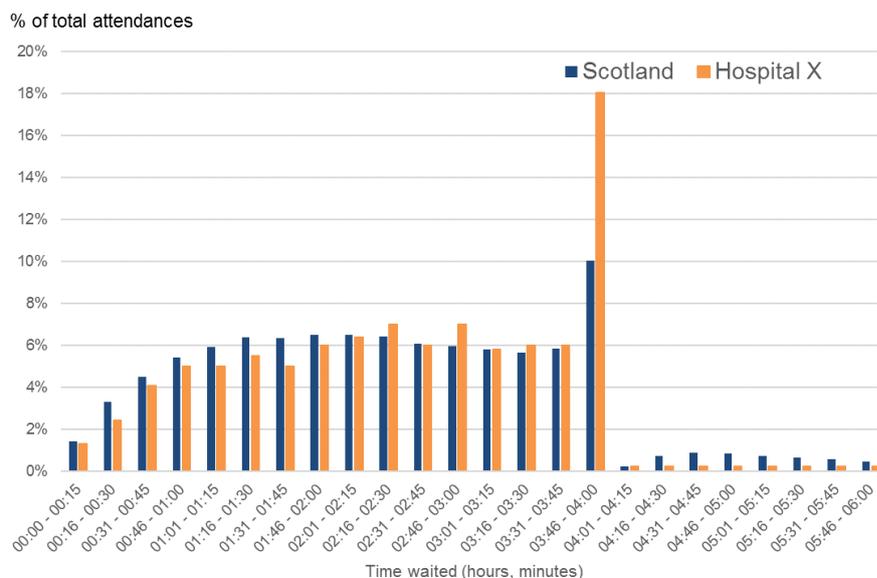
¹⁴ <https://www.gov.scot/Topics/Health/Quality-Improvement-Performance/UnscheduledCare/Review-Whistleblowing-Allegation-NHSLothian>

¹⁵ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2017/12/Letter-Ed-Humpherson-to-Scott-Heald.pdf>

¹⁶ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/03/Ed-Humpherson-to-Scott-Heald-AE.pdf>

statistics in Scotland. As noted in the UK Statistics Authority’s regulatory standard *Quality Assurance of Administrative Data*, statistics producers must take appropriate action to assure the quality of the data underlying performance measures. ISD Scotland recognised that it did not examine the distribution of waiting times by hospital routinely. During our correspondence, ISD Scotland provided a hypothetical example (see Figure 1) of a distribution of time spent in A&E to highlight the statistical rigour that would be applied to performance-driven data. In this hypothetical example, the pattern shown by Hospital X would stand out (compared to Scotland as a whole) because of the unusual distribution of waiting times, with a greater clustering of waiting times just before the 4-hour mark. Any discrepancy such as this should lead to questions, analysis and a search for additional assurance on the part of statisticians. Extra vigilance is required by statistics producers in these scenarios because of the potential of targets set for performance measures to impact on behaviours.

Figure 1: Hypothetical chart showing the time waited in accident and emergency services by the percentage of total attendances



Source: Data for Scotland provided by ISD Scotland from their waiting times data mart. Data for waits over 6 hours has been omitted. *Data for Hospital X is for illustrative purposes only and are not real data.*

What changed?

2.7 ISD Scotland’s responses¹⁷ highlighted several areas for improvement in quality assurance processes, including routinely reviewing distributions of waiting times by hospital. The organisation has responded promptly and transparently to outline the

¹⁷ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/07/Scott-Heald-to-Ed-Humperson-NHS-Lothian-6-July-2018-.pdf>

steps it will take to reduce the risk of data quality concerns in the future. We welcomed this response.¹⁸

2.8 Since the data concern emerged, ISD Scotland has been open and transparent by providing users with updates in the affected statistical bulletins, publishing the “Scotland excluding Lothian” line in the data tables from January 2018 and has published more information about the improvement actions they are taking.

Lessons for the future

2.9 A lesson to be learned by all producers of official statistics is about reviewing and ensuring the relevance of national data capture guidance, with all the stakeholders involved. As a consequence, ISD Scotland has further strengthened its supplier liaison processes, because statisticians and other analysts need to understand the quality of the source data used to measure performance, and this understanding needs to be particularly strong when performance measures have been set.

2.10 In addition, open and professional external communication about a performance measure – involving clear narrative, advice and analysis – is vital. Users need a wide range of information so that they can make informed judgements based on the statistics.

2.11 The mere existence of a performance measurement regime presents risks to data quality. One risk that statistical producers need to address relates to the definition of the performance measure. If a measure is poorly designed – ambiguous, or involving multiple concepts or definitions – data recording is unlikely to be consistent or accurate, and the resulting statistics will be devalued. There is undoubted value – both to an administrative data management system and to the statistical system – in statisticians being centrally involved in the design and operation of performance management systems. Doing so enables statisticians to promote the use of administrative data for statistical purposes and to encourage the adoption of common classifications and definitions, without damaging the primary purpose of the system. And owners of administrative systems benefit from the application of statistical discipline – which can help to secure the quality of the data and to document and inform users about data changes.

¹⁸ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/07/Ed-Humpherson-to-Scott-Heald-NHS-Lothian-July-2018-.pdf>

3. Timely and coherent statistics add value to public debate

Case study 3 – The timeliness and coherence of statistics on A&E performance in England and the impact of these on public debate

The Issue

3.1 Three sets of official statistics, about A&E performance in England, drawing on two different data sources, were routinely published and led to confusion about the best measure to use:

- *A&E Attendances and Emergency admissions*¹⁹ published monthly by NHS England
- *Provisional Accident and Emergency quality indicators*²⁰ published monthly by NHS Digital
- *Hospital Accident and Emergency Activity*²¹ published annually by NHS Digital

This case study shows the importance of ensuring that trustworthy, timely statistics are the first and best sources of information about A&E performance.

3.2 To further compound the user confusion in England, news media had twice^{22,23}

obtained information through ‘leaks’ and this information was put into the public domain before the official statistics could be published.

“Leak shows full extent of NHS winter crisis”

BBC website 10 January 2017

Our actions

3.3 In April 2017, we wrote²⁴ to NHS England stating our view that, whilst we considered there was no intention to publish misleading statistics, there was significant potential for confusion. We would like to have seen coherent statistics that pulled together data from different sources and other published analyses to provide a comprehensive narrative and provide insight for users. We highlighted serious concerns around the lack of clarity created by having various publications about

¹⁹ <https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/>

²⁰ <http://www.content.digital.nhs.uk/catalogue/PUB23629>

²¹ <http://www.content.digital.nhs.uk/article/2021/Website-Search?productid=24162&q=A%26E+quality+indicators&sort=Relevance&size=10&page=2&area=both#top>

²² <http://www.bbc.co.uk/news/health-38570960>

²³ <http://www.bbc.co.uk/news/health-38907492>

²⁴ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2017/02/Letter-from-Ed-Humpherson-to-Noel-Gordon-200217.pdf>

A&E, a lack of timeliness of the published statistics and the probable loss of public confidence in the official statistics resulting from the disorderly release of data.

What changed?

3.4 Statisticians in NHS England and NHS Digital worked collaboratively to ensure that the official statistics kept pace with user need for more frequent and timely data. To reduce the risk of future leaks and user confusion, the producers implemented improvements to the timetable of A&E statistics. The published response, co-signed by the statistics producers in England, dated May 2017²⁵, listed a range of forthcoming changes and improvements to the emergency performance statistics. The producers noted that “there will be a reduction in the time lag for A&E data from period end to publication from around 6 weeks to around 2 weeks and this will be achieved through streamlining all stages of the timetable.”

3.5 Since October 2017, NHS England has published monthly A&E statistics in a more timely way²⁶ and NHS Digital has published a more timely, annual report that draws on both sources of data and brings together a coherent narrative of A&E performance in England.

Lessons for the future

3.6 Timely releases of certain official statistics play a key role in public debate - statistics producers should work closely with a range of users and keep pace with changing needs. For example, users are aware of the huge demands placed on the A&E services during times of seasonal crises, such as during very cold winters or by infectious diseases, such as influenza. The Royal College of Emergency Medicine²⁷ and news media are keen to report these developments as they occur. Statistics producers should ensure that trustworthy, timely statistics are the first and best sources of A&E performance.

²⁵ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2017/06/Email-from-NHS-to-OSR-AE-Data.pdf>

²⁶ <https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/ae-attendances-and-emergency-admissions-2017-18/>

²⁷ https://www.rcem.ac.uk/RCEM/Quality_Policy/Policy/Winter_Flow_Project/RCEM/Quality-Policy/Policy/Winter_Flow_Project.aspx?hkey=6e7e7e1b-4596-47d3-a608-b12f7e0754ef

4. Improving value to public debate through accurate comparison of performance across the UK

Case study 4 – The comparability of statistics on A&E waiting times across the UK

The issue

4.1 Under devolution, policies and practice will evolve separately and official statistics will reflect the operational context in which they are collected. Looking more widely across the UK, whilst A&E performance releases reference the comparative statistics from other administrations of the UK, it has not been easy for the less-expert user to compare the information about A&E waiting times across England, Wales, Northern Ireland or Scotland.

This case study shows the value of presenting and interpreting comparable statistics within the operational context for each administration.

4.2 Each administration has chosen to create key waiting time statistics using different sections of the A&E pathway. The potential for user confusion is high because the definition used to compile the published official statistics of ‘over 12 hours emergency waiting times’ measure varies in England compared to the other UK administrations. Table 2 highlights these definitions and shows that direct comparisons using this data will be meaningless.

Table 2: Over 12 hours emergency waiting times measure definitions for each UK administration

Administration	Definition of measure
England	patients delayed over 12 hours from decision to admit to admission ²⁸
Wales	12 hours or more in an emergency care facility, from arrival until admission, transfer or discharge ²⁹
Northern Ireland	the number of patients treated and discharged or admitted from the Emergency Department over 12 hours from arrival ³⁰
Scotland	the number of patients who spent more than 12 hours in an A&E department until discharge, admission or transfer ³¹

Sources: see footnotes 27, 28, 29, 30

4.3 The Chair of the UK Statistics Authority was contacted in January 2018 by the First Minister of Wales³², expressing his concern over the potentially misleading use of statistics of Welsh A&E performance. At Prime Minister’s Questions³³, the Prime

²⁸ <https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/ae-attendances-and-emergency-admissions-2018-19/>

²⁹ <https://gov.wales/docs/statistics/2018/180719-nhs-activity-performance-summary-may-june-2018-en.pdf>

³⁰ <https://www.health-ni.gov.uk/sites/default/files/publications/health/hs-ni-wts-ecwt-q1-18-19.pdf>

³¹ <http://www.isdscotland.org/Health-Topics/Emergency-Care/Publications/2018-08-07/Summary/index.asp?71072024107>

³² <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/02/FM-to-UK-Stats-Authority-re-AE.pdf>

³³ <https://www.parliament.uk/business/news/2018/january/prime-ministers-questions-24-january-2018/>

Minister said, “If he [the leaders of the Labour Party] wants to talk about figures and about targets being missed, yes, the latest figures show that, in England, 497 people were waiting more than 12 hours, but the latest figures also show that, under the Labour Government in Wales, 3,741 people were waiting more than 12 hours.”

4.4 In his letter to us, the First Minister of Wales noted “This is simply not a valid comparison of accident and emergency performance. In England, the figures referred to are based on those patients who have waited more than 12 hours from a decision to admit to admission to a ward, whilst the figures for Wales reflect the total time spent in accident and emergency departments. The English figures will not include any of the time which the patient has spent in A&E prior to the decision to admit being taken.”

Our actions

4.5 We investigated and responded, noting³⁴ that there had been an invalid comparison of A&E performance between England and Wales in Prime Minister’s Questions. In 2017, health statistics producers across the UK had published an explanation of the similarities and differences in the measurement of NHS waiting times to try to facilitate comparison³⁵. This document details the different official A&E statistics published by each administration. Despite this, waiting time comparisons between UK administrations remained difficult for the less-expert user and we called for faster progress on efforts to improve comparability and accessibility to the performance data.

What changed?

4.6 On 13 September, NHS Digital published³⁶ official statistics about attendance and waiting times in A&E in England on a comparable basis to the other three UK administrations, an improvement which should allow more meaningful public discourse. The release includes detail of the data sources used for each administration and provides helpful links to the official statistics each one publishes. We are encouraged by the collaboration shown by the statisticians representing all four administrations of the UK that this piece of work demonstrates.

4.7 However, differences in policy, service provision and definitions between the four administrations mean that making the data comparable is neither precise nor straightforward, but the best available estimate should be provided. Table 3 has been collated from the official statistics as an example of a high-level comparison. *Hospital Accident and Emergency Activity* appropriately caveats that “the comparison does not take account of the differing case-mix of patients that present at Type 1 services”.

³⁴ <https://www.statisticsauthority.gov.uk/wp-content/uploads/2018/02/2018-02-05-Letter-from-Sir-David-Norgrove-to-First-Minister.pdf>

³⁵ <https://gss.civilservice.gov.uk/wp-content/uploads/2017/01/UK-Comparative-Waiting-Times-AE-final.xlsx>

³⁶ <https://digital.nhs.uk/data-and-information/publications/statistical/hospital-accident--emergency-activity/2017-18>

Table 3: Over 12 hours A&E waiting times measure compared for each UK administration

Administration	Percentage of attendances spending over 12 hours in Type 1 Major A&E departments
England	2.0
Wales	4.8
Northern Ireland	2.6
Scotland	0.2

Source: *Hospital Accident and Emergency Activity 2017-18*, NHS Digital, refer to footnote 36

4.8 We are encouraged by the collaboration shown by the statisticians representing all parts of the UK that this piece of work demonstrates. This improvement story reveals a deeper point that the Code of Practice for Statistics demands a stronger role for statisticians that will not only lead to better quality data, will also enhance public confidence in these statistics.

Lessons for the future

4.9 Beneath the headline figures, there will be many reasons the performance of each administration is different. A key role for statisticians in future will need to explain differences and interpret comparable statistics within the operational context for each administration. It will improve the value of statistics for use in public debate if statistics producers representing the four administrations could work together to build a comparable picture of other NHS performance statistics.

Annex: Summary of Recommendations

Statistical producers should ensure that statisticians and other analysts are:

1. involved in the development of administrative systems at an early stage.
2. able to promote the use of administrative data for statistical purposes and encourage the adoption of common classifications and definitions.
3. able to work closely with other key participants in developing and using performance measures.
4. able to give advice to ensure that statistics from administrative systems are available and presented appropriately to a wide audience.
5. involved in reviews of the relevance of national data capture guidance.
6. able to ensure that the quality of the data is documented and that users are informed about data changes promptly.
7. able to work closely with a range of users and able to keep pace with their changing needs.
8. able to work together across the four UK administrations to build a comparable picture of other NHS performance statistics.
9. able to interpret comparable UK statistics within the operational context for each administration.