



Health & Social Care
Information Centre

NICE Technology Appraisals in the NHS in England (Innovation Scorecard):

to December 2013, Experimental Statistics

Published 11 June 2014

This product is relevant to members of the public and other stakeholders to support the understanding of compliance with National Institute for Health and Care Excellence (NICE) Technology Appraisals (TAs). It will allow them to understand the quality, reliability and potential pitfalls and issues with the data and to stimulate discussion.

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2 Executive Summary

The report *Innovation, Health and Wealth*, accelerating adoption and diffusion in the NHS (IHW) (December 2011)¹ set out plans to support adoption and spread of innovation in the NHS. One of the actions identified in IHW aims to drive compliance with National Institute for Health and Care Excellence (NICE) Technology Appraisals (TAs) and reduce variation by publishing information that relates to levels of compliance with NICE TAs.

There are no routinely available data to allow accurate assessment of compliance with NICE TAs by NHS organisations, as this would require a review of patient records. This publication describes the data currently available and explains the limitations in using this data to assess compliance.

This publication includes an interactive reporting spreadsheet showing data at NHS organisation level (the Scorecard), and this report which describes the data used, and raises some issues and questions for comment. Users are encouraged to provide feedback to enable improvement to future versions of the Innovation Scorecard.

Please note that the interactive reporting spreadsheet should be viewed in conjunction with this report, and the caveats to interpretation should be noted.

The Scorecard brings together data from a number of sources. These include:

- Comparisons of expected and observed use based on the report “Use of NICE appraised medicines in the NHS in England”
- Numbers of Defined Daily Doses (DDDs) of NICE appraised medicines used predominantly in primary care taken from prescribing data produced by the NHS Business Services Authority.
- Physical quantities of purchases of NICE appraised medicines used predominantly in secondary care using purchase data provided by the Commercial Medicines Unit (CMU) of the Department of Health.
- Physical quantities of certain NICE appraised medicines used predominantly in secondary care using sales data provided by pharmaceutical companies.
- Information on NICE appraised medical technologies taken from Hospital Episode Statistics produced by the Health and Social Care Information Centre.
- Clinical Commissioning Group (CCG) resident population figures from the Office of National Statistics.
- Links to hospital formularies hosted on hospital trust websites.
- Costs of selected NICE appraised medicines, taken from prescribing data produced by the NHS Business Services Authority and the IMS Health Hospital Pharmacy Audit Index (HPAI) database.

The Innovation Scorecard is intended as an indicative measure in order to stimulate the monitoring of NHS compliance with NICE TAs and of assisting the NHS in the identification of variation which, through discussion and commentary, can be explained, challenged or acted upon.

¹ <https://www.gov.uk/government/news/accelerating-adoption-of-innovation-in-the-nhs>

The first Innovation Scorecard was published in January 2013, using data from 2011. The second publication in September 2012 updated parts 2 and 3 using data for 2012. The third publication in October (and updated in December 2013) included data to June 2013 in parts 2 and 3. Additional information was provided, including links to hospital trust formularies, and trend utilisation data for a number of NICE appraised medicines particularly those where adoption is supported by the NICE Implementation Collaborative. The fourth publication in March 2014 provided data to September 2013, and updated part 1 with data from the latest 'Use of NICE Appraised Medicines in the NHS in England, 2012' report.

In this fifth publication, data is shown to December 2013 where data is available at the time of publication. The number of medicines included in parts 2 and 3 is increased. Part 5 now shows the costs of selected medicines used at both National and Area Team level for primary and secondary care.

This information is released under 'experimental' status. This is a concept used for statistics in certain defined circumstances, largely to develop (with user input) new data sets which already have considerable immediate value to users, but are not fully developed and do not yet meet the quality standards of National Statistics. It is important that users understand that cautions apply to the interpretation of this data. The caveats and limitations which apply to the data sets used within the Scorecard are specified in subsequent sections of this report.

3 Introduction

In December 2011 the Department of Health (DH) set out plans to support the development, adoption and spread of innovation in the NHS. 'Innovation, Health and Wealth, accelerating adoption and diffusion in the NHS' (IHW) is part of the Government's Plan for Growth and the Life Sciences Strategy. One of the actions identified in the IHW paper aims to drive implementation of NICE TAs and reduce variation by publishing information that relates to levels of variation and compliance with NICE TAs, locally, as stated:

'Working with industry, the Department of Health, NICE, the NHS and the Health and Social Care Information Centre, we will develop and publish a straightforward Innovation Scorecard, designed to track adoption of NICE Technology Appraisals at a local level'.

IHW committed the NHS to establish a NICE compliance regime to ensure the rapid and consistent implementation of NICE TAs throughout the NHS. This regime was introduced in January 2012, and includes a new requirement set out in the Operating Framework, binding the NHS to comply with NICE TAs. The NHS Standard Contract requires providers of NHS services to publish local formularies showing which medicines and technologies are being made available locally. The NHS is legally obliged to fund and resource medicines and treatments recommended by NICE TAs where clinically appropriate. Recognising the need to provide support to the NHS to implement NICE TAs, the NICE Implementation Collaborative has been established. This involves industry working alongside the NHS, the Royal Colleges, NICE and representative bodies to support the NHS to identify system barriers and identify solutions.

The NICE TA process assesses the clinical and cost effectiveness of new and existing medicines and treatments, and provides guidance on their use by the NHS. The reporting period for this Scorecard is to December 2013.

This Scorecard is published by the Health and Social Care Information Centre (HSCIC) on behalf of NHS England. The work was informed by a Steering Group with members from: Association of the British Healthcare Industries (ABHI), DH, NHS, NHS England, NICE, pharmaceutical industry and HSCIC.

3.1 Purpose of the Publication

There is no routinely available data to allow accurate assessment of compliance with NICE TAs by NHS organisations, as this requires a review of patient records. This report describes the data currently available and explains the limitations in using this data to make any assessment of compliance.

The Innovation Scorecard is intended as an indicative measure in order to stimulate the monitoring of NHS compliance with NICE TAs, and prompt conversations about variation and the reasons for variation in the system. The Innovation Scorecard has been published with the intention of assisting the NHS in the identification of variation, which, through discussion, can be explained, challenged or acted upon. It should be noted that it is not intended to be used for performance management.

A range of existing data sources were investigated, including that of NHS Business Services Authority (NHSBSA) for Primary Care, Pharmex data from the Commercial Medicines Unit of the Department of Health and Hospital Pharmacy Audit Index (HPAI) database from IMS Health for NHS hospital Trusts. Additionally, the use of Hospital Episode Statistics (HES), Clinical Audit data and commercial data sets were also considered, where available, to support the development of the Innovation Scorecard. The Pharmaceutical Industry was also invited to contribute by providing sales data at hospital NHS Trust level.

New data sets currently under development which would better support this purpose were also considered, and will be kept under review for any future publications. Meanwhile, work will continue to explore further options for a longer term, strategic solution for Innovation Scorecard production.

This report documents the components which comprise each section in the Innovation Scorecard; it is not intended for the purpose of describing or interpreting results or to reaching conclusions.

Feedback and comments are invited in order to support future development and production of the Scorecard, particularly on the suitability and usefulness of each component. A feedback form is published alongside this publication.

4 NICE Technology Appraisals

Technology appraisals² are recommendations on the use of new and existing treatments within the NHS, including:

- Medicines
- Medical devices (for example, hearing aids or inhalers)
- Diagnostic techniques
- Surgical procedures
- Health promotion activities (for example, ways of helping people with diabetes manage their condition).

Some interventions may be covered by more than one technology appraisal. Each technology appraisal may contain more than one recommendation. NICE classify their recommendations into four categories:

- **Recommended** - the medicine or treatment is recommended for use:
 - In line with the marketing authorisation from the European Medicines Agency (EMA) or Medicines and Healthcare Products Regulatory Agency (MHRA) or
 - In line with how it is used in clinical practice in the NHS
 - or both
- **Optimised** - the recommendations have a material effect on the use of a medicine or technology, and it is recommended for a smaller subset of patients than originally stated by the marketing authorisation. This test of materiality takes into account advice from clinical experts on the anticipated use of the technology in routine clinical practice. In some instances, an optimised recommendation is made because the committee considers that a medicine or technology is only a cost-effective treatment option for a specific group of people; for example in people who are resistant to or cannot tolerate other medicines.
- **Only in research** - The medicine or treatment is recommended for use only in the context of a research study, for example, a clinical trial. Often, particularly in the case of promising new technologies, sufficient clinical evidence has not been collected at the time of the appraisal and so the Appraisal Committee is unable to recommend the technology for use in the NHS until further evidence on its effectiveness is available for re-appraisal.
- **Not recommended** - the treatment is not recommended. In most instances, a technology will not be recommended if there is a lack of evidence for its clinical effectiveness or if the technology is not considered to be a cost-effective use of NHS resources, compared with current NHS practice.

The technologies included in an appraisal may not be the only treatment for the condition recommended in NICE guidance, or otherwise available in the NHS. Therefore, if a NICE technology appraisal recommends use of a technology, it is as an option for the treatment of a disease or condition. This means that the technology should be available for a patient who meets the clinical criteria set out in the guidance, subject to the clinical judgement of the treating clinician. The NHS must provide funding and resources when the clinician concludes

²http://www.nice.org.uk/aboutnice/whatwedo/abouttechnologyappraisals/about_technology_appraisals.jsp

and the patient agrees that the recommended technology is the most appropriate to use, based on a discussion of all available treatments.

4.1 NICE Technology Appraisals for Medicines

Guidance for medicines, receiving a positive recommendation, is designed to help the NHS adopt efficient and cost effective medicines more rapidly and consistently.

Medicines are often recommended as options for treatments. Other options may include non-appraised medicines or other appraised medicines. Therefore variation in the use of individual medicines would be expected, and assessment of compliance cannot be made using currently available data.

It should be noted that some medicines occur in multiple TAs. Some TAs cover a group of medicines or just a specific formulation of a medicine. Different formulations of a medicine may occur in different TAs. Many medicines and medical technologies previously covered by TAs are now included in clinical guidelines or in best practice guidelines.

4.2 NICE Costing Templates and Audit Tools

NICE provides costing tools to support the implementation of most technology appraisal guidance published since January 2005. Where the cost impact is estimated to be less than one million pounds then a costing statement is produced instead of a costing template. Costing templates are intended for financial planning purposes and provide users with the ability to estimate the local cost impact of implementing guidance. These figures are estimates only and are not to be taken as the NICE view of desirable, or maximum or minimum figures.

NICE encourages users of the costing templates to modify the assumptions used in these templates to more accurately reflect local circumstances.

Local practice, demographics and prevalence may differ from the assumptions used to create the national estimates and could be a reason for variation in use.

The assumptions used to produce the costing templates are based on a variety of sources, including:

- Background documents to the guidance.
- Previous uptake of similar medicines or technologies.
- Experts advising the committees producing the guidance.
- Data on co-morbid conditions which might preclude patients from treatment. Where no specific data exists then NICE apply estimates of conditions in the whole population to the subgroup.
- Areas that have already implemented the recommended practice ahead of the guidance being issued.

The costing template reflects the potential cost impact at the time the TA was issued. However both the NHS and the development of new medicines are dynamic environments and the information used to generate the assumptions may be superseded e.g. by an

alternative source or a change in clinical opinion. Therefore, the information used to determine the estimate may be a significant factor affecting the understanding of usage.

NICE costing templates are relevant only to those medicines included in Part 1 of the Scorecard. It should also be noted that the estimates were intended to be modifiable and an aid to financial planning rather than for the purposes of the Innovation Scorecard.

Publication of the Scorecard may lead NHS organisations to consider carrying out a local audit of uptake against selected NICE guidance to ensure the right patients are receiving treatment. NICE has produced audit tools to support such work for many appraised medicines. It is important to note that the audit tools consider whether those patients that accessed the medicines did so under the circumstances set out by the NICE recommendations.

5 Format

This Innovation Scorecard publication includes:

- A report describing the data included (this document)
- An interactive reporting spreadsheet
- A worksheet (Ref table 2 in the interactive spreadsheet) which cross references each medicine against the relevant TAs, and shows in which part of the Scorecard the medicine appears
- A Data Quality Statement
- A feedback process
- Additional information in a 'Frequently asked questions' format

Users are advised to read this report when viewing the data within the interactive reporting spreadsheet.

Information on compliance by NHS organisations with NICE TAs is not centrally collected. Due to limitations in the data available, this Innovation Scorecard provides a range of different data sets with the aim of showing variation.

In this fifth publication, data is shown to December 2013 where data is available at the time of publication.

For medicines, this Scorecard considers medicines recommended by NICE up to June 2013. Medicines may be used predominantly in primary care, in secondary care or across all healthcare sectors. To avoid misinterpretation, this report shows data by individual organisation for medicines where predominant use is clear, i.e. 97 per cent or more in primary care or in secondary care. Medicines with significant use across both sectors have not been included, as populations served by primary care organisations do not align with those served by hospital trusts.

All the data is presented in an interactive reporting spreadsheet. The data is presented in tables and in charts showing variation. The interactive component uses macros to allow the user to identify the part of the report, and to specify the organisation and interventions they wish to explore. This shows available data in a range of formats, depending on source and organisation level, as described in the later sections of this report.

The data is presented in five parts. Further details on these are given below.

Comments are invited on the following issues

- **The suitability of the data for this purpose, and suggestions for alternatives**
- **The suitability of the denominators used, and suggestions for alternatives**
- **Is a central additional data collection required to better support this work? Or would local reporting mechanisms be more appropriate and fulfill the intended purpose?**

Other comments and views are also welcome.

5.1 Part 1: Specification based on the report: Use of NICE Appraised Medicines in the NHS in England 2012

This is based on the 'Use of NICE Appraised Medicines in the NHS in England 2012' report published in January 2014. The report can be found at:

<http://www.hscic.gov.uk/pubs/niceappmed12>

The publication is based on collaborative work between HSCIC and NICE, with contributions from the pharmaceutical industry, DH and the NHS. The report is commissioned by DH, to meet their commitments in the Pharmaceutical Price Regulation Scheme (PPRS)³ 2009 agreement.

The 'Use of NICE Appraised Medicines' report includes medicines where it has been possible to estimate the number of patients predicted to be treated with the medicines and comparing that to the observed use of medicines. This work is complex due to difficulties in deriving estimates of the number of patients expected to be treated and obtaining appropriate utilisation data for specific medicines and specific indications. Medicines may have multiple indications (some NICE appraised and some not) and there may be a number of medicines with the same indications. A TA often recommends a medicine as a treatment option for consideration alongside other options. There are known gaps in medicine utilisation data (such as supplies via the homecare route).

These medicines are reported at CCG level (two groups of medicines) or at Area Team level (three groups of medicines). This includes 10 medicines and 8 TAs. Please see the publication (link given above) for more details on these medicines included in the Scorecard, including the assumptions used and the calculations of estimated and observed use.

5.2 Part 2: Specification based on utilisation and population data

5.2.1 Part 2.1 Medicines in Primary Care

Utilisation data for those NICE appraised medicines predominantly used in primary care has been extracted for the time period April to December 2013. (Note that in this publication CCG data is for nine months, whereas CCG data in previous publications was for different time periods.) This is available from ePACT (a system provided by the NHS Business Services Authority) at CCG level.

This data is presented in Defined Daily Doses (DDDs) per 100,000 resident population. Using population figures for CCGs allows the publication of volume prescribed per head, so

³ The Pharmaceutical Price Regulation Scheme 2009, December 2008 (available at: <https://www.gov.uk/government/publications/pharmaceutical-price-regulation-scheme>)

comparisons can be made. These figures are not related to any measure of need (other than the total population).

5.2.2 Part 2.2 Medical Technologies

This section includes six Medical Technologies; all evaluated using the NICE TA process. The data was extracted from Hospital Episode Statistics using the CCG of residence of the patient. This is the CCG containing the patient's normal home address, but it does not necessarily reflect where the patient was treated as they may have travelled to another area for treatment.

Data is presented for April to December 2013, by CCG, as procedures per 100,000 resident population. These figures are not related to any measure of need (other than the total population). Note that in this publication CCG data is for nine months, and CCG data in previous publications was for different time periods. Therefore the CCG data standardised by resident population cannot be compared between publications.

The Medical Technologies included are:

1. Cardiac Combined (TA120)
 - a. Cardiac Resynchronisation Defibrillator Device
 - b. Cardiac Resynchronisation Pacing Device
2. Endovascular Stent Graft (TA167)
3. Laparoscopic Surgery (TA83)
4. Spinal Cord Stimulation (TA159)
5. Cochlear implant (TA166)
6. Coronary Artery Disease (TA152)

Clinical coding advice was provided by the NHS Classifications Service at HSCIC, details of this are in the reporting spreadsheet (see Ref Table 4).

Issues and Questions

- **What other data sources could be used to support the assessment of medical technology TAs centrally?**
- **Reporting here is by CCG where the patient is resident. Should reporting be by the commissioner of the care (i.e. CCG) or by the provider of the care (hospital trust)?**

5.3 Part 3: Specification based on purchase and sales data by NHS hospital trust

Medicines utilisation data by hospital trust is not centrally collected; however data relating to some purchase of medicines by hospital trusts is available. This cannot be regarded as providing a measure of current utilisation, as there are known gaps in the data collected and some trusts may purchase on behalf of other trusts.

There are some changes to the NHS hospital trusts included in each publication, generally due to more trusts contributing data, and trust mergers. This information reflects the structure of a particular trust at that time. A hospital trust may cover several separate hospital sites, and there may have been recent changes. The hospital trusts included are those recorded on the CMU database, therefore there may be additional trusts which are not included in this report.

Hospital trusts vary significantly in the size of the populations they treat and the services they provide. For example some treat just children and others provide services related to cancer or other specific conditions. The catchment population for a hospital is influenced by the condition being treated, so local population figures cannot be used for standardisation.

This part reports on medicines used predominantly (i.e. 97 per cent or more of the overall annual cost in 2013 is incurred) in secondary care. This data allows very limited interpretation in that it indicates variation, but cannot be used to make any assessment of compliance.

This data is presented in mgs or units per 100,000 Finished Consultant Episode (FCE) days of hospital care. (FCE days of hospital care include FCE bed days and FCE day cases). Note that previous publications presented data per 100,000 FCE bed days, however following user feedback this was changed. The data standardised by days of hospital care cannot be compared with data standardised by bed days in previous publications. Further details are in the methodological change notice for this publication. This can be found on the methodological changes page on the HSCIC website, at: <http://www.hscic.gov.uk/pubs/methchanges>.

These figures are not related to any measure of need (other than the total number of days of hospital care

Issues and Questions

- How could the Scorecard take account of casemix issues?
- Are days of hospital care an appropriate denominator to use for these purposes?
 - Are 'days of hospital care' appropriate for *all* the medicines?
 - Other options include using Finished Consultant Episodes (FCEs) or estimates of catchment populations developed by the Network of Public Health Observatories. We welcome comments and other suggestions.
- Should the preferred denominator be selected for each medicine as catchment populations vary by the condition treated?
- Should reporting for this purpose be by the commissioner of the care (CCG) or by the provider of the care (hospital trust)?

5.3.1 Part 3.1 Purchase Data

This shows purchase data, supplied by NHS Hospital Trusts to the Commercial Medicines Unit in the DH.

Previous publications have invited Trusts to provide comments on their data. However this has not been done for this publication, due to the burden to Trusts. It is expected that Trusts will be asked to validate data for the next publication which will include data for a full year (April 2013 to March 2014).

Many trusts have reported that for a number of reasons, this purchase data is not appropriate for the assessment of compliance, and in their view could be misleading as presented here. However, it does show variation in purchase patterns which can be explored further. There are known gaps in the data, therefore the figures presented are likely to be an underestimate of total purchases.

Issues and Questions

As there are a number of factors which mean the Pharmex purchase data is not appropriate for the intended purpose of assessing compliance:

- How can the value and quality of this data be increased?
- What other data could be used to supplement or replace this data set?

5.3.2 Part 3.2 Sales Data

This section includes NHS Hospital Trust level data provided by the pharmaceutical industry for medicines used predominantly in secondary care, from those companies that have given permission to publish this data. It was hoped that industry would have more complete information on supplies to the NHS, and be able to fill some of the known gaps in the NHS available data.

Data included within the Scorecard was provided by Archimedes, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Novartis, Pfizer, Roche, and Takeda.

Issues and Questions

Commercial sensitivity is relevant to both the NHS and industry partners; what measures would encourage industry partners to be more open with their data to support the development of future Innovation Scorecards?

5.4 Part 4: Published Hospital Formularies

Local formularies provide a list of selected or preferred drugs available to local prescribers and have an important role in underpinning safe and effective use of medicines.

In a letter from the NHS Chief Executive (Innovation, Health and Wealth publication of NHS formularies, 2012), stated that all NHS organisations should publish information setting out which NICE technology appraisals are included in their local formularies by 1 April 2013. The formularies should be published on line, and be clear, simple and transparent, so that patients, the public and stakeholders can easily understand them. The responsibility to update these formularies is with the individual Trust.

NHS England have collated hyperlinks for published formularies, which are reported in this publication (see table 4 in the interactive spreadsheet), to assist users to locate them. These links were correct at 1 September 2013.

5.5 Part 5: Specification based on NICE Implementation Collaborative (NIC)

The NICE Implementation Collaborative (NIC) is an independent partnership between the NHS, the life sciences industry, healthcare professional bodies, patient advocates and key health organisations. It aims to ensure more consistent and prompt uptake of NICE guidance, including exploring any barriers to adoption of NICE recommendations.

NIC has identified areas of NICE guidance for initial work, and established four working groups to identify root causes and practical solutions to support implementation. Two of these pilots include TAs relating to medicines:

- Denosumab for post-menopausal women with osteoporosis
- Novel Oral Anti-coagulants for prevention of stroke in patients with atrial fibrillation

These medicines are used in both primary care and secondary care, so have not been included in other sections of the Innovation Scorecard. The figures included in this part are derived from both the IMS Health Hospital Pharmacy Audit Index (HPAI) database and the databases maintained by the Prescription Services Division of the Business Services Authority. This data is reported by net ingredient cost, excluding VAT, as there is no other measure that is currently available and consistent across both the primary care and secondary care sectors. The use of this standard unit across the whole health economy allows comparisons of data from different sources. DDDs may be a more appropriate measure, but these values are not included in the HPAI dataset.

Quarterly trend utilisation data are provided from January 2012 to December 2013 for primary care. Secondary care data are provided from January 2012 to September 2013 as HPAI data for September to December 2013 are not yet available to be published. The data is provided at both National and Area Team level.

Data from prescriptions written in hospitals but dispensed in the community are included in the secondary care data. This is a change from the last publication, where this was included with the primary care data. Further details are in the methodological change notice for this publication. This can be found on the methodological changes page on the HSCIC website, at: <http://www.hscic.gov.uk/pubs/methchanges>.

Note that the novel anti-coagulants (NOACs) are licensed and have been appraised for more indications than are covered in NIC pilot review, however total use is reported here. Reporting for denosumab in this section is for the 60mg/ml Prolia formulation. Ticagrelor is also included in this part, on request by NHS England.

The cost data shown for each medicine can be considered in comparison to the total NHS drugs bill. Further information can be found in the following HSCIC publications:

- Hospital Prescribing - England, 2012, see: <http://www.hscic.gov.uk/pubs/hospre12>
- Prescriptions Dispensed in the Community, Statistics for England, 2002-2012, see: www.hscic.gov.uk/pubs/presdisp0212

Issues and Questions

Reporting by a common measure, cost, allows the inclusion of medicines which are used across both primary care and secondary care.

- Is this an appropriate measure to be used for reporting other medicines?

6 Interpretation

The Innovation Scorecard is not intended to be used for performance management. It is intended to identify where variation in the adoption of TAs may exist between healthcare organisations and for these organisations to understand, be challenged and explain any variation. This is based on the assumption that reduced variation will result in improved quality of care.

It is important to be aware that observed use of a medicine or technology may differ for a range of reasons and should not be assumed to definitely indicate either 'under' or 'over' prescribing or implementation. A technology may not be the only treatment for a particular condition recommended in NICE guidance, or otherwise available in the NHS.

Medicines are often recommended as options for treatments. Other options may include non-appraised medicines or other appraised medicines. Therefore variation in the use of individual medicines would be expected, and assessment of compliance cannot be made using currently available data.

Variation in the use of medicines or medical technologies between NHS organisations may be due to a number of valid factors including:

- Natural variation in populations, both in demographic profile and disease prevalence.
- Variation in presentation to the NHS by the relevant populations.
- Variation in choice of preferred treatment option at the local level.
- Variation in the use of alternative products or procedures.
- Differences in the extent to which local utilisation information is available.
- Differences in services provided between organisations, for example differences in the extent to which a service is provided in primary or secondary care.
- Difference in levels of informed patient dissent.

A detailed examination of the reasons for variation for individual technologies is beyond the scope of this report. 23,

6.1 Standardisation

NHS organisations differ widely in the populations they serve and so data which does not take this into account can be misleading.

For CCG data the number of resident patients has been used to take account of the size of population served. The smallest CCG is Corby with a population of 63,100. The largest is North, East, and West Devon with a population of 869,400. This is a fourteen fold difference and shows that comparing raw data would be problematic. Whilst this standardisation helps comparability, simply using the number of patients with no additional measure of need is a crude method of standardisation. Note that in this publication CCG data is for less than a complete year, and CCG data in previous publications was for different time periods. Therefore the CCG data standardised by resident population cannot be compared between publications.

For data by hospital trusts the number of FCE days of hospital care from April to December 2013 (taken from the Hospital Episode Statistics data) has been used to standardise the data. The lowest figure for April to December 2013 was for Moorfields Eye Hospital NHS Foundation Trust with 23,013 days of hospital care. The highest figure was for Barts Health NHS Trust with 605,127 days of hospital care. This publication looks at a number of specialised medicines so differences in use across organisations are to be expected. Note that the data standardised by days of hospital care cannot be compared with data standardised by bed days in previous publications.

6.1.1 Estimates of the eligible patient population

Data on the number of patients diagnosed with a particular condition, eligible for a specific intervention, or receiving an intervention are not routinely recorded and reported centrally by the NHS; therefore the eligible population for any TA can be problematic to estimate. To develop estimates of the eligible population, information is required to refine population numbers to the particular circumstances where the medicine is recommended by NICE; from overall disease prevalence to the proportion of patients within a particular stage of a disease and then to the particular indication recommended by NICE. In some cases further details are also required, for example, the proportion of patients likely to discontinue treatment or choose alternative treatments.

Issues and Questions

We welcome feedback, on how best to take account of differing need and differing populations served by NHS organisations.

- **How could the Scorecard take account of casemix issues?**

6.2 Data Sets: Sources and Limitations

The NHS currently does not have any robust data reporting or collection process which gathers data which can be used to measure compliance with NICE TAs.

The data sets used in this experimental publication were developed for other specific purposes and are shown here to provide an indication of the implementation of NICE appraised technologies. Therefore users of the Scorecard should be familiar with the limitations of the data used for this purpose.

Patients can receive medicines from the NHS by a variety of routes. The most common is to receive a prescription from their general practitioner or other community based prescriber, which is then dispensed by a community pharmacy. However there are a number of other ways patients can receive medicines which may limit the coverage of centrally available data, and result in under-reporting. Some of the main areas are described below:

- Medicines are supplied directly to a patient without a prescription being issued or the supply being recorded in a system which supports central collection of data. For example:
 - Some medicines (e.g. for smoking cessation or contraception) are supplied directly to patients from specific clinics, and this use does not appear in any central data collection.
 - Some mental health trusts or clinics purchase medicines and supply or administer them directly to patients without using a prescription or order in such a way that relevant information is not routinely captured in national data sets.
 - Some emergency supplies of medicines are supplied directly to patients and this use does not appear in any central data collection, for example, supplies provided by 'out of hours' services.
- There are some known gaps in the central data collections, including:
 - Homecare: Supplies of medicines are delivered directly to the patient's home, and may not be recorded on hospital systems. This service is generally contracted to a commercial supplier by hospital trusts.
 - Some medicines are provided by an aseptic unit where the medicine has been individually prepared for administration to a particular patient. In some cases the data for this does not appear in the pharmacy records.
 - Outsourcing: Hospitals are increasingly using local commercial suppliers to provide medicines to patients attending out-patient clinics and these supplies are not included in hospital pharmacy records..
 - Hospitals may contract with the private sector to provide specific care or administer specific medicines, which are not recorded in the data from the commissioning hospital. This is known to take place, for example, with Ranibizumab.

Some medicines are included in multiple TAs; and some medicines are licensed for other indications than those covered by TAs. The currently available datasets do not allow identification of utilisation by indication, therefore it is not possible to report use for a particular condition.

NICE TAs commonly recommend a medicine for use in the NHS as an option for treatment. Therefore it may be appropriate to collate data for all the appropriate options to more accurately indicate compliance with NICE guidance.

6.2.1 ePACT data

The NHS Business Services Authority process prescriptions dispensed in the community and returned to them for reimbursement. The data collected as part of this process is provided through a system known as ePACT.

While most of the data relates to prescribing and dispensing activity in primary care (excluding dentists), additional data is also available for those prescriptions written in hospital but dispensed in the community (formerly known as "FP10HP" prescriptions). This data has not been included in Part 2, as it is not attributable to CCGs, nor in Part 3 which covers purchases by hospital trusts. It has been included in Part 5 as it is a component of hospital utilisation.

Note that the CCG data provided in this publication may not match the England total available elsewhere as a very small proportion of the national data cannot be attributed to a specific CCGs.

6.2.2 Hospital Episode Statistics (HES)

HES are compiled from data sent by more than 300 NHS hospitals in England and from some independent sector organisations for activity commissioned by the NHS. The HSCIC liaises closely with these organisations to encourage submission of complete and valid data and seeks to minimise inaccuracies. While this brings about improvement over time, some shortcomings remain.

The HES data used in this publication is taken from the month 12 2013-14 HES data.

There are known HES coverage issues for some NHS Trusts including The Whittington Hospital NHS Trust (RKE), Oxleas NHS Foundation Trust (RPG), Surrey and Borders Partnership NHS Foundation Trust (RXX), and Tameside Hospital NHS Foundation Trust.

South London Healthcare NHS Trust (RYQ) closed on 30th September 2013, and activity undertaken by this trust has been transferred to three other providers. However, at present no mapping files are available from the closed RYQ provider code to the new provider codes; therefore all HES data for 2013-14 year for RYQ has been removed from the provisional HES data.

Further details about HES data quality can be found at:
<http://www.hscic.gov.uk/catalogue/PUB14196>

6.2.3 Pharmex data

Pharmex data have been used within the Scorecard with the agreement of the National Pharmaceutical Supply Group (NPSG). It has been provided by the Commercial Medicines Unit (CMU) in DH. These data are collected from hospital pharmacy systems and represent purchases made through these systems.

- Pharmex data are published in volumes (mgs or international units) to show variation.
- The data is reported under the hospital trust purchasing the medicines. However, these 'trusts' are purchasing points. A Pharmex trust could be a single site, a group of sites, the whole trust or a collection of trusts depending on local arrangements of pharmacy purchasing systems. This means that some trusts may be shown as making no purchases of certain medicines even though these are used.
- Pharmex covers about 95% of hospital trusts. Coverage may be lower at a regional level due to missing data or non-contributing trusts.
- The CMU is aware that the data has partial coverage of medicines delivered via homecare or where supply is outsourced. The homecare market is estimated to exceed £1.5 billion annually in the UK, and is a significant proportion of total medicines use in secondary care.
- Some medicines are purchased through other routes outside the pharmacy systems, and do not appear in the Pharmex data. These include purchase by departments within the hospital other than pharmacy, outsourced outpatient pharmacy services or

purchases from specialist companies who provide commercially prepared IV solutions and ready-to-use premixed medicines..

- The data is not standardised to allow for the differing demographics and needs of the local population and specialist services of trusts.
- In some cases, trusts have disagreed with the data extracted from the Pharmex system.

6.2.4 Pharmaceutical Industry data

The following pharmaceutical companies have provided sales data for medicines which are used predominantly in secondary care: Archimedes, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Novartis, Pfizer, Roche, and Takeda.

- Industry sales data are published in volumes (mgs or international units) to show variation.
- The data is reported under the hospital trust purchasing the medicines, and is for medicines supplied directly to the listed trusts only .
- This data will have partial coverage at trust level of medicines delivered via homecare or where supply is outsourced. The homecare market is estimated to exceed £1.5 billion annually in the UK, and is a significant proportion of total medicines use in secondary care.
- The data is not standardised to allow for the differing demographics and needs of the local population and specialist services of trusts.

Company data will not generally include data relating to any homecare or outsourcing supplies made by a trust, unless the medicine was sold to the trust initially and then passed to the homecare company or the company collected homecare data separately. Archimedes, Boehringer Ingelheim, and Takeda reported that their medicines are not supplied via the homecare route. Roche and Pfizer report that such homecare use is included in their figures. AstraZeneca, GlaxoSmithKline and Novartis were not able to do so, therefore their data may be an underestimate of true sales to the hospital trusts.

The completeness and accuracy of the data has not been assured by the HSCIC.

6.2.5 Hospital Pharmacy Audit Index data

Unlike primary care, there is no central NHS collation of information on medicines issued and used in NHS hospitals. IMS Health collects and collates data on a commercial basis, based on issues of medicines recorded on hospital pharmacy systems. Issues refer to all medicines supplied from hospital pharmacies to wards, departments, clinics, theatres, satellite sites and to patients both in out-patient clinics and on discharge.

IMS collects data on the quantities of medicines issued (packs) and no financial information is collected. The costs in the HPAI datasets are calculated from quantities by IMS Health using the Drug Tariff and other standard price lists.

The HPAI data does not include any volume measure equivalent to an item, as used in primary care, nor does it include the physical quantity and hence contains no equivalent to the number of Defined Daily Doses.

- HPAI data are published as net ingredient cost. This allows combination with equivalent data from primary care to show variation across the wider healthcare economy.
- The data is reported at National and Area Team level.
- Over 99% of NHS beds across England are covered in the data provided, which is grossed up by IMS Health to provide national figures.
- IMS Health is aware that the data has incomplete coverage of medicines delivered via the homecare route, though has included any homecare data obtained.
- Some medicines are purchased through other routes outside the pharmacy systems, and do not appear in the HPAI data. These include purchase by departments within the hospital other than pharmacy, outsourced outpatient pharmacy services or purchases from specialist companies who provide commercially prepared IV solutions and ready-to-use premixed medicines.
- The data is not standardised to allow for the differing demographics and needs of the local population and specialist services of trusts.

This data is used with the permission of IMS Health.

6.2.6 Office of National Statistics (ONS) resident population data

The CCG resident population figures used in this publication are from the mid 2012 population estimates published by ONS on 30 October 2013. Previous publications used mid 2011 population figures. See the following website for further details:

<http://www.ons.gov.uk/ons/rel/sape/health-geography-population-estimates/mid-2012/stb---health-geography---mid-2012.html>

7 Experimental Status

This publication is released under 'experimental' status. This is a concept used for statistics in certain defined circumstances, largely to develop (with user input) new data sets which already have considerable immediate value to users, but are not fully developed and do not yet meet the quality standards of National Statistics. It is important that users understand that cautions apply to the interpretation of this data. More details are given within the report.

There is an expectation that this work is developed further, taking account of informed feedback from users. Please use the associated feedback form, which includes specific questions and also requests general comments and suggestions.

8 Summary and next steps

The aim of the Innovation Scorecard is to assess the extent to which the NHS is adopting new medicines and technologies in line with NICE guidance. However this has proved complex and the process has exposed the limitations in existing data capture and validation in the system.

NHS England and HSCIC are keen to receive feedback on this work to assist in improving the process for data collection and validation for future iterations of the Innovation Scorecard.

9 Glossary

The **NICE** glossary can be found at this web link-
<http://www.nice.org.uk/website/glossary/glossary.jsp?alpha=A>

Term or abbreviation	Definition
ABHI	Association of British Healthcare Industries
ABPI	The Association of the British Pharmaceutical Industry
CCG	Clinical Commissioning Group
CG	Clinical Guideline
CMU	Commercial Medicines Unit (Department of Health)
DDD	Defined Daily Dose Defined daily doses (DDDs) are a World Health Organisation (WHO) statistical measure of medicine consumption. DDDs are used to standardise the comparative usage of various medicines between themselves or between different health care environments.
DH	Department of Health
ePACT data	Primary Care Trust Prescribing Data. Data on prescribing by primary care collected by the NHSBSA.
HES	Hospital Episode Statistics
HPAI	Hospital Pharmacy Audit Index – a data set owned by IMS Health
Homecare medicines	The supply of hospital prescribed medicines direct to patients in their own homes.
HSCIC	Health and Social Care Information Centre
IH&W Board	Innovation, Health and Wealth Board
Industry data	Sales data provided by the Pharmaceutical Industry
NIC	NICE Implementation Collaborative
NICE	National Institute for Health and Care Excellence
Outsourced Supply	The supply of hospital prescribed medicines direct to outpatients from a contracted dispenser.

Term or abbreviation	Definition
PCT	Primary Care Trust
Pharmex	Database maintained by CMU of purchases of medicines by hospital trusts.
Prescription Services	A department within the NHS Business Services Authority
Primary Care	Primary care is the term for the health care services provided within the local community, acting as the first point of consultation.
Secondary Care	Secondary care is known as acute healthcare and can be either elective care or emergency care. Also referred to as hospital trusts.
TA	Technology Appraisal
Trust	An NHS hospital trust, also known as an acute trust provides secondary health services. A hospital trust may include a number of local hospitals, under a single overall management arrangement.

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