REGIONAL VARIATION IN UPTAKE OF RECOMMENDED CANCER TREATMENTS IN ENGLAND (2018-2020) – AN OSIMERTINIB CASE STUDY

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INTRODUCTION

A positive recommendation from the National Institute for Health & Care Excellence (NICE) is a vital step in achieving patient access in England. Commissioners have a statutory responsibility to make funding available for a treatment recommended by a Technical Appraisal (TA) within 90 days. However, uniform patient access is not automatic.

NICE's biannual Innovation Scorecard aims to improve transparency of recommended treatments (resource impact >£5 million/yr) available at a local level within NHS Trusts and CCGs, as well as national and NHS England Regional levels.[1] An Estimates Report, comparing the expected uptake to the actual volume of medicines used in the NHS, is made publicly available with the intention of bringing an end to 'postcode prescribing', whereby treatments are available to patients immediately in some parts of the country, and yet are delayed in others.[2]

The CMO investigated the scorecards to understand the reasons for apparent under-utilisation of several innovative oncology products. This case study illustrates how an important new therapy, osimertinib (Tagrisso®), failed to reach all eligible non-small cell lung cancer (NSCLC) patients in a timely fashion between 2018-2020.

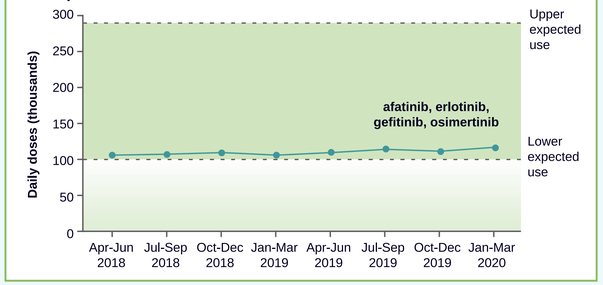
OBJECTIVES

- Assess whether current regulation is sufficient to ensure timely adoption of newly recommended treatments, or if further formal implementation frameworks are required.
- Explore potential barriers to patient access to innovative new drugs recommended by NICE.

METHODS

- Examination of Estimates Reports for April 2018 - March 2020 highlighted the entire class of Tyrosine Kinase Inhibitors (TKIs) as potentially under-utilised, with all products positioned at the lower end of NICE's expected use (Figure 1).
- Osimertinib was selected for further study due to its innovative drug status, importance as a new treatment option in NSCLC, and its apparent very slow uptake between Q4 2016/17 - Q1 2020/21.

Figure 1: Afatinib, erlotinib, gefitinib, and osimertinib – observed use and range of expected use in primary and secondary care prescribing from April 2018 to March 2020[1]

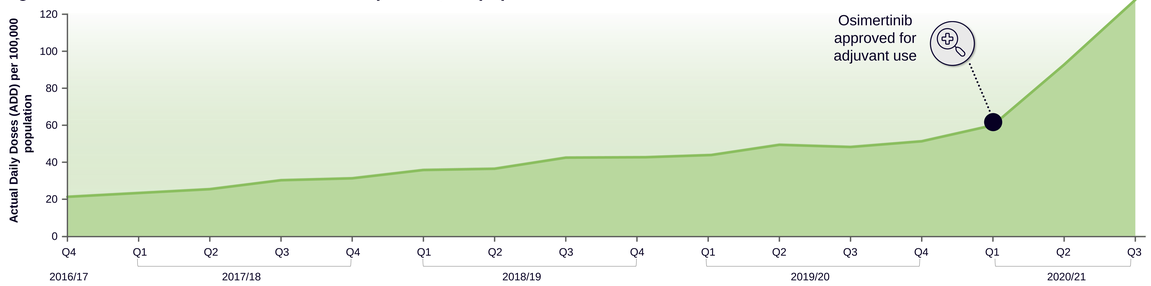


- Based on NICE utilisation maps, a scoring methodology was devised to rank each region according to level of uptake.
- Initial findings were compared to regional Cancer Alliance data from the National Lung Cancer Audit (NLCA).[3] Alliances were mapped to NHS England Regions for this analysis.
- Interviews were conducted with consultant oncologists, histopathologists, clinical scientists, pharmacists and patients to explore potential barriers to uptake in regions of interest.

RESULTS

- National use of osimertinib increased very slowly between Q4 2016/17 - Q4 2019/20 (Figure 2). Regional analysis of the data demonstrated that under-utilisation was primarily driven by two areas, i.e., Midlands and North East (NE) & Yorkshire – which both displayed consistently low uptake vs. the rest of England (Figure 3).
- These findings are broadly consistent with regional NLCA data, where East Midlands, West Midlands, and NE & Cumbria Cancer Alliances reported markedly lower use of TKIs, as a proportion of EGFR+ NSCLC cases, vs. the rest of England (Figure 4).
- EGFR mutation tests are in vitro diagnostic tests used to identify adults with NSCLC suitable for treatment with EGFR-TKIs and can aid oncologists in assessing personalised treatment options.[4]

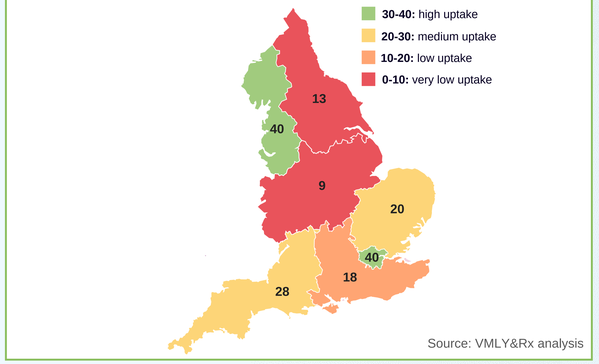
Figure 2: National use of osimertinib – ADD per 100,000 population[1]



- The availability, timeliness and accuracy of EGFR biomarker testing, a requirement for patients to receive osimertinib in the timeframe, was a consistent theme that arose in interviews with all stakeholders.
- Some interviewees were critical of the NHS's failure to ensure adequate capacity for testing services – citing lack of preparedness, lack of inclusion, poor communication with participating laboratories, a lack of physician education on when and where to obtain tests, and poor outreach to patient groups. Most stakeholders were of the opinion that this acted as a barrier to uptake of all TKIs, including osimertinib.
- Issues that may have contributed to apparent under-utilisation, such as shortage of lung oncologists, treatment positioning, and poor data quality / under-reporting, were also mentioned by respondents.
- The majority of Health Professionals interviewed were not aware of a formal process for implementation of NICE guidance. Physicians become familiar with new treatments through association with clinical trial activities versus any structured and consistent guidelines within their Trusts.

> *Not all patients that have potential to be treated with osimertinib in accordance with NICE guidance can get access to the treatment, as testing may not be happening on time… it's a fact that currently there's a disconnection between NICE and NHSE around testing, and the confusion comes between NICE and GLH (Genomic Laboratory Hubs) not talking to each other, and the NHS cannot in fact cope with the testing. The infrastructure is not actually ready for NICE's testing requests.*
>
> **Consultant Histopathologist, Cellular Pathology, Midlands, UK**

Figure 3: Osimertinib regional uptake analysis from Q4 2018/19 through to Q3 2020/21 (latest scorecard data to December 2020, published on 10th June 2021)

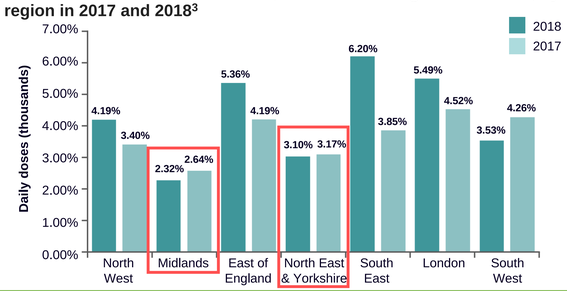


Source: VMLY&Rx analysis

> *…We have heard from members that there is still some regional variation in terms of biomarker testing, which results in some stage IV lung cancer patients not being tested for mutations at the point of diagnosis… consequently patients may be disadvantaged and not have access to osimertinib.*
>
> **Jenny Abbott, Founder / Chair of the EGFR Positive UK charity**

> *Some smaller hospitals are understaffed for Lung Oncologists… so one reason for under-treatment may be related to staffing and not being able to see an appropriate oncologist quickly.*
>
> **Clinical Oncologist, Midlands, UK**

Figure 4: Proportion of patients with pathologically-confirmed stage IIIb/IV NSCLC and who are EGFR+, that are receiving TKI treatment, by region in 2017 and 2018[3]



DISCUSSION

- Osimertinib is a targeted therapy used to treat EGFR+ NSCLC, a mutation accounting for around 10-15% of all lung cancers[5], that gained EU approval in February 2016. Osimertinib became available in the UK via the Cancer Drugs Fund in October 2016 – representing an important new treatment option for patients, providing significant tolerability and efficacy benefits, and improved treatment of brain metastases.
- Despite improved ease of testing (via liquid biopsy), utilisation of osimertinib remained low in areas such as the Midlands and NE & Yorkshire, which represent a large pool of potentially eligible patients. The reliability of liquid biopsy could have precluded access to the drug for some patients, with several reports of false negative tests[4], although this does not explain the apparent regional bias.
- Notwithstanding potential issues relating to data quality, the overall body of evidence suggests that systemic failures on the part of NHS England to adequately prepare all Trusts for the arrival of osimertinib, by ensuring adequate testing capacity, may have disadvantaged the outcomes of many patients.
- Lung cancer survival rates still lag significantly behind other countries, with the UK ranking lowest vs. high income countries in the ICBP SURVMARK-2 study, with a 5-year net survival rate of 14.7% vs. 21.7% in Canada and 21.4% in Australia.[6]
- Centres of excellence, such as the Clatterbridge, Royal Marsden and Christie, led acquisition of osimertinib. A fit for purpose, structured, consistent and inclusive framework is required to ensure timely adoption of NICE guidance in smaller centres that might be less familiar with new treatments. This would prevent disparities in implementation becoming a barrier to patient access to innovative new drugs.

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1. NICE Technology Appraisals in the NHS in England (Innovation Scorecard) available at: https://digital.nhs.uk/data-and-information/publications/statistical/nice-technology-appraisals-in-the-nhs-in-england-innovation-scorecard 2. Innovation scorecards to highlight availability of NICE-approved drugs. NICE press release, 29 August 2012; 3. National Lung Cancer Audit Annual Report (for the audit period 2017); Version 2, published February 2020, & National Lung Cancer Audit Annual Report (for the audit period 2018), Version 2, published March 2021, Healthcare Quality Improvement Partnership (HQIP) & The Royal College of Physicians (RCP), available at: https://data.gov.uk/search?q=national+lung+cancer+audit; 4. Plasma EGFR mutation tests for adults with locally advanced or metastatic non-small-cell lung cancer. Medtech innovation briefing. NICE. Published online 18 January 2018; 5. EGFR Mutation Positive Stage IV Non-Small-Cell Lung Cancer: Treatment Beyond Progression. Assche, K et al. Front; Oncol. 4: 350. Published online 08 December 2014; 6. Progress in cancer survival, mortality, and incidence in seven high-income countries 1995–2014 (ICBP SURVMARK-2): a population-based study. Arnold, M et al. The Lancet Oncology; 20:11, 01 November 2019.