Bridging the gap:

Why some people are not offered the medicines that NICE recommends

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Contents

Executive Summary

The extent of variation in the uptake of NICE recommended medicines across the NHS in England has been described before. The reasons for such variations are less well understood.

With the encouragement of the Metrics Oversight Group, a joint Department of Health, Industry and NHS group, IMS Health conducted a qualitative study during the summer and autumn of 2012 to help investigate the reasons for that variation.

Interviews were carried out with people chosen for their expertise. 47% of the 55 interviewees were recommended by the Department of Health, the remainder found primarily through literature and/or internet searches. Freedom of Information (FOI) requests, literature searches and analysis of deidentified clinical records were also used to support statements made.

Eight therapy areas were discussed - severe hand eczema, intractable asthma, hepatitis C (HCV), osteoporosis, rheumatoid arthritis, non-small cell lung cancer, high grade glioma and multiple myeloma.

The findings of this study are published by IMS Health in this report, *Bridging the gaps – why some patients are not offered the medicines that NICE recommends* In this report we highlight a number of different factors which together help to explain these variations in uptake. We make a number of recommendations which, if implemented, could make a positive difference to care across multiple therapy areas.

Findings

This report builds on the quantitative analysis of uptake of NICE approved medicines, comparing actual with an estimate of expected use, which was published in October 2012 by the NHS Health and Social Care Information Centre (HSCIC).

Alongside the HSCIC's study, our report points towards fundamental barriers to the uptake of NICE recommended medicines. Gaps appear throughout the treatment pathway, the gaps varying in terms of impact by disease. The cumulative effect of these gaps is most notable in the treatment of hepatitis C. Only about 3% of those chronically infected are said by the Health Protection Agency (HPA) to be treated each year, and only about 20% have been treated between 2006 and 2011. Examples of gaps in the treatment pathway across the eight therapy areas are described below and elaborated on in the full report:

- People are not diagnosed

The national audit for 2010 indicated that only 32% of non-hip fracture and 67% of hip fracture patients had a clinical assessment for osteoporosis/fracture risk. Only 44% of acute trusts responding to FOI requests had been commissioned to provide a Fracture Liaison Service, the recommended means by which to identify those people most at risk of further fractures. The National Cancer Intelligence Network (NCIN) found that in 2007, 23% of newly diagnosed cancer patients came through as emergency presentations. It is generally agreed that there is under-diagnosis of people chronically infected with hepatitis C (HCV).

- Tests required by NICE are not done

An EGFR mutation test is required before gefitinib can be used in non-small cell lung cancer. In 2010/11 Cancer Research UK estimated that need for EGFR mutation tests outstripped the number of tests done by a factor of 1.7. In 2012, in a survey by Merck Serono of 100 oncologists, 75% said access to, or the cost of, biomarker tests were major barriers to the use of personalised medicines.

- Varying access to specialist medical expertise

In a recently published multi-centre audit, 18% of people with glioma that could have received carmustine, a type of chemotherapy, were not offered it, because their cases had not been discussed within the relevant multidisciplinary team. In another single large centre audit published in 2012, it was found that about half of those people with colorectal cancer and liver disease whose case had not been discussed with a specialist liver surgeon would have benefited from such advice. About half of these would have been offered chemotherapy recommended by NICE.

- Capacity to deliver is insufficient

Waiting lists at some memory clinics and some liver clinics delay initiation of treatment for Alzheimer's disease and HCV. Analysis by the National Lung Cancer Audit Team has shown that the odds of receiving chemotherapy for lung cancer double if a person sees a specialist nurse. Specialist nurses are regarded as critical to the patient's experience of care. The numbers of specialist nurses are not being expanded and in some cases are even being reduced.

- Commissioning is deficient

Commissioners and providers argue over who should pay for those drugs that are initiated in secondary care but followed up in primary care. In one particular case, some commissioners fund the first dose of the drug, some providers fund it, some providers pay one sixth of the cost and the commissioner the rest, and some have yet to come to a decision. These discussions delay access.

- Policies are variable

The National Lung Cancer Audit Team has indicated that there is evidence that the elderly with lung cancer do not receive chemotherapy as often as their condition would warrant. Some areas have been shown in a survey by the Hepatitis C Trust not to offer treatment for HCV to groups of people that, in other areas, do receive treatment. Some centres with greater access to research funds can initiate biologic treatment for rheumatoid arthritis earlier than is possible under NICE guidance, and so earlier than other areas without access to such funds. Ease of access to NICE recommended medicines also varies according to whether or not commissioners determine that a NICE recommended drug must be initiated and/or monitored in secondary care, or whether it can be used freely in primary care.

Recommendations

Recommendations focus on the quality and commissioning of diagnostic services, the rules that surround funding of non-Payment by Results (PbR) excluded drugs, capacity in the clinic and the evolution of future metric studies. The recommendations are:

- Test the quality, not just the quantity, of multi-disciplinary team decisions
- Molecular testing should be commissioned alongside chemotherapy by the Commissioning Board
- NICE TAGs should mandate who should fund non-PbR excluded drugs
- The specialist nurse workforce should be extended and formal career paths and definitions need to be put in place
- The new strategic networks should be monitored closely to ensure that integration of care does not suffer
- Metric reports need to evolve. They need to be believed by those that have to implement change. The NHS should not let such things be decided elsewhere.

Conclusions

Despite best efforts, and a raft of existing initiatives, gaps in diagnostic services, in funding, and in delivery capacity mean that some people that are eligible for a NICE recommended drug are never offered that option. Clinical opinion will sometimes reduce that number further, and not always for valid clinical reasons - for example where the people are denied treatment options on the basis of their age alone.

It is not then just about what can be done but more about who wants it to be done. Perhaps the most important recommendation of the IMS study is therefore its last – that professionals, commissioners and payors within the NHS get more involved in the design of performance measures. Only then perhaps will organisations believe that access to NICE recommended medicines can, under some circumstances, be inequitable and so take the appropriate action.

Introduction

On 17th October 2012 the Health and Social Care Information Centre (HSCIC) in England, published a set of experimental statistics purporting to describe the extent to which the National Institute of Health and Clinical Excellence (NICE) guidance had been followed. Results suggested that use was higher than expected in 6 therapy areas, and lower in 6 therapy areas.[1]

The report's conclusions can be challenged. The bisphosphonate analysis gives a different picture to the results of national audits of the people at highest risk.[2,3] In this group the audits suggest under-use. On the other hand, some argue that bisphosphonates are used too often or too early in lower risk groups. The carmustine analysis also points in a different direction to an audit of about half the UK centres carrying out the relevant surgery.[4] The results of the gefitinib analysis seem unlikely given the history of molecular testing in the NHS.[5] And, as is acknowledged in the HSCIC report, there remains considerable debate over the actual numbers of people that can be assumed to be eligible for a particular NICE recommended medicine. In this respect, for example, there are certainly people who argue that it is possible to come up with very much larger estimates of people that are eligible for treatment with biologics for rheumatoid arthritis or with ezetimibe for hypercholesterolaemia.

The analysis of variation has a long history, both in the UK and elsewhere. However to a large extent, such reports like that produced by the HSCIC produce a flare of publicity but policies, or at least results, do not change.

Feedback on a different report, that describing the extent of cross-country variations in 2010,[6] suggested some of the reasons why reports that simply describe variation have less impact than might be expected. These include the fact that there is no attempt to explain the variation, or to determine whether or not that variation is unwarranted or is simply the product of methodological quirks. Similar feedback had been received by the author in relation to earlier HSCIC metrics reports.

With the encouragement of the Metrics Oversight Group, a joint Department of Health, Industry and NHS group, IMS Health therefore took forward a qualitative study, to run in parallel with the HSCIC report. The aim of the study is to look in detail at the range of factors that affected, and led to variations in, the use of NICE recommended medicines in the NHS in England over the same time period as the HSCIC report, and in addition, to collect comments or concerns relating to the methodology used.

Design

The study followed a primarily qualitative design. 55 interviews of an average of about one hour each were carried out by the author – 27 with practising clinicians (24 specialists, three GPs), four with commissioners or policy consultants, eight with patient organisations or patients, eight with nurse specialists or cancer network pharmacists and eight with industry representatives. The industry representatives were each responsible for a product within one of the eight therapy areas examined in this study.[7]

Eight therapy areas were discussed. These overlapped with those evaluated by HSCIC but are not the exactly the same. The eight were severe hand eczema, severe intractable asthma, hepatitis C, osteoporosis, rheumatoid arthritis, non-small cell lung cancer (NSCLC),

high grade glioma (a form of brain tumour) and multiple myeloma (a cancer of white blood cells in the bone marrow). These eight areas exemplify many of the situations where NICE offers guidance –areas that require co-ordination between primary and secondary care in the delivery, commissioning and funding of services (hepatitis C, osteoporosis and molecular testing for NSCLC); areas that require co-ordination between specialists within the same trust or multi-disciplinary team (glioma and NSCLC); areas where practice is both fast moving and impacted by clinical trials (multiple myeloma); areas that are primarily the responsibility of specialists (severe hand eczema and intractable asthma) or of general practice (osteoporosis); areas that have relatively little financial impact (severe hand eczema) and areas that have a relatively large financial impact (rheumatoid arthritis). This range of therapy areas permits the study to highlight cross-cutting issues, as well as issues that affect single therapy areas only.

Respondents were chosen on the basis of their likely expertise. 24 of the interviewees were recommended by the Department of Health, and 23 were found and contacted following literature and internet searches, or through attendance at meetings. The Industry Association (ABPI) provided the details for the eight industry contacts.

Interviews were semi-structured, addressing five issues across eight therapy areas. Some interviews cut across therapy areas, others focussed on clinical practice within a single therapy area.

Four of the five issues discussed in the interviews related to barriers to uptake in the study period (2010 to date) – funding and bureaucracy, system integration, delivery capacity and clinical opinion. The fifth addressed people's concerns regarding the use of non casemix adjusted quantitative data as a proxy for the quality of clinical care.

A median of six people were interviewed for each therapy area. Summaries of the discussions relating to each therapy area were sent back to each interviewee. At least two of the interviewees in each of the therapy areas commented upon the summary. Suggested amendments were reviewed and incorporated. In addition, five pieces of written evidence were received from industry relating to other therapy areas. These are included in this report where they raised similar issues – in the delivery of care for constipation, colorectal cancer, renal cancer and Alzheimer's disease.

To help test statements made in the interviews, and to give a more detailed picture of current practice in NHS organisations, Freedom of Information (FOI) requests were sent to acute Trusts and PCTs. Questions asked included those relating to the commissioning of diagnostic services for osteoporosis and hepatitis C, testing policies relating to NSCLC and the hepatitis C virus, and the provision of specialist nurses in hepatitis C. In addition, literature searches were used to substantiate claims as well as data derived from deidentified records of people with NSCLC and multiple myeloma collected by IMS.

The interpretation put on the information collected from the various respondents is the author's own.

Funding

No funding was received for this study.

Analysis and interpretation

In this report, the reasons for variation are described in terms of their impact on the patient pathway. This approach assumes that the amount of any NICE recommended drug used at a local level is dependent on the numbers of people presenting with the disease, the proportion who are correctly diagnosed, the number of clinicians recommending the drug, the number of patients prepared to receive the drug, and the funding and capacity available to deliver it.

The impact of these factors on use of medicines has been well described in the treatment of chronic hepatitis C (HCV). People drop out of the ideal pathway at every juncture – not everyone who has HCV presents; not everyone who has HCV gets tested; not everyone who tests positive is referred for further investigation; not everyone who is referred attends the appointments; not everyone who attends gets or agrees to a liver biopsy; not everyone who has a liver biopsy undergoes therapy.[8] The Health Protection Agency (HPA) recently estimated that, as a result, only perhaps 20% of those with HCV have received treatment in the last 5 years.[9]

The diagnosis and treatment of HCV may be more challenging in many respects than some of the other therapy areas described here, but there are common issues, issues that mean that the right medicine does not reach the right patient in every case. Patients leak out, or step out, of the pathway at every stage, in every disease.

The Diagnostic Hole

Diagnosis depends on relevant knowledge being available when the patient first presents, a clear treatment pathway that delivers the patient to the specialist with the appropriate expertise, and the provision of appropriate diagnostic tools. In no therapy area did all of these dependencies appear to be in place in all cases.

- Relevant expertise is not always brought to bear

Discussions with people with severe intractable asthma being treated with omalizumab revealed very different experiences. In some instances referral from GP to specialist airways clinic to tertiary referral centre was both rapid and appropriate. In others people talked of GPs not being sufficiently aware of the new treatments and of opportunities to refer being missed.

Severe intractable asthma is not easy to diagnose. It is rare, and there is no single blood or lung function test. Diagnosis depends on a mix of experience and clinical signs and symptoms. The same may be said of the diagnosis of NSCLC, and indeed the result is the same. The 2010 Cancer Patient Experience survey indicated that the number of GP visits that a patient with lung cancer required before referral was on a par with rare cancers.[10] This diagnostic hole is being addressed. Screening for lung cancer is being investigated via the UK Lung Screening Trial, and the National Awareness & Early Diagnosis Initiative was announced as long ago as 2007.[11] This initiative promotes earlier presentation to a GP by people with persistent cough in the hope and expectation that this will increase the proportion of lung cancer patients getting to secondary care with earlier stage disease and better performance status.

The National Cancer Intelligence Network (NCIN) found that in 2007, 23% of newly diagnosed cancer patients came through as emergency presentations. The NCIN stated that for "almost all cancer types, one-year survival rates were much lower for patients presenting as emergencies than for those presenting via other routes."[12] Discussions show that emergency admission, or rather perhaps the reaction to them, still remain an issue for those patients with high grade glioma. Emergency admission appears to lead to restriction of treatment options.

Carmustine implants are used in the treatment of newly diagnosed high grade glioma as an adjunct to surgery and radiation. In a recent audit of 17 centres, 18% of people with glioma that could have received carmustine, a type of chemotherapy, were not offered it, because their cases had not been discussed within the relevant multidisciplinary team (MDT).[4] That failure to discuss the patient within an MDT appears to be due to the fact that a large number of patients are referred or admitted as emergencies. Emergency admission prompts immediate treatment outside of the MDT process. This need not be the case. At one of the largest centres in England, the policy is that all patients with newly diagnosed glioma, regardless of the type of referral, should be seen in a clinic for appropriate investigations prior to the decision to treat. Such a policy is in accordance with the recent NICE Outcomes Guidance which states that every patient should be discussed within an MDT.[13] However, as noted above, it is clear that not all are.

Failure to bring the relevant specialists together is also said to lie behind the fact that the UK is thought to resect only about 10% of all recurrent gliomas (in comparison to about 60% in Germany). Whilst all newly diagnosed patients are referred to a neurosurgeon as part of an MDT, recurrent glioma will tend to be treated by an oncologist, and the oncologist will only involve a neurosurgeon if they feel it is appropriate.

That integration of different types of specialists is also key to the appropriate use of neoadjuvant chemotherapy in people with colorectal cancer and borderline resectable or non-resectable liver disease. Specialist liver surgeons and oncologists need to work together to determine whether use of neoadjuvant chemotherapy would make resection possible. Resection offers survival benefits. The recently published "Quality Standard for colorectal cancer" confirms the importance of oncologists and liver surgeons working together. It states "People with a contrast-enhanced computed tomography (CT) of the chest, abdomen and pelvis suggesting liver metastatic colorectal cancer have their scans reviewed by the hepatobiliary multidisciplinary team to decide whether further imaging is needed to confirm suitability for surgery."[14]

One recently published study suggests however that such integration does not always happen. This, as will be shown, leads to a reduction in treatment options, including those recommended by NICE. The study was of all patients within one high volume UK cancer network with liver only metastatic colorectal cancer that were managed without specialist liver surgical output in 2009.[15] All patients in the study had been given chemotherapy with palliative intent, meaning that a decision had been taken not to attempt liver resection. Imaging results for these patients were reviewed by a panel of six liver surgeons. 33 of the 52 patients given palliative chemotherapy were judged to have potentially resectable liver disease by at least half the panel. In 16 of these, at least half the panel judged that neoadjuvant chemotherapy would have allowed resection.

The authors concluded that "This study has shown that, even with a system designed to support the appropriate expert management of complex disease, inappropriate decisions

are being made by non-specialist clinicians leading to patients being denied potentially life-saving treatments".

MDTs are similarly critical to the successful treatment of people with lung cancer. Lung cancer MDTs are said to vary in terms of the expertise available. Smaller centres will not, for example, have access to the same level of super-specialisation. Smaller MDTs may also not see an oncologist or thoracic surgeon at every MDT, particularly where that oncologist may be dealing with radiotherapy, chemotherapy, lung cancer and other cancers such as lymphomas. One study has demonstrated that in MDTs where the surgeon attended more than two thirds of the meetings, the odds of having surgery were 20% higher.[16] Another study in a related area (Small Cell Lung Cancer) shows the impact of clinical trial participation, and with that one can assume the impact of size, specialism and infrastructure, on the provision of chemotherapy. The study showed that patients with small cell lung cancer treated in MDTs which enter more than 5% of patients into (all) lung cancer clinical trials have a 42% higher chance of receiving chemotherapy than in those which enter less than 5%, corrected for multiple case-mix factors.[17]

- Data critical to decision making are not always available

Case finding, decision making and treatment options are also affected by the quality or quantity of data available.

The 2012 National Hip Fracture Database Report indicated that 88% of patients admitted to hospital with a hip fracture were not receiving bone protection medication.[3] Some people may have refused or been unable to tolerate medication, but others will have slipped through the diagnostic net. Coding of skeletal fracture in General Practice is reckoned to be poor, and this is exacerbated, or so it is said, by insufficient detail in Accident and Emergency discharge notes regarding the cause of fracture. At the same time there has been a lack of clarity around how GPs or others should assess risk of fracture and so determine when to initiate treatment. Three different algorithms have been proposed, and each measures a different thing – risk of fracture, risk of osteoporosis and likelihood of treatment benefit. NICE has recently published guidance as to which approach to use.[18]Work is continuing to determine how the assessment of absolute fracture risk as recommended in this guidance can be linked to the treatment intervention thresholds described in the guidance for the drugs recommended by NICE.

Treatment options in lung cancer are likewise affected by the quality and quantity of biopsy material, and thus the ability to conduct adequate histological and molecular testing. Significant variation exists in casemix-adjusted histological confirmation of NSCLC across networks.[19]

The history of molecular testing in the NHS also suggests that for some people, the option of NICE recommended treatments would have been denied.

EGFR and K-RAS mutation tests, for example, are a requirement of the NICE guidance for the use of gefitinib and cetuximab respectively in NSCLC and metastatic colorectal cancer (mCRC). In 2010/11 Cancer Research UK calculated that the need for EGFR tests outstripped the number of tests done by a factor of 1.7. Need for K-RAS tests was more uncertain but it was thought that the factor lay somewhere between zero and 1.9.[5] That the factor is not zero is suggested by the history of K-RAS testing for mCRC. In July 2008 the manufacturer of cetuximab offered to fund K-RAS mutation testing for all metastatic colorectal cancer patients.[20] In the first 4 months of 2011, the number of tests paid for by

the manufacturer was less than 100 per month. That number surpassed 200 only in August 2011.[21] NICE has previously calculated that the number of people it is likely to be appropriate to test is 2784 per year.[22] Not every laboratory will have taken up the manufacturer's offer but the gap still appears important.

It is not known for sure whether or not this gap in molecular testing was due to capacity issues or because people did not ask for the test – believing that it was difficult to fund, or difficult to do.[5] Certainly tests are now requested more quickly. Figure 1 shows the reduction in average time between diagnosis and the request for an EGFR test across a sample of patients with NSCLC taken from 30 centres in the UK. Figure 2 shows increases in the proportion of non-squamous NSCLC patients given an EGFR test within sample records. Figure 3 shows the same pattern at Trust level from FOI requests.

Results of EGFR tests are still, however, occasionally reported as arriving too late for the decision to initiate therapy. In the worst case, delay may mean it is too late to initiate any chemotherapy at all, the patient's performance status having declined. Test turnaround time is not, however, dependent on technology but rather on process. Improvements are now being considered at multiple sites – the decision to test for EGFR mutation can be taken by pathology as opposed to waiting for the MDT; batch testing can be co-ordinated with MDT decision making; communications can be improved by sending the results direct to the hospital or consultant responsible for treatment; and protocols can be set up to deal more quickly with failed tests.

- Funding restrictions mean diagnostic services are not uniformly available

Molecular tests like those described above are generally funded in various ways – as an integral part of the procedure tariff (in other words, no extra money for the Trust) or as an additional cost per test or block of tests, Prices are set locally but whilst in some areas business cases will have been approved, in others, clinicians are relying on laboratories' goodwill.[5] Again this situation has been recognised as unsustainable over the long term.

Even so, it is clear that lack of a clear funding stream did affect uptake. Comments were made to this effect at the time of the 2010/11 assessment, and there were anecdotal reports from Trusts that once gefitinib was recommended by NICE, and the manufacturer ceased to fund EGFR tests, the number of tests in some trusts reduced dramatically. In the latest known survey of the situation, funded by Merck Serono of 100 oncologists treating cancers of the bowel, breast, lung or leukaemia and carried out between 29th February-14th March 2012, 75% of those asked still said access to, or the cost of, biomarker tests were major barriers to the use of personalised medicines in the NHS.[20]

Similar funding issues have been raised in relation to testing for Hepatitis C. Best practice (as NICE in its recent consultation on testing and treatment in Hepatitis B and C recommends[23]) is for laboratories to do a polymerase chain reaction (PCR) test automatically if the first antibody test is positive. This is because a positive antibody test only indicates that a person has been infected, not that the person is currently infected. It would appear however from discussions that such a procedure is not yet commonplace, and that this variation is explained by differences in commissioning policy. Variation in commissioning policies relating to automatic PCR testing following a positive antibody test was confirmed by responses to FOI requests. Of the 70 acute Trusts that replied, 64% indicated that automatic PCR testing followed a positive antibody test. The sentinel

surveillance survey conducted across 22 centres in the UK points to a similar conclusion. Of the 957 individuals testing positive for anti-HCV during the third quarter of 2011, 679 (71.0%) were also tested for HCV RNA by PCR.[24] If PCR testing were automatic, then 100% of positive antibody tests would be tested by PCR.

Funding also appears to be a barrier to the implementation of Fracture Liaison Services (FLS). FLS help to identify those people at greatest risk of hip fracture and thus those in greatest need of oral bisphosphonate therapy, as recommended by NICE. The 2012 National Hip Fracture Database Report indicated that 88% of patients admitted to hospital with a hip fracture were not receiving bone protection medication.[3] The national audit for 2010 indicated that only 32% of non-hip fracture and 67% of hip fracture patients had a clinical assessment for osteoporosis/fracture risk.[2] FLS are the recommended means to improve the treatment rate for secondary prevention, and have been shown to be cost saving across the health economy, according to the evaluation carried out by the Department of Health.[25] Nonetheless according to the National Audit, only 37% of areas had commissioned an FLS in 2010. Moreover, of the 59 acute Trusts that responded to our FOI Request in October 2012, only 44% had been commissioned to provide an FLS. The main reason appears to be a lack of financial incentive. There is nothing in the PbR tariff that will compensate the Trust for the additional staff or time. PCTs may take a broader view and commission FLS on the basis that over the longer term savings will accrue. It appears that at present, however, that shorter term budgetary considerations win out.

A similar theme emerges in the treatment of rheumatoid arthritis. The benefits of treating rheumatoid arthritis early are well recognised and clinics specifically devoted to the identification and treatment of early rheumatoid arthritis have been established in many centres. It is said, however, that whilst the vast majority of areas will look to treat early, less than half of those will have established a dedicated service. Again the driver appears to be a lack of financial incentive. The PbR tariff for an outpatient appointment may not cover the additional resources that are needed. A nomination for a Best Practice Tariff for early inflammatory arthritis has been submitted, but it is too early to say whether this will be introduced as part of the 2013/14 tariff package. A Best Practice Tariff means that the provider receives more money if certain “best practices” are carried out.

The Drug Funding Hole

The NHS is required to fund NICE recommended medicines. Where it is clear who should fund what, there appear to be few barriers. In these cases, if a clinician determines that the person fits the eligibility criteria and that person consents to the treatment, the PCT must pay. This appears to be the case in a number of the areas investigated in this study. None of the interviewees talking about omalizumab for difficult to treat asthma or alitretinoin for severe hand eczema, for example, indicated that funding was an issue. 21 non-random responses to a survey of oncologists carried out by Dr Mick Peake for IMS in October 2012 also indicated that, as of now, there are no funding barriers to the prescribing of either gefitinib or erlotinib for those patients that fulfill the NICE criteria.

Even where scrutiny of initiation and cessation criteria is intense, for example, in the case of rheumatoid arthritis, systems have emerged that cope. Such systems are funded either by provider or commissioner, and can involve the employment of staff to deal with the range of recording and form-filling that is required. In the case of rheumatoid arthritis,

where such scrutiny appears the greatest, the NICE requirement for routine Disease Activity Score monitoring is regarded as part of best practice.

Funding negotiations can be protracted, however, where it is not clear who should pay for what, and in particular, where use of the drug can mean that the provider loses money.

- The funding of non-PbR excluded drugs is confused

The Payment by Results Tariff (PbR) fixes a payment for particular types of hospital activity. Some drugs need to be paid for from within this payment whilst others are excluded. Excluded drugs (PbR excluded) are paid for on the basis of locally negotiated agreements. Included drugs (non-PbR excluded) must be paid for by the Trust out of the money they receive for the activity as set out in the tariff.

The take up of denosumab (a non-PbR excluded drug) has been negatively affected by funding arrangements. Denosumab is a 6 monthly injectable treatment for osteoporosis, recommended by NICE for primary and secondary prevention of osteoporosis in a variety of conditions.[26] The NICE TAG assumed that the 2nd and later denosumab doses would be administered in General Practice, the first dose being administered by a specialist. The funding of that first dose has been the subject of argument.

Denosumab is not a “Payment by Results” (PbR) excluded drug. As a result the costs of its procurement and administration are thus included in the usual outpatient appointment tariff. Providers, however, lose money if they are forced to pay for the first dose because the cost of the drug exceeds the tariff for an outpatient appointment. In some cases, moreover, denosumab may replace the use of intravenous bisphosphonates. In this case the provider loses money in two different ways. Firstly the provider loses money because the cost of the drug exceeds the tariff as described above. Secondly the provider loses the fee for the service put in place and paid for by commissioners to administer the bisphosphonate infusion. This service is not needed with densomab.

As a result of these conflicts of interest, funding of denosumab is complex, and negotiations have in some cases been protracted. Some commissioners fund it, some providers fund it, some have come to a rather complicated arrangement whereby the provider pays for one month or one sixth of the cost, the commissioner for the rest, and some have yet to come to a decision. According to the manufacturer, as of September 2012, some 20 months or more post the 90 day statutory funding obligation period, 11% of Primary Care Trusts (PCTs) have no guidance around funding in place. In one area at least disputes over funding of the first dose, literally means that if two patients from two different PCTs come to be treated at the same Trust, one will be denied the drug because both the PCT and the Trust have refused to pay for that first dose.

Funding confusion also appears to surround prucalopride for the treatment of constipation. Prucalopride received a positive appraisal from NICE in December 2010, with treatment to be initiated only by a clinician experienced in the treatment of chronic constipation.[27] This latter stipulation appears to have been interpreted in three different ways. In some areas, funding appears only to be available if it is both initiated and continued in secondary care. In others funding is available as long as it is initiated in secondary care, even if it is then continued in primary care and in others funding is available regardless of where it is initiated. Multiple options are therefore possible but even given such choice, or perhaps because of the ambiguity, some PCTs have, as yet, failed to offer any guidance on how the process whereby the drug will qualify for funding. According to the manufacturer, 9 months

post the end of the statutory 90 day period, 15 PCTs had failed to offer any advice, and as of October 2012, three had still not issued funding guidance. In the absence of clarity as to who will or will not fund, it is clear that there will be a reluctance to initiate therapy by any party.

Failure to offer any guidance is almost certainly due to a multiplicity of causes. Commissioners can struggle to place products within a pathway where NICE indicates that the drug is but one option for treatment within a given patient population. Where the pathway and funding is clear, rates of formulary inclusion are much higher – for example, according to the manufacturer, at 90 days after issuance of NICE guidance, pazopanib (an option in the treatment of metastatic renal cancer[28]) was included on 53% of hospital formularies. By the end of 2011, 10 months after NICE's decision, pazopanib was on 96% of hospital formularies. This higher rate of formulary inclusion is thought to be explained by the fact that both funding and pathway are clear.

The more complex, or controversial, pathways, however, require commissioners to meet with clinicians, perhaps from multiple providers with multiple opinions. All of this, particularly when combined with a need for service redesign or new capacity does take time. In such cases, the statutory 90 day implementation period appears neither appropriate nor enforceable. Implementation periods should perhaps therefore reflect the likely complexity of that implementation. Some should be shorter, some might be longer.

The complexities revealed by denosumab may be unique within the scope of this study, but are not unique across the NHS. If we look outside of NICE appraised medicines, we find similar issues. For example, in late 2010, an MRC funded trial that ran across 121 centres in the UK showed that intravenous bisphosphonates significantly reduced the number of fractures (so-called skeletal related events) and increased progression free and overall survival in people with multiple myeloma relative to oral bisphosphonates.[29] Intravenous bisphosphonates are more expensive to procure than oral bisphosphonates and delivery of the infusion may lead to capacity issues for providers in some cases as well as additional costs for commissioners. Most centres appear to have switched over, however, but there are still reports of centres, some of them large, that have been unable to implement the results of this trial due to funding restrictions. Figure 4 shows the proportion of people with multiple myeloma in the IMS Oncology Analyzer database that were initiated on oral or intravenous bisphosphonates.

The Delivery Hole

Access to certain medicines like denosumab or intravenous bisphosphonates may require service re-design and/or adjustment of local tariffs. These require business cases to be constructed, pathways or specifications to be agreed and commissioning flexibility. Two gaps in resources that appear to have affected the uptake of NICE recommended medicines are described here – at commissioner level and at clinic level.

- Commissioning – is a lack of integration leading to a failure to implement the necessary service redesign to guarantee the delivery of NICE recommended medicines?

Effective diagnosis and treatment strategies for hepatitis C depend on integration across secondary and primary care and other care settings e.g. prison, drug addiction centres, and equal prioritization of education and testing strategies. Lack of integration is suggested by

the Health Protection Audit of November 2011 that found that only 78% of PCTs had a treatment pathway in place (and anecdotally at least a proportion of these pathways are regarded as being inadequate). It is argued by some that this lack of integration is due to a lack of formal governance structures that are able to bring the different component parts of a hepatitis C strategy together. In this respect England is often contrasted with Scotland, where Managed Care Networks for the treatment of HCV are mandatory. Networks do exist in England - for example, in Greater Manchester, now being widened to cover the North West, in Coventry and Warwickshire and in Birmingham and Solihull but such networks appear to be driven by individuals, and have emerged on an ad hoc basis. Networks may not, of course, be a necessary requirement for success. The recent draft consultation by NICE relating to testing[23] does not suggest that networks are the only way forward, only that there needs to be audit of testing and outcomes, and the development of a fully integrated care pathway. The impression though given in these discussions is that networks are not as common as they ought to be in England, and that the alternatives, PCT Treatment Pathways, or perhaps the commissioning of individual elements, have not yet matched their success.

The complexity of funding negotiations for those products that cross the primary and secondary care boundary has already been described. Such complexity also requires different funding arrangements, for tariffs to be unbundled and distributed differently. To the outsider at least, however, the changes to the NHS Commissioning structures appear to be leading to a level of paralysis (which is not to say that people are not working hard). At the recent British Oncology Pharmacy Association conference (October 2012), talk was of denosumab in the treatment of skeletal related events in bone metastases from solid tumours. Arguments have been advanced by network pharmacists to show that use would reduce costs across whole health economy and free up resources. These arguments appear to have been largely accepted to judge by the recently published NICE appraisal consultation document.[30] As yet though no one spoken to had managed to implement or get approval for the necessary service redesign. In at least one area, moreover, the reason given was that it was not appropriate to change local tariffs at this stage, given the forthcoming NHS changes.

- Clinic level capacity is insufficient to guarantee delivery of NICE recommended medicines

In 2004 it was reported that "the use of chemotherapy in England has increased rapidly over the last five years and in some places there are capacity problems: a lack of suitable space to prepare or administer toxic drugs or shortages of specialist pharmacists, nurses or doctors. This seems to affect some drugs more than others, depending on how they are prepared and given to patients."[31] Capacity issues are still reported in some centres now, but are not an issue in others, although it is not suggested that where it is an issue, this is affecting access to NICE recommended drugs.

Nevertheless clinic capacity does seem to be a barrier to the use of NICE recommended drugs used in other disease areas. Waiting lists to memory assessment services are cited as a barrier by 28% of respondents to a survey of Alzheimer's Society staff members working with people with dementia in November 2011.[32] Without a formal diagnosis from a memory assessment service, people with dementia are unable to access the support and treatments available. Likewise there appears to be similar variability in waiting lists to start treatment for HCV. In some areas there are no waiting lists, in others, even in Greater Manchester, an

area that is generally cited as a leading example of HCV diagnosis and treatment, waiting lists do exist.[33]

Access to the clinic is not, however the only challenge. Access to specialist nurses is regarded as critical in lung cancer, HCV, as well as in other areas. In HCV, guidelines have made it obligatory for a specialist nurse to be involved in assessment and treatment. In lung cancer, the proportion of people seen by a specialist nurse is seen as a key indicator of the quality of service offered. The contribution of the specialist nurse to treatment decisions, and in particular chemotherapy, was demonstrated by an analysis of the 2010 national lung cancer audit. Patients that had been seen by a specialist lung cancer nurse were more than twice as likely to receive chemotherapy as those who had not, this effect being independent of sex, age, disease stage and performance status.[34] In this same paper, however, it is reported that despite it being recognised that lung cancer specialist nurses provide a valuable service, there has been a "lack of expansion (and in some areas contraction) of the workforce". Anecdotal reports suggest that the provision of specialist nurses for other cancers is also not optimal, and others report that specialist nurses are subject to a disproportionate number of downgrades and delegation of their functions to the wards. In addition there is a suspicion that the varying treatment policies towards people with HCV as shown up in the Hepatitis C Trust's survey[35] are influenced by a lack of available specialist nurse capacity. More restrictive policies mean a lower caseload.

Divided Opinions

The approach used in the study assumed that the amount of any NICE recommended drug used at a local level is dependent on the numbers of people presenting with the disease, the proportion who are correctly diagnosed, the funding and capacity being available to deliver it, the number of clinicians recommending the drug and the number of patients prepared to receive it. We have considered the first three factors. Here we consider the impact of differences of opinion on uptake.

Differences in opinion between doctors, and between doctors and patients, are not uncommon. Such differences are not necessarily also in conflict with NICE guidance. NICE usually recommends that the drug is an option, rather than the only option, for treatment. From the perspective of uptake however, it is important to understand where such differences may lie, and whether or not they lead to unwarranted variation or inequity.

- The elderly are denied the option of chemotherapy in lung cancer

Restricting access to treatments on the basis of age is unwarranted. In the Government's White Paper "Equity and excellence, liberating the NHS", the Government committed to end age discrimination in health and social care in 2012.[36] In lung cancer, however, it is clear that at least some clinicians were restricting access to chemotherapy on the basis of age. Evidence from 30,098 people with lung cancer first seen in 2009 whose records had been submitted to the National Lung Cancer Audit was examined. The authors concluded that "Multivariate logistic regression showed that the likelihood of receiving histocytological confirmation or anti-cancer treatment decreased with age", even once sex, disease stage, performance status and co-morbidities had been taken into account. The reasons for this pattern are unknown but it is suggested that it will have a multifactorial explanation including "Difficulty of access to services, therapeutic nihilism in primary and secondary care, over-estimation of the risks of treatment-related toxicity, and ill-informed patient

choice, based perhaps upon the experiences of friends or relatives undergoing different treatment for different cancers...." [37]

- Eligibility criteria combined with research infrastructure leads to inequity in rheumatoid arthritis

Variation in both patient and doctor opinion in relation to the position of NICE recommended therapies should not be unexpected. A drug's position in a treatment pathway can depend on multiple factors, including the provision of non NICE recommended medicines or other services. In some cases, however, those differences in opinion lead to clinicians or commissioners seeking alternative funding sources for the treatments that they believe are clinically appropriate.

In rheumatoid arthritis, for example, NICE guidance stipulates that biologic therapy should only be initiated when the Disease Activity Score (DAS) is greater than 5.1. The latest British Rheumatology Society guidelines suggest initiation at a lower level (DAS score >3.2)[38]. Aggressive use of DMARDs is also said to lead to a group of people with a persistent moderately elevated DAS score of around 4.8. These people do not meet the current NICE criteria so biologics cannot be given. At the same time a DAS score of 4.8 is not thought to be "benign". It can lead to irreversible joint damage. Thus a "...significant problem remains in the UK of how to treat people with a moderate DAS who have not entered a low disease activity state after using all the conventional DMARDs"[39] Some centres have found ways to ensure that people do not wait until the DAS score reaches the level required by NICE to ensure cost-effective use of NHS resources – mainly it appears through involving patients in clinical research. Not all centres, however, can participate in clinical research. This means that what is deemed by many experts to be clinically appropriate treatment is able to be provided in some areas, and to some patients in those areas, but not in all.

A review of the use of biologics in rheumatoid arthritis has been proposed by NICE.[40] In the meantime new and existing patients with a DAS28 score of >5.1 remain eligible for biologic therapy.

- Guidance is interpreted differently

NICE evaluates a technology against licensed or, at times, unlicensed alternatives. For the most part it will recommend that the new technology is considered as one option amongst many. NICE has recently adopted revised wording to define the term more clearly:

"The technology in this appraisal may not be the only treatment for [a 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 and the patient agrees that the recommended technology is the most appropriate to use, based on a discussion of all available treatments."[41]

It is not necessarily a straightforward process to adopt NICE guidance. Most areas appear to have a system by which medicines can be integrated within existing pathways. These systems are needed if only to accelerate the use of non-NICE appraised medicines or to consider drugs that have not yet been appraised. NICE guidance therefore needs to be put through this existing process, particularly where the medicine is but one option amongst many.

Not all clinicians believe that a particular technology should be used in the same way or precisely at the same point within a treatment pathway. Commissioners with multiple providers may well therefore be caught in the middle of clinical arguments over which they can have little influence. The survey of Alzheimer's Society staff members working with people with dementia in November 2011 reveals the extent of differences that can emerge.[32] From this survey, it is clear that there is a perception that some GPs regard dementia as a normal part of ageing and that for their patients, drugs are not an "option". It is also clear that some Alzheimer's Society staff members in certain areas believe that certain drugs are restricted or unavailable because specialists do not believe they are effective.

Whilst there may be differences of opinion amongst clinicians, it is also true that terminology may lead to a certain degree of confusion. The term "clinician experienced in the treatment of chronic constipation" has been reasonably interpreted as meaning a specialist in secondary care or an experienced clinician based anywhere. The Technology Appraisal Guidance for carmustine has also led to debate. In this guidance it is stated that "On the basis of the evidence presented to the Committee, no recommendation can be made regarding the sequential use of [temozolomide and carmustine] for newly diagnosed high-grade glioma." This is read in two different ways. Some argue that this means that NICE has "rejected" sequential use, and thus no NHS funding should be made routinely available. Others argue it does not mean that at all. They state that no evidence on joint sequential treatment was offered to NICE and the two technologies were appraised separately. As such they argue NICE could neither recommend nor reject. This is not, of course, to say that those who argue that the NICE guidance does not "reject" the use of sequential therapy necessarily support its use.

Differences in interpretation or terminology do not appear to behind differences in what is or is not included in local formularies. The Pharmaceutical Price Regulation Scheme, the agreement on pricing between government and industry, stipulates that NICE guidance should be adopted at a local level with no further modification. As mentioned above this can be difficult because NICE guidance does not place the product within a treatment pathway or amongst the other options recommended by NICE. At the same time some organisations view formularies perhaps rather differently to others. To them a formulary describes the preferred "options", and is not an exhaustive list of all options that can be used. Formulary omission thus does not mean the medicine cannot be used. Rather it invokes a different and, admittedly more complex, process of approval. It is likely though that omission from the formulary acts as a disincentive to use, and in some cases it appears that only part of the NICE guidance is omitted. For example in one case, ezetimibe was described as recommended for heterozygous familial hypercholesterolaemia but the formulary did not mention non-familial hypercholesterolaemia.[42] In another case ezetimibe was recommended for use in the event of statin intolerance but no mention was made in the formulary of the recommendation that it be considered as an option for use in conjunction with statins in certain other conditions.[43]

The Information Gap

Reports of the variation in volumes of prescribing have a long history. The recent report from the HSCIC is the third report within their series. Prior to this we have had descriptions of international variations[6] and reports relating to variations in the uptake of NICE recommended medicines for cancer. Further back we can see that the use of prescribing data from primary care as a measure of clinical quality was deemed inappropriate in all but a few cases.[44]

In these discussions, many concerns were expressed by secondary care specialists regarding the use of non casemix adjusted prescribing data as a proxy for the quality of clinical care. In at least two cases, the relationship between volume of prescribing and quality of care was described as "U" shaped. What this means is that both good and bad care can lead to high volume use. In the case of omalizumab, for example, high use may mean correct identification and treatment, or alternatively poor management earlier in the treatment pathway. Volume of biologics can also be difficult to interpret. Aggressive, early use of DMARDs reduces the demand for biologics, whilst "treating to target", or in other words, close monitoring of DAS scores, will promote early use. An unpublished audit of 191 patients across eight centres carried out in the first half of 2010 supported by the manufacturer Abbott International showed that only approximately 3% of patients were initiated on more than one Disease Modifying Antirheumatic Drug (DMARD). In some centres, however, or so it appears from the discussions, initiation of therapy with a combination DMARDs is the norm.

As is widely recognised, estimation of the number of eligible patients presenting to a particular centre is fraught. Omalizumab, for example, is licensed only for the treatment of atopic asthma. In a recently published four centre audit, the proportion of people with severe asthma that are atopic varies significantly across centres.[45] In NSCLC, on the other hand, treatment options are influenced by performance status. In the 2010 national lung cancer audit, the proportion of people presenting with a performance status between 0 and 1 varied by a factor of 3 across the 28 cancer networks in England (interquartile range 18.4%-24.9%).[46]

These difficulties are well recognised, both in the HSCIC report and elsewhere. They are to some part responsible for the focus that is now put on the collection of clinical audit data, or at least data that allows for casemix adjustment. Without casemix adjustment, and indeed adjustment for local policies, investigation of variation may be more of a diversion than a signal.

Future Developments

Many initiatives are already in place to address some of the gaps described in this study. Early detection of lung cancer is being encouraged by the Awareness & Early Diagnosis Initiative, and the feasibility of screening by the UK Lung Screening Trial; The Department of Health has been working on a consultation relating to the future provision of molecular testing within the NHS; NHS organisations are now required to incorporate NICE technology appraisal recommendations into their local formularies and an Innovation Scorecard is planned for January 2013;[47] Numerous programmes are described in the latest Health Protection Agency's description of the state of HCV and its treatment in England; Since 2009, moreover, in relation to osteoporosis, NICE has issued guidance on hip fracture

management and primary and secondary prevention of osteoporosis; osteoporosis is now included in the Quality and Outcomes Framework indicators for General Practice, a BPT has been put in place for hip fracture management and a National Hip Fracture Database has been established.

So it is not as though people have been standing still, or that they are unaware of the issues described in this study. Indeed some of the issues described here, notably around the diagnosis and treatment of HCV and osteoporosis are recognised as global, rather than just national, problems.[48, 49]

Such problems as we have described are not however going to go away on their own. Several developments suggest that some of the issues described above may get worse.

- The diagnostic hole

There is general agreement that the introduction of cancer networks has been of major benefit in lung (and other) cancers. Concern has been expressed as to what will happen to networks in the future. A major benefit of the cancer networks has been the sharing of information between MDTs, together with the generation of a consensus around diagnostic and treatment pathways. There are currently 28 cancer networks in England. These will be replaced by 12 networks. These new networks will have far fewer staff and smaller budgets.[50] Medicines advice will come from the Local Area Teams which may not be as expert. At least one cancer network has now completely disbanded, with nothing, apparently, left in its place.[51]

Triple therapy for HCV requires either an increase in laboratory capacity to test for viral load or a service redesign. Such redesigns are being put in place in some centres. There is a movement, however, to argue that not only should a PCR test be done automatically if the antibody test is positive but a genotype test should be done as well. This is because a PCR test indicates that treatment should be offered, but a genotype test indicates the type of treatment. Type of treatment will have an important effect on people's choice. People with particular genotypes can be treated for a shorter period with conventional dual therapy. Others will need triple therapy for longer periods. Laboratories may well struggle to cope if triple therapy is extended to all eligible patients and genotype testing becomes the norm without a concomitant increase in resources.

- The funding hole

At present, activity costs relating to chemotherapy are negotiated locally between commissioners and providers resulting in a wide variation in price. With a move towards a national tariff for chemotherapy in 2013/14, provider organizations will see a change in the way that they are reimbursed for chemotherapy with the loss of tariff for day case attendance and a single payment for delivery of chemotherapy based upon the time taken to deliver it (five bands). Unless reference costs to inform the tariff accurately reflect the real cost of service provision (including support services and costs relating to equipment/estates) this is likely to result in a fall in revenue and may result in some therapies not being economically viable. Potentially in 2014/15 the procurement element of chemotherapy will also move to a national tariff with regimens sitting in one of 10 bands, each band attracting a tariff payment. Again the accuracy of reference cost collection will be crucial.

The impact of the inclusion of osteoporosis in QOF from April 2012 may be a two edged sword. Some of what an FLS should do will now be carried out in primary care. This may lead to PCTs or their successors, Clinical Commissioning Groups (CCGs) deciding to decommission those FLS that they do fund for fear that they are "paying twice". The QOF programme is not a substitute for an FLS. It does not incentivise effective management, and does not provide incentives for adequate assessment of secondary causes of fracture.

It is not clear moreover how many General Practices will focus on the QOF points available for osteoporosis. There are nine points available, and thus a maximum of £1,203.8 per year. A GP practice can earn more (10 points) by diagnosing atrial fibrillation with an ECG. The previous attempt to provide an incentive for osteoporosis does not bode well. Prior to the incorporation of osteoporosis into the Quality and Outcomes Framework in April 2012, GP practices were incentivised through a Directed Enhanced Service (DES).[52] This required that a register be put in place and for treatment be initiated. It paid just £286 per year but uptake was high (86%). However the National Audit of Falls and Bone Health for 2010 concluded that it "is hard to see the DES as anything other than a failure that delivered little return on modest investment."[2]

- The Delivery hole

The pressure on specialist nurses and centres treating HCV will rise, regardless of any increase in the proportions of people treated. New treatments have been launched. These treatments are recommended by NICE but, inevitably perhaps, management and support of patients on triple therapy appears more complicated than for those on conventional dual therapy. The number of people that a specialist hepatitis nurse can therefore support will inevitably reduce. In addition the so-called "warehousing" of people with HCV that wish to wait for the advent of interferon-free treatments will produce a "surge" of patients needing treatment urgently once that option becomes available. Clinic and nurse capacity will struggle to meet that demand.

Multiple myeloma is recognized to be one of the fastest moving areas in terms of treatment options. Smaller centres may struggle to maintain the level of expertise on their own. Centralisation is not the answer as haematologists are needed in every hospital to deal with laboratory work (i.e. action to be taken following receipt of abnormal blood films, blood transfusions, blood disorders etc). Systems have already evolved to support the smaller centre. The "Improving outcome guidance for Haemato-oncology"[53] requires the MDT to cover a population of 0.5 million. There is thus more collaborative working between Trusts. Cancer networks bring MDTs together and larger centres go out to the smaller centres. Nevertheless as treatments options become more numerous, and care more complex, it will be an ongoing challenge to maintain expertise in the smaller centres.

Conclusions and Discussion

This study took the view that that the amount of any NICE recommended drug used at a local level is dependent on the numbers of people presenting with the disease, the proportion who are correctly diagnosed, the number of clinicians recommending the drug, the number of patients prepared to receive the drug, and the funding and capacity available to deliver it. The results suggest that people leak out of this treatment pathway at every stage.

Gaps in diagnostic services, in funding, in delivery capacity prevent people who may be eligible for a NICE recommended drug from ever being given that option. Clinical opinion will sometimes reduce that number further, for example where the people are denied treatment options on the basis of their age alone.

It is acknowledged that the Department of Health and others, including industry, have put in place a variety of programmes that mitigate the impact of such leakage, but the problems still appear to exist.

The conclusions of this study are, of course, founded on 55 interviews, followed up by literature search and examination of deidentified treatment records. The respondents were chosen on the basis of their likely expertise, and almost certainly represent an atypical sample of clinicians, policy makers, nurses, pharmacists and advocates. It can perhaps be assumed however that if expert respondents agree that there is a problem, and that those problems are substantiated by the literature, then those problems are likely to be real, even if they do not necessarily constitute a comprehensive list of all possible barriers to the uptake of NICE recommended medicines.

55 respondents is also not a large number, particularly when covering eight very different therapy areas. Conclusions may be partial or biased. Nonetheless where problems appear to exist across multiple therapy areas, it is again more likely that such problems are real.

It is in this light therefore that the study makes the following recommendations. The recommendations avoid treatment specifics but look to make cross-cutting proposals that would, it is hoped, make a difference to care across multiple therapy areas.

Recommendations

- *Diagnosis*: Test MDTs

The value of MDTs is recognised. MDTs have driven improvements in the management of the disease. MDTs provide a forum for expert discussion. MDTs also provide a focus for knowledge sharing and education.

Whilst the numbers of patients with lung cancer discussed at an MDT is known, and new quality standards are being put in place in colorectal cancer, the quality of the decision making within those MDTs, and others, is not. The impact of the failure to integrate the expertise of different specialists on patient care has already been demonstrated.

It is recommended therefore that a programme is put in place to test the quality of that decision making. Would it be impossible, for example, for fictional cases to be presented into the MDT and the decisions recorded in order that quality can be compared? Or is it impossible for more retrospective audits to be carried out in the manner of those described earlier?

- *Funding:* Molecular tests should be commissioned by the Commissioning Board

As of April 2013, the Commissioning Board will be responsible for “specialised services”. Chemotherapy is defined as a specialised service. It is not yet known how molecular testing

will be commissioned although it has been recommended that it is done also by the Commissioning Board.

Given the history of EGFR and K-RAS mutation testing, it is essential that both molecular testing and chemotherapy are commissioned together by the same body and according to national guidelines.

- *Funding:* A new system for non-PbR excluded drugs needs to be introduced

The funding of non-PbR excluded drugs that cross the primary-secondary care divide is confused and does lead to delay. This is not a process issue but a funding issue. Would it be possible for NICE guidance to specify how the drug should be funded, and for this also to be made mandatory?

- *Delivery:* The Specialist Nurse workforce should be expanded

There appears to be universal acceptance that specialist nurses across cancer, HCV and rheumatoid arthritis improve patient experience. There also appears to be universal acceptance that there are not enough of them. There is as yet though no formal career path for specialist nurses. They "emerge". Career progression and recruitment are made more difficult by the fact that there are no formal definitions. Equally problematic is the fact that the roles of specialist nurses appear to vary across centres, even within the same area. This is compounded by the fact that no activity is recorded against specialist nurses making their undoubted contribution difficult to measure on a routine basis, even if there are numerous studies demonstrating impact.

Given their contribution, it seems a nonsense that in certain centres specialist nurses must spend time away on administrative tasks rather than with the patient. With every specialist nurse should come administrative help.

This may go some way to ensuring that all those people who wish to receive support from a specialist nurse should be able to do so. In all likelihood, however, the specialist nurse workforce will need to be expanded. This in turn will require a career path to be determined and a formal definition of their roles and responsibilities.

- *Delivery:* A viable replacement for networks needs to be put in place

It is too early to say whether or not the proposed strategic networks will be able to replicate or improve upon the cancer networks or whether CCG commissioned pathways will be able to improve upon networks that have emerged in other therapy areas such as HCV. It is clear though that the existing structures improved care. A very close eye should thus be kept upon co-ordination, integration and education.

- *Information:* The NHS itself should get more involved in the design of performance measures in order that they are judged only on data that they themselves agree is a reasonably proxy for the quality of care.

Many people in the NHS just do not believe the results of the past metrics reports. They point to population variation, differences in service delivery and the lack of information on diagnosis, stage or line of therapy. They argue that process by which variation has been identified is flawed.

The drawbacks of the methods used in the latest metrics report are recognised by the HSCIC, and the caveats are described. Such reports though need to evolve if they are to be believed. There needs to be a focus on explanation in addition to description. Such analyses need to be accepted by all as a reasonable indicator of quality. Casemix adjustment and an analysis of service variation would be ideal. At the very least though there should be agreement by payor, commissioner and front-line NHS staff that the metric being used is a reasonable proxy for the quality of care.

The NHS at all levels and of all types, needs to engage in this process rather than let such things be decided elsewhere.

Acknowledgements, Contributors and Conflicts of Interest

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Contributors

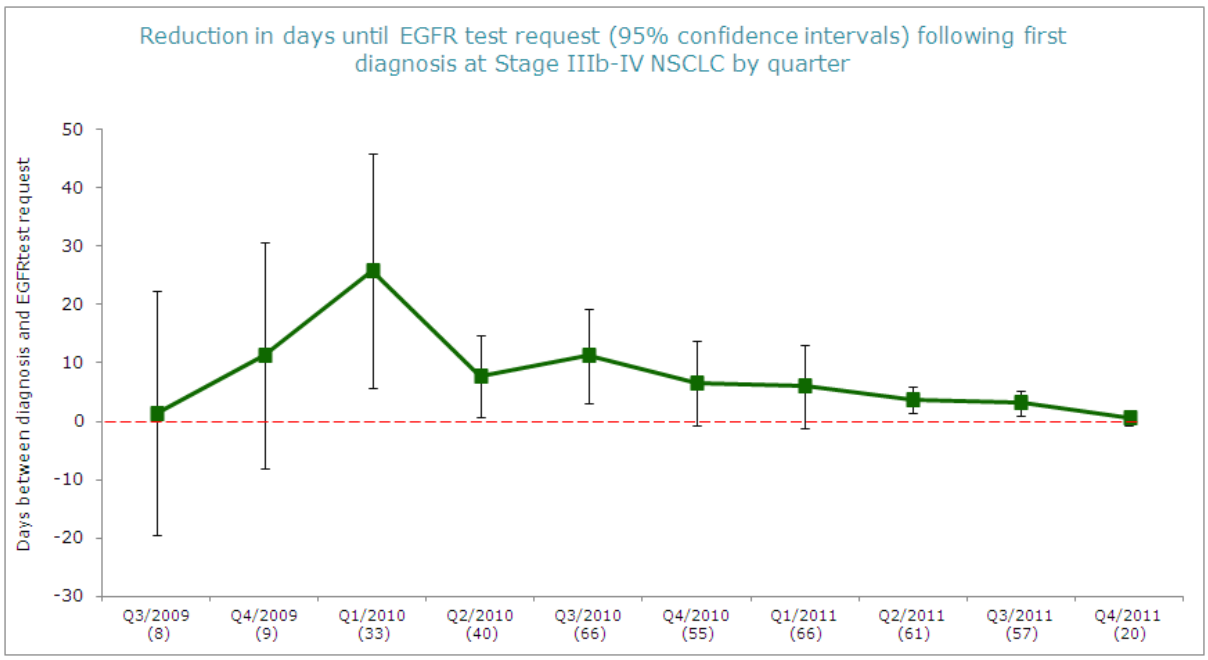
PS formulated the interview structure, contacted all the respondents and conducted all of the interviews. PS wrote all of the summaries relating to each treatment area, and incorporated all comments. AB conducted the analyses of the Oncology Analyzer data following discussions with PS. PS wrote the report, incorporated comments and approved the final version.

Conflict of interest statement

PS and AB are employed by IMS, which provided the data free of charge. IMS is funded through sales of information services to both industry and government, including all of the companies whose products are described in this study. PS is a member of the Department of Health's Health and Social Care Transparency Board and is a member of the sub-group of the Board working with the HQIP and the audit community to look at the potential for wider release of clinical audit data.

Figures

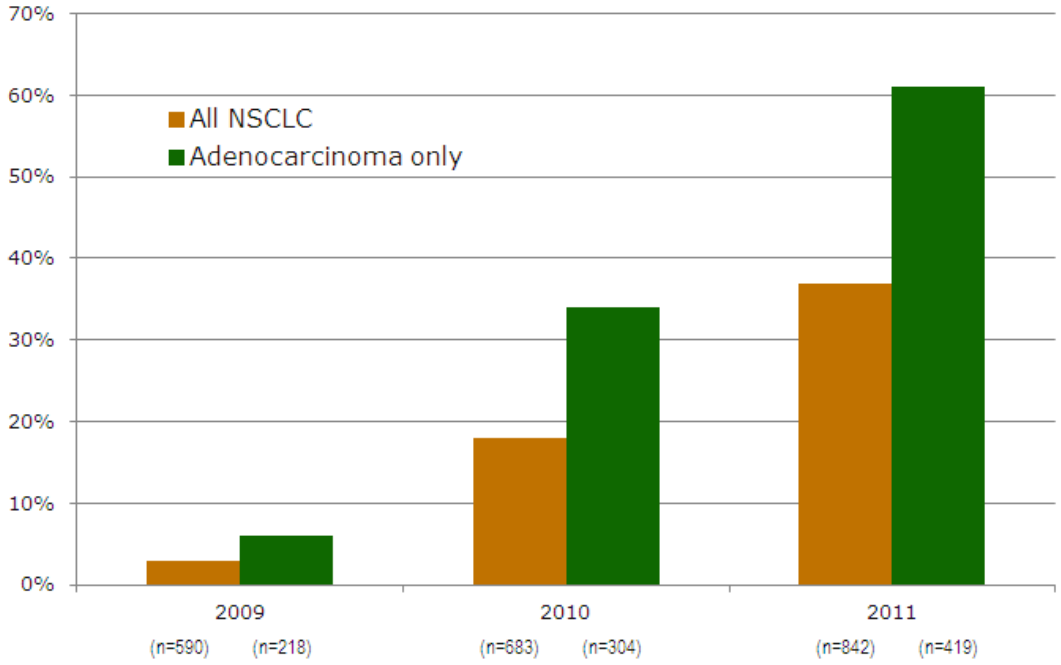
Figure 1: Reduction in days until EGFR test following first diagnosis at Stage IIIb-IV NSCLC



Source: IMS HEALTH Oncology Analyzer: Sample characteristics described below.

	No. Centres	No. Doctors	No. Patients	No. Projected Patients	Mean No. Patients per Centre	Standard Error	Standard Deviation	Confidence Level (95.0%)
All NSCLC	**146**	**193**	**2115**	**162349**	**14**	**3**	**27.1**	**6**
2009 MAT Q4	36	49	590	52062	16	2.5	15.1	5.1
2010 MAT Q4	40	55	683	53267	17	2.2	13.8	4.4
2011 MAT Q4	70	89	842	57020	12	1.3	10.9	2.6

Figure 2: Increase in the proportion of people tested for EGFR mutation between 2009-2011 (Source: IMS Oncology Analyzer, n= number of sample records in year)



Source: IMS Oncology Analyzer: Sample characteristics described below.

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2010 MAT Q4	40	55	683	53267	17	2.2	13.8	4.4
2011 MAT Q4	70	89	842	57020	12	1.3	10.9	2.6

Figure 3: Increase in the proportion of people with non-squamous NSCLC tested for EGFR mutation 2010/11 to 2011/12 (Source: Responses to FOI requests where information available for both years, n=17 acute Trusts)

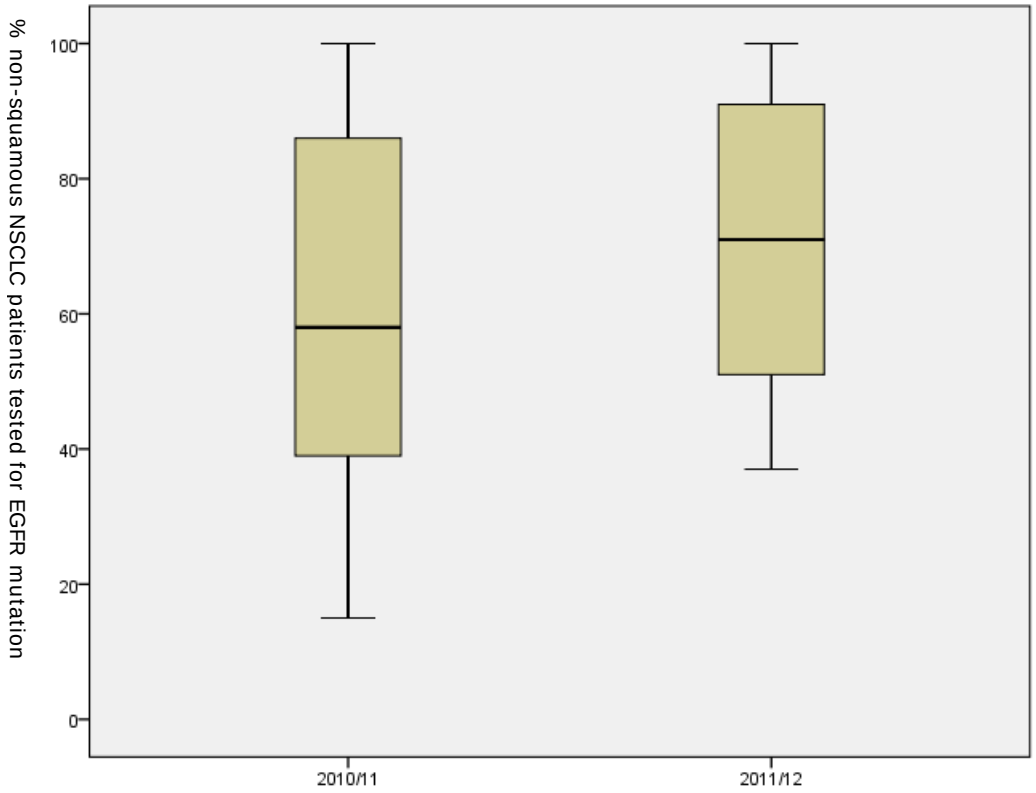
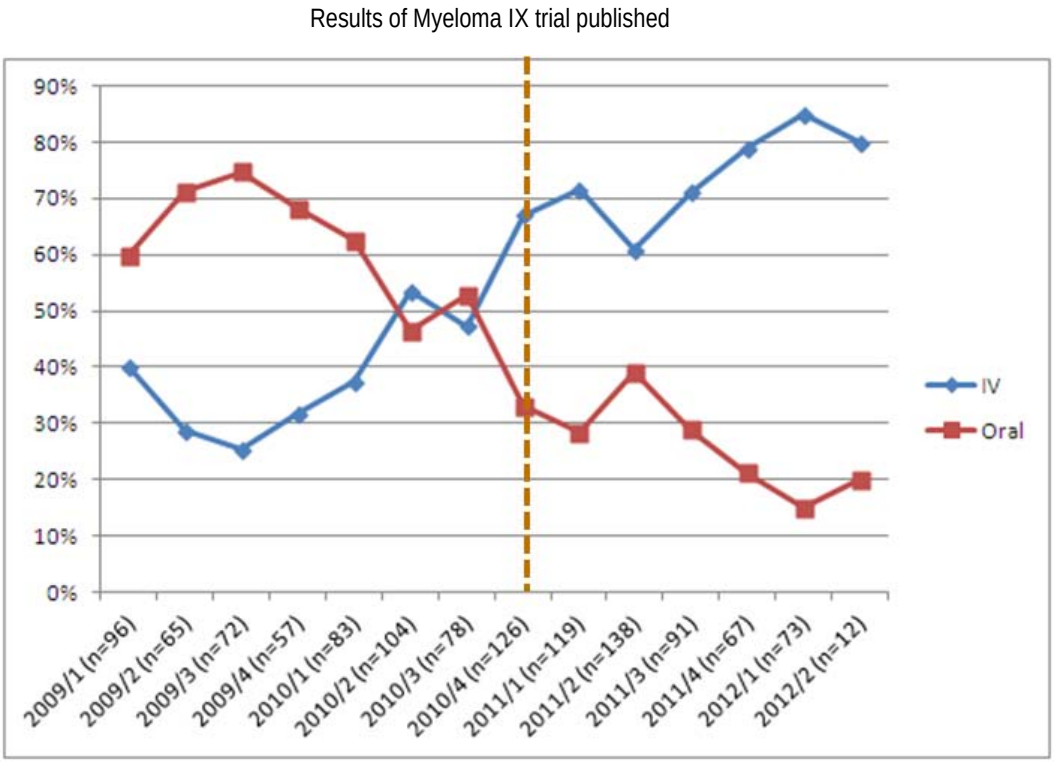


Figure 4: The proportion of people with multiple myeloma started on intravenous or oral bisphosphonate over time (n= number of sample records showing initiation on any bisphosphonate)



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