ANALYZING THE UNITED KINGDOM HEALTHCARE SYSTEM: LENSING ON CANCER MANAGEMENT IN ENGLAND

Kadir GÜRSOY

Sosyal Güvenlik Uzmanı, Genel Sağlık Sigortası Genel Müdürlüğü İlaç ve Eczacılık Daire Başkanlığı, Ziyabey Cad. No:6 Ankara, eposta: kgursoy@sgk.gov.tr Tel: 0312 207 87 30

ABSTRACT

United Kingdom (UK) healthcare system is quite successful for achieving the goals of good health outcomes, risk protection, and public satisfaction. Based on the Commonwealth Fund study in 2014, UK healthcare system ranks first regarding quality, access, efficiency, equity, and healthy lives among 11 developed nations with even a fair cost. However, when it comes to cancer outcomes, UK lags behind many developed countries. Cancer survival is a good example of an area in which both health outcomes and public satisfaction, key determinants of quality, are strikingly lacking. Therefore, this paper, to analyze and formulate reforms to address deficient quality in the English health system, will look at the particular example of cancer survival rates. The key factors leading to deficient outcomes in cancer survival are delays in diagnosis and access to appropriate care. Policy recommendations to improve cancer survival rates are to timely screening and early diagnostic opportunities within the primary care system, utilize available treatment capacity and quick approval and workforce training for utilization of new treatments and drugs, and continue prioritizing cancer care coordination and integration through improved referral services, and increase provider decision support.

Keywords: health system performance, England healthcare system, cancer management, late diagnosis, cancer care coordination.

BÜYÜK BRİTANYA SAĞLIK SİSTEMİ İNCELEMESİ:

İNGİLTERE İÇİN KANSER HASTALIĞI YÖNETİMİ ÖRNEĞİ

ÖZET

Büyük Britanya'nın sağlık sistemi; güçlü sağlık çıktıları, riski koruma, hasta memnuniyeti açısından övgü duyulacak kadar iyi bir seviyededir. Bu sistem göreceli olarak düşük bir maliyete sahip olmasına rağmen; 2014 yılında yapılan Commonwealth Fund çalışmasına göre kalite, erişim, hakkaniyet ve etkinlik bağlamında 11 gelişmiş ülke içinde en yüksek skora sahip olmuştur. Lakin kanser çıktılarını incelediğimiz zaman Büyük Britanya Avrupa'daki birçok gelişmiş ülkenin gerisinde kalmaktadır. Kanserli sağkalım oranı, sağlık hizmetleri için kalitenin önemli iki göstergesi olan sağlık sonuçları ve memnuniyet açısından sıkıntılı sonuçlara sahiptir. Bu yüzden, bu makale, sağlık sisteminin eksikliklerini göstermek ve kaliteyi artırmak için politika önerilerinde bulunmak amacıyla, özellikle kanserli çıktıları örneğine yoğunlaşacaktır. Kanser çıktıların yetersizliğinin en önemli nedenleri ise teşhisteki ve hastanın ihtiyaç duyduğu tedavideki gecikmelerdir. Bu sorunu çözme adına ortaya koyulacak öneriler; birinci basamakta zamanında tarama yapmak ve hastalığı ve hastalığı erken teşhis etmek, tedavi kapasitesini arttırmak, yeni ilaç ve tedavilere hızlı bir şekilde geri ödeme için onaylamak, kanser tedavisinde koordinasyona öncelik vermek ve hizmet sunucularının karar verme sürecine katkıda bulunmak olacaktır.

Anahtar Kelimeler: Sağlık sistemi performansı, İngiliz sağlık sistemi, kanser yönetimi, geç teşhis, kanser tedavisinde koordinasyon.

INTRODUCTION

United Kingdom (UK) healthcare system has been running ahead against its counterparts in terms of achieving good health outcomes, risk protection, and public satisfaction. Overall life expectancy at birth in the UK is higher than much other Organization for Economic Cooperation and Development (OECD) countries [1-2]. In the UK healthcare services are free at the point of service, with user fees for medications and private care making up a very small percentage of total financing [3]. Looking at public satisfaction, recent surveys reflect a high degree of public satisfaction with the National Health Service (NHS) [4].

In terms of access, quality, efficiency, equity, and healthy life parameters the Commonwealth Fund analysis concludes UK has the top overall score among 11 developed nations, but performs poorly in healthy lives [5]. The UK also compares favorably to many industrialized countries in terms of cost.

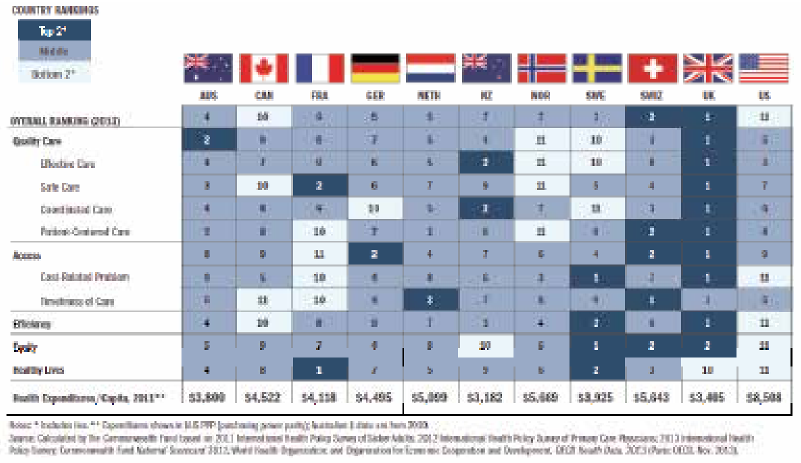
In spite of UK's having a leading overall healthcare performance, the UK cancer survival rates provide conflicting results, signaling a problem with its healthcare system. Cancer survival is an example of an area of care in the National Health Service (NHS) where both health outcomes and public satisfaction are strikingly deficient. England compares unfavorably to other European nations, as well as the US, in cancer survival. The five-year relative survival rates for breast, cervical, breast and colorectal cancer survival rates in the UK are far below those in the US. That's why, this paper will focus on the particular example of cancer survival rates in the UK as a lens to the system in order to address and analyze the problem and then formulate reforms for deficient quality in the English healthcare system. It will first dig into why UK is performing poorly regarding cancer survival as a lens through English healthcare system, then list main reasons of the deficiency, and finally recommend policy options to further improve the system performance and quality.

1. Performance of the UK Health System

From a global perspective, the UK healthcare system has much to be proud of. Using a deterministic approach to evaluate the health care system [6]; the UK is among the best in the world in achieving the goals of good health outcomes, risk protection, and public satisfaction. Although a crude measure of health outcomes overall, overall life expectancy at birth (81 years on average in 2011) and 65 (18.6 and 21.2 for males and females respectively) in UK are comparable or better than many other OECD countries [1-2]. In terms of risk protection, the UK health system also works well. Healthcare services are free at the point of service, with user fees for medications and private care making up a very small percentage of total financing [3]. As a consequence, rates of catastrophic health spending are very low [7]. Looking finally at public satisfaction, recent surveys reflect a high degree of public satisfaction with the NHS, the highest level observed in recent years [4].

A closer look at the intermediate outcomes of cost, access, equity, efficiency, and quality highlights both the mechanisms for achieving these goals, as well as deficiencies in the level and distribution of health outcomes in particular areas. In terms of access, quality, and efficiency the Commonwealth Fund analysis states that UK has the top overall score among 11 developed countries [5].

Figure 1: Overall ranking for performance of 11 developed countries



COUNTRY RANKINGS

Top 2*
Middle
Bottom 2*

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING (2013)	4	10	9	5	5	7	7	3	2	1	11
Quality Care	2	9	8	7	5	4	11	10	3	1	5
Effective Care	4	7	9	6	5	2	11	10	8	1	3
Safe Care	3	10	2	6	7	9	11	5	4	1	7
Coordinated Care	4	8	9	10	5	2	7	11	3	1	6
Patient-Centered Care	5	8	10	7	3	6	11	9	2	1	4
Access	8	9	11	2	4	7	6	4	2	1	9
Cost-Related Problem	9	5	10	4	8	6	3	1	7	1	11
Timeliness of Care	6	11	10	4	2	7	8	9	1	3	5
Efficiency	4	10	8	9	7	3	4	2	6	1	11
Equity	5	9	7	4	8	10	6	1	2	2	11
Healthy Lives	4	8	1	7	5	9	6	2	3	10	11
Health Expenditures/Capita, 2011**	$3,800	$4,522	$4,118	$4,495	$5,099	$3,182	$5,669	$3,925	$5,643	$3,405	$8,508

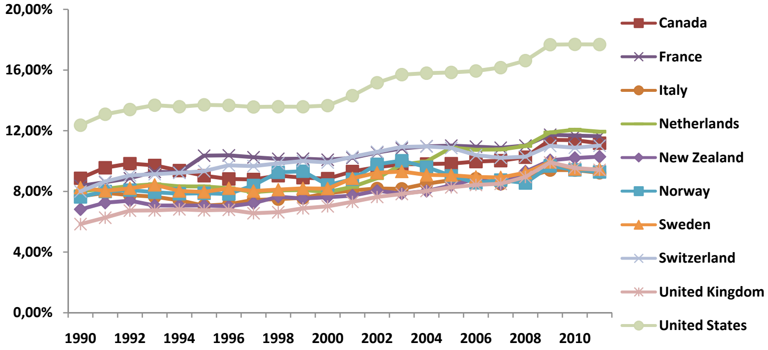
Notes: * Includes ties. ** Expenditures shown in $US PPP (purchasing power parity); Australian $ data are from 2010.
Source: Calculated by The Commonwealth Fund based on 2011 International Health Policy Survey of Sicker Adults; 2012 International Health Policy Survey of Primary Care Physicians; 2013 International Health Policy Survey; Commonwealth Fund National Scorecard 2011; World Health Organization; and Organization for Economic Cooperation and Development, OECD Health Data, 2013 (Paris: OECD, Nov. 2013).

Source: The Commonwealth Fund, 2014

The UK also compares favorably to many industrialized countries in terms of cost. For example, total health expenditure as a percentage of GDP (9.4% in 2011) as well as per capita spending on health

(US $3,405 in 2011) in the UK is lower than in the US and much of Western Europe [8-9]. To delve deeper into the analysis of the health system, the paper will now focus particularly on the public NHS in England, as there has been significant divergence between the health systems of England, Scotland, Wales and Northern Ireland since devolution reforms in the late 1990s [10]. As care is free at the point of service, access to healthcare is equitable overall. However, there are equity concerns due to geographic variations in access to both primary and secondary care, with a distinct divide between the North and South of England [11]. Efficiency in the NHS can be viewed in terms of both technical and allocative efficiency. Technical efficiency is related to productivity or "the ratio between the resources available to the NHS and the volume of activities it carries out" [10]. In the NHS, technical efficiency is actually decreasing. However, trends in allocative efficiency, as measured through quality and equity, are less clear.

Figure 2: Healthcare spending as a percentage of GDP (1990-2010)



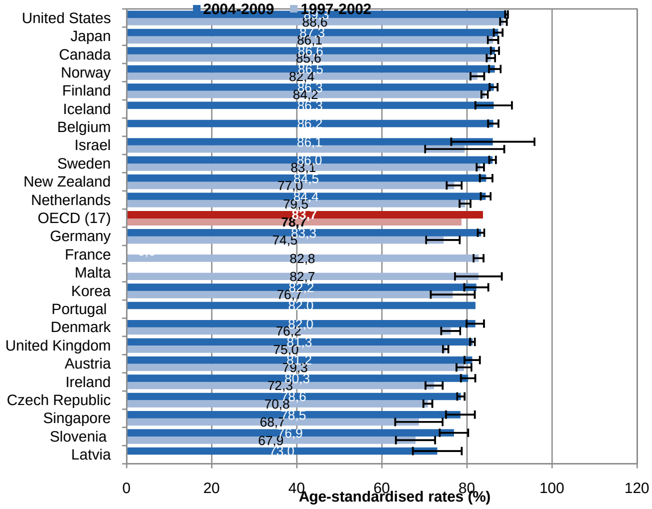
Source: OECD Health Data 2013

2. Deficient Quality for Cancer in England

While overall level of quality in the English healthcare system can be described as high, quality of care is variable, with deficiencies in equity along geographic distribution as well as in particular areas of care [11]. As it strongly impacts both health outcomes and public satisfaction, quality is arguably the most important measure of the success of the NHS in England.

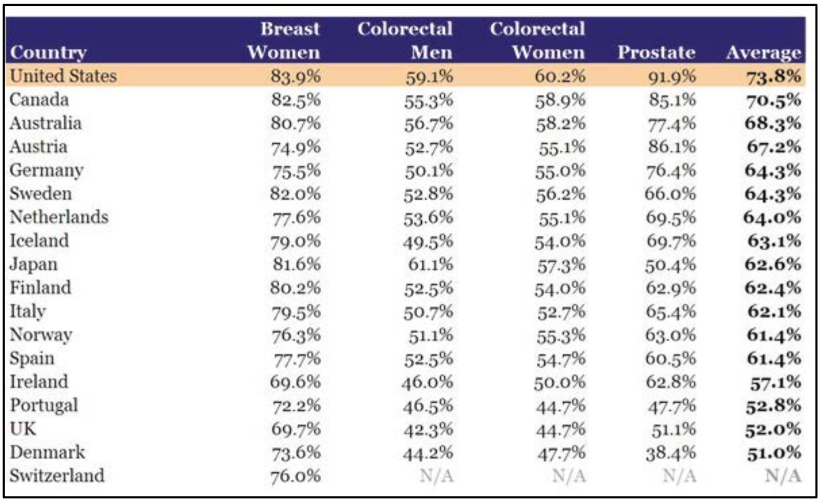
Cancer survival is an example of an area of care in the NHS in which both health outcomes and public satisfaction, key determinants of quality, are strikingly deficient. Cancer survival is also an important measure to follow through the health care system as it reflects systemic deficiencies in the NHS. England compares unfavorably to other European nations, as well as the US, in cancer survival [8,11]. One striking example of this phenomenon is in breast cancer survival. For example, 5-year cancer survival rates in the UK are far below those in the US, at 78.5% in the UK compared to 90.5% in the US [8-9]. The five-year relative survival rates for cervical, breast and colorectal cancer are higher in the U.S. (67%, 90%, and 65% respectively) than they are in the U.K. (59%, 78%, and 51%, respectively). Although cancer survival rates have improved in England over the last decade [10], data confirms England is still lagging behind Europe. The EUROCARE-4 study showed lower five-year cancer survival in England compared to Sweden, Finland, France, Germany, and the Netherlands [11-12]. While differences in cancer registries do exist across these countries, it does not explain the significant differences in survival [11].

Figure 3: Breast cancer five-year relative survival rate, 1997-2002 and 2004-09 (or nearest period)



Source: OECD Health Data 2011.

Figure 4: 5-year relative survival rates in various cancers

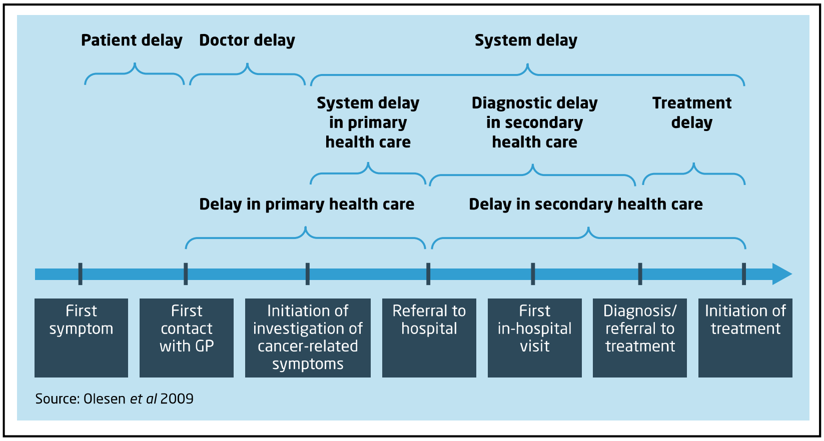


Country	Breast Women	Colorectal Men	Colorectal Women	Prostate	Average
United States	83.9%	59.1%	60.2%	91.9%	**73.8%**
Canada	82.5%	55.3%	58.9%	85.1%	**70.5%**
Australia	80.7%	56.7%	58.2%	77.4%	**68.3%**
Austria	74.9%	52.7%	55.1%	86.1%	**67.2%**
Germany	75.5%	50.1%	55.0%	76.4%	**64.3%**
Sweden	82.0%	52.8%	56.2%	66.0%	**64.3%**
Netherlands	77.6%	53.6%	55.1%	69.5%	**64.0%**
Iceland	79.0%	49.5%	54.0%	69.7%	**63.1%**
Japan	81.6%	61.1%	57.3%	50.4%	**62.6%**
Finland	80.2%	52.5%	54.0%	62.9%	**62.4%**
Italy	79.5%	50.7%	52.7%	65.4%	**62.1%**
Norway	76.3%	51.1%	55.3%	63.0%	**61.4%**
Spain	77.7%	52.5%	54.7%	60.5%	**61.4%**
Ireland	69.6%	46.0%	50.0%	62.8%	**57.1%**
Portugal	72.2%	46.5%	44.7%	47.7%	**52.8%**
UK	69.7%	42.3%	44.7%	51.1%	**52.0%**
Denmark	73.6%	44.2%	47.7%	38.4%	**51.0%**
Switzerland	76.0%	N/A	N/A	N/A	N/A

Source: Concord Study, 2008

In England, the key factors leading to deficient outcomes in cancer survival are delays in diagnosis and access to appropriate care. This can be further defined as patient delays, doctor delays, and system delays [11]. In order to concentrate on the health system determinants of this delay, the doctor and system components of delay in diagnosis and access to appropriate care will be focused, particularly at the levers of organization, payment incentives, regulation and persuasion as instruments to effect changes in the English health system. Then the example of cancer survival throughout will be followed by looking particularly at effects of reforms on the intermediate outcomes of access, quality, and equity. In addition, reforms that improve the systemic health system deficiencies leading to poor cancer survival rates will be centered. Overall, this approach applies beyond cancer care. However, cancer care is a lens through which one can look at the English health system overall to magnify clear and striking examples of the less apparent failures of the system that lead to deficient quality.

Figure 5: Categorization of delay



Source: Foot and Harrison 2011, Olsen et al 2009.

2.1 Deficient Quality for Cancer in Primary Care

Primary care is the first point of patient entry into the English health delivery system. It is delivered at the community level for geographically-defined populations by Primary Care Trusts (PCTs). PCTs are assigned over 80% of the NHS budget and are responsible for purchasing primary, community, intermediate, and hospital-based care for their patient population [14]. General Practitioners (GPs) operating in self-employed practices are contracted with PCTs to deliver primary care to their patient registries and serve as gatekeepers to patient access to the secondary care services listed above [14-15].

Fundamental to the English health system is the GP gatekeeper structure, which is widely recognized to ensure continuity of care, cost-effective delivery of care, and equity in access [16]. As GPs are given capitation payment amounts to provide comprehensive care for the patients on their registry, they are incentivized to keep their patients healthy by focusing on prevention and early detection and treatment of diseases or conditions. To counter the potential perverse incentives that capitation payments give GPs to undertreat, all NHS providers must follow clinical practice guidelines established by National Institute for Health and Clinical Excellence (NICE) regarding appropriate treatment for conditions, use of new technologies, and public health promotion [14].

Using cancer care as lens, one can diagnose the efficacy of the GP system for early detection and referral for treatment of diseases. While about 25% of cancer patients are diagnoses via emergent service routes, these patients have been shown to have significantly worse outcomes than those detected at the primary care level [17]. This figure demonstrates that the majority of cancer patients are diagnosed through an initial visit to a GP care, and that the GP system can be an effective channel for cancer care. Yet as previously discussed, England has comparatively poor measures of one and five-year cancer survival rates versus countries like the US with relatively low gatekeeper utilization. All organizational structures in complex health systems may have adverse effects [16]. Thus, it is imperative that health system issues related to cancer quality outcomes be analyzed at the primary care level where GPs play a critical role in early detection of cancer symptomatic patients and patient referral to secondary physicians.

Low one-year survival rates are indicative of late diagnosis [11]. Late diagnosis may occur more frequently in the NHS gatekeeper system due to the decentralized clinical decision making structure relying on the clinical knowledge of GPs as generalists to make determinations in specialized areas for recommending secondary evaluation. For obvious cases of suspected cancer, NICE provides clear clinical guidelines to assist GPs in determining when to order a referral. NICE also provides referral wait time limits, with two weeks as the national standard for "urgent" cases [18]. In these black and white situations, GPs can utilize their general clinical knowledge to effectively follow NICE evidence-based standards for secondary referral. But in more nuanced clinical presentations of early stages of cancer, the NICE guidelines may not be sufficient for detection. Late detection may then be a result of myriad factors affecting GP clinical decision making that would otherwise be clearer to a specialist, including patient-specific factors, presentation complexity, and lack of physician knowledge or experience with a particular cancer, or initial misdiagnosis [11]. Without easy access to a second opinion, patients in the gatekeeper model may be less inclined to question the clinical assessment of their GP because the GP by health system design holds complete agency in the relationship [16]. In this sense, the decentralized nature of the primary care system in England creates information asymmetry between not only the patient and GP but also between the GP and cancer specialist. Another factor that may prevent early cancer detection may be the intrinsic structure of the gatekeeping system. Long wait times for non-urgent services, especially in secondary care procedures, are commonplace in England as an effect of rationing fixed budget funding. GPs are the central actors in this cost-containment strategy because they have a monopolistic control on access to secondary care [16]. Consequently, if there are excess wait times to secondary care, GPs may seek to avoid flooding the secondary care system further with unnecessary referrals unless they are absolutely sure of the clinical validity. In such instances, secondary referrals may only be made when clinical presentations are more obvious, leading to late stage diagnosis and poorer quality outcomes of survival rates [16].

Within NHS, the only cancer-related pay-for-performance incentives via NICE's Quality and Outcomes Framework (QOF) are related to care coordination between primary and secondary providers for patients who have already been diagnosed with cancer [19]. There are currently no pay-for-performance incentives within the QOF directly targeted towards GPs for early detection and referral. Rather, the NHS's current strategy for addressing this obvious quality of care issue is limited to NICE nation-wide clinical guidelines and practice protocols at the GP level.

2.2 Deficient Quality in Secondary Care

Once patients are appropriately diagnosed, they enter the NHS's secondary care system to receive specific cancer treatment. The three main treatment modalities are surgery, radiotherapy, and pharmaceutical treatment. This part of the paper will discuss first the general organizational structure of the secondary care system, second the role that the regulation plays in the delivery of each of these three treatment modalities, and third hurdles to both individual and system-wide access to cancer care technology.

2.2.1 Organization

The NHS provision of cancer treatment is centrally organized with regard to its financing and regulatory structure but decentralized in the actual delivery and payment of care. Currently, PCTs commission cancer care with consultants, cancer units, and cancer centers depending on the intensity and complexity of the care. In addition, satellite and ambulatory settings are increasingly involved in providing less complex services. The decentralization is intended to separate the purchasers and providers of care with the intention to increase competition in the provision of services. However, historically, this organizational structure had resulted in fragmentation of care and has led to the use of inpatient services for all cancer care as a reflection of the better quality of care and has not encouraged the provision of cancer care through alternative, less expensive means. As a result, for specific cancer types, the government has established Cancer Networks to facilitate the provision and coordination of care through established treatment pathways. The goal of this new organizational structure is to encourage a multi-disciplinary team approach to the commissioning and delivery of high quality cancer care.

Evaluation of the organizational structure of cancer care suggests that recent organization changes of implementing of Cancer Networks and using multi-disciplinary teams have yielded mixed results in terms of improving the quality of cancer care [17,20]. Though the data is still unclear, government analyses have shown that wide variation in the provision of cancer treatment is one of the leading reasons cancer care quality has not improved within the NHS [17,21]. Moreover, it is likely that these faults are not caused by inadequate capacity. There remains the potential to expand the use of existing capacity and leveraging the proper referral systems to guide patients to take advantage of those services.

In addition, previous reports have shown that England is not reaching international targets in treatment utilization, a process measure for quality of cancer care. Data suggests that the NHS has both a supply and demand problem in some treatment areas. Patients have trouble accessing radiotherapy across England due to age, deprivation status, and geographic location. Yet, the use of current radiotherapy capacity is below international targets and varies significantly by geography and the location of individual machines. Improving Cancer Care Report suggests that by increasing the utilization of existing capabilities to bring them up to standard utilization rates, the NHS may save significant funds and allow greater access to cancer care [22].

Compared to other developed nations, the UK undertreats its cancer patients. While only 38.2% of cancer patients received radiotherapy in England in 2005, an evidence-based study indicates that 52% of cancer patients should receive radiotherapy on average [23-24], indicating a potential problem of under-referral, which stifles demand for radiotherapy services [17]. In addition, the National Auditors Office (NAO) emphasizes that if all radiation machines worked at full capacity, nearly 20% more patients could be treated without additional capital investments in capacity [25].

2.2.2 Regulation of Cancer Treatment

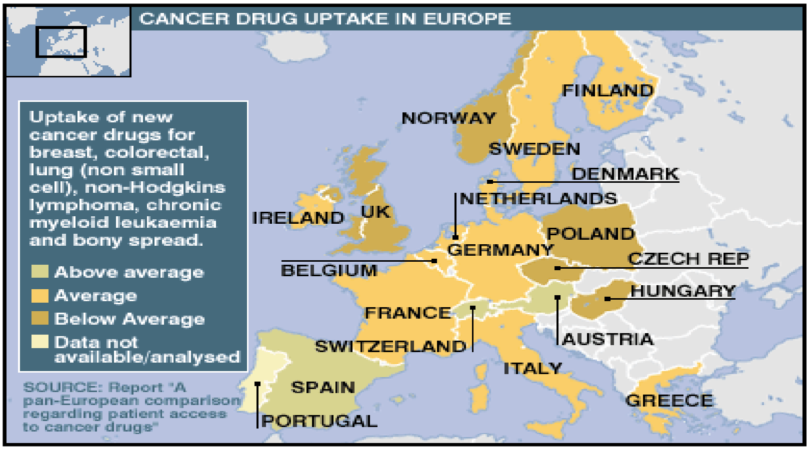
Surgery plays a significant role in increasing survival rates if cancer is diagnosed at an early enough stage. According to National Lung Cancer Audit [26], in England the resection rates for lung cancer at different networks ranges from less than 5% to more than 25%. This clearly shows that there is considerable variability in access to surgery. Moreover, there is a shortage of trained surgeons performing technologically advanced surgeries. For instance, although NICE delivered an opinion that surgeons should offer laparoscopic colorectal resection to all suitable patients in 2006, they had to waive this guideline due to a shortage of surgeons [17]. The NHS then launched a national training program in order to accelerate adoption of this technique. There is also evidence that older people are less likely to receive surgery compared to younger people regardless of the co-morbidities [27].

Access to radiotherapy is also crucial to improve cancer outcomes. As discussed above, the NHS simultaneously underutilizes radiotherapy and fails to take advantage of its existing capacity for radiotherapy treatment. While there has been progress to further increase England’s radiotherapy capacity and expand the use of complex radiotherapy treatments, this area of treatment requires much more attention [28].

New cancer drugs have contributed to improving cure or long-term remission rates, prolonging life, and improving quality of life for cancer patients. However, they have also created cost and capacity pressures for the NHS [11]. There is evidence that England is a relatively low user of some cancer drugs, with utilization rates at less than half of all-country-averages [29]. It is clear that clinicians have not always had the freedom to prescribe the drugs that they felt could benefit their patients, and patients may be treated more conservatively than in other countries [29]. In addition, a report by the Karolinska Institute found that while patients in the UK lack access to new cancer drugs, the UK ranks first among pan-European countries in the amount of direct cancer research funding [30].

Moreover, NICE regulations often have a negative impact on the availability of newly licensed medicines by the significant impact their recommendations have on the use or uptake of an EU-licensed drug (Fig. 6). NICE has been criticized for not approving certain cancer drugs for NHS use and for its long timeline of review for cancer drugs [30], leading to delays for the cancer patients to obtain innovative but expensive cancer drugs. Pharmaceuticals that have an incremental cost-effectiveness (CE) ratio of more than £30,000 per quality-adjusted life year (QALY) are generally not considered cost-effective, while those with a CE ratio of less than £20,000 per QALY generally are [31]. However, in the realm of cancer treatment, these regulations deter adoption of new medications and treatment modalities compared to other comparable countries in Europe.

Figure 6: Cancer drug uptake in Europe



Source: BBC News, http://news.bbc.co.uk/2/hi/health/4314798.stm

An EU Comparator report showed that usage of six recently approved cancer drugs in the UK was five times less than the EU average [29-30,32-33]. Further, UK cancer drug usage consistently trails behind other EU countries, including use for brain tumors, breast cancer, lung cancer, colorectal cancer, and renal cancer [32].

Cancer has been a focus area for national policy in England for over a decade. Since 2002, NICE has published a range of cancer service guidelines for different cancers [34]. In order to avoid delay in diagnosis, England introduced a number of cancer waiting times standards that the NHS was expected to achieve [35], including (Fig. 7):

- Two week standard from urgent GP referral for suspected cancer to first hospital assessment;
- 31 day standard from diagnosis/decision to treat to first treatment;
- 62 day standard from urgent GP referral for suspected cancer to first treatment.

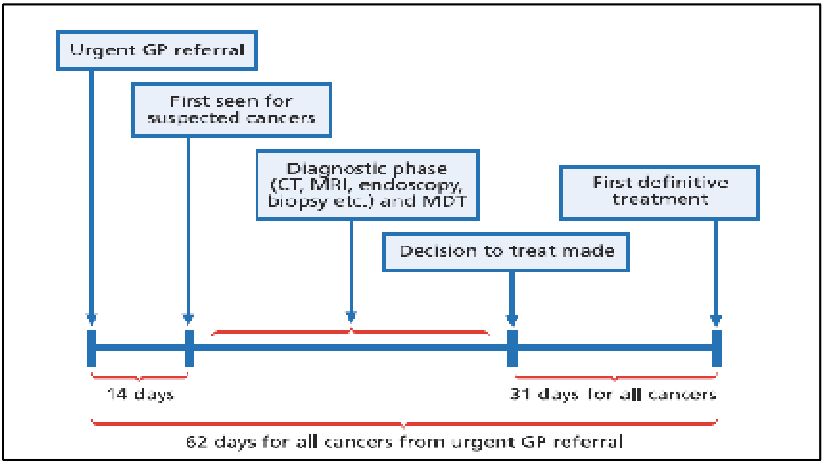
While these waiting times were consistently achieved at national level, some individual regional trusts have been struggling to reach those standards [17].

Recently, official figures showed the number of people being forced to wait longer than the six-week target for a diagnostic test for cancer and other serious illnesses had reached its highest level for six years[1]. In May 2014 a total of 18,664 people waited more than six weeks to have either form of scan, ultrasound or an endoscopy and it was extremely worrying that the proportion of people waiting more than six weeks for tests to diagnose cancer had more than doubled from 1% to 2.2% in a year, meaning that despite the fact that waiting times are significantly lower since the introduction of the six-week waiting time target in 2008, it's alarming to see them creeping back up again. The NHS is under strain and cancer risks being overlooked and not given the focus it needs.

---

[1] http://www.theguardian.com/society/2014/jul/10/half-nhs-bosses-patients-pay-services-10-years

Figure 7: Waiting time standards for cancer



Source: Department of Health 2011a

2.2.3 Access to Cancer Care and New Technologies

As discussed above, access to three main cancer treatment modalities—radiotherapy, surgery, and pharmaceuticals—is crucial to improving cancer outcomes in the UK. However, the NHS faces both individual and system-wide cancer care access problems. As previously discussed, inequality in cancer treatment continues to exist on an individual level. This inequality is particularly noticeable between younger and older individuals and by geography, with evidence that even after controlling for comorbidities, quality of cancer care for older individuals lags behind that of younger people [25,27,36-38]. Due to regulations currently in place, the NHS system as a whole faces barriers to the adoption and use of new and innovative technologies that may improve cancer outcomes.

NICE regulations affect the ability for patients or PCTs to purchase new cancer drugs and access new treatment technologies. In addition to these regulations, certain payment structures also deter the use of new technologies. Like the pay-for-performance system for GPs, the Payment-by-Results (PbR) system creates a transparent way to reward hospitals for efficiency, good quality, decreased wait times, and patient satisfaction. However, hospital PbRs actually dis-incentivize adoption of new technology because the payment scheme does not allow hospitals to recoup initial investment costs in new machines, which leads to the continued use of older, existing devices [39].

Based on an analysis conducted by Context Matters, use of centralized cost-effectiveness standards by NICE and similar appraisals in other countries limit patients' access to new cancer treatments[2]. According to the Context Matters analysis of NICE decisions over the last seven years (2007-2013):

- NICE rejected all six cancer medicines that it reviewed in 2013,
- Cancer medicines were more than 3 times likely to be rejected than non-oncology medicines,
- Nearly 60% of oncology medicines were rejected, compared to only 16% of non-oncology products,
- Almost 80% of cancer medicines reviewed in the last seven years have been given some kind of access restriction.

Additional analysis also highlighted that there were global variability in the HTA decisions of several major countries' organizations compared with the UK's NICE, NICE agreeing with other agencies 56% of the time over oncology reviews, and 81% for non-oncology reviews.

3. Policy Recommendations

3.1 Primary Care Recommendations

There is no need to offer significant changes to the fundamental organizational, payment, and incentive structure within the NHS primary care system because it has shown to be a broadly effective model for most methods of healthcare delivery. Rather, the fundamental question in early cancer diagnosis is how to use the current GP system mechanisms to address more nuanced clinical situations where patients need quick, specialized decision making and rapid referral at early stages to effectively improve cancer survival rates. The following recommenda-

---

[2] http://www.phrma.org/media-releases/uk-cancer-patients-face-increasing-coverage-restrictions

tions refine the current primary care organizational structure and incentives to improve the quality deficiencies outlined above regarding cancer detection.

As a first recommendation, to achieve wide-scale adoption and implementation of the nuanced cancer guidelines, behavioral changes at the individual GP level may be made to change the provider decision-making process [6]. First, GPs need to be properly trained in the information within the guidelines and how to incorporate them into their daily practice workflow so that they become the new norm in GP cancer management. Lastly, the actual forms used during patient evaluation which are currently developed at the regional level should incorporate the new guidelines and be nationally standardized to reduce disparities in clinical evaluation and facilitate outcome measurement.

Next recommendation addresses the issue of GP clinical knowledge uncertainty that lead to delayed referral for cancer diagnosis, either due to lack of exposure to a certain malignancy or associated signs and symptoms [11]. Here, an intermediate telephone consultation arrangement formalized between GPs and designated on-call cancer specialists is suggested. GPs will be the exclusive users of this service to informally discuss and gain clinical decision support from the specialist, thereby improving their ability to rapidly detect and refer patients with indistinct cancer related symptoms. Specialists benefit from participating in this exchange because it serves as an effective system triage and eliminate the number of inappropriate urgent referrals to their secondary service that they are obligated to rapidly review and investigate.

To ensure adoption and successful implementation of the above behavioral and organizational reforms, final recommendation is to link each of these strategies to payment incentives. As previously indicated, the GP pay for performance system does not incorporate GP incentives to improve cancer detection and referral. It is suggested that the current and future protocols developed for urgent cancer referral be prioritized in QOF performance measurement indicators. More specifically, two new process indicators proposed for NICE consultation and timely implementation are advised. The first indicator should reflect use of the current and newly proposed cancer referral protocols during patient evaluation by measuring comprehensive documentation on the forms. The second indicator should reflect timely referral of suspected cancer patients by measuring rates of GP referral initiation via appropriate clinical pathways.

3.2 Secondary Care Recommendations

The utilization of costly inpatient and hospital-based services for cancer care highlights an opportunity to redesign the provision of treatment in a way that may increase cancer care access, improve quality, and reduce costs. For example, inpatient care currently makes up over 30% of cancer expenditures [40]. By establishing smaller, specialized outpatient treatment centers, the NHS may reduce costly inpatient utilization rates by facilitating cancer care delivery in a less acute costly setting. At the same time, the localized and more accessible treatment centers may also reduce the geographic variation in access to treatment and allow machines/services to be utilized at greater capacity.

In order to address the problem of poor supply and demand for treatment services, England should maximize the use of currently available resources to meet immediate demand while working on increasing the long-term supply of treatment services. Maximizing appropriate utilization of treatment especially radiotherapy, opening additional treatment clinics, and upgrading and maintaining treatment technologies will be vital to achieving the goal of reducing treatment delays. In addition, the use of health information technology allows for distance-based treatment oversight that may transform provision of care. This has been applied in cancer care in Manchester, allowing patients to obtain services without travelling to a major hospital [41].

Achieving improved outcomes in cancer, it is necessary to design regulations that will allow the system to accommodate potentially increased demand for treatment. The sources of this increased demand are improvements in early diagnosis at the primary care level and more rapid referral to secondary care. The benefits of successful treatment in the secondary care are clear: improved survival rates and reduced costs of treating late-stage cancer. First, NHS needs to adopt the latest surgical techniques and radiotherapy machines, ensure the surgical workforce receives appropriate training to perform those surgeries, and give necessary specialist support such as nursing and intensive care. Second, NICE must speed up its decision process for appraisal of drugs and new technologies, increase the threshold for cancer drugs, and revise guidelines for treatment in order to improve early diagnosis of cancer in primary care and reduce waiting times in secondary care.

By addressing problems causing the payment control knob to fail, the English government can resolve many of the issues leading to low quality in cancer care. First, to address information problems, performance measures should be published and be easily accessible so PCT commissioners can compare achievements on cancer outcome quality measures by each Foundation Trust or NHS Trust. Secondly, it is important to add several amendments to current Payment-by-Result (PbR) measures for hospitals in order to improve specific cancer-related outcomes. Thirdly, PbRs should be changed so that tariffs appropriately compensate for particularly complex cancer care, and incentives should be modified to encourage simple outpatient follow-up care for cancer patients be transferred out of the more expensive acute care system [39].

In order to encourage general use and experimentation with potentially valuable new technologies, PCT commissioners and NICE can strengthen new payment incentives for limited research-based usage of these technologies and devices with defined data collection regulations. NICE can also increase leniency in the use of its Patient Access Schemes for cancer care, which create special pricing contracts that allow a small number of patients access to drugs without disrupting global market prices, allowing for more data collection about a drug before widespread adoption. Lastly, creating national tariffs for radiotherapy and chemotherapy will create monetary incentives to standardize treatments for all patients, across different PCTs.

CONCLUSION

Using the lens of cancer care, the analysis highlighted that although the NHS provides high quality care at a relatively moderate price, the need to reevaluate and reform several aspects of the healthcare system exists. The key factors leading to deficient outcomes in cancer survival are delays in diagnosis and access to appropriate care. This can be further defined as patient delays, doctor delays, and system delays. First, the timely screening and early diagnostic opportunities within the primary care system have been hindered by the gatekeeping role of GPs. Secondly, insufficient financial incentives to follow existing guidelines and frameworks have led to variability in diagnosis and potentially substandard outcomes. Thirdly, delays in diagnosis have led to worsen patient prognoses and provider inability to effectively treat cancer downstream. Moreover, poor integration and absence of timely data that can inform and improve commissioning of treatments by the PCTs further contributes to treatment delays. The dependence on inpatient provision of care leads to limited regional availability to high quality, current treatment. Underutilization of available treatment capacity and slow approval and workforce training for utilization of new treatments and drugs also results in poor quality outcomes in cancer.

The analysis also highlighted opportunities to build on prior reform attempts and make further improvements. Policy recommendations to improve cancer survival rates are to timely screening and early diagnostic opportunities within the primary care system, utilize available treatment capacity and quick approval and workforce training for utilization of new treatments and drugs, and continue prioritizing cancer care coordination and integration through improved referral services, and increase provider decision support. A potential outcome of these improvements may be greater expenditures for diagnosis and treatment of early-stage cancer patients; however, these improvements may also prevent the previously costly expenditures for patients with late-stage, more aggressive disease.

All in all, given that improving the quality of health care is one of England's highest political priorities, tempered by their current moderate levels of national healthcare spending, it is apparent that the government officials will have to trade off increases in budgetary spending in order to achieve improvements in quality outcomes.

REFERENCES

[1] British Medical Association (BMA). 2011. International comparisons of health outcomes. Health Policy & Economic Research Unit: Briefing Note. Available from: http://www.bma.org.uk/images/srm2011briefingpaperhealthoutcomes_tcm41-204676.pdf, [Accessed March 5, 2014]

[2] Organisation for Economic Co-operation and Development (OECD). 2013. OECD Health Data 2013.

[3] Harrison A., Gregory S., Mundle C., Boyle S. 2011. The English health care system, 2011. International Profiles of Health Care Systems, 2011. The Commonwealth Fund. Available from: http://www.commonwealthfund.org/Topics/International-HealthPolicy/Countries/~/media/Files/Topics/International/Country%20Profiles/1562_Squires_Intl_Profiles_2011_English.pdf [Accessed 05 June, 2014].

[4] Appleby J. 2011. "How satisfied are we with the NHS?" British Medical Journal 342:1836.

[5] Davis K., Schoen C., and Stremikis K. 2014. Mirror on the wall: How the performance of the U.S. health care system compares internationally, 2014 update. The Commonwealth Fund.

[6] Roberts MJ., Hsiao W., Berman P., Reich MR. 2008. Getting health reform right new York: Oxford University Press, 2008.

[7] Xu K., Evans DB., Kawabata K., Zeramdini R., Klavus J., Murray CJL. 2003. Household catastrophic health expenditure: a multicountry analysis. Lancet 362: 111-117.

[8] Squires D. 2011. Multinational comparisons of health data. The Commonwealth Fund.

[9] Organisation for Economic Co-operation and Development (OECD). Health Care Quality Indicators Data 2009.

[10] Thorlby R. and Maybin J. (ed) 2010. A high-performing NHS? A review of progress 1997-2010. The King's Fund. Available

from: http://www.kingsfund.org.uk/publications/a_highperforming_nh.html. [Accessed 11 March, 2014].

[11] Foot C. and Harrison T. 2011. How to improve cancer survival: Explaining England's relatively poor rates. The King's Fund: London.

[12] Berrino F., De Angelis R., Sant M., Rosso S., Bielska-Lasota M., Coebergh J.W., Santaquilani M. 2007. Survival for eight major cancers and all cancers combined for European adults diagnosed 1995-1999: Results of the Eurocare-4 study. EUROCARE Working Group. The Lancent Oncology 8: 773-83.

[13] Olesen F., Hansen RP., Vested P. 2009. Delay in diagnosis: the experience in Denmark. British Journal of Cancer; 101 (2):5–8.

[14] Boyle S. 2011. United Kingdom (England): Health system review. Health Systems in Transition 2011; 13(1):1–486.

[15] Department of Health. Financial Planning and Allocations Division. 2011a. Resource Allocation: Weighted Capitation Formula. 7th ed.

[16] Vedsted P. and Olesen F. 2011. Are the serious problems in cancer survival partly rooted ingatekeeper principles?. British Journal of General Practice. August 2011: 508-512.

[17] Department of Health. 2011. Improving Outcomes: A Strategy for Cancer. Avaiable from: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_123394.pdf [Accessed on May 2, 2014].

[18] National Institute for Health and Clinical Excellence. 2005. Referral guidelines for suspected cancer. Available from: http://www.nice.org.uk/nicemedia/live/10968/29822/29822.pdf [Accessed March 4, 2014].

[19] National Health Service Information Centre. 2011. Quality and outcomes framework achievement data 2010/11. Available from: http://www.ic.nhs.uk/webfiles/publications/002_Audits/QOF_201011/QOF_Achievement_and_Prevalence_Bulletin_2010_11_v1.0.pdf [Accessed March 4, 2014].

[20] Cameron D., Stead M., Lester N. et al. 2011. Research intensive cancer care in the NHS in the UK. Annals of Oncology 2011; 22:29-35.

[21] Department of Health. 2000. The NHS Cancer Plan. Department of Health: London. Available from: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4014513.pdf. [Accesed on 25 March 2014].

[22] Camps-Walsh G., Aivas I. and Barratt H. 2009. How can value-based pricing improve access and adoption of new treatments?. Available from: www.2020health.org/dms/2020health/.../2020vpcdoc-sep09.pdf [Accessed 11 July, 2014].

[23] Williams M., Summers E., Drinkwater K., and Barrett A. 2007. Radiotherapy dose fractionation, access and waiting times in the countries of the UK in 2005". *Clinical Oncology*, 19; 5:273–86.

[24] Delaney G., Jacob S., Featherstone C., and Barton M. 2005. The role of radiotherapy in cancer treatment: Estimating optimal utilisation from a review of evidence-based clinical guidelines. Cancer; 104 (6): 1129-37.

[25] Comptroller and Auditor General. 2010. Delivering the cancer reform strategy.

[26] National Lung Cancer Audit. 2009. National Health Service Information Centre. Available from: http://www.ic.nhs.uk/webfiles/Services/NCASP/audits%20and%20reports/NHS%20IC%20Lung%20Cancer%20AUDIT%202009%20FINAL.pdf [Accessed March 5, 2014].

[27] Raine R.,Wong W., Scholes S. et ali 2010. Social variations in access to hospital care for patients with colorectal, breast, and lung cancer between 1999 and 2006: retrospective analysis of hospital episode statistics. *BMJ*; 340:54-79.

[28] Department of Health. 2007. Radiotherapy: Developing a world class service for England: Report to ministers from National Radiotherapy Advisory Group: London. Available from: www.

dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_074576.pdf [Accessed 04 May, 2014].

[29] Richards M. 2010. Extent and causes of international variations in drug usage: A report for the Secretary of State for Health by Professor Sir Mike Richards CBE. Available from: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_117977.pdf [Accessed 5 March, 2014].

[30] Wilking N. and Jonsson B.2005. A pan-European comparison regarding patient access to cancer drugs.

[31] Faden RR., Chalkidou K., Appleby J. et al, 2009. Expensive cancer drugs: a comparison between the United States and the United Kingdom. Milbank Q; 87 (4):789-819.

[32] Wilking N., Jonsson B., Hogberg D., and Justo N. 2009. Comparator Report on Patient Access to Cancer Drugs in Europe.

[33] Sikora K. 2009. Was the NHS cancer plan worth the effort? Lancet Oncol; 10 (4):312-3.

[34] National Institute for Health and Clinical Excellence. 2010. Evaluation and Review of NICE Implementation Evidence. Available from: www.nice.org.uk/usingguidance/evaluationandreviewofniceimplementationevidenceernie/evaluation_and_review_of_nice_implementation_evidence_ernie.jsp [Accessed June 4, 2014].

[35] National Health Service. 2009. Ensuring better treatment: Going further on cancer waits. Available from: www.improvement.nhs.uk/cancer [Accessed March 7, 2014].

[36] Bouchardy C., Rapiti E., Blagojevic S. et al. 2007. Older female cancer patients: importance, causes, and consequences of undertreatment. J Clin Oncol 25; (14):1858-69.

[37] Enger SM., Thwin SS., Buist DSM. et al 2006. Breast cancer treatment among older women in integrated health care settings. Journal of Clinical Oncology 24; (27):4377-83.

[38] Peake MD., Thompson S., Lowe D., and Pearson MG. 2003. Ageism in the management of lung cancer. Age Ageing 32; (2):171-7.

[39] PA Consulting Group. 2008. Ensuring PbR supports delivery of effective cancer services. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_086877. [Accessed 16 July, 2014].

[40] National Health Service. 2007. Cancer Reform Strategy. Available from: http://www.cancerscreening.nhs.uk/breastscreen/dh-081007.pdf [Accessed April 5, 2014).

[41] Farrar M., Richards G., Doran K. et al. 2008. A cancer plan for the North West of England to 2012. Northwest National Health Service.