MRes Healthcare and Design

Module 1B (2017-2019)
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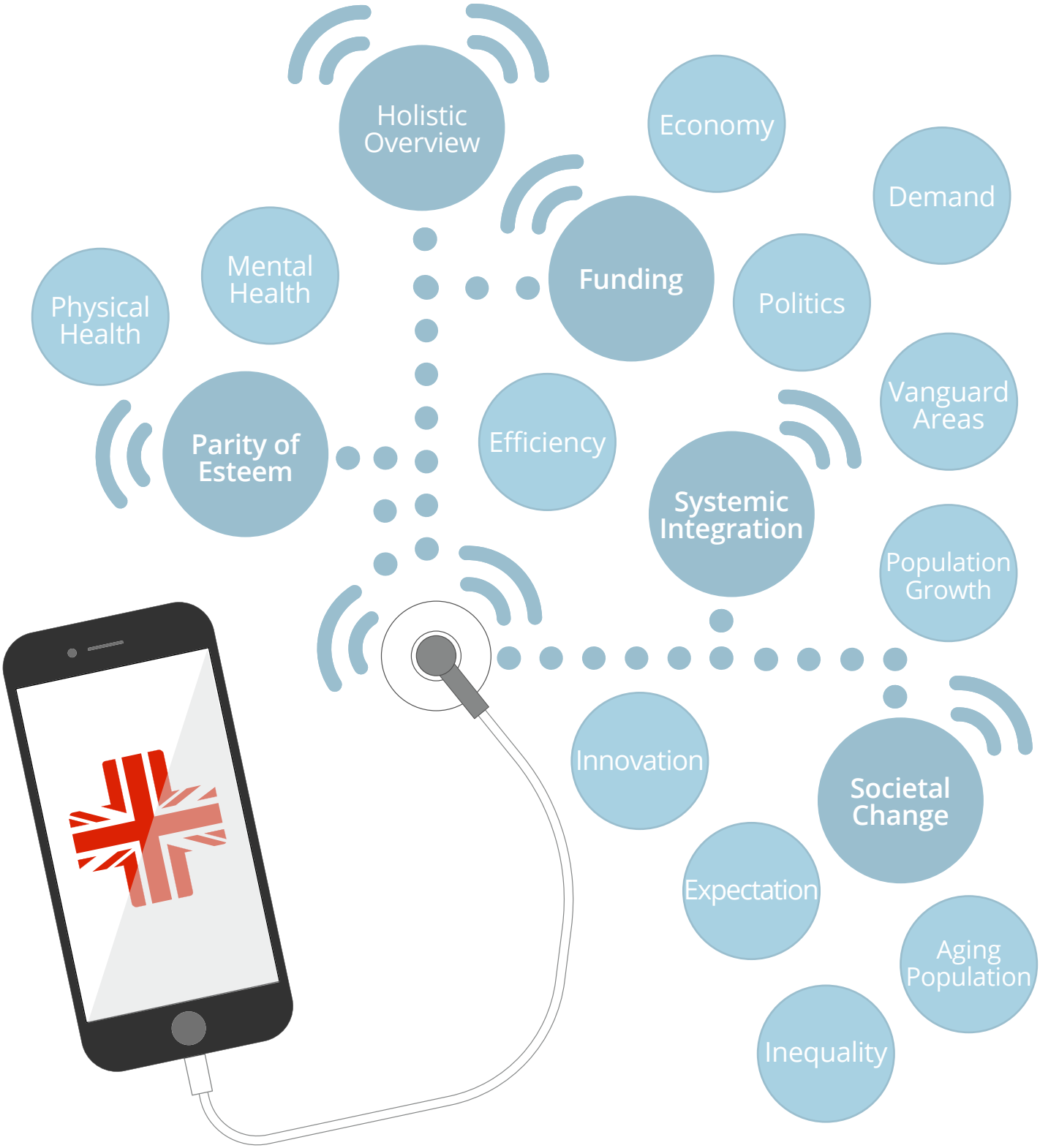
What are the main healthcare and societal challenges facing the UK healthcare systems presently? For each challenge you identify, describe and outline the design and innovation solutions you see as having impact to improve the health of the Nation.



ABSTRACT

The healthcare system of our nation is in a constant state of transformation. A succession of reforms had been commissioned over the past decade to improve our national health system with varying degrees of success, ranging form the celebrated formation of the Care Quality Commission in 2009 to the failures of the Health and Social Care Act in 2012. Yet, the pressure on our health system escalated in the backdrop of economic stagnation and the self-imposed political and economical uncertainty of Brexit.

This report discusses the overall challenges to the nation as a whole, but focuses its discussion in the English system, for it is by far the largest and most complex challenge facing our nation. Within the limited scope, this essay categorises the interconnected web of healthcare challenges into four separate sections and identifies specific solutions to these key challenges with a broad but holistic critique.

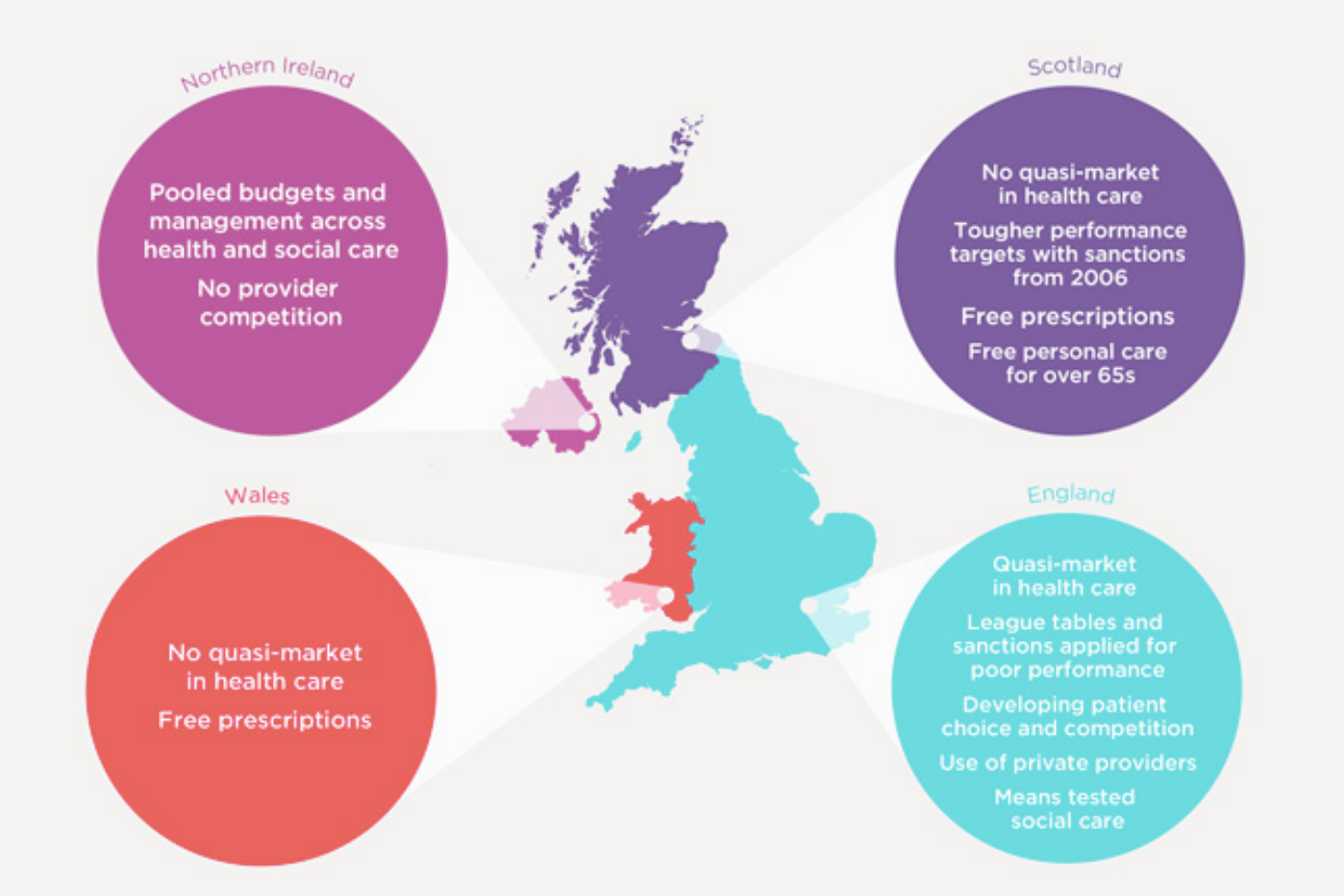
Our health system is in crisis. By embracing existing knowledge, utilising new technologies along with holistic planning and systematic reform, the web of challenge can slowly be dismantled.

1.0 The Healthcare Overview

To comprehend the scale and complexity of the current healthcare system and the challenges facing our nation, it is imperative to understand the context of our national system and examine challenges to the system as a whole.

The twenty first century and the current social, political and economic climate brought with it a new mix of challenges to our healthcare system. As a population, our life expectancies increased and mortality rates dropped; diets and lifestyles changed; working hours lengthened; social inequality widened; cost of healthcare rose; national debt soared and government funding cut.

Yet, our expectations and demands for healthcare treatments continues to rise, not only do we demand quality treatments, we expect convenience and speed[1]. We live in a society of consumption and political short-termism, these factors impact on the overall performance of our healthcare system and exacerbate the challenges facing the nation.



Health Policies in the Devolved Systems
Diagram indicating the complexity within which different systems operate within the overall NHS umbrella. Source: Nuffield Trust.

Substantial strides have been made in the UK in terms of maintaining a high quality national health system in more recent years. Despite its increasing pressure, our overall healthcare is still the envy of many other countries, providing quality, safe and affordable healthcare[2,3]. Unfortunately, ill conceived reform, misspending and underfunding by successive governments exacerbated its underlying conditions.

Improvement priorities has been identified and visions for the future are set, as demonstrated in the NHS Five Year Forward Plan[4,5]. Yet, there are other structural, societal and economic components to the overall healthcare system, as identified and discussed in the following sections. Crucially, these issues are interconnected. Many such improvements require central funding and are inextricably tied into politics and economics. The fact that the Autumn Budget 2017 failed to address any funding to social care[6], is evident in such lack of holistic overview of the system.

The real solution to funding shortage involve a comprehensive overview at the economy of healthcare, which cannot be relied on cost-cutting trade-offs between different sectors within the healthcare - as successive governments tended to do. Areas such as prevention, running cost and capital investment shall be considered holistically, failure in doing so only add to the long term damage. The Private Financed Initiatives (PFI) adopted by successive governments, for example, created insurmountable debt for future governments in contractual terms utterly unfavourable to the taxpayers[7]. Similarly, the reliance on agency staff and consultants are expensive and is simply a false economy[8].

Header	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING	**2**	**9**	**10**	**8**	**3**	**4**	**4**	**6**	**6**	**1**	**11**
Care Process +	2	6	9	8	4	3	10	11	7	1	5
Access +	4	10	9	2	1	7	5	6	8	3	11
Administrative Efficiency +	1	6	11	6	9	2	4	5	8	3	10
Equity +	7	9	10	6	2	8	5	3	4	1	11
Health Care Outcomes +	1	9	5	8	6	7	3	2	4	10	11

Health Care System Performance Rankings

Desipte the ongoing challenges, the NHS is still judged the best, safest and most affordable healthcare system out of 11 countries analysed and ranked by Commonwealth Fund. Source: Commonwealth Fund.

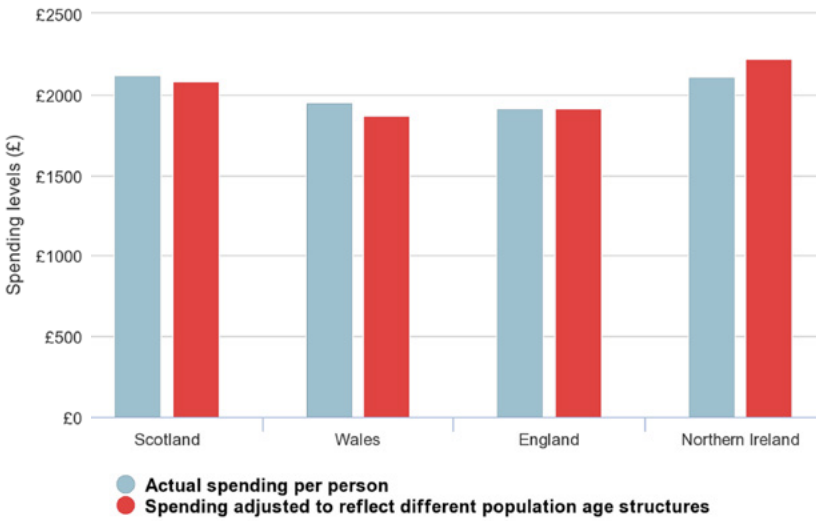
2.0 The Economic Challenge of Healthcare

The funding structure of the NHS is complex, not only should there be sufficient funding, a system shall be in place to ensure appropriate allocation and effectiveness of expenditure. The overall expenditure also encompasses a wide scope, such as in major capital investments, education and training, and public health.

The public debates over the 2017 Autumn Budget highlighted the intensity behind the scenes between the Treasury and key NHS England personnels[9,10]. Between the public posturing and political smokescreens, one thing is clear: the injection of £2.8bn package (2018-2020) announced in the latest budget for the Department of Health fell far short of what is required to sustain the standard of care in the NHS for 2018-19 alone[11,12].

As the annual GDP has been stagnant since 2008[13], the available funding is limited. The UK health system does have a large government-financed expenditure[14], yet, according to ONS, out of the seven G7 countries, the UK came second to last in the percentage of GDP investment on healthcare[15]. It is possible to increase the overall healthcare investment if we compare the UK to other developed countries. Especially when the current autumn budget just found £3 billion to deal with the lengthy and costly negotiations of Brexit[16], when the money could go into improving many of our healthcare system.

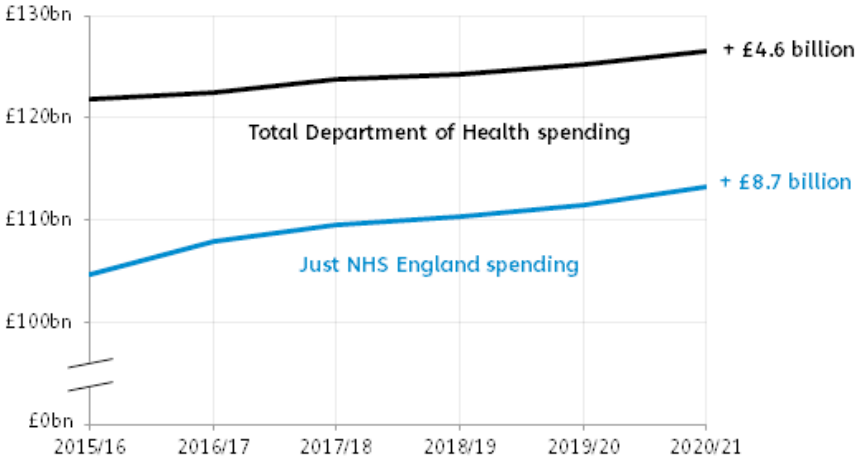
The challenge is to shift the political thinking, which requires better education and raising public understanding on the funding mechanisms. There are alternative systems even within the UK: the Scotland invests more funding in NHS Scotland and operates in a higher tax rate than the English system[17]. Whichever way we adopt in the future, we are faced with the current financial difficulties, and the challenge is to find ways of improving the system within the financial predicament we are in.



Spending per head in the four countries of UK
Graph showing Scotland and Northern Ireland spend significantly more in healthcare than England and Wales. Source: The Health Foundation.

First, we can look into effectiveness of the spent. Various implementations had been made to improve the efficiency of healthcare expenditure, currently costing 9.9% of the overall national GDP (under the average of the other 14 original EU countries)[18]. Even though the productivity has increased in recent years, outperforming other sectors, efficiency alone would not close the funding gap between provision and demand[19].

Perhaps, the best way forward is for the government to establish an independent assessment body, an 'Office for Healthcare Budget Responsibility', that is able to review the state of healthcare system as a whole (from primary to social care) and establish long term visions for the future, free of political short-termism and allow spending for healthcare to be fully coordinated.



Health Spending in England

Department of Health expenditure limit and NHS England budget, taking inflation into account, 2017/18 prices.
The graph shows the narrowing funding gap, depite the ongoing cost saving and enforced efficiencies. These savings alone would not close the gap between provision and demand.
Source: Nuffield Trust, Health Foundation and King's Fund. The Autumn Budget Joint Statement on health and social care, adjusted by HM Treasury GDP deflators (Sep 2017)

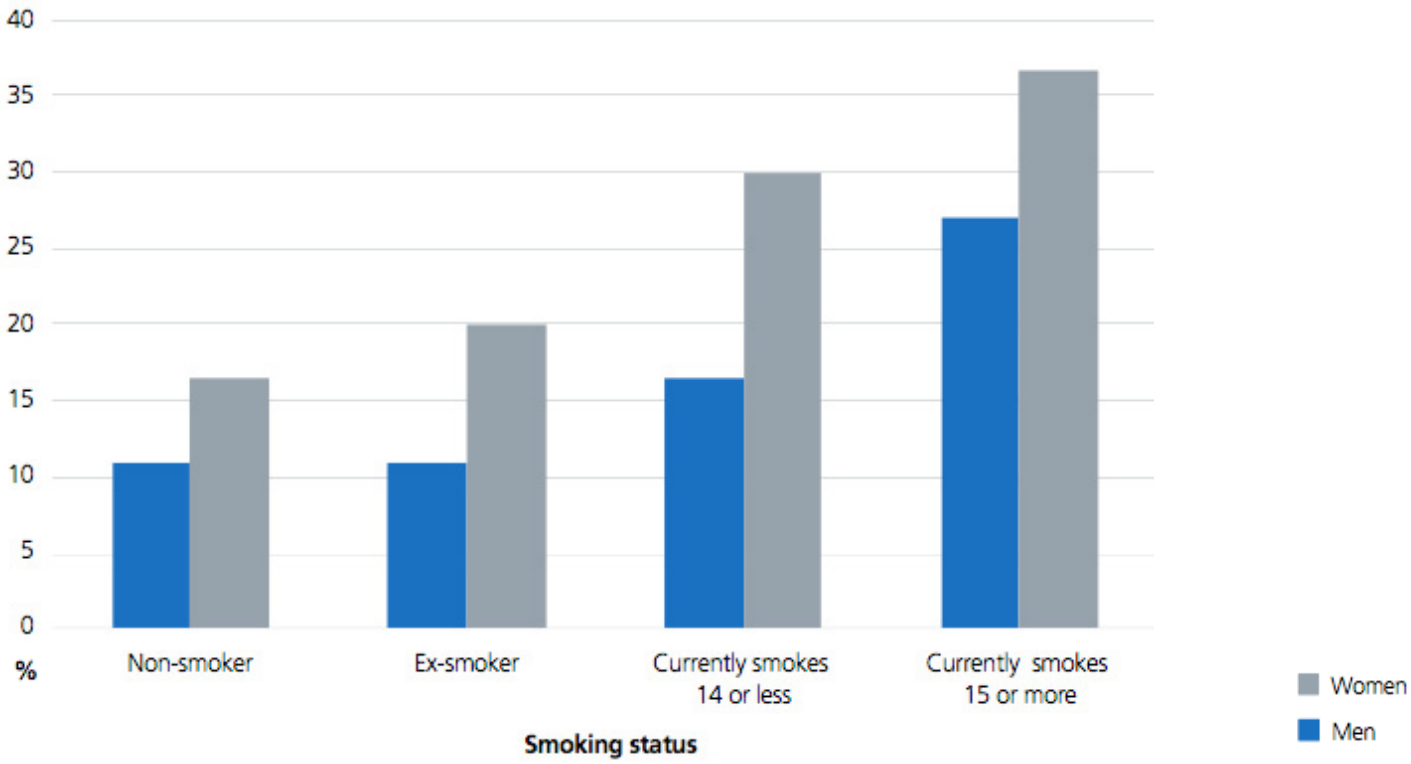
3.0 Physical and Mental Health of the Nation

There is an ever growing recognition that our physical health is as important as our mental health. This section of the report discusses some key challenges facing the overall *health* of the Nation.

Smoking remains the primary causes of preventive illness and premature death in UK[20] and is the leading challenge facing the physical health: Accounting for 14% of death from heart disease, and 80% of death from bronchitis and emphysema, and over a quarter of all cancer deaths[21]. Furthermore, smoking habits directly correlates with the rate of common mental health disorders[22].

Like many diseases, a range of factors contribute to nicotine addiction[23]. Efforts had been made to address smoking problem: government policies, awareness campaigns and tax increases all contributed to the steady decline in the number of smokers[24]. This discussion is concerning how public campaigns communicated through visual means contributed to the reduction of smoking.

For decades, a great number of promotional materials were created to increase public awareness, drive social perception and deter smoking habits. Studies have shown the effectiveness in ceasing smoking habit with



Prevalence of common mental disorder (CMD), by smoking status (age standardised). Base: all adults

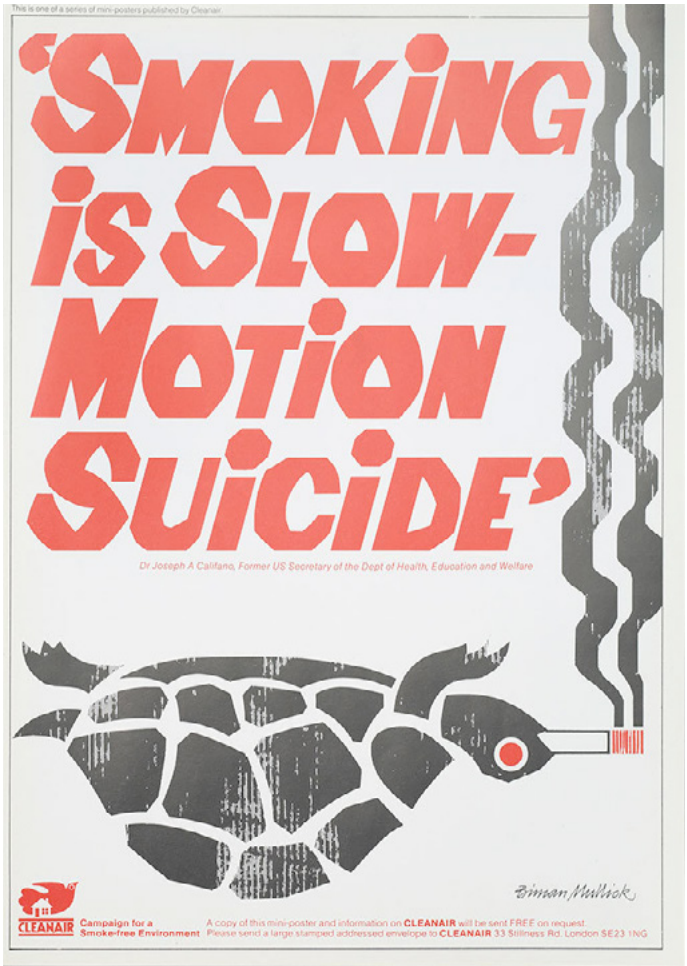
Table showing the direct correlation between smoking and common mental disorders. Source: ADULT PSYCHIATRIC MORBIDITY SURVEY 2014

strong emotional and visual imageries[25] and the effectiveness of both positive and negative emotive contents[26]. Such studies confirmed empirically what tobacco companies had long been aware of - the effect of visual communication on the human psyche.

Thus, in recent decades, anti-smoking graphics became increasingly visceral and provocative to hammer in the physical effects of nicotine. Understanding the power of visual communication allows policy makers and healthcare professionals to utilise such expertise in addressing any future challenges facing our healthcare system and deploy design to achieve positive and negative reinforcements. Prevention is better than cure.

The widespread and often subliminal nature of anti-smoking graphic designs demonstrate the indirect methods to influence our decision process and could be used to address other healthcare challenges in influence our perception and behaviour for a healthier lifestyle.

The World Health Organisation defined *health* as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" in 1946. Yet, in 2017, we are still addressing the parity of esteem between physical and mental health in its access, quality of care, aspiration and status[27,28]. The Adult Psychiatric Morbidity Survey (2016) has shown that since 2007, the rates for most mental health conditions has either remained unchanged or worsened.



Cleanair: Relatively benign anti-smoking campaign posters in the 80s
Graph posters by Biman Mullick for Cleanair anti-smoking campaign. Source: Brian Mullick

Smokefree. An example of antismoking campaign, advertised in 2012.
A visually effective and sophesticated marketing campaign by Public Health England, in partnerships with Local Authorities and the NHS, showing the Increasingly visceral graphic imageries of modern-day antismoking campaigns in recent time. Source: Public Health England. Available from https://youtu.be/AIyqcST29wQ

The introduction of Increasing Access to Psychological Therapies (IAPT) program in 2006 was an important step in recognising the need for accessing supports, thus saving time and increase efficiency of the overall service[29]. But, despite improvements and pledges, there are ongoing concerns with various issues, including in particular, funding[30].

However, as discussed earlier, the solution to our healthcare challenge is in finding a more sustainable footing, this, require more than funding. What is needed is allowing our existing fragmented healthcare system to evolve and increase its efficiency. We need alternatives to the conventional segmented system, such that we integrate mental and physical care. As discussed in the following section.

Further, our physical and mental health can be improved by utilising technology. The advantages technology brings is evident in our lives, from accessing information online to wearable health technologies[31,32]. For example, in the mental health context, study has show web based treatment can effectively complement conventional cognitive behaviour therapies[33],[34].

4.0 The Structural Challenge of the Healthcare System

The UK population is growing and life expectancy is rising, creating more demand and challenges ranging from the rise of chronic non-communicable diseases to growing dependency on care[35] [36].

The previous section discussed the disparity of mental and physical care, but there are further systematic fragmentations. Coordination improvements are required between local and national level, as well as between primary care, secondary care and community and home care. Such that, in improving community care availability, we alleviate the issue of bed-blocking in secondary care[37]; in improving primary care access, we ease the pressure in urgent and emergency care.

It is beneficial to develop more community based services, both from a social angle and in a better distribution of healthcare services. Such approach has driven the introduction of the Accountable Care System, which integrated services and funding.

Some of these integrations evolved naturally. As, over time, GP practices were grouping up to form larger practices in response to demand, where resources are concentrated and greater range of health services offered[38]. The effectiveness of such integrated approach can be seen from the newly created 'vanguard' areas[39] [40]. In these areas, study has shown drop in emergency hospitalisation and decrease in time spend in hospital stay, particularly in elderly population[41]. This proved the effectiveness of a joined up service over a traditional model, where patients often face a revolving door of admission, discharge and readmission.

Thus, one of the solution to the healthcare challenge is creating a leaner and more efficient system. This can be simply an integration of departments

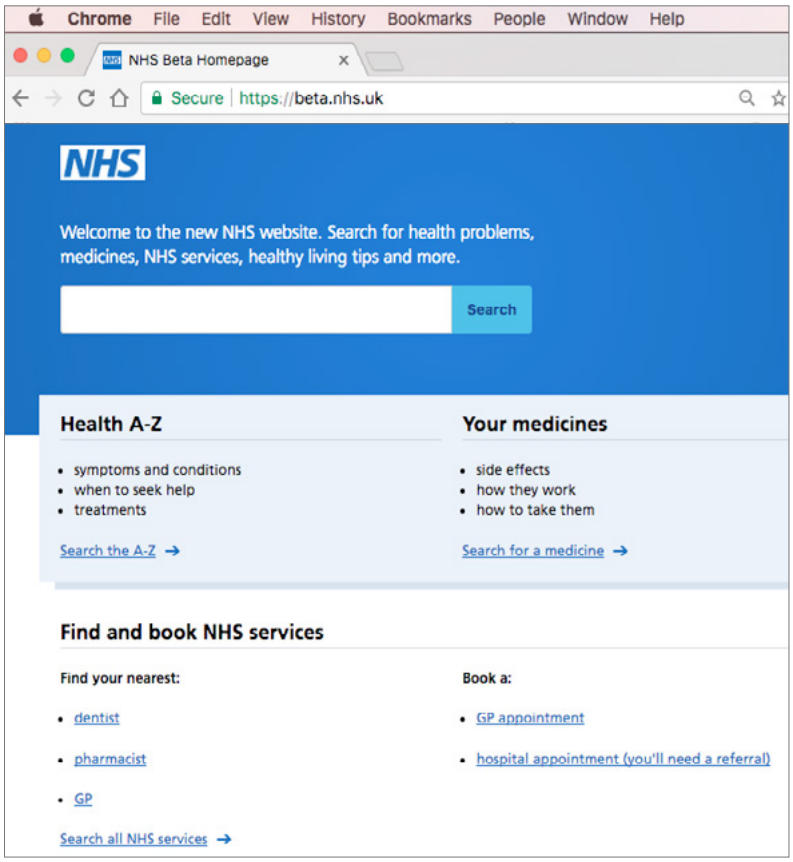
Health Gadgets in NHS

In creasing amount of technological innovations are available in the NHS to relieve pressure on the system. The Fitbit Charge, for example, monitor heart rate, calories burned and number of steps taken Image source: The Telegraph

but it can also be addressed by other ingenuity and creative thinking. One such improvement in relieving front line demand was as simple as introducing the 111 number and reserve 999 for emergency care. Even though the solution is not perfect and the success not fully proven, it is a necessary alternative[42]. Up to 3 million people entering the A&E a year could have been treated in other part of the urgent care system[43].

Other solutions include technological innovations which provided alternatives to traditional services. The GP at Hand is an example of a growing trend on web based 'super-clinic' allowing patients to access primary care at their fingertips as NHS patients[44]. Whilst convenient and is in no-doubt a way of easing the congestion at primary care level, such innovation also raises ethical and safety questions. The creation of web based GP service and other web alternatives are a right step forward, if we can ensure the security of patient data - as highlighted in the cyber attack in 2017[45].

More technological innovations that alleviate the burden on our health system range from web based teaching and wearable technology and data monitoring. Living in the age of 'big data', the NHS recognises the value of data collection and utilise the information to its advantage[46]. A growing number of trusts have moved to electronic patient records and many computerised systems. But the full potential of such technology can only be realised when the whole system is fully integrated.



NHS Beta (2017)

NHS Digital continues to improve on the NHS web developments and connect patients to the information and services they need, reduce pressure on healthcare services, improve efficiency and increase quality. Source: https://beta.nhs.uk/

5.0 Conclusion

The pressure on our national healthcare system comes from a range of factors, the challenges facing our nation can be resolved with coordinated policy making, sufficient funding, effective spending, creative design, technological innovation and integrated system,.

Within the limited scope, this report made the following arguments:

Solving the challenges within our health system require a comprehensive overview.

In tackling the economic challenge, the report proposes a centrally accountable organisation, free from politics, able to propose holistic budget for healthcare.

In confronting challenges to improve the *health* of the nation, the report embraced innovative thinking in both conventional design and new technology and sees the need for parity in physical and mental health.

In facing the structural challenges, the report recognises the need for systematic integration and see technological innovation as a tool to assist such integration.

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