

British Public Attitudes towards Cancer Research and Treatment in 2019

A UCL School of Pharmacy Cancer Policy Project Report

Summary

Seven in every 10 people (73%) in Britain aged 18 and over have or have had a relative or close friend with cancer. Over a half of them say this has significantly affected their lives. An additional 1 in 10 (9%) have themselves had or currently have cancer. Again, half report significant impacts on their lives. Women are more likely than men to say that cancer has changed their lives.

Improving cancer treatment is a priority for the British public. For half the population (49%) cancers are the disease group from which they most want better protection for themselves and their family members. This is twice the proportion selecting the dementias as their key protection priority. In addition, 60% of the population says that stopping the world-wide suffering caused by cancer is one of the most important things society can hope to achieve by 2050, and 75% of people agree that hearing about new cancer treatments gives them hope for the future.

Cancer is most common amongst older people but remains an important cause of death amongst children and young adults. Of the 2,000 people surveyed 57% agreed that their biggest concern about cancer is that it takes the lives of young people. Two in 3 think that *'children and young adults should get the most effective cancer treatments even if government health economists say that they are not cost effective.'*

When asked about the serious disease consequences they most want to avoid, 48% of the population chose *'living in a confused state for years with little control over what happens to me.'* The two next highest priorities identified were avoiding premature death (16%) and having to live with chronic pain (also 16%). These findings are likely to be linked to older individuals' wishes not to burden others and their desire to protect the lives their children and grandchildren.

Men and women aged 65 and over do not believe that they are any less entitled to effective anti-cancer

treatments than anyone else. Amongst the over 65s 95% think their access to cancer treatment should be as good as that of younger people. There is likely to be growing pressure for the NHS to provide the most effective cancer treatments for older individuals.

There is strong public support for the NHS as a tax funded and universally available service. Some 77% of the population agrees with this approach, with less than 1 in 10 (7%) disagreeing. One third of British adults believe that if they or a member of their family were to develop cancer the care given by their GPs and NHS cancer specialists would be world-class. A further third (37%) say that although they may face problems being diagnosed early, they believe NHS cancer specialist care is world-class. Of the remainder, 22% are concerned the NHS does not consistently provide the most effective treatment, while another 7 per cent fear they would receive poor quality NHS cancer care.

Over 8 in 10 members of the British public agree that NHS professionals need more resources to provide excellent cancer care. Almost half (47%) report that they trust the quality of NHS care less when they hear it cannot afford new cancer treatments.

Some 16% of those surveyed believe that most cancers, including those diagnosed late, will be curable by 2050. Another 50% believe that better cancer treatments will hold most cancers in check indefinitely by then, albeit many will not be fully curable unless diagnosed early.

There is evidence of widespread public support for government plans to invest more in early cancer diagnosis in primary care specialised facilities. One future opportunity is to develop community pharmacies as diagnostic centres. Four in 10 people (43%) say they would talk to pharmacists more than GPs if artificial intelligence supported systems could help them treat common illnesses appropriately and detect early signs of cancer.

Summary (continued)

Over 80% of people say that if they were developing a cancer they would want it diagnosed as early as possible, even if false alarms were raised. Only 3% disagree. But British public opinion is divided on issues related to paying for new cancer treatments and funding research through granting patents for new treatments to public and private bodies.

Over 4 in 10 people (44%) think the NHS should buy cancer treatments as cheaply as possible, regardless of impacts on research and industrial development. Yet in excess of 5 in 10 say the NHS should pay prices that encourage investment in research and UK industry, and that Britain should pay as much for new anti-cancer medicines as countries like France and Germany.

About 2 in every 10 (23%) members of the UK public agree that *'the cost of anti-cancer drugs is bankrupting the NHS'*. Those believing this are significantly more likely than others to think that people should buy their own health insurance *'because the UK cannot go on raising taxes to pay for services like the NHS'* (19% agree); to believe that cancer research and care in Britain will improve after Brexit (14% think this); and to say President Trump was in the past right to warn against childhood immunisation (13% agree). Less advantaged people are more likely to hold such views than members of other groups.

On patents for new anti-cancer medicines, 43% support granting them because they believe they are vital for funding research. Against this, 36% of the population opposes granting them because they raise treatment prices. Older people are more likely to support patent protection for new anti-cancer therapies than younger individuals, although they are also more likely to say the NHS should buy anti-cancer medicines as cheaply as possible.

Half the British population (53%) say cancer research should be publicly or charitably – rather than privately – funded. A similar proportion (48%) agrees that private companies cannot (at least without regulation) be trusted to work in the public's interests. Yet 7 in 10 people (73%) say that it is in the public's interest for publicly and privately funded cancer researchers to work in partnership and share income from patented products. Six in 10 (59%) also believe that, taking everything they know into account, pharmaceutical companies make an important positive contribution to society.

There is opposition to using UK public money to support the development of cancer care in poorer countries. While 38% of the population agree that anti-cancer medicines should be supplied by companies at prices much lower than the NHS pays (25% disagree) only 18% of the population think that British taxpayers' money should

fund cancer care improvements in poor parts of Africa and Asia. Half the public (49%) actively disagrees with supplying such aid.

Interpretation and recommendations

Up to two thirds of the UK population broadly favours the existing – intellectual property law dependent – public and private system for funding cancer research and treatment development. However, even in this group there are high levels of uncertainty about many cancer related policy issues and concerns about treatments being judged too expensive for NHS use.

By contrast, in the order of 15-20% of the population want a stronger cancer treatment research role for the State, distrust private pharmaceutical companies and oppose granting patents, in part because of 'poor world' concerns. At the opposite end of the spectrum a similarly sized group distrusts government and government regulation. Its members may oppose patents because of perceived effects on free competition and British as distinct from international treatment prices.

Conflict between those seeking to purchase treatments as cheaply as possible and those wishing to generate profits and fund further innovations may be inevitable. But even so this cannot justify poor communication and inadequate public and political understanding of issues relating to cancer research and the global opportunities for reducing the harm caused by cancer.

In addition to providing better quality information, opportunities for further progress include conducting confidential inquiries into individual and family experiences of NHS cancer treatment and why people sometimes choose to 'go private'; explicitly addressing the challenges of improving cancer services in 'poor world' settings through internationally agreed action that respects appropriate intellectual property rights; taking further steps to promote early diagnosis and assure optimal NHS cancer care for people aged in their 70s and over; and reviewing and enhancing the methods used by health economists to value individual treatments and the overall cancer-related innovation process.

Public attitudes towards cancer conflict because of contrasting life experiences, educational differences and variations in emotional responses, personality structures, ethical values and cultural norms. Yet almost everyone wants cancers to become either curable, or treatable in ways that stop them disrupting and taking lives. There are today major opportunities to achieve this common goal, if people can work together to fund both effective research and good care delivery.

Introduction

The UCL School of Pharmacy Cancer Policy Project survey reported here was conducted online amongst a sample of 2077 people aged 18 and over during April 2019 by the research agency Populus. Participants were randomly selected from a bank of 170,000 individuals held by Populus, and the results weighted in order to accurately reflect the UK population's structure. The purposes of this study included contributing to the understanding of British public attitudes towards cancer, cancer research and NHS cancer services and the funding of relevant forms of treatment and care. Its findings provide a framework for further empirical research and complement qualitative research on policy makers' beliefs and goals related to cancer and its treatment to be published elsewhere. This survey builds on previous investigations like the *The State of Cancer* analysis published by Incisive Health (Incisive Health, 2018).

Public opinion data need careful interpretation in order to avoid misleading conclusions being drawn. The difficulties inherent in understanding the complexity and plurality of what individuals and groups think about public policy issues is often underestimated. With the support of a structured literature analysis this report seeks to provide evidence based findings on issues ranging from the extent to which people with and without experiences of cancer prioritise further advances in cancer treatment as against other health improvement opportunities through to beliefs about pharmaceutical patenting as a mechanism for supporting the funding of private and public sector research. In places it offers hypotheses about the reasons for public opinions about cancer that will require further investigation to determine their validity.

The results of this survey confirm that enhancing cancer treatment is a major priority for the British public. They also indicate robust backing for the NHS as a tax funded universal health care system. Across the UK there is widespread confidence in the health service as a provider of cancer care capable of delivering health outcomes that if not the best in the world are in the main relatively good in international terms. Importantly, it does this in ways that protect most people affected by serious forms of illness such as cancer from economic harm, at least in as much as they do not have to meet potentially unaffordable health care charges (Dayan et al, 2018).

Progress continues to be made – see, for instance, NHS England (2019). But as the information presented in this survey report shows, the NHS is not universally trusted

to give individuals and families living with cancer the best possible treatment. The evidence produced also indicates that disputes about the cost effectiveness of new treatments and their affordability for the NHS can undermine service user confidence. This in itself is a cost which should not be ignored by policy makers.

As diagnostic and therapeutic innovation continues and Britain has to face challenges such as those linked with further population ageing on the one hand and the consequences of the 2016 referendum decision to leave the European Union on the other there are likely to be new threats to the ability of the health service to meet cancer related needs in ways consistent with public expectations. At the same time the research based pharmaceutical industry is also likely to be subject to ongoing criticisms regarding the appropriateness of its business model and its capacities to develop and deliver new therapies in ways consistent with perceived public interests, nationally and globally.

To a degree, tensions between individuals and organisations overtly seeking to generate profit through discovering and supplying better treatments and those charged with providing the best possible health outcomes obtainable from a given budget are inevitable. Within the health care arena there can also be conflicts between seeking to achieve optimal population health as against delivering the best possible care to each individual. However, even if this situation is unavoidable, efforts can and should be made to minimise frictions and maintain public confidence in the systems supporting cancer research funding and ongoing treatment improvement. A key goal of this analysis is to identify ways in which this end can most effectively be pursued.

Cancer as a Health Care Priority

Cancers are for the British population as a whole the most highly feared disease group, even though adults aged over 65 say that they fear dementia more (Incisive Health, 2018; Vrinten, 2018). Yet fearing cancer more than other diseases does not necessarily mean that people wish to prioritise developing new ways of preventing or treating it more than they want better treatments for other causes of sickness and death. This survey therefore asked respondents the question *'if a new vaccine or drug could protect you and your family members from one of the following (selected sets of) illnesses throughout life, which group of illnesses would you want it to be for?'*

Figure 1: Disease groups from which the public most want protection for themselves and their family members

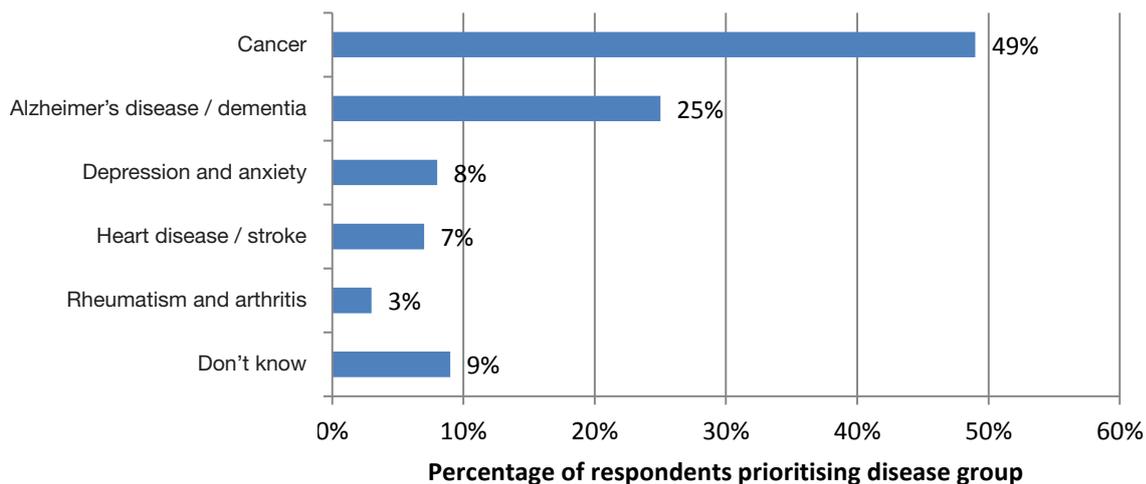


Figure 2: Attitudes towards wanting cancer and dementia protection by age

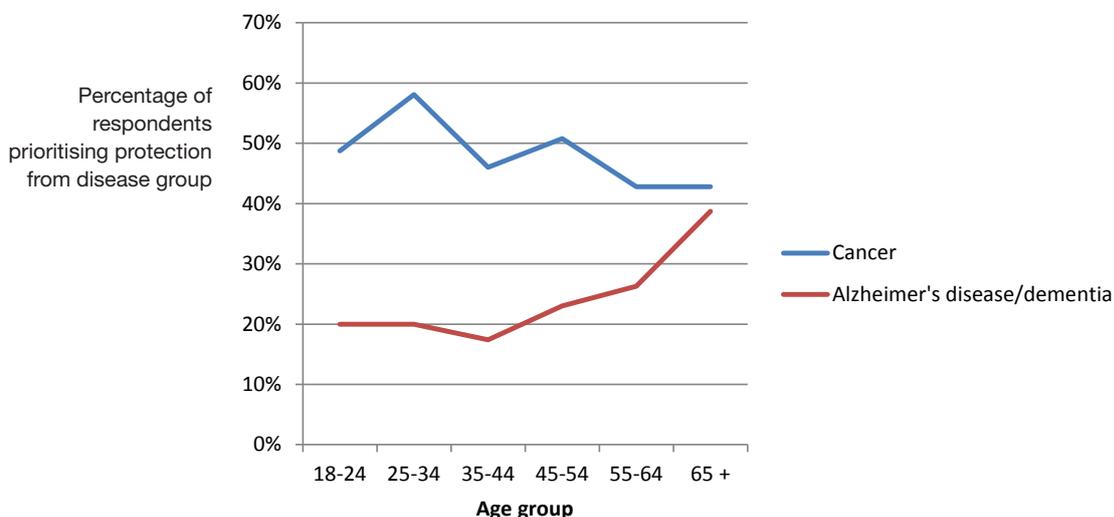


Figure 1 shows that a half (49 per cent) of all respondents indicated that gaining protection from cancers is their highest priority for themselves and their families. This was true, for instance, for 52 per cent of the population aged 18-24 years and 57 per cent of 25-34 year olds, compared with 43 per cent those aged 65 years and over. By contrast, just 18 per cent of the population aged under 25 said that they would most want protection from dementias such as Alzheimer's disease for themselves and their family members, compared with 37 per cent of the 65 years plus cohort – see Figure 2. The priority respondents gave to developing better means of protecting against vascular diseases, anxiety and depression and rheumatic disorders was significantly lower, perhaps in part because relatively effective therapies already exist for these indications.

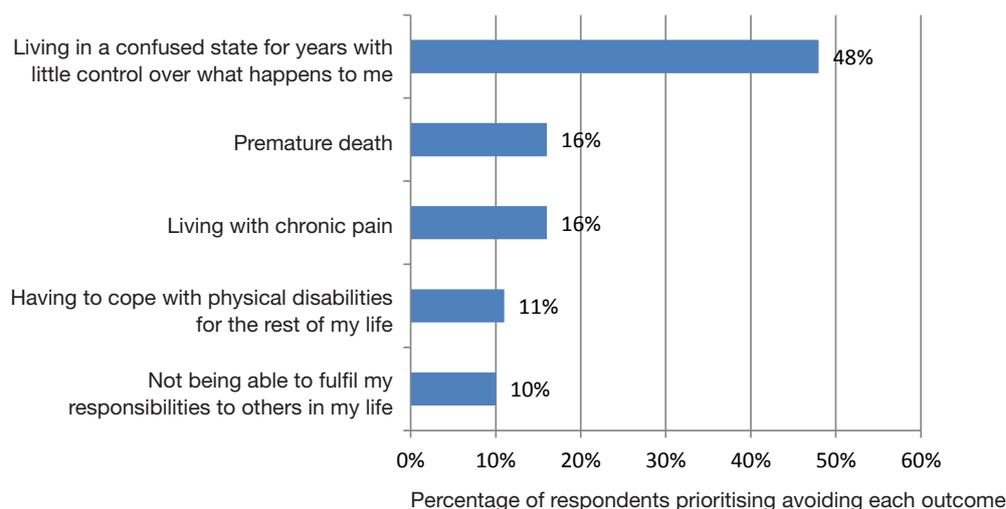
However, people classified as being in 'higher' social grades (A, B and C1) were to a statistically significant degree more likely to identify dementia as the disease group that they most want protection from, as compared to those categorised as being in classes D and E. Also, 15 per cent of respondents under 25 years said they most want protection for themselves and their families from mental health problems such as anxiety and depression. Only 5

per cent of 55-64 year olds and 4 per cent of people aged 65 and over ranked improving protection against anxiety and depression as their highest priority for themselves and their families.

These findings are likely to reflect the problems that young adults face in establishing secure independent identities and satisfactory ways of earning their living. Improving mental health care is an important goal, as is developing more effective treatments in areas such as heart disease – see Box 1. Yet a main finding of this research is that funding agencies seeking to satisfy public demands for better therapies have good reason to prioritise investment in cancer research and development. It is also relevant to note that the present state of scientific understanding is such that new opportunities for trialling more effective cancer treatment are currently more plentiful than those in fields like dementia, where investing in fundamental research is arguably the central priority.

To help ascertain why respondents prioritised cancer and other conditions in the ways reported they were also asked to indicate which possible consequences of serious disease they personally most want to avoid. Their responses to this question are shown in Figure 3.

Figure 3: Serious disease consequences individuals most want to avoid



Overall, 48 per cent of people in the (weighted representative) sample used in this survey replied that they most strongly wish to avoid *‘living in a confused state with little control over what happens to me’*. Significantly, 31 per cent of 35-44 year olds ranked reducing their risk of suffering this potential disease outcome as their highest priority, compared with 68 per cent of respondents aged over 65. Only 16 per cent of respondents said that the serious disease consequence they most want to avoid is premature death, with – as might be expected, because older people are by definition in less danger of dying early – a negative association with increasing age. This was coupled with a relatively low probability of people identified as being in social groups D and E reporting that they are primarily concerned with avoiding premature mortality as compared to those in classes A and B.

It was also found that 16 per cent of respondents indicated that they most want to avoid living with chronic pain, while just 11 per cent identified *‘having to cope with physical disabilities for the rest of my life’* as the serious disease consequence they most wish to protect themselves against. This response was again negatively correlated with increasing age – older people are significantly less likely than younger individuals to rank avoiding physical disability as their highest priority. Finally, only 10 per cent of respondents identified *‘not being able to fulfil my responsibilities to others*

in my life’ as their primary serious illness related concern. Some 15 per cent of people aged 35-44 gave this response, compared to just 4 per cent of people aged over 65 years.

One factor relating to the interpretation of these data is that many older people do not wish to become a burden on others as they age or to deplete family resources by requiring long term care. This area demands further investigation, but such factors probably encouraged a significant proportion of older respondents to say that they fear living on in a dependent state more than dying. Individuals in middle life are more likely to have young children. In this survey this was to a degree reflected in the fact that they were statistically more likely to express concerns about child cancer related welfare issues than either their younger or older peers.

The need to remain alive in order to fulfil duties to dependent others was likely to be more to the fronts of the minds of middle-aged individuals than was the case with other respondents. Such observations suggest that, regardless of whether or not people explicitly say they are driven by a desire to fulfil their responsibilities to others, a key factor driving many individuals is concern for the wellbeing of those significant in their lives as opposed to their purely personal welfare worries.

Box 1: UK Disease Burdens

In aggregate cancers – amongst which lung cancer is the single largest cause of mortality, resulting in over 30,000 deaths a year out of a grand total of some 600,000 – are the biggest cause of death in Britain for both sexes combined. They are responsible for almost 30 per cent of all registered deaths – see, for example, ONS (2019). Vascular diseases including heart disease and stroke now account for a reduced total of 25 per cent, while dementias including Alzheimer’s disease today cause approaching 15 per cent of all UK deaths. The latter are the largest single cause of mortality amongst women. The only other major group of conditions responsible for deaths on this scale are the chronic lower respiratory diseases such as chronic obstructive pulmonary disease (COPD)

The major causes of disability and chronic illness include the vascular diseases, vision and hearing problems, respiratory disorders, rheumatic diseases and depression. Neurological disorders such as multiple sclerosis and motor-neurone disease are also much feared and important causes of death and disability in younger people, as are conditions like schizophrenia. But their overall incidence and prevalence are relatively low in overall terms. The disease groups mentioned in this survey with regard to the illness groups respondents said they would most like protection from for not only themselves but their families were selected on the basis of the scale of the harm caused at the population level.

At the same time people in later life are more likely to have had experience of adjusting to physical ability losses than younger individuals. The reason why the former group is less likely to prioritise avoiding this disease outcome is probably because its members have been through situations which have taught them how to accommodate disabilities (Advance HTA, 2015). Such observations again imply that people's attitudes to health and the values they award to avoiding or achieving different forms of health outcome are defined by their social situations and their relationships with other people, rather than the absolute characteristics of symptoms such as, say, pain or mobility loss.

These observations raise important questions about the ways economists and policy makers value treatments for conditions like cancer. They are considered further towards the end of this report.

Older people's rights to good quality cancer care

In summary, the findings of this survey suggest that prioritising protection from cancer over other forms of illness is in large part generated by desires not to lose family members who are in early or middle life, or to die before immediate parental care responsibilities have been fulfilled. Following on from this, Figure 4 shows levels of agreement with a series of statements relating to the provision of cancer care to people at different stages of life. The findings presented also relate to the capacity of cancer related innovations to generate hope for the future and to how respondents rank the desirability of investing in prevention as opposed to spending on established disease treatment.

With regard to the statement 'we should spend more on preventing cancer and less on expensive treatments for people with diagnosed cancers' a total of 37 per cent of

respondents agreed, 12 per cent strongly so. Against this, 21 per cent disagreed, 7 per cent strongly. A relatively high total of 47 per cent of those taking part were neutral, in that they either said 'don't know' or that they neither agreed nor disagreed with the statement.

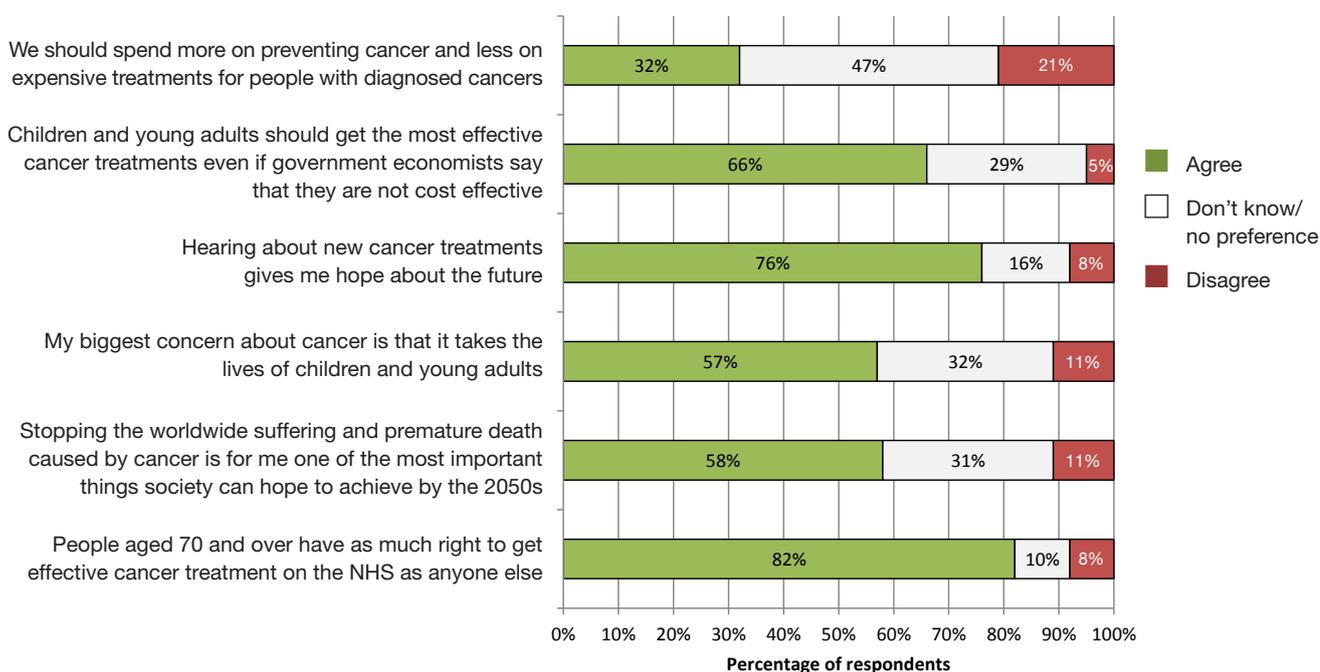
Seen against the findings of the 2018 Incisive Health survey referred to in the introduction of this report (in which only 14 per cent of respondents identified reducing the availability of tobacco, alcohol and sugary foods as one of their three main cancer related service improvement priorities, compared with over 60 percent wanting more early stage cancer testing and better access to the latest treatments) these data indicate only a modest level of support for increasing public health investments intended to reduce the incidence of cancers.

However, there is a danger that such information could, if naively interpreted, distort decision making. People want to be sure of good and effective treatment when they or their families are faced with cancer. Being assured of access to medical care when it is needed can be seen as an urgent priority. But findings reflecting this fact do not necessarily mean that prevention is considered unimportant.

From a political and health policy perspective another factor to bear in mind is that it is rarely if ever possible for an individual to know they have been 'saved' by public health measures. Evidence of the effectiveness of such interventions only exists at population levels. Alongside this, it may also be the case that when asked about cancer many respondents stress the need for assured access to good treatment because they believe that avoiding cancer is something for which they can take direct personal responsibility to the extent that they wish to do so.

Figure 4 in addition shows high levels of support for the statements 'children and young adults should get the most

Figure 4: Attitudes towards prevention, patients' ages and the hope generated by new cancer treatments



effective cancer treatments on the NHS, even if government economists say they are not cost effective' (66 per cent agreed, with older people being statistically more likely to take this view than younger individuals) and 'people aged over 70 have as much right to anti-cancer treatment as younger patients'. In the latter instance 82 per cent of all respondents agreed, the majority strongly. In age specific terms, 95 per cent of respondents over 65 years said they believe they have as much right to anti-cancer treatments as younger individuals, with three quarters of them strongly agreeing.

There was also strong support for the view that hearing about new cancer treatments 'gives me hope' (76 per cent agree) and moderate to strong support for saying 'my biggest concern about cancer is that it takes the lives of children and young adults'. In this instance 57 per cent of respondents agreed, including 53 per cent of those in social classes A and B and 63 per cent of those categorised as being in groups D and E. Likewise, 58 per cent of respondents endorsed the statement 'stopping the world-wide suffering and premature death caused by cancer is for me personally one of the most important things society can hope to achieve by the 2050s'. Backing for this opinion was evenly expressed across age and social groups.

From a statistical standpoint there are strong correlations between positive responses to attitudinal statements such as 'hearing about new cancer treatments gives me hope' and believing that stopping the world-wide suffering caused by cancer is an important societal goal. Respondents saying that children and young adults should be able to receive optimally effective cancer treatments 'on the NHS' even when government funded health economists say are not cost effective also have a significantly raised propensity to favour public as opposed to private funding for cancer research. This is likely to reflect a widespread view in Britain that important health linked activities ought to be

government backed, coupled with a (non-evidence based) supposition that more public funding of research will make cancer treatments less expensive.

Those stressing the rights of older people to NHS cancer care of the same quality as that available to younger individuals are, however, less likely to take this view. This may be linked to the fact that older people are more inclined to agree with statements like 'I support patent protection for new anticancer medicines because it is vital for generating private industry research and development funding' than their younger contemporaries. Overall, those who most strongly believe that people of all ages should have good access to cancer treatment provided by the NHS are – in the British social context – also likely to think that health care should remain tax funded, and to say that NHS professionals like doctors and nurses need more resources to provide excellent cancer care.

Past research has found a relatively low level of British public awareness – as compared to that observed in countries like Australia, Canada, Sweden and Denmark – that the risk of developing cancer is strongly linked to age (Forbes et al, 2012). Given the association between concerns about cancer as a threat to children and young adults and the perceived need to prioritise cancer research this might lead to fears that, as cancer deaths in older people increase and mortality in the rest of the population falls (see Figure 5), political support for improving the quality of NHS cancer care will decline. However, the strength of public belief in the entitlement of people aged over 70 years to cancer care comparable to that available to younger people suggests that pressure for 'world-class' treatment standards will be maintained. Increasing awareness of the societal as well as individual benefits of healthy ageing could also make it politically difficult to resist calls for increased investment in providing better cancer care for older people.

Figure 5: Cancer Mortality Trends by Age, UK 1971/73 to 2014/16

Source: Cancer Research UK and Shelton (2019)

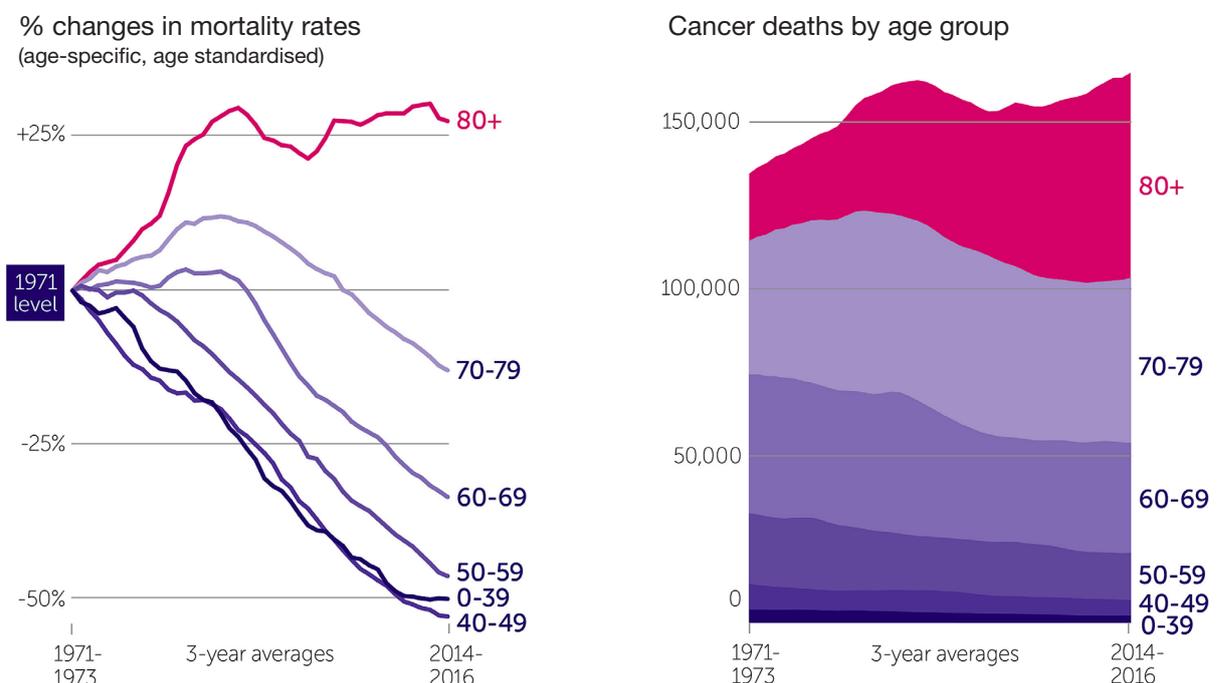
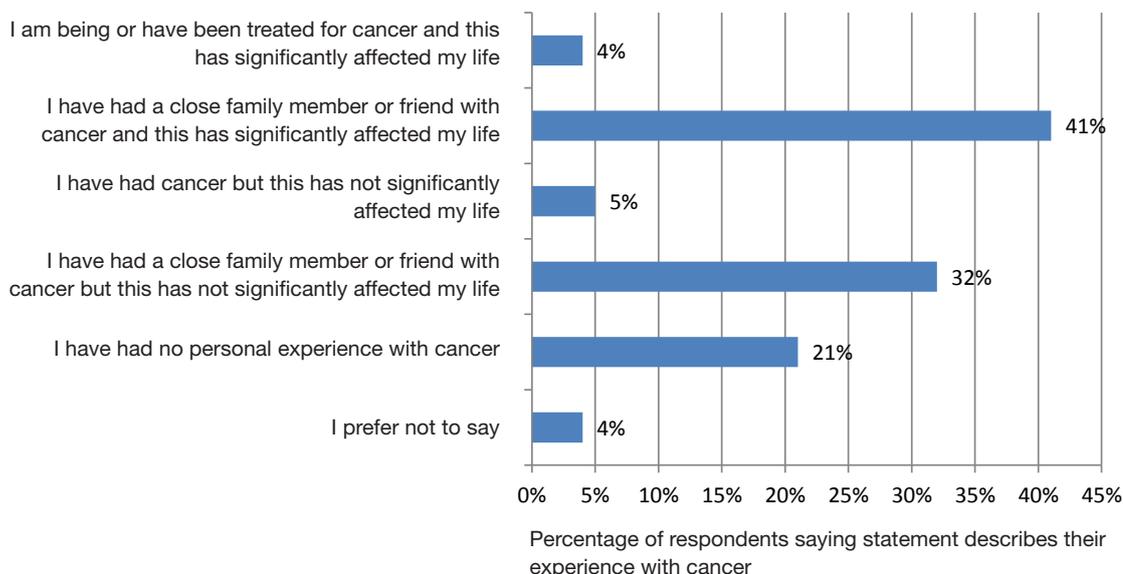


Figure 6: Respondents' relationships with cancer



Personal Experiences of Cancer and Beliefs about Cancer Care and Research

After respondents had identified the disease group from which they most want protection for themselves and their families they were asked about their personal experiences of cancer, their expectations of NHS cancer treatment and their beliefs about the future benefits of cancer research. In total, 7 in 10 (69 per cent) said that they have or have had a close relative or friend who has had cancer. As Figure 6 indicates, over half these individuals said that this had significantly affected their lives. Women are statistically more likely than men to report that having had a relative or friend with cancer or experiencing it themselves has significantly affected their lives.

Only 2 in 10 (21 per cent) of respondents reported having no personal experience of cancer. As might be expected, people aged under 35 years are twice as likely to say this as those aged 65 and over. Another one in 10 (9 per cent) said that they have had or are currently being treated for cancer. This proportion increases with age. Only 1 per cent of those aged

under 25 reported having had or living with cancer themselves compared with 12 per cent of 55-64 year olds and 19 per cent of respondents aged 65 and above – see Figure 7.

These data underline the scale of cancer related ill-health in modern Britain and the size of the burdens likely to be carried by not only cancer survivors but those who have lost relatives or others close to them. Over and above the number of deaths caused every year, approaching half the UK population has had a life changing cancer experience. Further research is needed to fully describe the relationships between factors such as the ages at which people lose people close to them because of cancer and the volume and nature of the long term distress caused. More research is also needed to adequately answer questions about the extent to which enhanced psychological and social support can protect either those living with cancer or individuals who have lost someone because of cancer from avoidable suffering.

NHS cancer care perceptions

About a third of the sample population (34 per cent) reported they are confident that if they or a member of

Figure 7: Ages of respondents saying they personally have or have had cancer

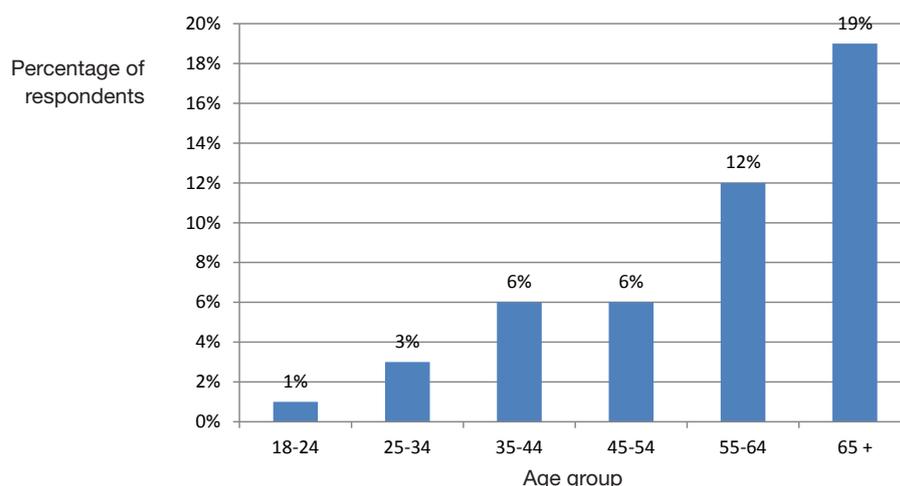
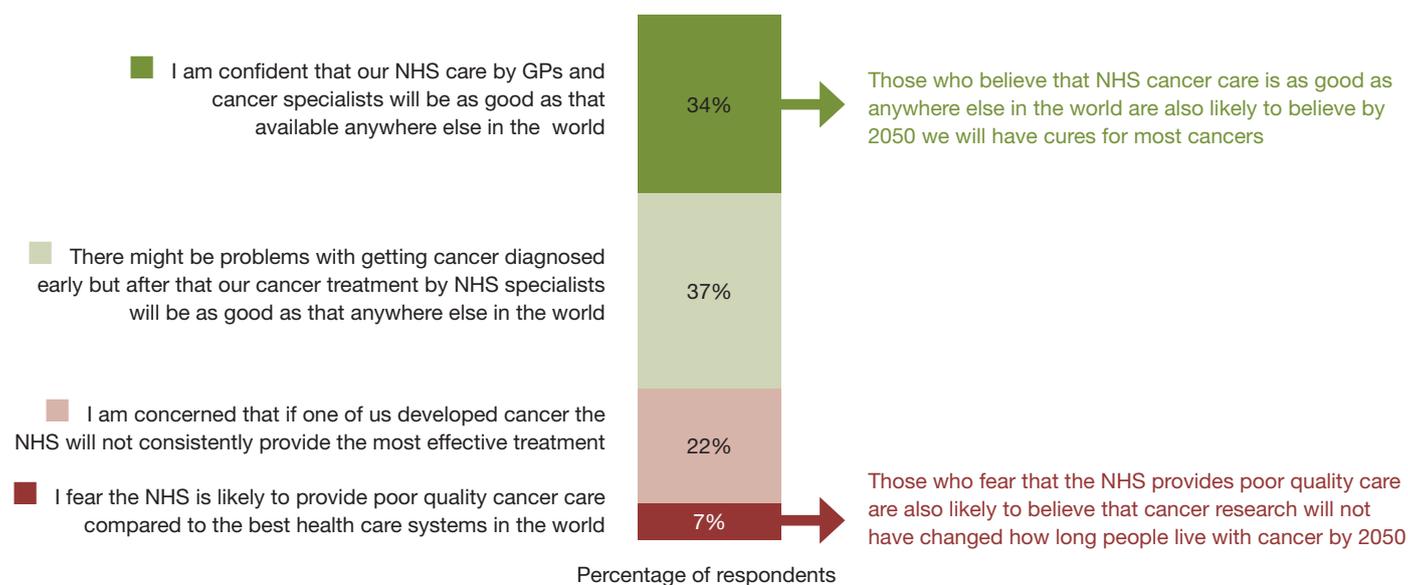


Figure 8: Perceptions of NHS Cancer Care Quality for Respondents and their Family Members



their family were to develop cancer in the coming year the NHS care offered to them by their GPs and specialist professionals would be as good as that available anywhere else in the world. There was a tendency for this response to be negatively associated with social class (in that people categorised as being in groups D and E were more likely to agree than class A and B respondents) and for older individuals to be less likely to believe that NHS cancer care is the best in the world than younger respondents. People in Scotland and Wales may also be marginally more likely to say they are confident about the relative quality of NHS cancer care than is the case with their English and Northern Irish counterparts, as are men as compared to women.

Figure 8 shows that another third or so of the sample population (37 per cent) said that *'there might be problems with getting cancer diagnosed early, but after that our cancer treatment by NHS specialists will be as good as that available anywhere else in the world.'* A greater proportion of people characterised as being in social groups A and B (40 per cent) said this as compared with those in groups D and E (34 per cent). This difference is statistically significant, albeit weakly.

Figure 8 also shows that the final third of the sample population either said that they are concerned the NHS will not consistently provide them or members of their families with the most effective possible treatment if they were to develop a cancer in the coming year (22 per cent, with women and people in middle life being most likely to say this) or that they fear the NHS would provide poor quality care compared to the best in the world.

This last view, which was shared by 7 per cent of respondents, is statistically linked with a pessimistic attitude towards whether cancer research will have changed how long people live with cancer by 2050. By contrast, believing that NHS care is as good as that available anywhere else is associated with believing that *'we will have cures for most cancers by 2050'*. People of non-white ethnicity are more likely than other members of the British community to either

agree that NHS cancer care ranks with the best in the world or to fear it is of relatively poor quality.

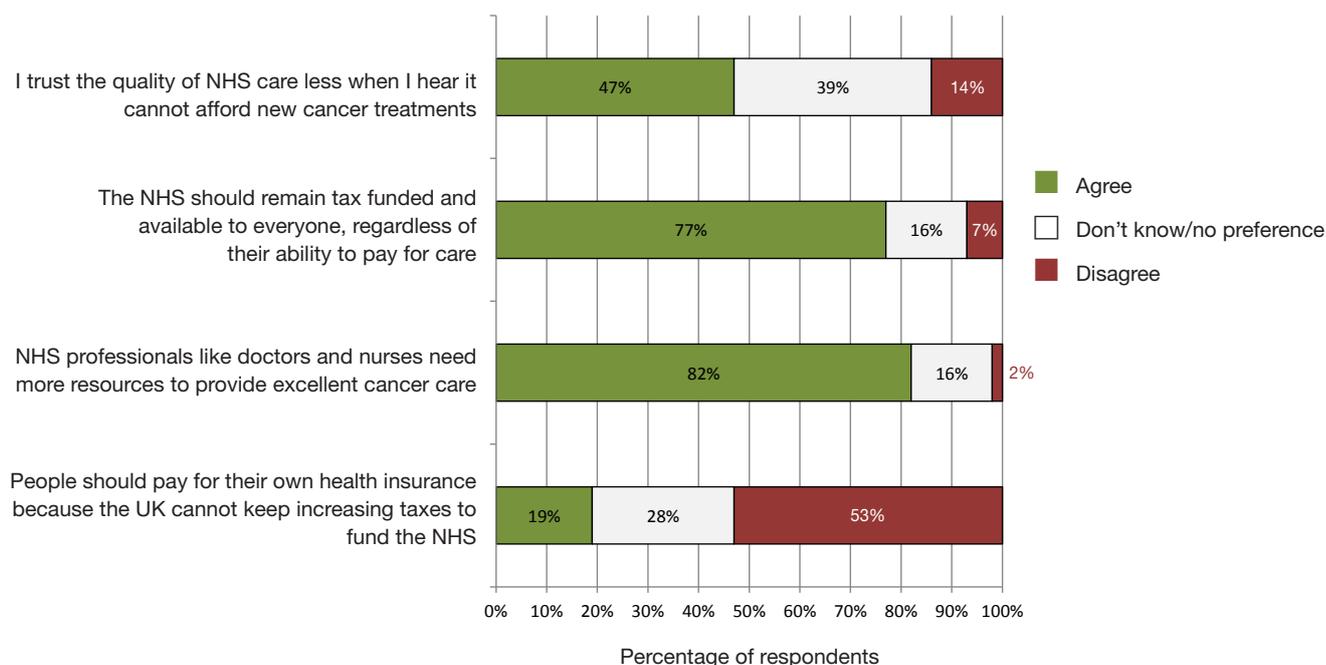
Those wishing to defend the NHS's oncology record might stress that 7 out of 10 members of the public are confident that specialist cancer services are good. But critical observers could conversely point out that 3 in 10 health service users overtly question the overall quality of NHS cancer care and that of the remainder a majority are likely to have concerns about the ability of the health service to assure the timely diagnosis of cancer via GP or other primary care services.

The available data indicate that cancer mortality in the UK is of a broadly similar overall level of magnitude to that experienced in other wealthy countries – see, for instance, Hashim et al (2016) and Bray et al (2018). In the case of breast cancer outcomes have improved significantly since the 1990s (Shelton, 2019). Nevertheless, Britain has in several key cancer fields consistently reported lower survival rates than those achieved in leading nations like, say, Sweden and Australia (Allemani et al, 2018; Richards et al, 2018) and has to date reported notably poor lung cancer survival figures. The precise extent of the performance shortfalls that exist is open to some question. But the view offered here¹ is that they exist and that both diagnostic and treatment access delays have roles in causing them.

Figure 9 describes additional UCL Cancer Policy Project survey findings relating to the funding of the NHS and the perceived quality of the cancer treatment and care it provides. Nearly 8 out of 10 (77 per cent) of those taking part agreed that *'the NHS should remain tax funded and available equally to everyone, regardless of their ability to pay for care.'* Half strongly agreed with this statement and less than 1 in 10 (7 per cent) expressed any disagreement. Support for the concept of a publicly funded universal health care system is strong amongst all social classes and amongst both men and women, albeit it is now rather

¹ Developed on the basis of literature reviews and over 20 qualitative research interviews undertaken with cancer specialists.

Figure 9: Attitudes Towards NHS Funding and Allied Issues



weaker amongst individuals aged below 40 years than it is amongst those aged over 50.

This last observation might to a degree reflect age associated differences in the extent to which people perceive themselves to be net contributors to the NHS, as opposed to its beneficiaries. Even so, 71 per cent of all 18-24 year olds accepted that the health service should remain tax funded, along with 85 per cent of all respondents aged 65 and over.

In line with the 2018 Incisive Health survey conducted by Populus, 8 in 10 (82 per cent) of all respondents agreed that 'NHS professionals like doctors and nurses need more resources to provide excellent cancer care'. At the same time only 19 per cent of the sample population concurred with the statement 'people should pay for their own health insurance because the UK cannot keep increasing taxes to fund the NHS'. Over 3 in 10 (34 per cent) strongly disagreed with this, compared with just 4 per cent who strongly agreed.

In overall terms respondents aged 25-34 years were most likely to say that people should pay for their own health insurance, with 27 per cent of those in this age group expressing agreement. Those supporting the view that people should pay for their own health insurance were also statistically more likely than the rest of the population to say that 'President Trump is right to warn against the dangers of vaccinating children'² – see below.

At an intermediate level of support, almost a half (47 per cent) of those surveyed said that they 'trust the quality of

NHS care less when I hear that it cannot afford new cancer treatments.' There is a strong correlation between this and thinking that NHS professionals need more resources to treat cancer well, and with believing that 'the NHS should pay as much for new cancer medicines as is paid in other leading countries like France and Germany'.

The significance of these observations and that of the relationship between concerns about childhood vaccination and believing that the UK 'cannot keep increasing taxes to fund the NHS' is discussed in later sections of this survey report. But a final point to add here is that that while individuals with direct experience of being treated for cancer tend to have relatively high confidence in NHS cancer treatment, those reporting that they have had close friends or family members with cancer are more critical.

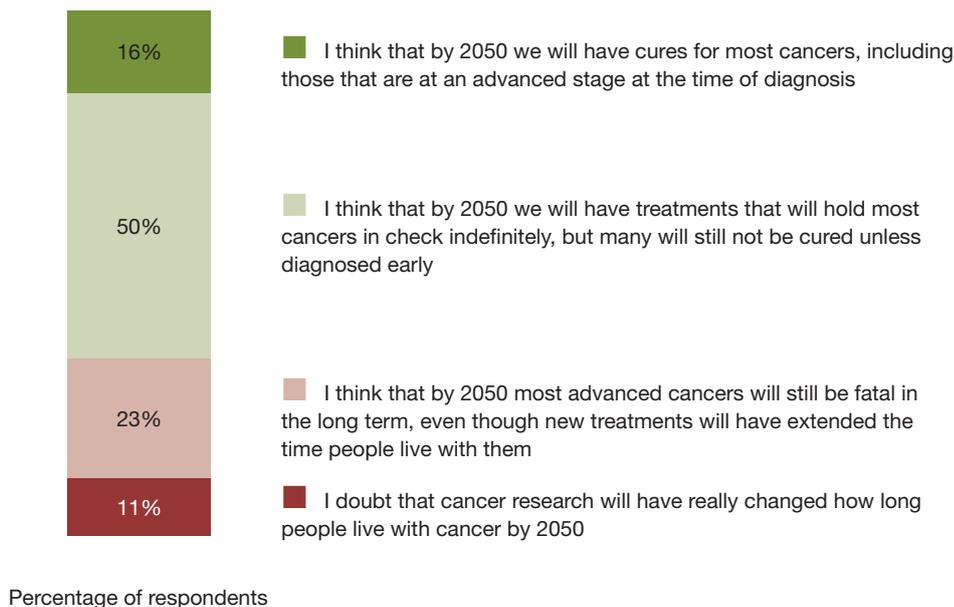
The reasons for this are not certain. Biasing factors could include the fact that people who have died from their cancers or are severely ill are unable to contribute to surveys such as this, and that those being treated may for psychological and other reasons not wish to call into question the quality of their current care. One future way forward might be to conduct more in-depth confidential inquiries into areas such as NHS user experiences of obtaining diagnoses of cancer or conditions initially suspected of being cancer. Such research might desirably include investigations of individuals' use of privately paid for diagnostic and treatment services and the reasons why expenditures on non-NHS cancer care are incurred.

Research expectations – does the public believe cancer will be curable by 2050?

Figure 10 describes respondents' views on the likely outcomes of cancer research in the period to 2050. Some 16 per cent indicated that they believe that by that time 'we

² This survey was undertaken early in April 2019, before President Trump revised his comments on measles and other forms of childhood vaccination and recommended that children should be immunised. Distrust of government is a factor linking confidence in vaccination schedules and a number of other variables related to the perceived desirability and efficiency of organisations such as the NHS in both the US and the UK.

Figure 10: Respondents' beliefs about progress in cancer treatment by 2050



will have cures for most cancers, including those that are an advanced stage at the time of diagnosis.’ Men appear more likely to take this view than women, while individuals in social grades A and B are less likely to agree with it than members of other social groups.

By contrast, half (50 per cent) of the total population thought that ‘by 2050 we will have treatments that hold most cancers in check indefinitely, but many will not be curable unless diagnosed early.’ Figure 10 also shows that the remainder of the population is more pessimistic. They either believe that despite increased survival periods most advanced cancers will ultimately prove fatal (23 per cent), or that cancer research and the new medicinal and other therapies developed in the coming three decades will not significantly extend cancer survival durations (11 per cent).

Looking at these findings in more detail, almost 2 in 10 (17 per cent) of respondents aged 35-44 years said they believe that cancer research will have failed to significantly improve longevity outcomes by 2050. Yet the population as a whole is optimistic about the medium to long term results of cancer research and its capacity to generate more effective treatments. This is in line with other opinion surveys, including research commissioned by the New Scientist (Lawton, 2018).

Some health professionals fear that the population as a whole is being encouraged to have an over-hopeful view of cancer research and its capacity to generate effective treatments. If true the possible consequences of this might range from reducing interest in prevention to causing living with cancer to demand or buy out-of-pocket treatments that are not beneficial. This is another area in which more research could usefully be conducted. But the findings presented here arguably indicate a relatively balanced, perhaps conservative, general pattern of British public attitudes. The challenge for the future is to build further

political and community awareness of the potential for cancer research conducted in both the private and public sectors to return value to the communities that fund it, and if and when possible to identify enhanced ways of incentivising investments in efficient forms of research and developed consistent with public interests in ‘overcoming cancer’ (Gill et al, 2015).

Paying for Cancer Research and Treatments

Health care costs are often controversial. The prices of cancer treatments can be a particular focus of concern. To a degree this is to be expected in an area where intellectual property owners, who from a long term public interest perspective are granted temporary monopolies to incentivise them to invest in additional research and development, are selling to (often monopsonistic³) health care purchasers. The latter often seek to minimise costs in order to obtain the best immediate value they can for the money they spend on goods like, say, innovative medicines and radiography machines.

The situation regarding cancer treatment prices can also be complicated by the fact that relatively high research and clinical trial costs are likely to be accompanied by low product sales volumes. Fears that the resulting unit price levels could mean, even in countries with universal health care systems, that people living with cancer will not get equitable access to therapies are commonplace. In fact, NHS anti-cancer (and other) treatment costs are extensively regulated – see Box 2. Yet as the findings reported here show there is widespread uncertainty as to the affordability of new cancer treatments.

³ Monopsonies are the opposite of monopolies. They occur when a single purchaser is buying from a range of competing sellers.

Figure 11: Attitudes towards NHS payment for anti-cancer medicines

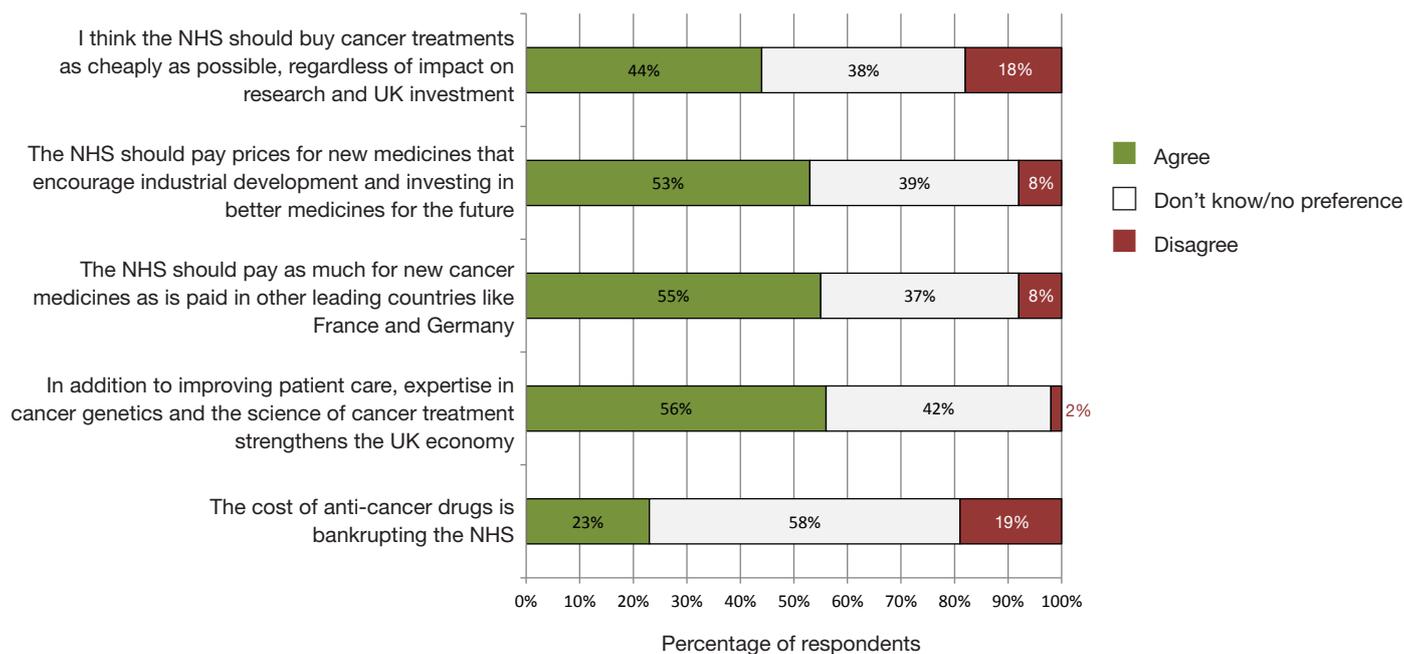


Figure 11 shows that 44 per cent of respondents agreed with the statement ‘I think the NHS should buy anti-cancer treatments as cheaply as possible, regardless of impacts on research and UK investment.’ Men are significantly more likely to believe this than women (49 per cent compared with 40 per cent), as are people categorised as being in social classes D and E as opposed to those graded AB (41 per cent versus 48 per cent). A strong age gradient also exists. Just a third of respondents aged under 25 agreed with this statement compared with over a half (55 per cent) of those aged 65 plus. It is also of note that 38 per cent of all respondents either said that they did not know about or had no preference with respect to this statement. This points to relatively high levels of uncertainty.

There was a higher level of acceptance of the contrasting statement ‘the NHS should pay prices for new medicines that encourage industrial development and investing

in better medicines for the future’. Fifty three per cent of respondents agreed, including – significantly – 59 per cent of those in social classes A and B. Similar majorities agreed or strongly agreed with the statements ‘the NHS should pay as much for new cancer medicines as is paid in other leading countries like France and Germany’ and ‘in addition to improving patient care, expertise in cancer genetics and the science of cancer treatment strengthens the UK economy’. Men were more likely to indicate support for this last view than women.

Those who agree that the NHS should purchase anti-cancer treatments as cheaply as possible, whatever the investment and research consequences, were also more likely to say that young people should get access to effective anti-cancer treatments via the NHS, regardless of cost effectiveness concerns. By contrast, those most likely to believe that expertise in areas like cancer genetics

Box 2: The costs of NHS medicines

Britain is a relative modest spender on health care in international terms (the NHS accounts for about 8 per cent of UK GDP) and unusual in that with regard to health related social care a very high proportion of the resources employed are derived from user payments rather than the public purse. The overall cost of pharmaceutical and related items is now controlled by a scheme known as the Voluntary Scheme for Branded Medicines Pricing and Access (VPAS) which helps regulate spending in areas such as promotion and research and imposes an overall cap on the total NHS costs incurred, whatever the overall volume of medicines used. In addition, local purchasers and organisations like NICE, the Medicines and Healthcare Products Regulatory Agency and NHS England (together with related bodies elsewhere in the UK) exercise various controls over pharmaceutical prices, usage and costs.

The result is that the overall proportion of NHS spending allocated to medicines and allied products is currently around 11-12 per cent (Doyle-Price, 2017; Bareham, 2017, 2019; Watson, 2018). This proportion has, despite fluctuations, been in the same order since the 1970s. In practice UK medicine prices are amongst the lowest paid in the major pharmaceutical producing nations.

Discounting and other variables make it difficult to precisely calculate total spending on anti-cancer treatments. But they are likely to account for around 15 per cent of total NHS pharmaceutical outlays, or something over £2 billion a year. This sum (which is in the order of 0.1-0.15 per cent of GDP) represents around a fifth of total cancer service costs, which are themselves in the order of 7 per cent of all NHS outlays. Such sums are considerable but not so great that they represent an unsustainable burden.

strengthens the economy and that the NHS should pay as much for innovative anti-cancer treatments as is paid in France and Germany tended to be more supportive of pharmaceutical patenting as a mechanism for research funding, and to report that news of innovative cancer treatments gives them hope for the future.

The reasons why people agree or disagree with statements of the type used in this survey vary between individuals and groups. People are not always consistent or correctly informed in their views, and their responses should not necessarily be taken at face value. For instance, some of those who believe that *'the NHS should pay as much for new cancer medicines as is paid in other leading countries like France and Germany'* may think (incorrectly) that medicine prices are lower in such nations than they are in the UK. Others who agreed with this statement were indicating that they believe Britain should be prepared to spend more than it presently does on cancer treatments.

However, a robust general conclusion to draw is that more financially and socially advantaged individuals tend to be relatively supportive of paying for private sector pharmaceutical research via patenting (see below), as are older members of the population. Those who are less fortunately placed and who fear that NHS treatment access limitations are harming groups such as children and young adults with cancer are more likely to say that anti-cancer medicine prices should be minimised, regardless of concerns about research and industrial investment.

This interpretation is supported by responses to the statement *'the cost of anti-cancer drugs is bankrupting the NHS.'* Figure 11 shows that about 2 in every 10 people in the survey population agreed with this view (23 per cent, of

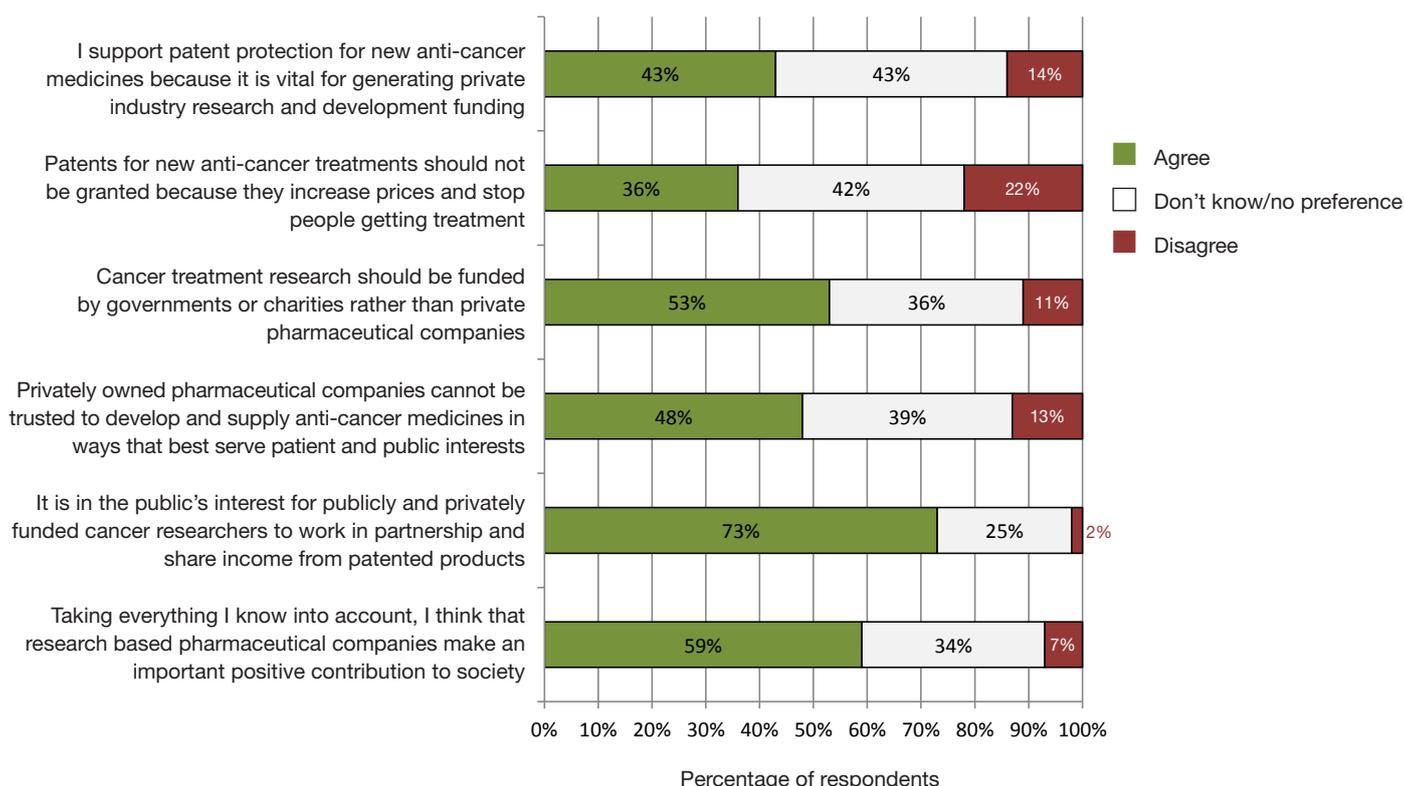
whom a quarter agreed strongly). These individuals were also significantly more likely to think that the NHS should purchase new anticancer medicines as cheaply as possible and to say that NHS cancer care will improve after Brexit. Those in this group are also more likely than expected to say that President Trump has been right to warn about the dangers of childhood vaccination (see below). Believing that the cost of anti-cancer drugs is bankrupting the NHS is in addition significantly associated with the view that people should buy their own health insurance because *'the UK cannot keep increasing taxes to fund the NHS'*.

By contrast, another 2 in 10 of the respondent population disagreed with the statement *'the cost of anti-cancer drugs is bankrupting the NHS'* (19 per cent, of whom half disagreed strongly). In addition, an exceptionally high 6 in 10 said that they neither agreed nor disagreed, or that they did not know. These data might be taken as evidence that there is a need for more public information about the affordability of NHS medicines and services for conditions like cancer. However, even if this is true, the reality is that public opinions on such complex and difficult to understand issues may always be determined more by assumption and emotion than by factual analysis.

Attitudes towards Pharmaceutical Patenting

Figure 12 presents data on attitudes towards pharmaceutical patenting as a mechanism for funding pharmaceutical research and the perceived trustworthiness and value to society of pharmaceutical companies as agencies responsible for biomedical innovation. With regard to patenting, 43 per cent of those questioned agreed with the

Figure 12: Attitudes towards pharmaceutical patents and the pharmaceutical industry



statement *'I support patent protection for new anti-cancer medicines because it is vital for generating private industry research and development funding'*. Against this, 14 per cent disagreed and another 43 per cent said that either they did not know or neither agreed nor disagreed. People aged over 55 are significantly more likely to support patent protection for new anti-cancer medicines than those in their 20s and 30s. So too are people in social classes A and B as compared with other sections of the community.

The contrasting statement *'patents for new anti-cancer drugs should not be granted because they increase prices and stop people getting treatment'* was accepted by 36 per cent of respondents and rejected by 22 per cent. In this case there was a significant negative correlation with age. Just over 4 in 10 people aged under 35 years agreed, compared to under 3 in 10 in the 65 plus age group. Taken together these findings are indicative of widespread uncertainty, but with the balance of opinion favouring the granting of patents to facilitate investment in innovation in areas such as oncology.

About 1 person in every 10 either strongly agreed or disagreed with each of the two statements above. A limited proportion of those expressing opposition to patenting are likely to be primarily driven by concerns about cancer care access in developing countries. Yet the evidence provided by this and other surveys indicates that the great majority of British people who disagree with pharmaceutical patenting are motivated by perceived problems with domestic (NHS) access to cancer therapies. In as much as they see direct or indirect foreign aid as a drain on the resources that would otherwise be available to people in this country many are opposed to it.

Respondents were also asked for their reactions to the statements *'cancer treatment research should be funded by governments or charities rather than by private pharmaceutical companies'* and *'privately owned pharmaceutical companies cannot be trusted to develop and supply anticancer medicines in ways that best serve patient and public interests'*. Both these statements received higher levels of support than either of those directly related to patenting, in part because of modest reductions in the proportions of *'don't knows'*.

Fifty three per cent of respondents agreed about the desirability of cancer research funding by governments and charities (as opposed to 11 per cent disagreeing), while 48 per cent agreed with the statement on the limited trustworthiness of pharmaceutical companies as research institutions. In this last context 13 per cent disagreed and a further 38 per cent of the population either expressed no preference or said that they did not know.

For some observers these findings could be a cause for serious concern. Yet the strength of the signals reported here is limited and it should not be assumed that because many people in Britain believe that government and charities ought to play a leading role in cancer research this means that pharmaceutical industry and other private sector

contributions are not valued. Any organisation associated with selling for profit is likely to be viewed with some suspicion in the health sector. For instance, community pharmacists are not as well trusted as GPs because of their perceived commercialism, albeit members of the medical profession also receive payments for the care they provide (Pharmaceutical Journal, 2015). Seen from this perspective the key point to draw is that there is a perceived need for appropriate regulation across the pharmaceutical sector.

The strong levels of agreement expressed in relation to the statements *'it is in the public's interests for publicly and privately funded cancer researchers to work in partnership and share income from patented products'* and *'taking everything I know into account I think that research based pharmaceutical companies make an important positive contribution to society'* are consistent with this perspective.

As Figure 12 also shows, 73 per cent of respondents support the research partnership approach. At the same time 6 in 10 people (59 per cent) say they believe that pharmaceutical companies make an important contribution to society. Older individuals and members of social groups A and B were most likely to express support. While only half the population aged under 35 say that research based pharmaceutical companies make an important positive contribution to society, this view is taken by 61 per cent of those aged 45-64 years and 71 per cent of people who are 65 and over. Likewise 65 per cent of people in the A and B grades agree, compared with 54 per cent in the D and E groups.

There are significant correlations between supporting patent protection for innovative anti-cancer medicines in order to incentivise further research and development and believing pharmaceutical companies make an important positive contribution to society. This is also so in relation to saying that the NHS should pay prices that encourage industrial development and research investment. Conversely, people who do not believe patents should be granted because they raise the prices of anti-cancer therapies are more likely to say they do not to trust pharmaceutical companies to develop new treatments in ways that coincide with the public's best interests.

This is a logical pattern. But understanding the fundamental causes of such attitudinal variations would require further more detailed qualitative and quantitative research. Past life experiences of health related critical events coupled with educational variations and differences in emotional responses, personality structures, cognitive processes and ethical values are all likely to be involved, along with wider cultural and environmentally related factors.

Cancer Policy Implications

One of the important themes to emerge from the findings outlined in this UCL Cancer Policy Project report relates to the ways that the affordability of innovative cancer treatments is evaluated. It was noted earlier that whereas a half of all respondents said that gaining protection from

cancer for them and their families was their highest priority goal in relation to the question asked, the serious disease consequence that they most wanted to avoid is *'living in a confused state with little control over what happens to me'*. This apparent disparity is likely to relate to a desire on the part of many people not to become a burden to others as they age, coupled with a strong wish to protect the lives of younger relatives such as children and grandchildren who might develop cancers.

It is evident that people do not always put their own survival or immediate wellbeing first when considering health care options and what they want for themselves and others in their lives. This observation is not new but is worth highlighting because it opens up important questions about the ways in which advances in areas such as cancer care are evaluated and how health service purchasing and investment decisions made.

In the UK and many other settings health economics led analyses typically focus on quantifying changes in a limited set of personal level health outcomes, independent of the contexts in which people exist and their wider values and concerns. But individual and societal preferences are in fact based on much more complex assessments of wellbeing options and opportunities available for future benefits.

Findings such as those relating to the part that innovative cancer therapies can, for instance, play in generating hope (76 per cent of respondents said that hearing about new cancer treatments gives them hope for the future) provide further evidence that the full benefits of developing better

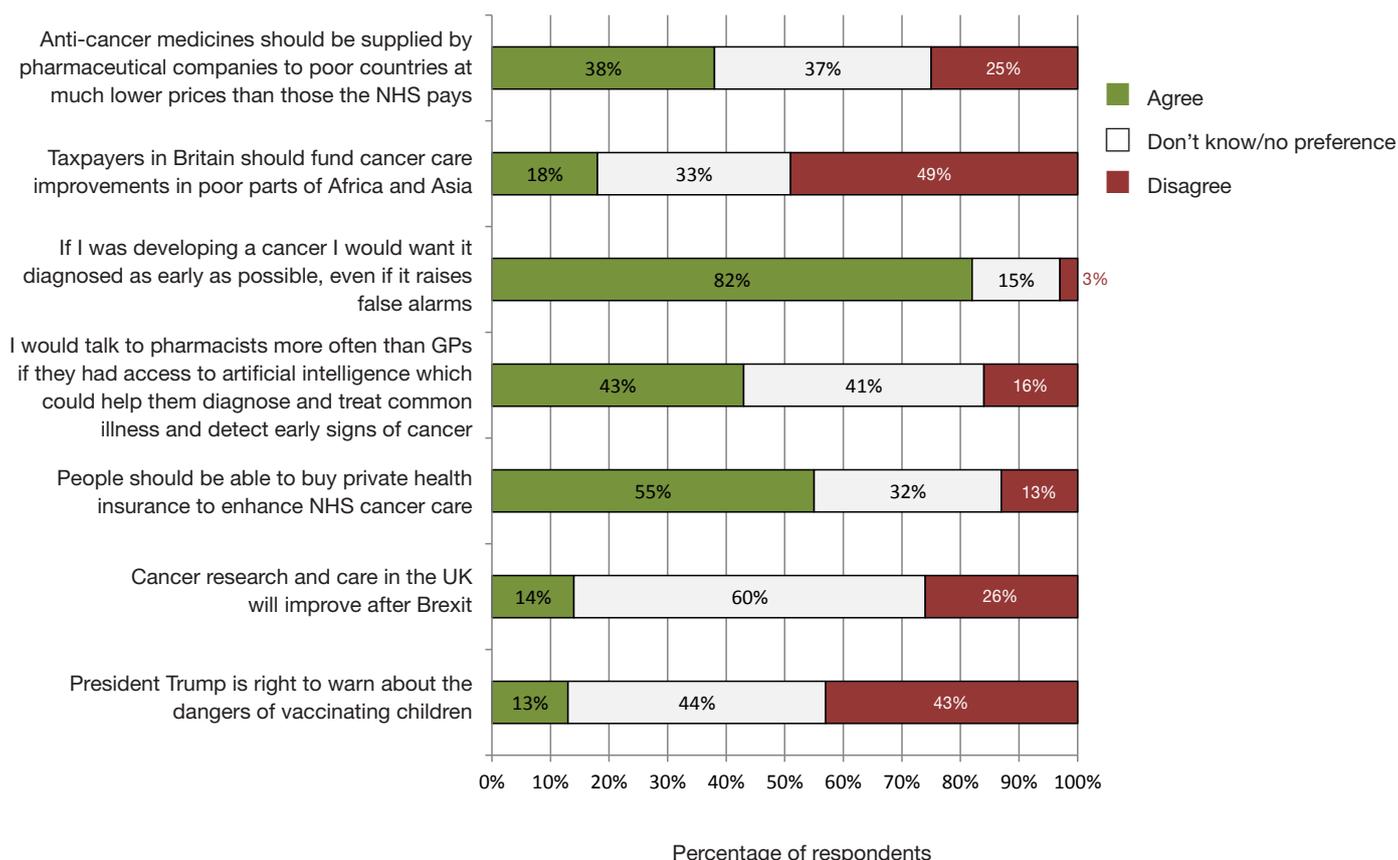
cancer treatments go well beyond the scope of the limited set of variables currently used to calculate measures such as quality adjusted life years (QALYs – see Lakdawalla et al, 2018). The results of this survey support the view that to the extent that the development of individual new products should be seen as a single part of a chain of innovation leading to a highly valued long term goal – in this case curing or being able to effectively control all cancers – pricing decisions should not be made only on the basis of evidence of their immediate capacity to generate narrowly defined health gains.

Improving cancer care in economically less developed countries

Figure 13 displays additional findings relating to attitudes towards cancer research and care linked public policy topics. They include the extent to which countries like the UK should help to fund enhanced cancer care in poorer nations; attitudes towards the early diagnosis of cancer and the parts that community pharmacists along with other primary care professionals might play in delivering enhanced performance in this context; and the impacts that Brexit may in future have on the quality of cancer care in the UK.

In response to the statement *'anti-cancer medicines should be supplied by pharmaceutical companies to poor countries at much lower prices than those the NHS pays'* just over a third (38 per cent) of those surveyed expressed agreement. Of this total 14 per cent said that they strongly agreed. Against this, a quarter of all respondents (25 per cent) said

Figure 13: Attitudes towards selected cancer and health policy issues



that they disagreed. People aged over 55 were twice as likely to disagree with the view that anti-cancer medicines should be supplied to poor communities at much lower prices than those the NHS pays than those aged under 45 years.

Regarding the statement *'taxpayers in Britain should fund cancer care improvements in poor parts of Africa and Asia'* only 18 per cent said that they agree. Half the survey population (49 per cent) disagreed. This was amongst the strongest levels of statement rejection elicited during the survey. About 6 in every 10 individuals aged over 55 years indicated that they disagreed with the UK funding cancer care improvements in less developed societies, compared to 4 in every 10 aged under 45. There was also a significant social bias. Twenty three per cent of people classified as being in groups A and B accepted the policy direction implied in the statement, compared with only 14 per cent in the D and E categories.

People who believe that pharmaceutical companies should supply anticancer medicines at lower than NHS costs in poor countries are also significantly more likely to think that Britain should publicly fund cancer care improvements in less advantaged world regions. There are in addition weak but significant associations between believing that granting patents for anti-cancer treatments is undesirable and wanting both companies and the nation to support cancer care in areas such as sub-Saharan Africa. Those who say this are also more likely than average responders to think that cancer research should be funded by the government and charities rather than the private sector and to distrust pharmaceutical companies.

These data can be taken to show a need for more public understanding of the economics of pharmaceutical and other biomedical product development and supply and the benefits of helping poorer countries face the challenges of demographic transition, part of which is caring for growing numbers of people with cancer. But a warning for pharmaceutical companies and public policy makers seeking to promote more equitable global patterns of cancer care is that there is a danger of alienating a majority of the UK public if their actions are seen as threats to the standards of care enjoyed in this country. This risk is also likely to exist elsewhere in Europe and the US. It is highest amongst older and less advantaged sections of the community who are most likely to fear having their needs neglected relative to other groups in affluent societies.

Support for the early detection of cancer and enhanced community pharmacy based diagnostic services

Strikingly (in that it represents an unusually high level of recorded agreement) 8 in every 10 respondents (82 per cent) agreed with the statement *'if I was developing a cancer I would want it diagnosed as early as possible, even if this risked false alarms'*. Half the total survey population (53 per cent) strongly agreed. Demand for early cancer

diagnosis appears high across all social classes, although it is significantly stronger amongst people aged over 65 (92 per cent) than it is amongst those aged 18-44 (circa 75 per cent). There are also positive correlations between support for early cancer diagnosis and wishing the NHS to be well resourced and publicly funded, and being concerned about cancer as a threat to the lives of children and younger adults.

This finding indicates that NHS policy decisions aimed at improving early cancer diagnosis rates are in line with electoral concerns and preferences, as well as (notwithstanding concerns in some quarters) professional opinion (NHS England, 2019; Danczak, 2018). It is worth recalling that over a third (37 per cent) of those responding to this survey indicated that although they are confident of the standard of specialist NHS care they believe that they might encounter problems with early diagnosis if they or a member of their family were to develop a cancer. Another 29 per cent expressed more extensive concerns about NHS cancer care quality.

Such data arguably reflect public demand for improvements in NHS primary care and the health service's capacities to identify early stage cancer symptoms or raised cancer risks, and provide appropriate diagnostic investigations. Given falling numbers of General Medical Practices and the fact that people are often advised to ask pharmacists for advice about what might or might not be minor health problems, one setting in which enhanced cancer and cancer risk identification could be delivered is community pharmacy.

In response to the statement *'I would talk to pharmacists more often than GPs if they had access to artificial intelligence which could help them diagnose and treat common illness and detect early warning signs of cancer'* 43 per cent of those surveyed expressed agreement. Support for this option is consistent across all social classes. With regard to age, 5 in 10 (51 per cent) of 25 to 34 year olds said that they would consult pharmacists more often than GPs if IT systems could enhance their case finding and clinical judgements. This compares to 4 in every 10 (circa 38 per cent) members of the population aged over 55 years. The policy message here is that, along with the need to maintain the integrity of the GP based NHS primary care network, there is a significant potential for community pharmacy based care to play an extended role in cancer risk and early stage disease detection.

Additional funding?

Earlier sections of this report highlighted the fact that British public backing for the NHS remains robust. Around 8 in every 10 (77 per cent) respondents agreed that the health service should remain tax funded and universally available, while only 2 in 10 (19 per cent) expressed support for the opposing view that *'people should pay for their own health insurance because the UK cannot keep increasing taxes to fund the NHS'*. Yet when challenged with the statement *'people should be able to buy private insurance to enhance their NHS cancer care'* 55 per cent of respondents agreed,

as opposed to 13 per cent disagreeing. Support for this view was statistically linked not only to fears that the current system of NHS funding is becoming unaffordable, but also to believing that hearing about new cancer treatments provides hope for the future.

The main reasons for not wishing to increase private payments for NHS care relate to equity concerns. Yet during the course of qualitative research conducted before this survey was undertaken it was observed by some interviewees that in countries like France and Australia high quality cancer care provision is being supported by combinations of public and private insurance funding. It might therefore be that future British, or perhaps more specifically English, policy makers will wish to research this area in depth. This is particularly likely to be the case if the UK exits the European Union in ways that make it increasingly difficult to maintain the Welfare State model established in the aftermath of World War 2.

Brexit impacts

Towards the end of this survey those taking part were asked to comment on statements about the likely consequences of Brexit for cancer research and care in this country and on the views until recently expressed by President Donald Trump about the possible dangers of childhood vaccination. The rationale underlying this approach in part relates to concerns about the extent to which leaving the European Union could negatively influence UK health provision and research capacities (see, for example, Fahy et al, 2019; Gibney, 2019) and studies linking beliefs about immunisation to issues such as trust in professional and governmental advice (Baumgaertner et al, 2018).

With regard to the statement *'cancer research and care in the UK will improve after Brexit'* 14 per cent of the population expressed agreement. Respondents in and around their 30s were most likely to believe this to be the case. Men were more likely to agree than women, and there was also a statistically significant linear trend showing those with a university education (or who were still in education) to be less likely to think that Brexit will improve cancer research and care than those with only primary and secondary schooling. By contrast 26 per cent disagreed (a majority strongly so) and an exceptionally high 60 per cent said they neither agreed nor disagreed, or that they did not know.

These data confirm that there are very high levels of public uncertainty about Brexit. To the extent that people felt able to express a view almost twice as many indicated they believe it will harm UK cancer research and care than said they think it will prove beneficial. The low level of implied support for Brexit observed in this context compares with, for instance, 6 people in every 10 agreeing with the statement *'stopping the world-wide suffering and premature death caused by cancer is for me personally one of the most important things society can hope to achieve by the 2050s.'*

Returning to the findings reported in Figure 13, just 13 per cent of the survey population agreed that *'President Trump is right to warn about the dangers of vaccinating children.'* Against this, 53 per cent said that they disagreed and a total of 34 per cent reported either that they do not know or that neither agree nor disagree. The highest rates of agreement were amongst 25-44 year olds (20 per cent) and those categorised as being in social classes D and E.

Statistically, those who believe that Brexit will be beneficial for UK cancer care and research are more likely than expected to agree that President Trump was in the past right to warn against immunising children. Other factors significantly linked to this 'belief set' include agreeing with the view that the cost of anticancer drugs is bankrupting the NHS and that more people should buy their own health insurance. Respondents sharing this pattern of thought are also less likely to support the concept of the NHS and are statistically more likely than the population as a whole to oppose the granting of pharmaceutical patents because they raise prices of anti-cancer therapies. However, they are also more likely than expected to accept that the pharmaceutical industry makes important contributions to society.

Discussion and Conclusions

The findings of this survey point unequivocally to the fact that the British public regards reducing the threats to current and future wellbeing caused by cancer as a leading health care priority. People want to see the development of more effective anti-cancer treatments. This conclusion does not rest just on cancer being feared by individuals because of isolated, purely personal, worries and hopes. It is grounded upon what people say they most want for themselves and the protection of their families.

This survey also shows that there are high levels of public confidence in the ability of cancer researchers, where possible working co-operatively and sharing income across public and private sector boundaries, to in the relatively near future deliver treatments that will offer cures or ways of halting the development of cancers for extended, if not unlimited, periods. The complexity of established malignant tumours and their capacity to evolve in ways that allow them to resist treatment has meant that progress in oncology has not been as rapid as many hoped at the start of this century. Nevertheless, there is now good reason to believe that developments taking place in multiple fields will lead to improvements in cancer outcomes (Workman, 2019).

There is also evidence of a growing public understanding of the value of early diagnosis and the desirability of providing good quality cancer care to older people. Despite the fact that the UK's past record in the latter area is in some respects questionable (NCIN, 2014), belief in the NHS and support for it as a tax funded universal health care provider remains strong. But more questioning attitudes may now be emerging. There are already significant levels of concern relating to whether or not the NHS consistently provides

good cancer care. Regardless of Britain's leaving the European Union, the health service will in coming years need to demonstrate its capacity to not only keep costs down to levels that politicians judge affordable but to provide access to anti-cancer (and other) services and treatments that are in line with informed public expectations.

This will involve raised spending in some areas and making challenging decisions regarding paying for not only new anti-cancer medicines and but other forms of diagnostic and therapeutic innovation, including cell based therapies. Relevant questions relate to how the value of new therapies ought to be assessed and their prices set, and to whether or not granting patents and allied forms of intellectual property protection will remain seen as an appropriate way for societies to incentivise private (or public) investment in research in areas such as cancer in Britain and globally.

In areas like these public opinions are much more divided than they are about the fundamental importance of developing better cancer treatments and providing them to those in need. The findings reported here show significant gender and age related differences in attitudes. They also imply that views on topics like the desirability of medicines patenting and aid programmes change dynamically over time, not only with the substitution of one generation by the next but also as individuals age and their early-life hopes and ideals are modified by their changing knowledge and personal vulnerabilities and opportunities.

Such phenomena need more extensive research. But broadly speaking the findings of this UCL School of Pharmacy Cancer Policy Project study indicate that a half to two thirds of the population generally supports the intellectual property law dependent mixed system of private industry and government or charitably supported cancer research and treatment development presently in place. However, this does not mean that in Britain even 'moderates' lack doubts about the desirability of commercially motivations in the health sphere. Those who both trust the NHS and believe that the pharmaceutical industry makes important contributions to society may also think that improvements should be made to existing arrangements, especially when disputes about affordability lead to situations in which seriously ill people are denied access to treatments that can benefit them.

Beyond the middle ground, on what might be described as the political left, there is a more marked distrust of industry and stronger support for an extended State role in biomedical innovation. In the United Kingdom it appears that 15-20 per cent of the population could be placed in this category. Some in this group disapprove of the patenting of anti-cancer and other innovative medical treatments primarily because of its perceived impacts on cancer care and other forms of health provision in poor countries, albeit this survey's findings suggest that such concerns are not as widely held in the British community as some hope or believe.

At the other end of the spectrum there are similar numbers of people who say they favour free markets and distrust government bureaucracies and regulations. They are primarily concerned about meeting health needs in Britain, although this should not be assumed to mean they are without any regard for the wellbeing of people elsewhere. They too may disapprove of pharmaceutical patenting, in this instance because it increases treatment prices. The evidence available also suggests that people in this group tend to think that publicly funded services are inefficient. Such thought patterns can make them less supportive of the NHS than other members of the population and also promote distrust of pharmaceutical companies. This is not because they are privately owned and profit seeking. It is rather because they are seen as large organisations working in unfairly sheltered conditions.

Recommendations

Divisions in public opinion linked to opposing ideologies and varying life experiences are persistent. Regardless of reasoned and fact-based arguments, such attitudes do not easily change. But there are a number of areas in which individuals and institutions seeking to enable mixed systems of publicly and privately funded cancer research and treatment improvement to evolve productively might wish to take action. In summary, the findings described in this report suggest (in addition to the need for more in-depth confidential inquiries into cancer patient and patient carer experiences of NHS treatment and the reasons why private care is purchased in the UK) the following opportunities:

- **Celebrating commonly valued achievements and highlighting mutual interests.** Since the start of the 1990s overall age standardised cancer mortality rates have fallen by over a quarter in countries such as Britain. Over 50 per cent of people diagnosed with cancer this year will survive for at least 10 years as compared to just 25 per cent in the early 1970s (Cancer Research UK, 2019; Shelton, 2019). Figures like these highlight the fact that in cancer the biomedical innovation model is anything but 'broken'. Progress is being made and if investment continues it will in time lead to technologies that will further serve to greatly reduce cancer related disease burdens in this country and, as their dissemination permits, elsewhere in the world. British public opinion may be fractured with regard to what policies will best facilitate the achievement of this goal. But people on all sides appreciate the importance and value of 'overcoming cancer'.
- **Promoting partnership working between private companies and public institutions.** The results of this survey reveal strong public support for collaborative working between publicly funded researchers in Universities and independent research institutes and those located in commercial organisations involved in cancer and other forms of biomedical research and treatment development. This already happens

to a significant degree, as does sharing of income between pharmaceutical companies, charities and other institutions via royalty payments, grants and consultancies. Communicating about this in ways that raise awareness of the positive interdependencies that exist between public and private sectors in modern economies and the extent to which they are promoting both scientific advances and health gains could help strengthen 'middle ground' attitudes. In the UK successful Universities and NHS organisations could, for instance, choose to do more to draw attention to their working relationships with British and international partner companies.

- **Presenting well-argued reasons for supporting a mixed economy approach to financing cancer research and care improvement.** As indicated earlier, the extent to which objective information and intellectual argument alone can influence public opinion and political decision making should not be exaggerated. But this does not excuse failures to contribute to public debate in balanced ways. Developing and effectively communicating the case in favour of respecting intellectual property law as applied to anti-cancer medicines is one example of how stakeholders in cancer research might wish to work together to improve their inputs to public policy formation. Another important area is that of the differences between the British and United States' markets for anti-cancer medicines, albeit it should not be forgotten that in every country trade-offs may have to be made between factors like facilitating innovation and economic growth on the one hand and promoting equity and affordable health care on the other.
- **Explicitly addressing areas of substantive concern, including the need to fundamentally improve 'poor world' cancer prevention, treatment and care.** As the global population moves through the processes of demographic and epidemiological transition the suffering caused by cancers will rise, unless or until new medical technologies and universal access to health care can be provided in the less and least advanced economies. Care will be needed to frame development support policies in ways which attract public support in this country and other more affluent nations. But as the example set by the Gates Foundation can be taken to demonstrate, there are important opportunities for private and public sector organisations to co-ordinate their work in ways that put the interests of people with cancer first, wherever they happen to live.
- **Assuring older people's rights to good quality cancer care.** The analysis offered here indicates that, rather than understating the fact that cancer is increasingly a disease that kills in later life, those seeking to protect public interests should overtly recognise the importance

of better cancer care for people aged 70 and over. At the same time they should also promote awareness of the continuing needs of the minority of children and younger adults unfortunate enough to have their lives threatened by neoplastic illnesses. One area where new initiatives could be taken is that of enhancing the early diagnosis of cancer amongst people of all ages via extended primary care services. This survey's findings suggest that, along with other options, community pharmacies could in future provide new access points to the professionally supported use of AI based programmes capable of identifying cancer risks and facilitating early referrals.

- **Reviewing methods used to assess the value of not only individual advances in cancer therapy but also the biomedical innovation process as a whole.** The results offered here provide reasons to question the adequacy of the approaches currently use to evaluate advances in cancer and other medical treatments. There is a case, for example, for arguing that in Britain there is presently too much emphasis on maximising the narrowly defined cost efficiency of individual treatments as opposed to understanding the long term value of maintaining a dynamic environment that supports therapeutic innovation on an ongoing basis. There is evidence of public support for more effectively linking the funding and development of the life science industries to the provision of high quality health care. Integrated industrial and health strategies could offer the UK better returns than measures which serve not only to limit NHS costs but also, intentionally or not, to depress investment and confidence in British research based enterprise.

Health care providers need to keep within their allocated budgets if they are to avoid major problems. However, the fundamental public purpose of health care and health related industries does not centre on optimising the narrowly defined cost effectiveness of health services, any more than it is a function of the profitability of companies in the health sector. It is rather focused on meeting the complex needs of people at risk of and living with conditions such as cancers as effectively as possible as societies develop and individuals progress through their lives.

It is this conclusion which lies at the heart of the findings presented here. Public attitudes towards cancer and cancer research and treatment linked issues may conflict because of contrasting life experiences, educational differences and variations in factors like emotional responses, personality structures, ethical values and cultural norms. But at the end of the day virtually everyone, everywhere, wants cancer to become effectively curable. The opportunity exists for this goal to be achieved within the foreseeable future, and for Britain – public opinions and political policies permitting – to play an important global part in its delivery.

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