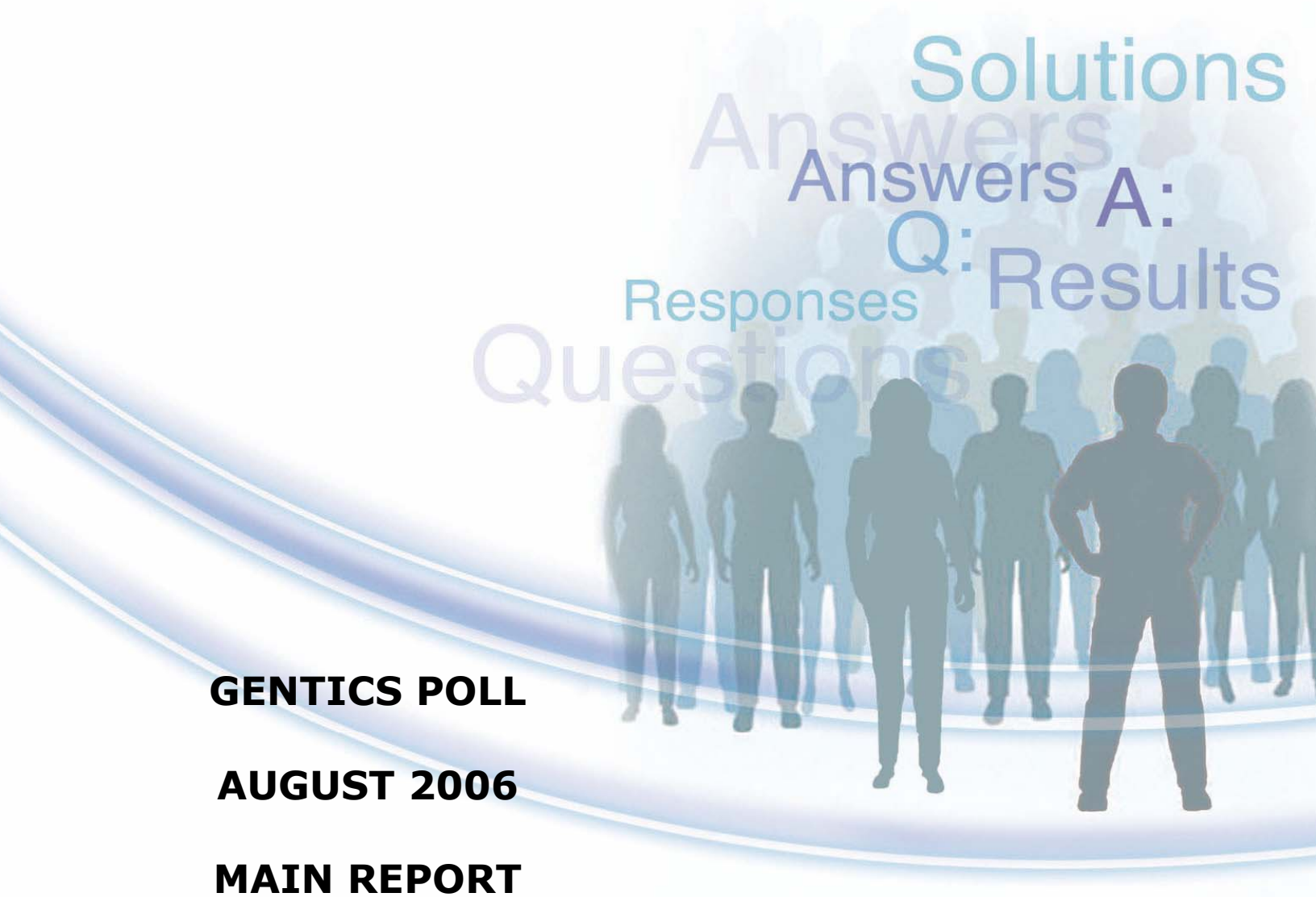
ICM
GOVT & SOCIAL



GENTICS POLL

AUGUST 2006

MAIN REPORT

nowgen
North West Genetics Knowledge Park

About ICM

ICM Research is a full service market research company. The company was formed in 1989 out of Marplan, and having grown year-on-year, would now rank as the eighth biggest market research company in the UK. ICM has a reputation for high profile opinion research, much of which is conducted on behalf of major media organisations and government departments. We are also specialists in the provision of retail, financial, new media, communications and healthcare research.

Until recently, we were the largest independently owned research company in the UK, turning over £25million in 2005-6, but are now part of the Creston Plc marketing services group of companies. The Creston Group revolves around four core marketing services specialist areas:

- Insight Group
- Brand communications division
- Public relations division
- Marketing Communications

The Insight Group incorporates ICM Research and our sister companies, ICM Direct (CATI telephone and online integrated fieldwork) and Fieldwork UK (face-to-face fieldwork). Under many circumstances, Creston is able to offer a multi-dimensional skill set to meet our client's objectives, representing value and synchronised thinking.

ICM's reputation is also built on the provision of telephone research - we provide more telephone fieldwork capacity than any other research agency in the UK. We are the leading supplier of telephone omnibus services, offering a minimum of two surveys per week. Our share of the UK omnibus market currently represents almost 40% of all omnibus work undertaken in the UK.

In summary the ICM Research group is comprised of:

ICM Research is a full service consultancy specialising in both quantitative and qualitative techniques with the emphasis on adding value and meaning to research data. ICM conducts research and consultancy with members of the public, professionals, employers, managers and employees for a wide range of public and private sector organisations using:

- Telephone surveys – omnibus and ad-hoc
- In-home, work and business surveys
- Internet surveys
- On-street surveys
- Longitudinal research
- Focus groups & depth interviews
- Deliberative techniques

ICM direct

ICM's specialist internet and telephone interview facility, with 295 computer-assisted telephone interview (CATI) stations, conducting studies across the UK and Europe using native language speakers.

ICM Direct was established in 1998 to provide specialist telephone research fieldwork and tabulations to the research industry. We have invested heavily in centralised telephone interviewing and offer the one of the best telephone interviewing resources available in Europe.

FieldWork UK

face to face specialists

Fieldwork UK is ICM's national face-to-face field force of more than 1,000 IQCS trained interviewers.

Fieldwork UK provides specialist face-to-face interviewing in the fields of quantitative interviewing and qualitative recruitment. With a national field-force managed at a regional level, we are able to provide a fast and efficient service with complete geographical coverage.

Background & Methodology

BACKGROUND

In August 2006, ICM were commissioned to ask a representative sample of the general public for their views on the nature of human genes and the development of genetic interventions in physical and mental health. The research was commissioned by the North West Genetics Knowledge Park (Nowgen) – a team of clinicians, scientists and communicators dedicated to bringing research in medical genetics and the social sciences to the benefit of patients and society.

METHODOLOGY

This report is the product of a total of eight questions placed on the ICM telephone omnibus on 25th-27th August 2006. ICM interviewed a representative sample of 1,006 adults aged 18+. Interviews were conducted across England, Wales and Scotland and the results have been weighted to the profile of all GB adults. ICM is a member of the British Polling Council and abides by its rules.

GB DEMOGRAPHIC PORTRAIT

The omnibus survey is based on a number of demographic quota controls that are designed to produce a representative sample of the adult population. In theory, these quotas should ensure that un-weighted and weighted data closely match each other. However, research projects typically have some difficulties in reaching certain sections of the population who sometimes tend to be less research friendly than others - for example, people from younger age groups or members of minority ethnic communities. In order to correct for differential refusal within the contacted sample, a rim weighting matrix is applied to ensure that the profile of each omnibus sample exactly matches that of the overall population.

The weighted demographic profile of every ICM omnibus therefore conforms to the following breakdown:

SEX:	
Male	48%
Female	52%
AGE:	
18-24	11%
25-34	17%
35-44	20%
45-54	17%
55-64	15%
65+	20%
SOCIAL CLASS:	
AB	25%
C1	29%
C2	21%
DE	25%

WORKING STATUS:	
Full time	44%
Part time	11%
Not working but seeking work	6%
Not working, not seeking work	8%
Retired	25%
Student	4%
TENURE:	
Own outright	32%
Own with a mortgage	41%
Council	13%
Housing Association	2%
Rented from someone else	8%
Rent free	1%
Other	3%
FOREIGN HOLIDAYS IN LAST 3 YEARS:	
Yes	62%
No	38%
NUMBER OF CARS IN HOUSEHOLD:	
1	44%
2	28%
3+	8%

REGION

The computer tables associated with this report include an aggregation of Government Office Region for cross-analysis purposes. Government Office Regions are the top level units on which the UK is divided by Census (NUTS Level 1). There are 12 such regions, all of which are broken down by general population in the table below. In addition, it shows how ICM have grouped geographically contiguous or approximate regions for more robust cross analysis.

Government Office Region	All people	Aggregated regions
North East	5%	North England 25%
North West	12%	
Yorkshire & the Humber	9%	
East Midlands	7%	Midlands 26%
West Midlands	9%	
Eastern	9%	
London	12%	South East 27%
South East	14%	
South West	9%	Wales & South West 14%
Wales	5%	
Scotland	9%	9%
TOTAL	100%	101%[1]

1 Inconsistent %'s due to rounding of raw numbers into percentages.

STATISTICAL TOLERANCES

It should be remembered at all times that a sample of 1,006 adults aged 18+ and not the entire population has been interviewed. Consequently, all results are subject to sampling tolerances, which mean that not all differences are statistically significant.

We can, however, predict the variation between the sample results and the 'true' values (if everyone in the population had been interviewed) from knowledge of the size of the samples on which the results are based and the number of times answers are given. The confidence with which we can make this prediction is usually chosen to be 95% - that is, the chances are 95 times out of 100 that the 'true' value will fall within a specified range. The table below illustrates the predicted ranges for different sample sizes and the percentage results at the 95% confidence level.

SAMPLE SIZE	SAMPLING TOLERENCES APPLICABLE TO %'S AT OR NEAR		
	10% OR 90% + / -	30% OR 70% + / -	50% + / -
100 interviews	5.88%	8.98%	9.8%
250 interviews	3.72%	5.68%	6.2%
500 interviews	2.63%	4.02%	4.38%
1000 interviews	1.86%	2.84%	3.1%

For example, with a sample size of 1,000 interviews where 50% (the worst case scenario as far as tolerances are concerned) give a particular answer, we can be 95% certain that the 'true' value will fall within the range of 3.1% from the sample result.

When results are compared between separate groups within a sample (say, between men and women), different results may be obtained. The difference may be 'real' or it may occur by chance (because a sample rather than the entire population has been interviewed). To test if the difference is a real one, i.e. if it is 'statistically significant', we again have to know the size of the samples, the % giving a certain answer and the degree of confidence chosen. If we assume the 95% confidence level again, the differences between the results of two separate groups must be greater than the values given in the table below:

SAMPLE SIZES TO BE COMPARED	DIFFERENCES REQUIRED TO BE STATISTICALLY SIGNIFICANT AT OR NEAR		
	10% OR 90% + / -	30% OR 70% + / -	50% + / -
100 and 100	8.3%	12.7%	13.9%
200 and 200	5.9%	8.9%	9.8%
500 and 500	3.7%	5.7%	6.2%

SOCIAL CLASS DEFINITIONS

Most market research projects classify the population into social grades, usually on the basis of the Market Research Society occupational groupings (MRS, 1991).

They are defined as follows:

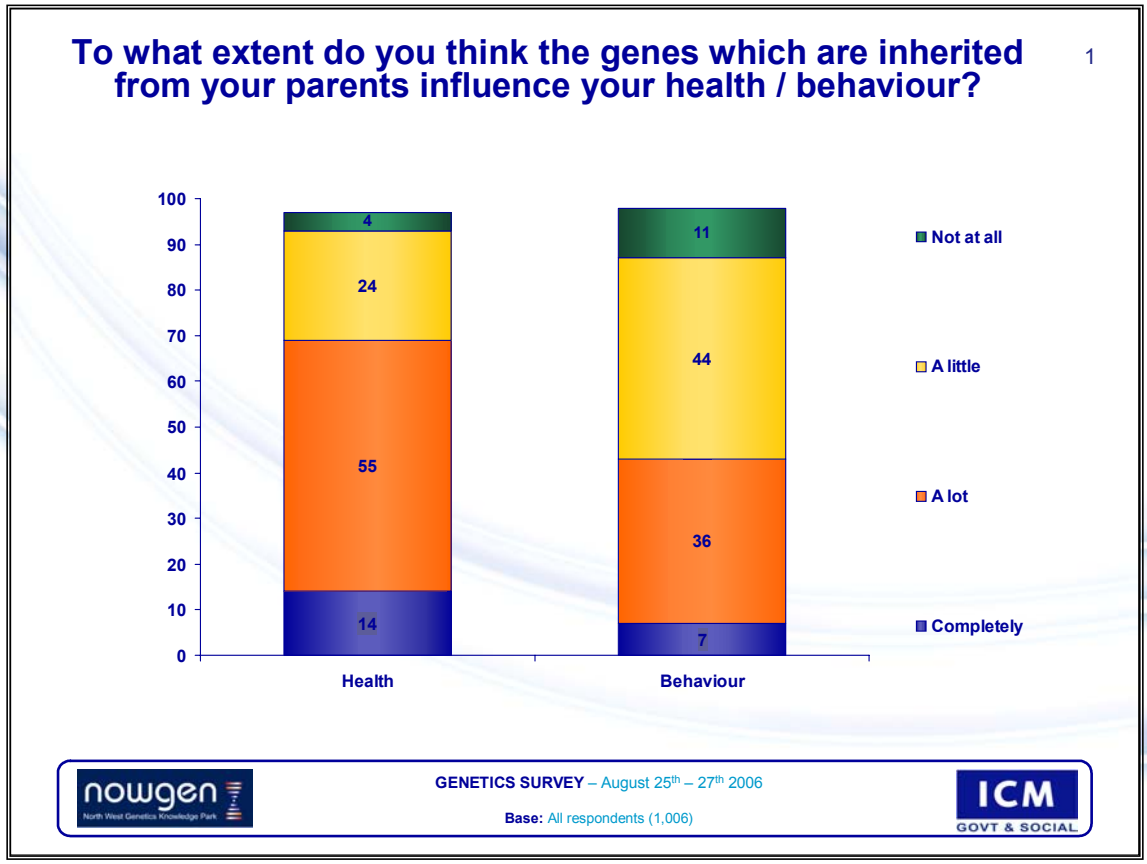
A.	Professionals such as doctors, solicitors or dentists, chartered people like architects; fully qualified people with a large degree of responsibility such as senior civil servants, senior business executives and high ranking grades within the armed forces. Retired people, previously grade A, and their widows.
B.	People with very senior jobs such as university lecturers, heads of local government departments, middle management in business organizations, bank mangers, police inspectors, and upper grades in the armed forces.
C1.	All others doing non-manual jobs, including nurses, technicians, pharmacists, salesmen, publicans, clerical workers, police sergeants and middle ranks of the armed forces.
C2.	Skilled manual workers, foremen, manual workers with special qualifications such as lorry drivers, security officers and lower grades of the armed forces.
D.	Semi-skilled and unskilled manual workers, including labourers and those serving apprenticeships. Machine minders, farm labourers, lab assistants and postmen.
E.	Those on the lowest levels of subsistence including all those dependent upon the state long-term. Casual workers, and those without a regular income.

A product of genes, or not?

To begin with, survey respondents were provided with a short description of what was meant by the term 'human genes', in order to ensure that there was no confusion on the part of respondents over the context of the word. The following sentence was read out by interviewers:

> *"I'm now going to ask you a few questions about human genes, which are passed on from parents to children and are defined as 'instructions' that help the body grow, develop and function".*

The initial two questions then focussed on the perceived impact of such genes on respondent health and social behaviour. As Chart 1 reveals, an overall majority of the population do feel that they are a product of their genetic make up when it comes to their (prospective) health, but (by implication) must presume that their behavioural norms and personality are also a function and consequence of socialisation. In short, nature is perceived to be dominant in terms of health, but nurture has a significant role to play in the development of normal behaviour.



One in seven (14%) think that their health is 'completely' influenced by genes, rising to a statistically significant 19% among those aged 65+. We might speculate that higher numbers of people within the oldest cohort have developed the very same diseases that afflicted their own parents or other relatives, thereby explaining the higher score. However, when we aggregate

the proportion of people who think that genes either completely influence or influence health a lot (Table 1), we can see that there is general agreement across age cohorts, with consistent response confining the range to only 6-points – with the 65+ age group at the lower end of that range (67%).

Table 1. % who think that genes influence health 'completely' or 'a lot', by age

	NET %
All respondents	69%
18-24	67%
25-34	65%
35-44	71%
45-54	71%
55-64	69%
65+	67%

Given the high numbers involved in the aggregation in Table 1, it is apparent that a majority of the public (55%) think that genes influence health 'a lot'. In addition, a quarter (24%) think they have 'a little' responsible for general health, but hardly anyone (4%) believes that genes have no influence on health at all. As a point of interest, 7% of those 65+ - the highest score across age groups on this measure – think that genes have hardly any influence. Clearly, there is some disagreement among the ranks of the oldest age cohort.

The picture as far as social behaviour is concerned is somewhat different. Chart 1 also reveals that half as many (7%) think that genes completely influence behaviour compared to health, with only one in three (36%) also saying that they influence behaviour a lot. When aggregated together, the net score of 43% is obviously less than a majority of the population, and a whole 26-points lower than the equivalent score for health (69%).

Just over four in ten (44%) say that genes influence behaviour a little and one in ten say hardly at all.

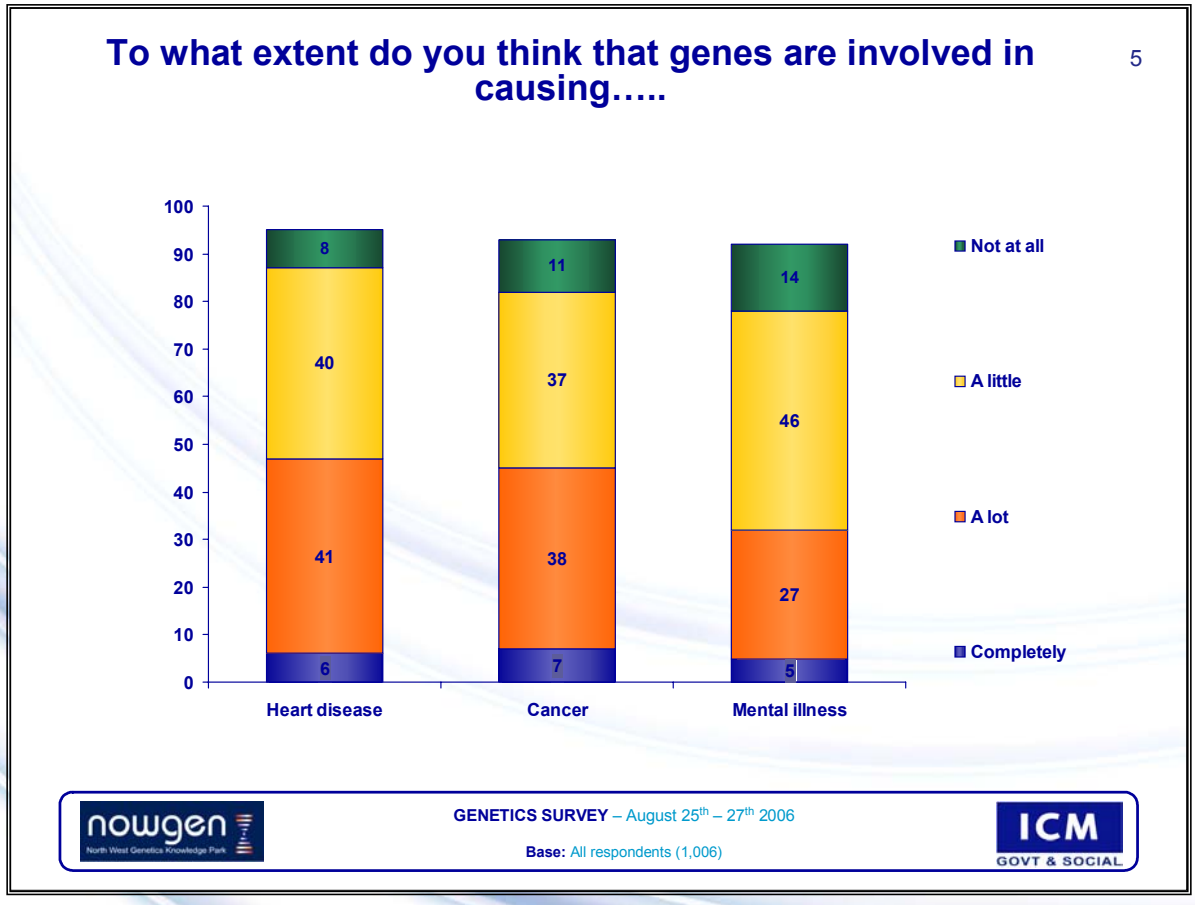
In this case, the youngest age group of 18-24's are most likely (12%) to think that their behaviour is completely determined by their genes. The reader might find it difficult not to consider the cliché opportunities available at this point, with younger people possibly using a 'victim' label to explain their own suspect behaviour to parents.

This report is unqualified to comment on the nature vs. nurture scientific debate, but it does appear that from a public perspective there is clear separation between the influence of genes when it comes to health and behaviour. It would seem that the public are much more inclined to believe that suspect genes will cause a medical condition to develop; while they simultaneously think that behaviour can be certainly be modelled by experience – although genes do still have a more minor role to play.

Later in the survey questionnaire, respondents were prompted with three illnesses or conditions and were asked to consider the extent to which they blame genes for the development of such medical problems. Given that we have already seen that 69% think that genes influence health 'completely/a lot' we might imagine that a majority of the population also think that cancer, heart disease and mental illness would be caused by genetic problems. However, this is not the

case. Heart disease is thought by only 47% to be caused either completely or a lot by a genetic pre-disposition, and the proportion falls to 45% for cancer and only 32% for mental illness.

Chart 2 demonstrates the divergence in opinion.

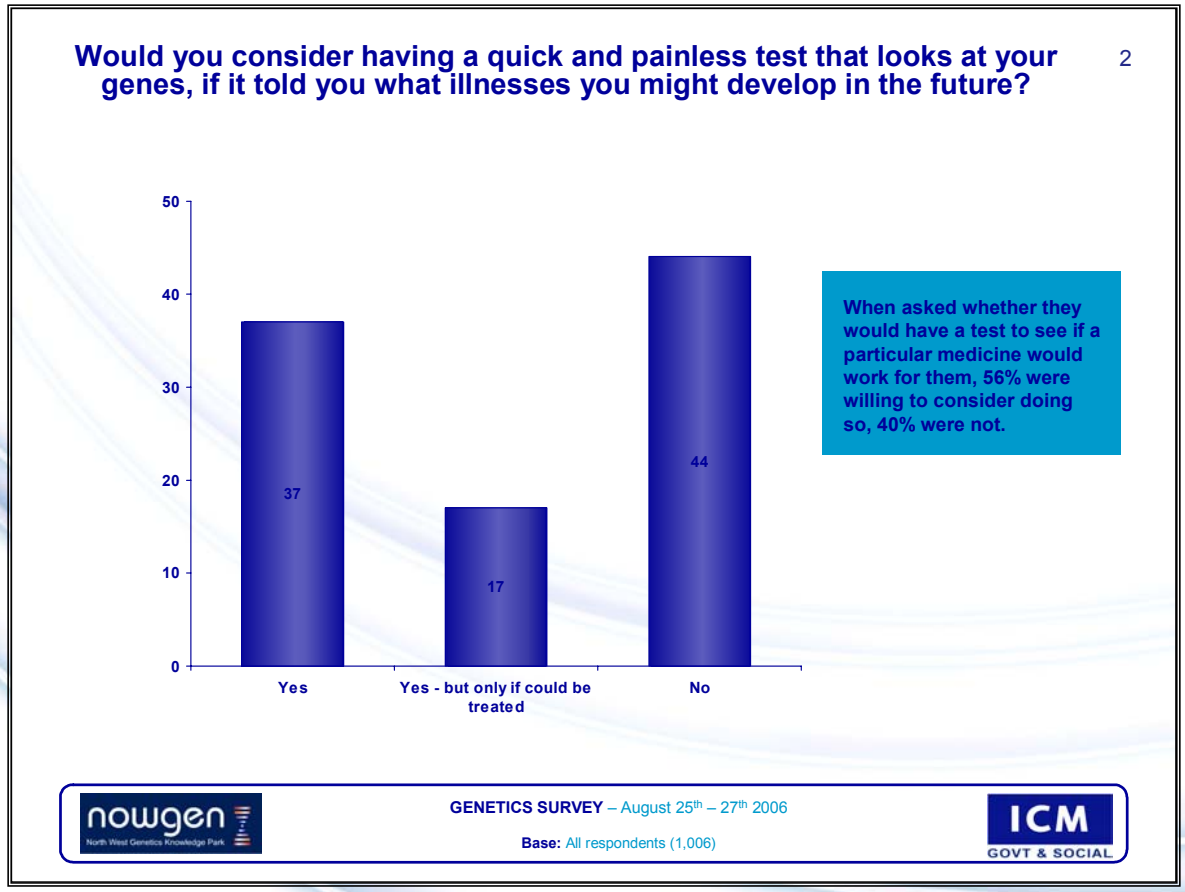


There are a number of ways that questions such as this can be interpreted. Do we conclude for example, that mental illness is much more a socialisation issue simply as a result of the findings mentioned, or do we see it in very much the same terms as heart disease and cancer - on the basis that only 14% think it has no causal effect at all compared to 11% for cancer and 8% for heart disease? The answer for questions such as this is typically: a bit of both. Undoubtedly, people will have considered different cancers and felt that some are more caused by behaviour (lung cancer and smoking?) and others are caused by faulty genes. Similar cases could be made for heart disease and mental illness.

There are few demographic considerations that are worth mentioning. 18-24's (12%) are most likely to think that cancer is completely caused by genetic make-up, which might be a consequence of not having as many opportunities to see health warnings about particular products; or more pertinently, not being at a life-stage where they are particularly well-informed or concerned about health issues.

Likelihood to take genetic test

A slight majority would take a genetic test to identify possible illnesses that individuals are more vulnerable to contracting (54%), and indeed to identify medicines that are more likely to work for them (56%). However, this does mean that there remains some reluctance on the part of the public, even if the test only involves a painless cheek swab. Irrespective of whether the test would identify medical conditions that patients are more likely to develop or medicines that are more likely to constitute a cure, four in ten would not even consider taking a test of this type.



Men are somewhat less likely than women to subject themselves to a test under both circumstances, and there does appear to be a relatively weak correlation between age and inclination to take a test, as Table 2 illustrates:

Table 2. % who would take a gene test by age

	% testing for medicine	% testing for illnesses
18-24	62%	61%
25-34	57%	57%
35-44	55%	52%
45-54	58%	54%
55-64	60%	60%
65+	48%	47%

Indeed the impact of age does appear to be somewhat intriguing. Younger people are clearly the most pre-disposed to taking a test, but the proportion willing to do so then falls before rising again until people hit retirement, at which point the drop off is considerable. We might speculate that the young think themselves as having little to fear, before some concerns set in among those approaching middle age and conscious of their own mortality at a time of considerable responsibility. Those approaching retirement but still in good health may see longevity as a good thing, but those who have already reached retirement age are certainly much less inclined to agree, with less than half in both cases willing to test themselves. It may well be that many are already affected by medical problems which make genetic testing somewhat less relevant.

Willingness to take a genetic test also appears to be something more appealing to those in the C1/C2 social class classifications (non-manual lower managerial and skilled manual occupations). C1's (64%) are significantly more inclined than AB's and DE's to test for positive medicines; while both C1's and C2's (58% respectively) are more likely than their more and less affluent counterparts to do so for illnesses as well. We might have imagined that the people most likely to have been early adopters would be those with most to gain – i.e. the relatively affluent and those in good health (the link between the two being already well established). That this is not the case requires some thought, and again we can only speculate. However, it might be the case that AB's are reluctant to consider anything which involves genetic modification – something that is currently more associated with the negatively perceived genetically modified food. DE's are less likely to consider tests, which they may think would involve cost either for the test itself or the medicines they then discover they require.

If testing did occur, and did identify a disease that an individual is more prone to, there is a good chance that risk would be reduced via lifestyle change. Half (49%) would probably change their behaviour, while a further quarter (23%) possibly would depending on the disease and a fifth (19%) would depending on the level of risk. Only 17% would not change their behaviour.

Women (53%) are statistically significantly more likely than men (45%) to change their ways, as are those in the mid-life stage who have time to beat the onset of a condition. The youngest and oldest cohorts are least likely to change, probably for very different reasons.

The development of genetics and health

There is widespread agreement that the development of genetic solutions to medical problems will continue apace, with the effect of such solutions likely to be overwhelmingly positive. As Table 3 confirms, over two in three people believe that genetics will produce positive outcomes with regard to the identification of people at high risk of contracting common diseases and most appropriate medicines, cancer treatment, and better treatment for mental illness.

Table 3. The impact of genetics over the next 10 years

	%
Genetics will identify people at high risk of many common diseases	84%
Genetics will help patients with cancer survive longer	74%
Genetics will identify which medicines work best for you	74%
Genetics will result in better treatments for mental illness	68%
Genetics will not really impact on health treatments	22%

Generally speaking, it is the AB social group who are the most unconvinced, particularly with regard to treatments for mental illness, with 'only' 58% convinced that genetics will help. This may imply that the relatively negative lens through which AB's view genetics is based as much on scepticism with regard to its likely impact as it might be on negative prevailing public attitudes toward the philosophical concept.

The acceptability of genetic research

Indeed, up until now it is fair to say that the public has associated genetics (most often) with genetically modified food more than they have with genetic solutions to mass health issues. More pertinently, the agenda has been dominated by wholly negative reactions to media reporting based around the burning of GM crops and the refusal of some groups to even countenance the possibilities that genetics provide in this area.

So much so that it was previously inevitable that public attitudes were predominantly negative. The following question is taken from an ICM poll for The Guardian in June 1999.

Q6. Do you personally think that GM foods are on balance safe or unsafe to eat?	
Safe	26%
Unsafe	56%
Don't know	18%

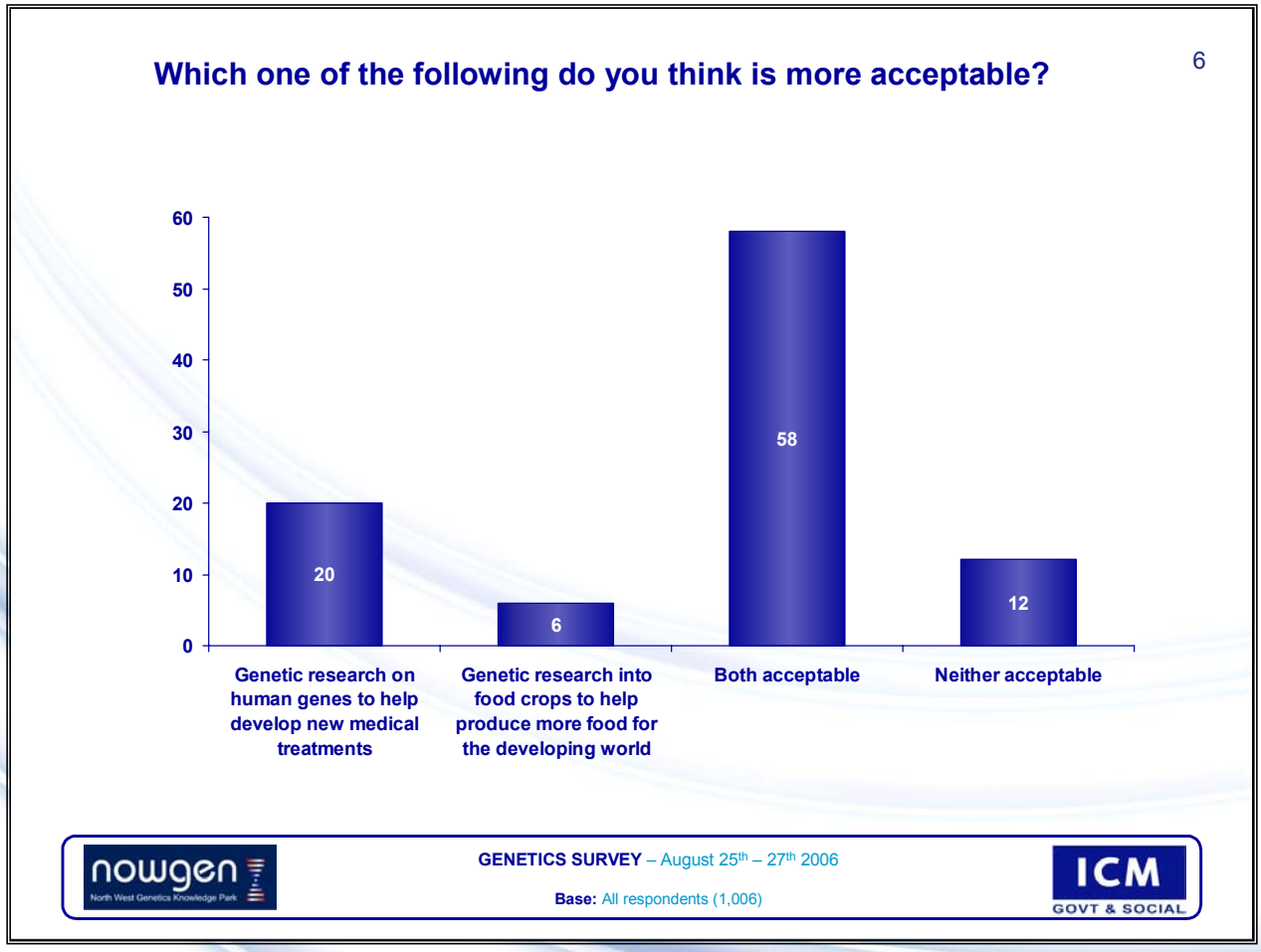
A year earlier, in a poll for the same newspaper, we found that 14% were happy about the introduction of GM foods, while 50% were unhappy. Subsequent polls by other organisations have also found a higher level of concern and opposition.

However, this new poll may suggest that the public are mellowing, or have at least 'forgotten' about their concerns as the media profile of the GM issues has lessened. Either that or those who wish to adopt an alternative question framework on the issue of genetics may find in this poll terminology of merit. The truth probably involves a bit of both. Without doubt, the issue of genetics – and particularly genetically modified food – has not been as widely publicised in the last year or so as it was, say four or five years ago. This is likely to have contributed to a waning of both understanding and concern in the public consciousness.

It must also be recognised however, that we have not used the term "genetically modified food" in the survey questions. This has such negative associations that its use would probably have over-ridden any other thoughts some people have with regard to the value or otherwise of genetic research. Indeed, in our final question, we asked people to choose between two options, both of which conveyed the possible benefits of genetic research. We might suspect that some people - whose understanding and concern on the matter might be minimal – failed to actually associate genetic research with 'genetically modified food', instead respecting the positive benefits implied by medical and food related genetic research suggested in the questions codes. This might help us understand why 58% think that both are acceptable in addition to the 20% who think medical genetic research is more acceptable and the 6% who think that food crop research is more acceptable.

The AB group in this poll, however, continue to confound us. Two in three (62%) think that both medical and food related genetic research IS acceptable, which is less than the C1 group (65%) but statistically significantly higher than for DE's (46%) with C2's also some way behind

(55%) in their level of acceptability. On this basis it would seem that AB's are not predisposed to object to genetic research on grounds of principle. With previous questions in mind, more appear to be sceptical about the chances of genetic research's ability to produce successful outcomes.



While one in five (20%) do think that medical based research is more acceptable than food based research, we can see that approval does increase with age. Only one in ten (9%) of those aged 18-24 say that medical research is more acceptable, but this rises to 23% among 45-54's before falling slightly to 20% among 55-64's and 22% among those 65+. No similar age correlation exists among those who find both medical and food genetic research acceptable.

Nowgen questions for ICM Omnibus

I'm now going to ask you a few questions about human genes, which are passed on from parents to children and are defined as 'instructions' that help the body grow, develop and function.

QUESTION 1
To what extent do you think that genes which are inherited from your parents influence your health? Would you say…
READ OUT – CODE ONE

a) completely
b) a lot
c) a little
d) not at all
e) Don't know

QUESTION 2
To what extent do you think that genes which are inherited from your parents influence your behaviour? For example - how sociable you are or perhaps how easily you lose your temper. Would you say…

READ OUT – CODE ONE

a) Completely
b) a lot
c) a little
d) not at all
e) Don't know

QUESTION 3
Would you consider having a quick and painless test (which involves taking a cheek swab) that looks at your genes, if it told you whether a particular medicine would work for you?

a) Yes
b) No
c) Don't know

QUESTION 4
Would you consider having a quick and painless test (which involves taking a cheek swab) that looks at your genes, if it told you what illnesses you ***might*** develop in the future?

a) Yes
b) Yes… but only if the illness could be treated
c) No
d) Don't know

QUESTION 5
Genetics is the study of genes and how genes work. Which, if any, of the following statements best describes what you think is likely to happen over the next ten years in relation to genetics and health?
READ OUT – MULTICODE ANY 'YES'

a) Genetics will identify people at high risk of many common diseases
b) Genetics will identify which medicines work best for you
c) Genetics will result in better treatments for mental illness
d) Genetics will help patients with cancer survive longer
e) Genetics will not really impact on health treatments
f) None of these
g) Don't know

QUESTION 6
Do you think knowing more about your genetic tendency to develop a particular disease would make you change your lifestyle in a way that reduces your risk? Would you say…

a) Probably, yes
b) Maybe, depends on the disease
c) Maybe, depends on the risk
d) Probably, no

QUESTION 7
To what extent do you think that genes are involved in causing …
(1) Cancer
(2) Heart disease
(3) Mental illness?

a) completely
b) a lot
c) a little
d) not at all
e) Don't know

QUESTION 8
Which ONE of the following do you think is more acceptable?
READ OUT – CODE ONE

a. Genetic research on human genes to help develop new medical treatments
b. Genetic research into food crops for example, to help produce more food for the developing world
c. Both are equally acceptable
d. Neither is acceptable
e. Don't know