

Briefing for the Public Petitions Committee

Petition Number: [PE 1863](#)

Main Petitioner: Michael Campbell

Subject: Mandatory annual cancer blood test from the age of 55

Calls on the Parliament to urge the Scottish Government to provide mandatory annual blood tests from the age of 55 to detect cancer

Background – Current Screening for Cancers

The petitioner is concerned that early cancer diagnoses have been affected by the impact of the pandemic in Scotland. He believes that early screening for cancer through blood tests could save money as well as lives in over 55year olds.

[NHS National Services Division is responsible for all national screening](#) programmes in Scotland and more detail is available on the individual programmes.

In turn, there is a [UK National Screening Committee](#) (UK NSC), that informs and supports screening programmes across all four nations. This committee has a number of functions. It:

- “advises ministers and the NHS in the 4 UK countries about all aspects of screening including the case for introducing new population screening programmes and for continuing, modifying or withdrawing existing population programmes against a set of internationally recognised [criteria](#)
- supports implementation of screening programmes in the 4 countries including the development of high level standards and maintains oversight of the evidence relating to the balance of good and harm as well as the overall cost effectiveness of existing programmes
- works with partners to ensure it keeps abreast of scientific developments in screening, including screening trials, screening policy in other countries and emerging technologies
- is accountable to the 4 chief medical officers (CMOs), who agree work plans for the UK NSC on an annual basis.”

They also publish an [annual report of recommendations](#) based on evidence gathered internationally on population level screening programmes:

“[Screening programmes are assessed against criteria](#) to understand the balance of harms and benefits they deliver to the population, and include consideration of:

- the condition for which screening is suggested
- the test, which should be simple, safe, precise and acceptable
- whether there are effective interventions which lead to better outcomes for patients identified through screening
- whether there is evidence that screening would be effective in reducing mortality or morbidity, or where screening is aimed solely at providing information to allow the person being screened to make an ‘informed choice’ (such as Down’s syndrome or cystic fibrosis carrier screening), there must be evidence from high quality trials that the test accurately measures risk
- the process of implementation, which includes the managing and monitoring of screening against agreed standards”

Cost effectiveness is raised by the petitioner, and, as stated above, the UK NSC includes the consideration of cost effectiveness in its assessments. In 2013 [research was published on the cost effectiveness](#) of breast screening, in relation to the widely used metric in assessing the cost effectiveness of health interventions and medicines, ‘quality adjusted life years’¹. While the research findings were caveated because of small effects (of screening) over long time periods, and a lack of evidence in some areas, as well as the costs of overdiagnosis and treatment, the research found that there was only a moderate probability of breast cancer screening being cost effective. However, it is a programme that remains recommended by the UK NSC. There is [much research on the cost effectiveness](#) of a wide range of screening possibilities across a large number of conditions.

Population screening for cancer in Scotland

Three of the national screening programmes in Scotland screen for cancers:

- [bowel screening](#) for men and women between 50 and 74 (home test kit)

¹ A QALY takes into account how a treatment affects a patient's

- quantity of life (how long you live for) and
- quality of life (the quality of your remaining years of life).

The QALY combines both these factors into a single measure that puts a figure on the health benefits for any medical treatment. QALYs provide a benchmark that we can use to measure and compare the benefits that each medicine is likely to offer. (source:

<https://www.scottishmedicines.org.uk/media/2839/guide-to-qalys.pdf>)

- [cervical screening](#) for women aged 25 - 64 (smear test)
- [breast screening](#) for women aged 50 - 70 (mammogram)

These and other population screening programmes were paused during the pandemic but have all restarted (March 2021).

None of these testing regimes are by blood test, but blood tests might be used in following up people who have displayed abnormalities during the screening process. All such screening is to identify the earliest signs of the particular cancer being screened for.

It is important to note that screening is not the same as diagnosis. Screening highlights potential cancers, which means that some abnormal tests might not mean that a person has cancer. Equally, screening might miss some cases. For example, [around one in five women who are treated for breast cancer have abnormalities that will never have led to serious disease](#), but the mammogram will have picked up even small changes in the breast tissue. A UK [breast screening review in 2012](#)² found that screening leads to around 4,000 women being [overdiagnosed](#) in the UK each year.

Another potential screening test is the prostate-specific antigen (PSA) test for prostate cancer. As is explained by [‘lab tests online’](#):

- Current technology cannot tell a slow-growing cancer from a fast one, and the cancer may never significantly affect a man's health or life expectancy.
- Screening tests for [prostate-specific antigen \(PSA\)](#) (a blood test) do not detect all cases, and some elevated PSA results do not prove to be cancer.
- Diagnosis through [biopsy](#) (with a small risk of infection and bleeding) and side effects of treatment (which could cause [erectile dysfunction](#) and incontinence) can potentially be harmful. Most prostate cancers are slow-growing and may not cause any trouble.
- Results from long-term trials on whether PSA testing improves prostate-cancer survival rates has been inconclusive.

For these reasons, population screening for prostate cancer is not recommended. And, as is stated, raised levels of a specific reading in a blood test does not necessarily indicate cancer.

² [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)61611-0/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)61611-0/fulltext). Further review undertaken in 2018 by UK Government: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/764413/independent-breast-screening-review-report.pdf

Diagnosing Cancer

There are many different types of cancer, and each requires a different diagnostic procedure. [Macmillan have an A-Z of the range of diagnostic tests](#) in use that shows the wide range of tests that are required for the many different types of cancer.

Use of blood tests in diagnosing cancer

The petitioner does not specify the test or tests he thinks should be carried out on a population-wide basis, but it is clear from [the information Macmillan provides](#) on blood testing, that there are also a wide number of blood tests used in the diagnosis of different cancers and for different reasons. There is no single blood test that could screen for a range of cancers.

For example, a blood test might be to look for genetic markers implicated in making someone more susceptible to certain cancers, it might be to do a 'blood count', or to see how certain organs are functioning. However, the GP responds to symptoms that a person is either displaying or seeking advice about; they are not a generic set of tests done on everyone.

It is worth noting that if all over 55s were called in for screening, many people would be referred on for further testing with no resulting positive diagnosis. This would be very expensive, but moreover, if they have no other symptoms, it could also create unnecessary anxiety for those who get an initial abnormal test result, get called for further testing, and discover that no further treatment is indicated.

Using genomics to inform screening

In 2016, the Chief Medical Officer for England challenged the National Screening Committee to consider the place of genomics³ in national screening programmes. As a response, the UK NSC, [produced a report](#) considering genomics in relation to inherited or 'germ line' mutations, rather than those mutations that might have an environmental or lifestyle cause. DNA can be collected from blood or tissue samples and can provide more individualised information on risk as well as active disease.

³ The study of all the DNA in the genome together with the technologies that allow it to be sequenced, analysed and interpreted is collectively called genomics, or genomic medicine if applied to patients.

DNA is the main constituent of chromosomes and the carrier of genetic information. A genome is an organism's whole set of DNA. A gene is a piece of DNA with a code for a specific instruction – like whether your eyes are blue or brown.

A person has around 20,000 genes which make up about 5% of DNA. The rest of the DNA has a vital role in controlling and regulating the way your body works. That's why the whole genome is sequenced. About 99.8% of our DNA is the same as other human beings. The 0.2% that is different – about 3 to 4 million letters – is what makes each of us unique. Genes give the code for a specific instruction. This instruction may or may not be 'followed', this means that it does not always lead to a specific condition or state. The degree to which a gene might lead to a specific disease is called its penetrance. A gene's penetrance may be modified by other genes or lifestyle issues.

[Research](#) has been underway for a number of years to ensure that the knowledge derived from genomics is used in diagnostics and more personalised medicine. [Cancers are one of the groups of diseases where this is already in use](#), it having been recognised that certain people carry gene markers, or variants for certain cancer risks. Knowledge of having such variants has led people to have sometimes extensive surgery, for example, to effectively remove the risk.

Scottish Government Action

The Scottish Government introduced a [‘Detect Cancer Early’](#) programme in 2012, and timeliness of cancer diagnosis, referral and treatment have featured as [key NHS targets for a number of years](#). For up to date cancer statistics see the [relevant Public Health Scotland website pages](#).

In July 2020 the Scottish Government published an overview of mortality, incidence, waiting times, risk factors and treatment etc: [Cancer in Scotland](#).

They have also published a public-facing website [‘Get Checked Early’](#) which prompts people to seek advice if they are concerned about any symptoms. There is a ‘symptom checker’, and information on the screening programmes, and advice about a range of common cancers.

In 2020, an update to their [2016 Cancer Strategy](#) was published [‘Beating Cancer: Ambition and Action \(2016\) update: achievements, new action and testing change’](#). The Strategy has a focus on early detection and diagnosis.

Scottish Parliament Action

The Scottish Parliament has not taken any specific action on the introduction of blood test screening for cancers. However, over the lifetime of the parliament, the different health committees have focused on different aspects of cancer diagnosis, treatment and care.

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30 March 2021

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