



Public Health
England

Exploring the Heart Age 2 tool

Martin Moth (NHS Choices)
Chair: Catherine Lagord (PHE)

Thursday 8th December 2016



Background

- Original JBS3 tool used by clinicians
- Identified need for a public facing tool
- Tool developed in partnership with JBS3, UCL and BHF
- Methodology: based on JBS3 clinical tool and QRisk2, an open source tool built by ClinRisk



The parent.. JBS3

Profile

Date of Birth:

Gender: ☒ male ☐ female

Ethnic group

Height (m): Weight (kg): BMI: 28.1

Townsend quintile (3 if unknown):



I have never suffered from Cardiovascular Disease ☒

I have read the ☒

Do you smoke?

Total Cholesterol:

HDL Cholesterol:

NonHDL Cholesterol: 5.9

Systolic Blood Pressure: mm Hg

Have you received blood pressure treatment? ☐

Do you suffer from diabetes? ☐

Does a close relative under 60 suffer from CVD? ☐

Do you have a chronic kidney disease? ☐

Have you suffered atrial fibrillation? ☐

Do you have rheumatoid arthritis? ☐


Save

Load

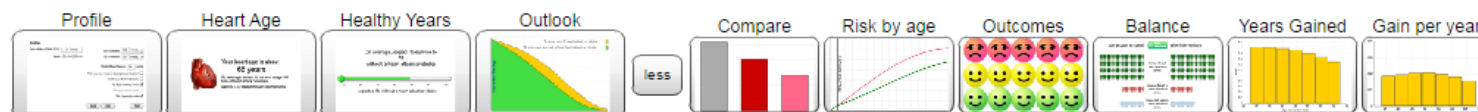
Next



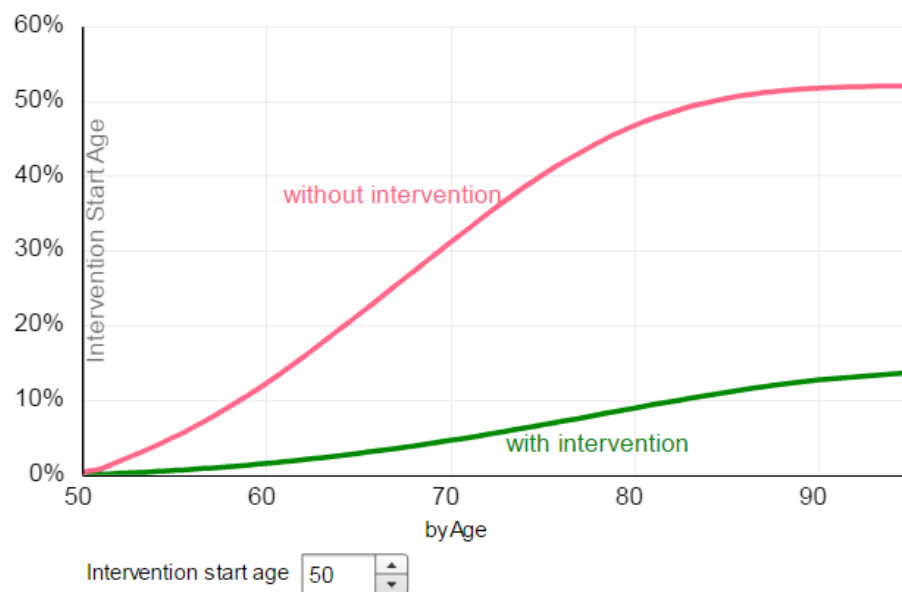
The parent.. JBS3

 JBS3 Cardiovascular Risk Assessment

Credits Full Screen



% Chance of having had a Heart Attack or Stroke



Interventions

Future smoking category

I quit

Systolic Blood Pressure

150 → 119

Total Cholesterol

7.8 → 4.5

HDL Cholesterol

1.2 → 1.2

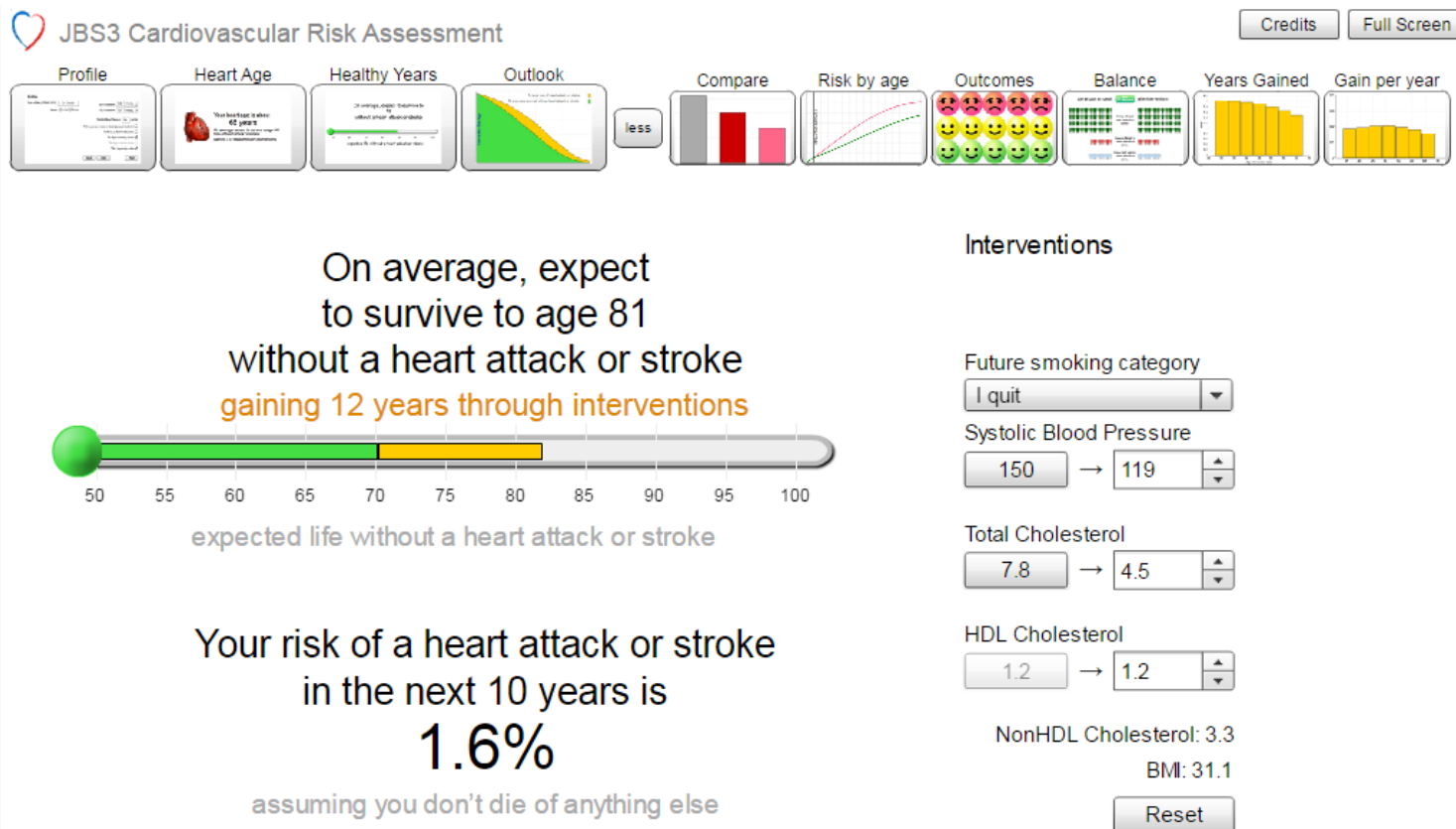
NonHDL Cholesterol: 3.3

BMI: 31.1

Reset



The parent.. JBS3





Public Health
England

The child.. Heart Age v1

Start screen



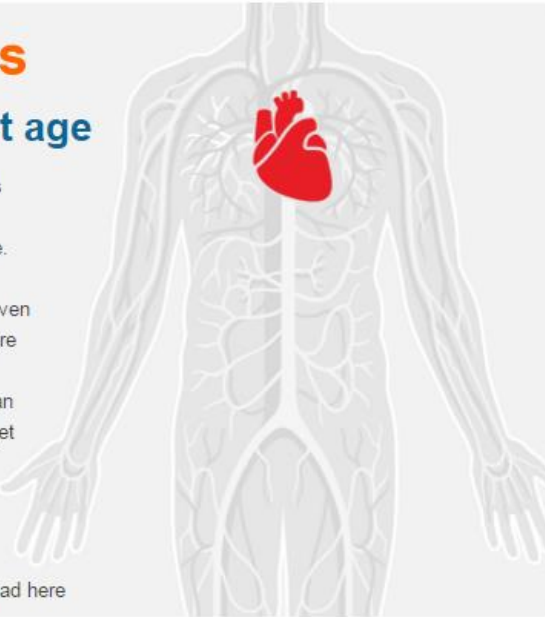
Check your heart age

How healthy is your heart? Use this tool to find out if your heart age is higher or lower than your actual age.

Anyone over 30 can use the tool, even if you don't know your blood pressure and cholesterol. However, without these numbers, your result will be an estimate and we recommend you get tested to get an accurate result.

[Start](#)

Full [terms and conditions](#) can be read here





Public Health
England



British Heart
Foundation



Joint British Societies
for the prevention of
cardiovascular disease

This tool is a collaboration between NHS Choices, Public Health England and the British Heart Foundation
[Find out more about partners](#)
Full [credits](#) can be read here



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The child.. Heart Age v1

Questions Screen 1

Check your heart age

Please give us some details about you



Date of birth	<div>28 ▾</div> <div>11 ▾</div> <div>1976 ▾</div> <div>DayMonthYear</div>
Gender	<input type="radio"/> Male <input type="radio"/> Female
Ethnic group Why is this important?	<div>White ▾</div>
Postcode Why is this being asked?	<div>e.g CB10 2PS</div>
Do you have cardiovascular disease? What is cardiovascular disease?	<input type="radio"/> Yes <input type="radio"/> No

Back

Next



Public Health
England

The child.. Heart Age v1

Questions Screen 2

Check your heart age

Please give us some details about you



Do you smoke?

I smoke less than 10 a day ▼

Height

6 ft 1 in

► Switch to metric

Weight

17 st 4 lb

► Switch to metric

Back



Next



The child.. Heart Age v1

Questions Screen 3

Check your heart age

Please give us some details about you



Do you know your cholesterol?

☒ Yes ☐ No

[Cholesterol information](#)

Total cholesterol

7.8 mmol/L

HDL cholesterol

1 mmol/L

[Switch to mg/dl](#)

Do you know your blood pressure?

☒ Yes ☐ No

[Blood pressure information](#)

Systolic blood pressure

166 mmHg

Have you ever received blood pressure treatment?

☐ Yes ☒ No

[Blood pressure treatment](#)

Back



Next



The child.. Heart Age v1

Questions Screen 4

Check your heart age

Please give us some details about you



Do you have diabetes?

☐

Yes

☒

No

Do you have rheumatoid arthritis?

☐

Yes

☒

No

Do you have chronic kidney disease?

☐

Yes

☒

No

Have you had atrial fibrillation?

☐

Yes

☒

No

Has a close relative under 60 been told
they have a cardiovascular disease?

☐

Yes

☒

No

[i What does this mean?](#)

Back



Next



The child.. Heart Age v1

Results

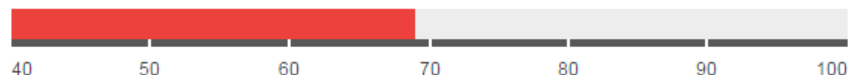
Your results

Your heart age is about

compared to a person of the same age, gender
and ethnicity without raised risk factors

50

On average, someone like you can expect to live to the age of
69 without having a heart attack or stroke.



You have a **4.7%** risk of having a heart attack or stroke in the next 10 years.



Your heart age is higher than your actual age. You can lower it
by making some simple changes to your diet and lifestyle.

Check out the advice below



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Results - full screen

► Find out more about blood pressure



Cholesterol

Ratio 8:1 Very high

Having very high cholesterol can have a serious effect on your health. It doesn't cause any symptoms itself but increases your risk of heart attack and stroke. The good news is that cholesterol levels can be lowered by having a healthy diet and being physically active. You may also need medication.

► Find out more about cholesterol



Weight

BMI 31.9 Obese

BMI is a measure of whether you're a healthy weight for your height. Having a BMI above 30 is classified as obese and being obese puts you at raised risk of health problems such as heart disease, stroke and diabetes. Losing weight will bring significant health improvements and could help with lowering your blood pressure and cholesterol levels.

► Find out more about being a healthy weight

Looking after your heart

If you're aged 40 to 74 and you're not already being treated for cardiovascular disease, make sure you get a free NHS Health Check. You'll find out your blood pressure and cholesterol numbers and learn how healthy your heart is.

NHS
HEALTH
CHECK

It's an opportunity to put right emerging problems and get personalised advice on keeping yourself healthy and active.

[Read more about the NHS Health Check.](#)

Back

Start again



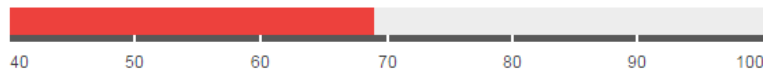
Your results

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Your heart age is higher than your actual age. You can lower it
by making some simple changes to your diet and lifestyle.

Check out the advice below

- Drop down option
for further info



Smoking

I smoke less than 10 a day

Stopping smoking is the single biggest change you can make for your health. One year after stopping, your heart attack risk is half that of a smoker.

You don't have to go cold turkey alone. There is a wealth of information and support to help you stop.

► **Get help with quitting**



Blood pressure **166 High**

Your systolic blood pressure is 166. **If your doctor or nurse does not know about this, make an appointment to see them in the next month to let them know.**

Known as the "silent killer", high blood pressure rarely has obvious symptoms but left untreated, it increases your risk of heart attack or stroke.

The good news is, it can be brought under control through lifestyle changes such as losing weight, reducing the amount of salt you eat, exercising regularly and cutting back on alcohol and caffeine. You may also need medication.

► **Find out more about blood pressure**



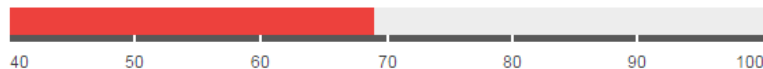
Your results

Your heart age is about

compared to a person of the same age, gender
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On average, someone like you can expect to live to the age of
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You don't have to go cold turkey alone. There is a wealth of information and support
to help you stop.

▼ Get help with quitting



Get help NOW to stop
smoking



Go to the Smokefree
website for lots of help and
advice



Take the British Heart
Foundation's 10 minute
challenge to quit smoking

losing weight, reducing the amount of salt you eat, exercising regularly and cutting
back on alcohol and caffeine. You may also need medication.

► Find out more about blood pressure



- Links to Choices or BHF content

Home | About | Contact | Tools | Video | e-Referral Service | Communities | IPS Translate ▼ Log in or create an account

NHS choices Your health, your choices

[Health A-Z](#) [Live Well](#) [Care and support](#) [Health news](#) [Services near you](#)

Take steps NOW to stop smoking

Share: Save: Subscribe:



Six practical, quick and simple steps you can take straight away to quit smoking

Talk to your GP

Many people don't realise that their GP can help them quit smoking

Useful links

[NHS Choices links](#)

- [Stop smoking treatments](#)
- [Cancer prevention advice](#)
- [Lung cancer](#)

External links

- [NHS Smokefree: how the NHS can help you quit](#)
- [ASH: action on smoking and health](#)

Stop smoking support services near you



Public Health
England

- Controversial nature meant good coverage in national press
- 420k completed journeys in a single day

HOME » NEWS » HEALTH » HEALTH NEWS

Official NHS calculator predicts when you will have a heart attack

Take the test: New NHS tool estimates how long you will live until having a heart attack or stroke promises a 'wake-up call' to shock Britons into changing lifestyles



A man holds his chest as he suffers from a heart attack (posed by model) Photo: Alamy



By Laura Donnelly, Health Editor

10:00PM GMT 08 Mar 2015



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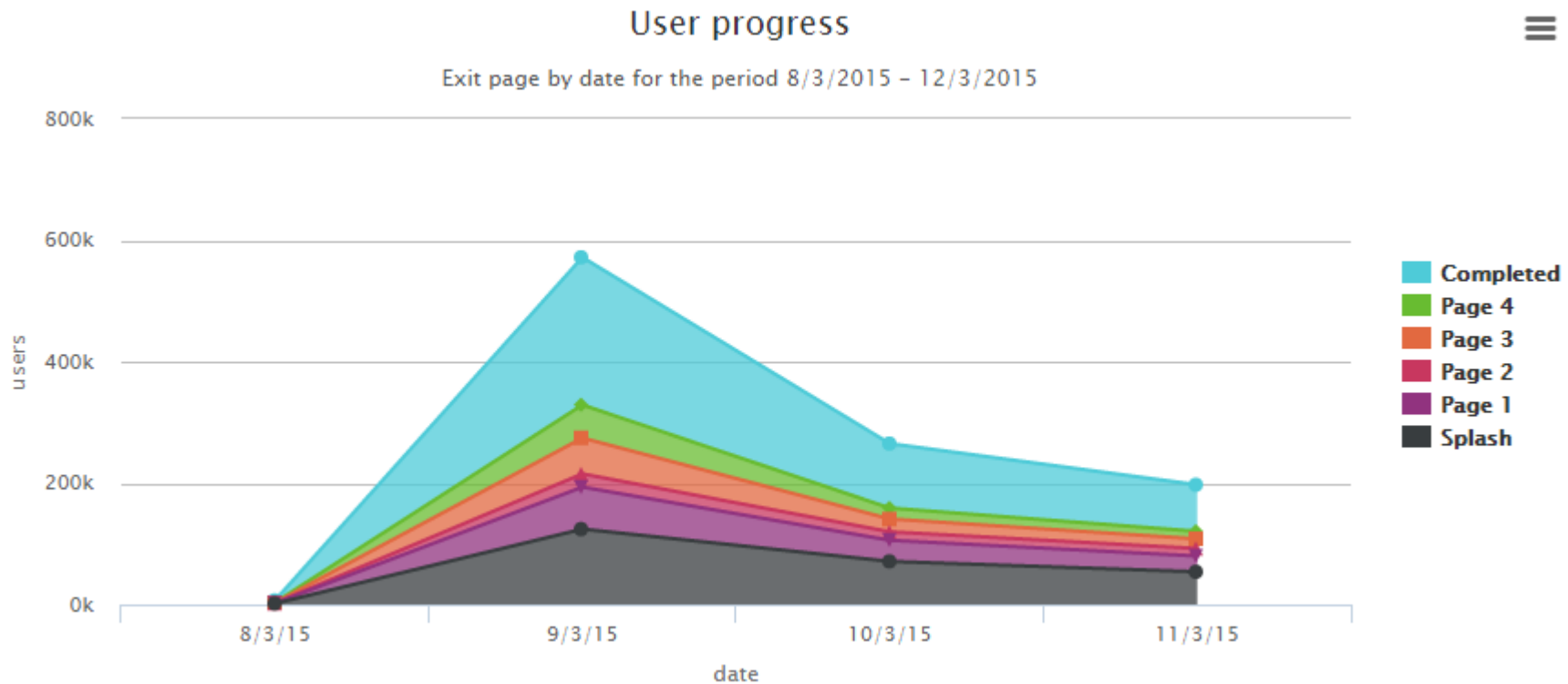


10 reasons to buy private health insurance



Main findings

- Overall good completion ratio despite dropouts



Completed
Page 4
Page 3
Page 2
Page 1
Splash



My Heart Age - Version 1



Open Access

Research

BMJ Open Online self-assessment of cardiovascular risk using the Joint British Societies (JBS3)-derived heart age tool: a descriptive study

Riyaz S Patel,^{1,2} Catherine Lagord,³ Jamie Waterall,³ Martin Moth,⁴ Mike Knapton,⁵ John E Deanfield^{1,2}

To cite: Patel RS, Lagord C, Waterall J, et al. Online self-assessment of cardiovascular risk using the Joint British Societies (JBS3)-derived heart age tool: a descriptive study. *BMJ Open* 2016;6:e011511. doi:10.1136/bmjopen-2016-011511

► Prepublication history and additional material is

ABSTRACT

Objective: A modified version of the Joint British Societies (JBS3) 'heart age' tool was introduced online to broaden access to personalised risk assessment to the general population and encourage participation in the National Health Service (NHS) Health Check programme. This study reports on its early uptake and the profiles of those who used the self-assessment tool to determine their own cardiovascular risk.

Design: Observational, retrospective analysis of online tool use.

Strengths and limitations of this study

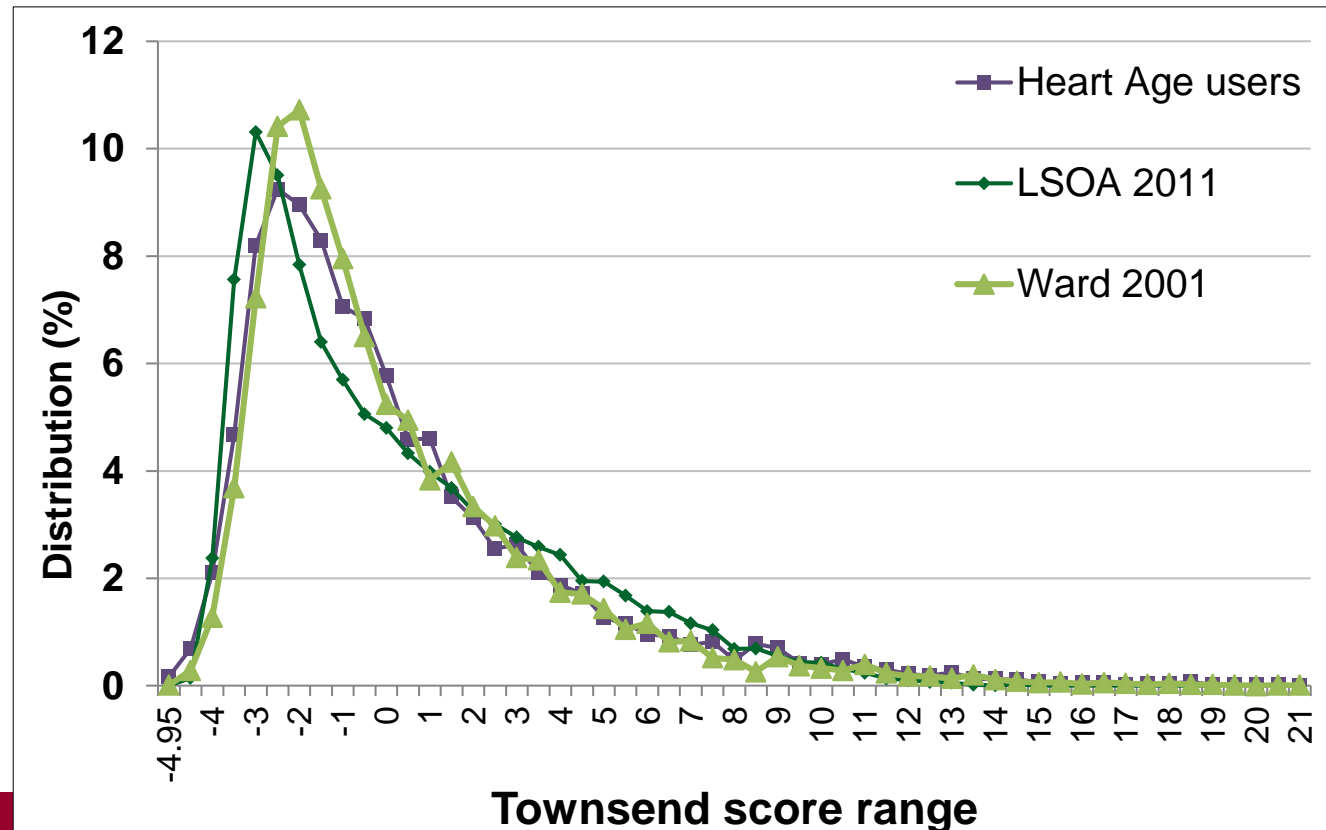
- The first study on the uptake and use of the Joint British Societies (JBS3)-derived 'heart age' tool by members of the public in the UK for self-assessment of cardiovascular disease (CVD) risk.
- Academic and public health collaboration with full access and analysis of anonymised online data for over 500 000 users, collected through the National Health Service (NHS) Choices

BMJ Open 2016;6: e011511. doi:10.1136/bmjopen-2016-011511



Who is using the tool?

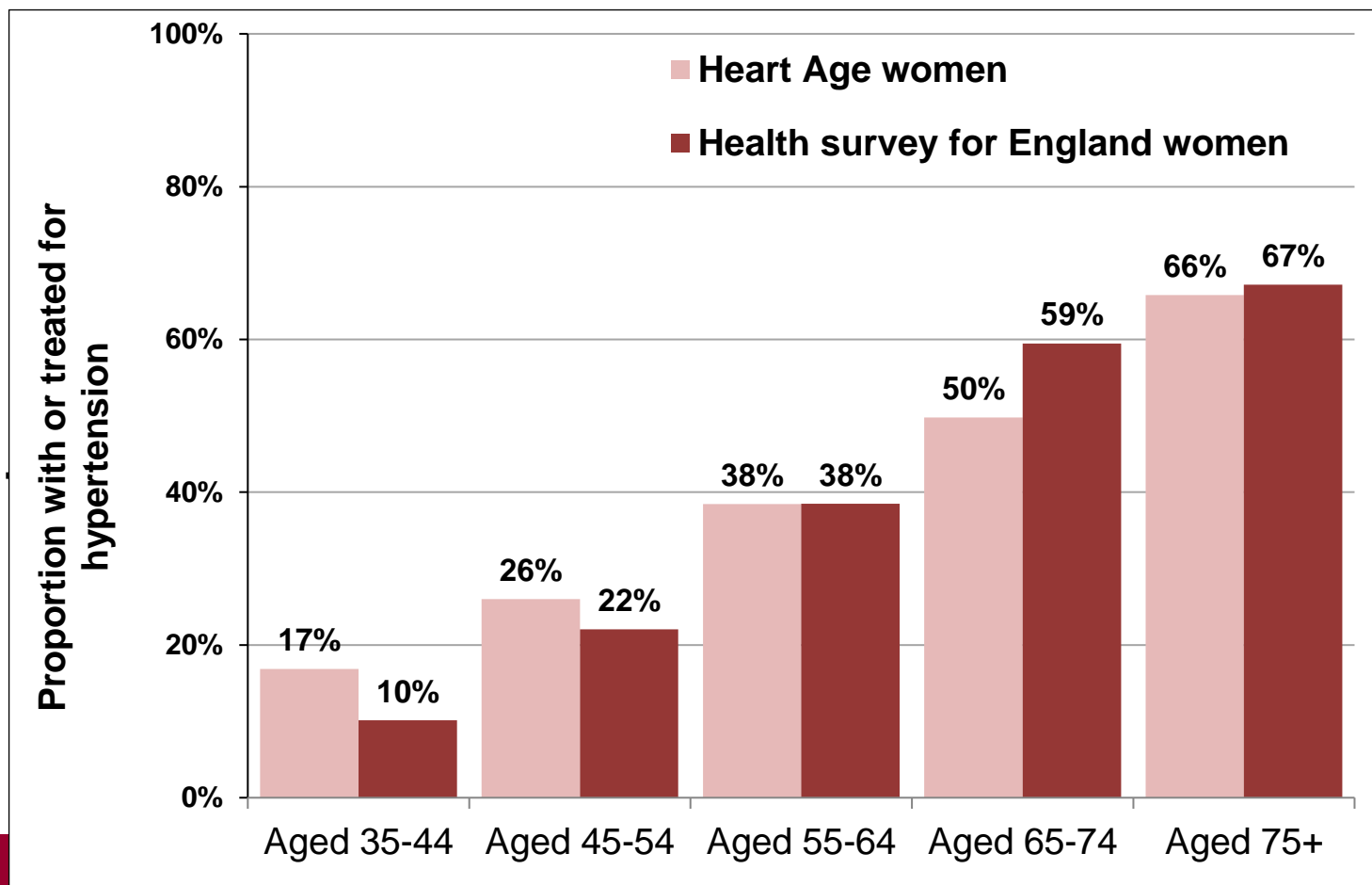
- in 5 months, **500,000+** calculated their heart age
- broadly resembled England population ...





Who is using the tool?

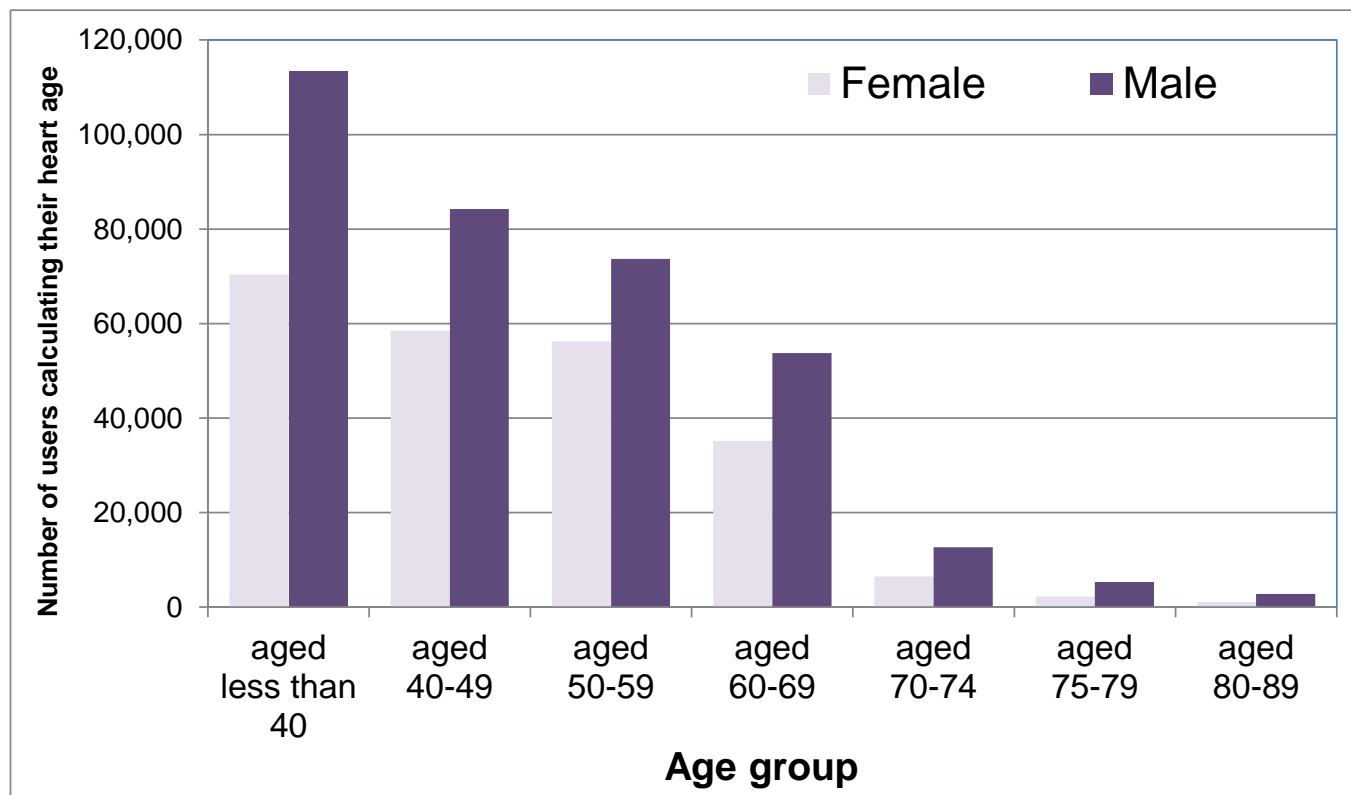
- broadly resembled England population





Who is using the tool?

- ..more men
61%
- ..younger
2/3 aged 40-74
30% less than 40

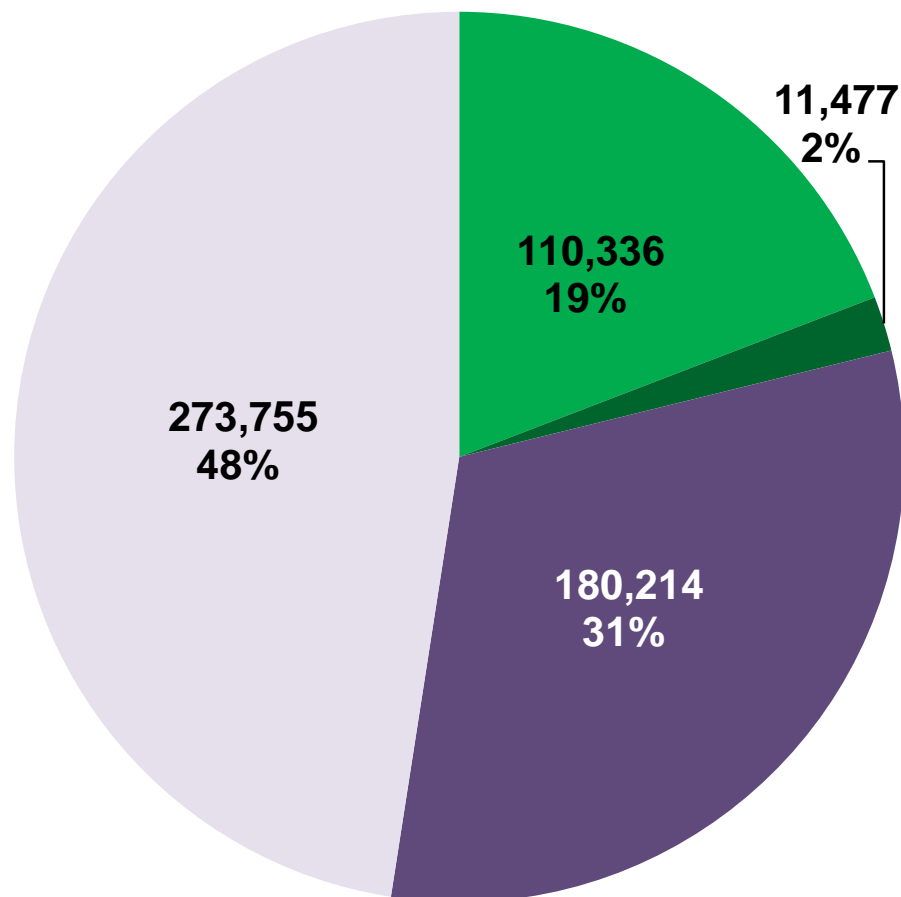




Did users know their numbers?

- 50% knew BP
- 1 in 4 knew cholesterol

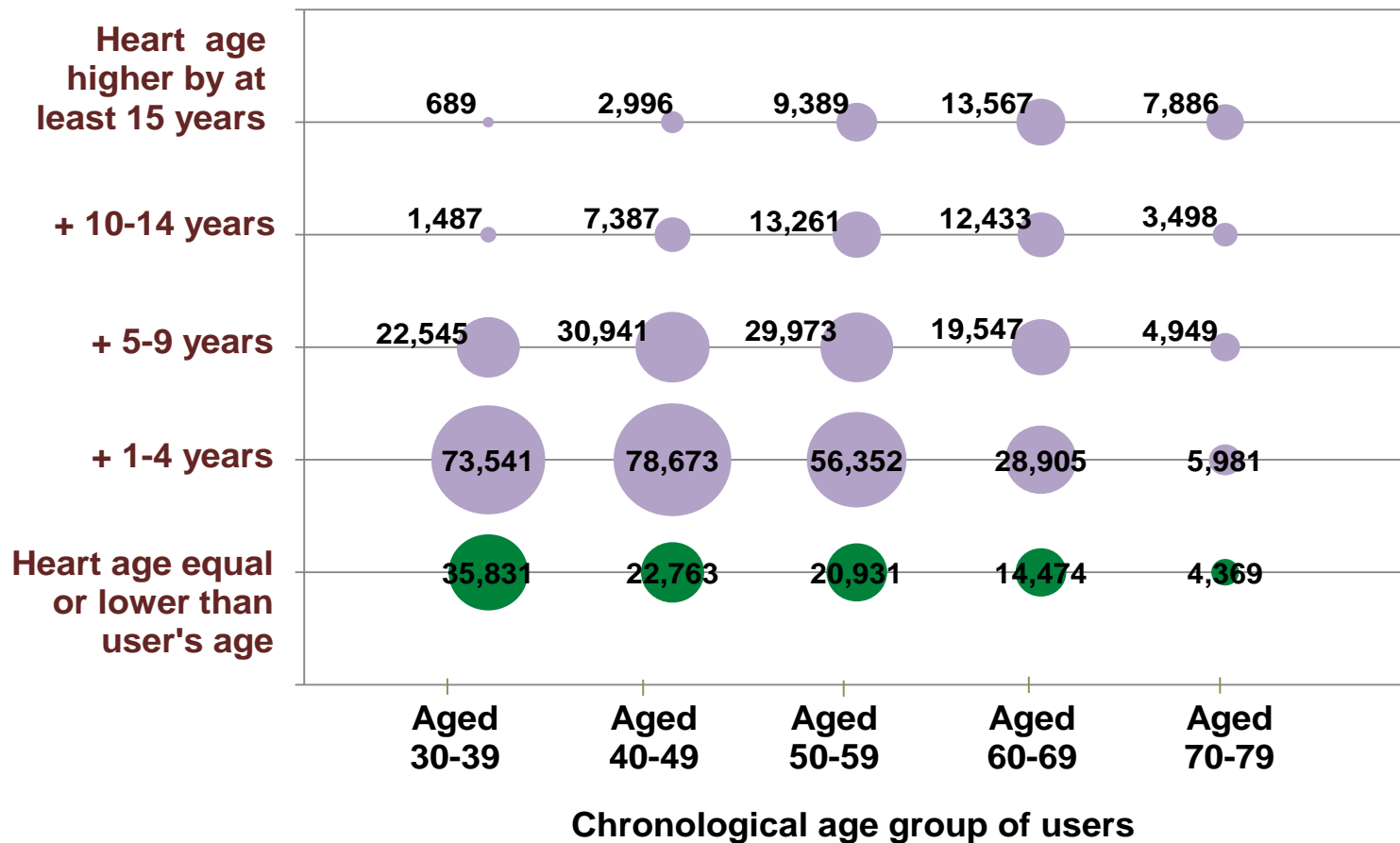
- Known cholesterol, known blood pressure
- Known cholesterol, unknown blood pressure
- Known blood pressure, unknown cholesterol
- Unknown blood pressure, unknown cholesterol





Half million users: how old was their heart?

- 4 in 5:
older
heart





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What users did next...

- only 2.8% accessed online resources provided



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My Heart Age - Version 2

Steering group:

- PHE
- NHS Choices
- BHF
- UCL / JBS3
- Behavioural Insight team

Check your heart age

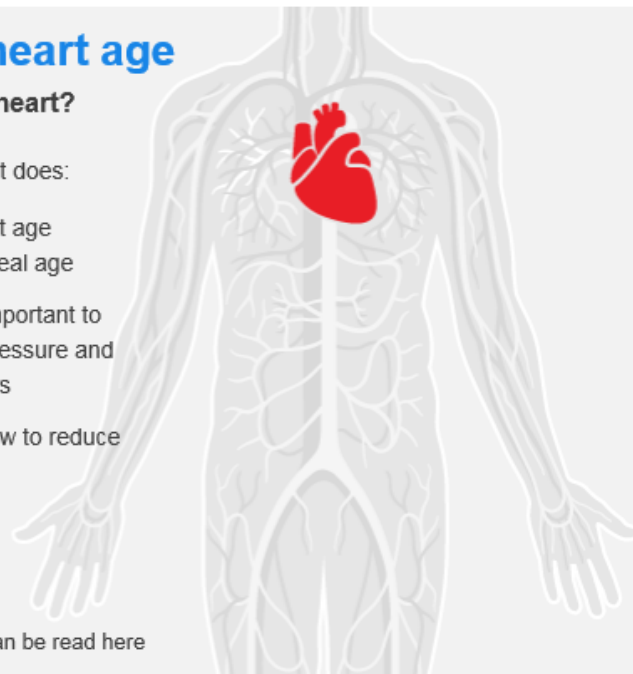
How healthy is your heart?

What this self-assessment does:

- Tells you your heart age compared to your real age
- Explains why it's important to know your blood pressure and cholesterol numbers
- Gives advice on how to reduce your heart age

Start

Full [terms and conditions](#) can be read here



This tool is a collaboration between NHS Choices, Public Health England and the British Heart Foundation. [More information about partners](#)

Full [credits](#) can be read here

www.nhs.uk/myheartage



New features in Version 2

- Improved flow/ structure
- Fewer words
- More bullet points
- All questions on a single screen
- More focussed results page
- Intervention toggles (what if?)
- Easier syndication
- Better stats/tracking



Public Health
England

New features in Version 2

NHS choices

Check your heart age

How healthy is your heart? Use this tool to find out if your heart age is higher or lower than your actual age.

Anyone over 30 can use the tool, even if you don't know your blood pressure and cholesterol. However, without these numbers, your result will be an estimate and we recommend you get tested to get an accurate result.

Start

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JBS3

Joint British Societies
for the prevention of
cardiovascular disease

This tool is a collaboration between NHS Choices, Public Health England and the British Heart Foundation. [More information about partners](#)
Full [credits](#) can be read here

Old

Check your heart age

How healthy is your heart?

What this self-assessment does:

- Tells you your heart age compared to your real age
- Explains why it's important to know your blood pressure and cholesterol numbers
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Start

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Full [credits](#) can be read here

New



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New features in Version 2

- All questions on a single, scrollable screen
- Suits desktop and mobile (mobile now 60% of all Choices traffic)
- Easier to use, less dropout

Check your heart age

About you

Please provide your details

Date of birth
Day Month Year

Gender ☐ Male ☐ Female
Why is this asked?

Ethnic group
Why is this important?

Postcode
Why is this being asked?

Do you have cardiovascular disease? ☐ Yes ☐ No
What is cardiovascular disease?

Do you smoke?

About your health

Height Feet Inches
Switch to metric

Weight Stone Pounds
Switch to metric

Do you have diabetes? ☐ Yes ☐ No

Do you have rheumatoid arthritis? ☐ Yes ☐ No
What is rheumatoid arthritis?

Do you have chronic kidney disease? ☐ Yes ☐ No
What is chronic kidney disease?

Have you had atrial fibrillation? ☐ Yes ☐ No
What is atrial fibrillation?

Has a close relative under 60 been told they have a cardiovascular disease? ☐ Yes ☐ No
What does this mean?

Do you know your cholesterol? ☐ Yes ☐ No
Cholesterol information

Do you know your blood pressure? ☐ Yes ☐ No
Blood pressure information

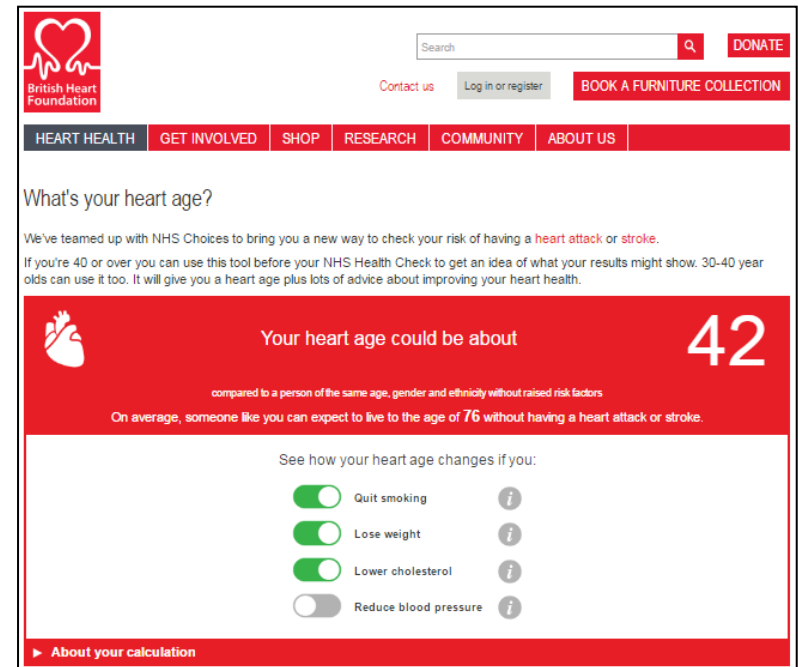
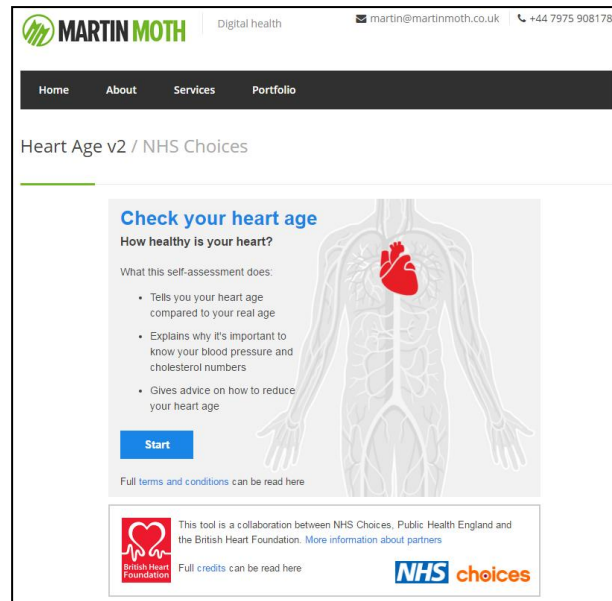
Have you ever received blood pressure treatment? ☐ Yes ☐ No
Blood pressure treatment

[Get Results](#)



New features in Version 2

- Easier to embed tool within another website





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New results page

- Longer, but..
 - Easier to read and understand
 - No 'walls'
 - Improved click-thru

Your systolic blood pressure is 166. If your doctor or nurse does not know about this, make an appointment to see them in the next month to let them know.

High blood pressure rarely has noticeable symptoms but left untreated, it increases your risk of heart attack or stroke.

The good news is, it can be brought under control through lifestyle changes such as

- losing weight
- reducing salt intake
- exercising regularly
- cutting back on alcohol and caffeine

So start now and follow the links below. You may also need medication.

Find out more about blood pressure



Symptoms, causes, diagnosis and treatment of high blood pressure (hypertension)



Jane's story of her shock high blood pressure result came to light during her NHS Health Check



Learn how small lifestyle changes can help lower your blood pressure

Looking after your heart

You can get a free NHS Health Check if you're aged 40 to 74 and not already being treated for cardiovascular disease.

You'll find out your blood pressure and cholesterol numbers and learn how healthy your heart is.

It's an opportunity to put right emerging problems and get personalised advice on keeping yourself healthy and active.

[Read more about the NHS Health Check.](#)



Back

Start again



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England

New results page

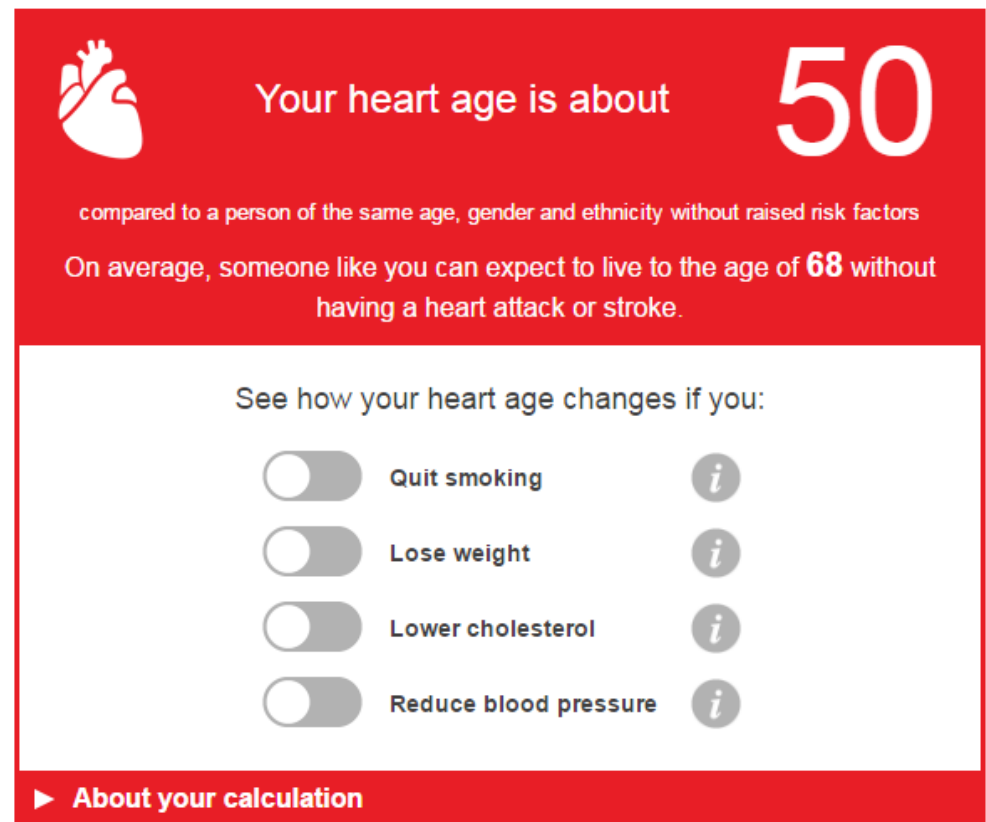
- Longer, but..
 - Easier to read and understand
 - No 'walls'
 - Improved click-thru

The screenshot displays the NHS Health Check results page. At the top, a red banner states 'Your heart age could be about 40', comparing it to a person of the same age, gender, and ethnicity without risk factors, and noting that on average, someone like you can expect to live to the age of 77 without having a heart attack or stroke. Below this, a section titled 'See how your heart age changes if you' features four toggle switches: 'Quit smoking' (on), 'Lose weight' (on), 'Lower cholesterol' (on), and 'Reduce blood pressure' (on). A red arrow points to 'About your calculation'. The 'What affects your heart age?' section includes a 'Smoking' status of 'I smoke less than 20 a day' and a 'Weight' status of 'BMI 29.9 Overweight'. It provides detailed information on the risks of smoking and being overweight, and offers links to download a free NHS diet plan and start today. The 'Simple steps to becoming a healthy weight' section includes icons for diet, activity, and weight, with links to download a 12-week 1000 calorie guide and a healthy recipe. The 'Cholesterol' section shows a 'Total: 7.8 Very high' result, explaining the risks and providing advice on diet, exercise, and medication. The 'How you can lower your cholesterol' section includes links to 'What causes high cholesterol and how it's diagnosed and treated', 'Lowering your cholesterol without medication could be easier than you think', and 'Fats explained - what's good and what's not'. The 'Blood pressure' section shows a '166 High' result, explaining the risks and providing advice on diet, exercise, and medication. The 'Find out more about blood pressure' section includes links to 'Symptoms, causes, diagnosis and treatment of high blood pressure (hypertension)', 'Jane's story of how blood pressure changes can help lower your blood pressure', and 'Learn how small lifestyle changes can help lower your blood pressure'. The 'Looking after your heart' section provides information on the NHS Health Check and offers a 'Start again' button.



New results page

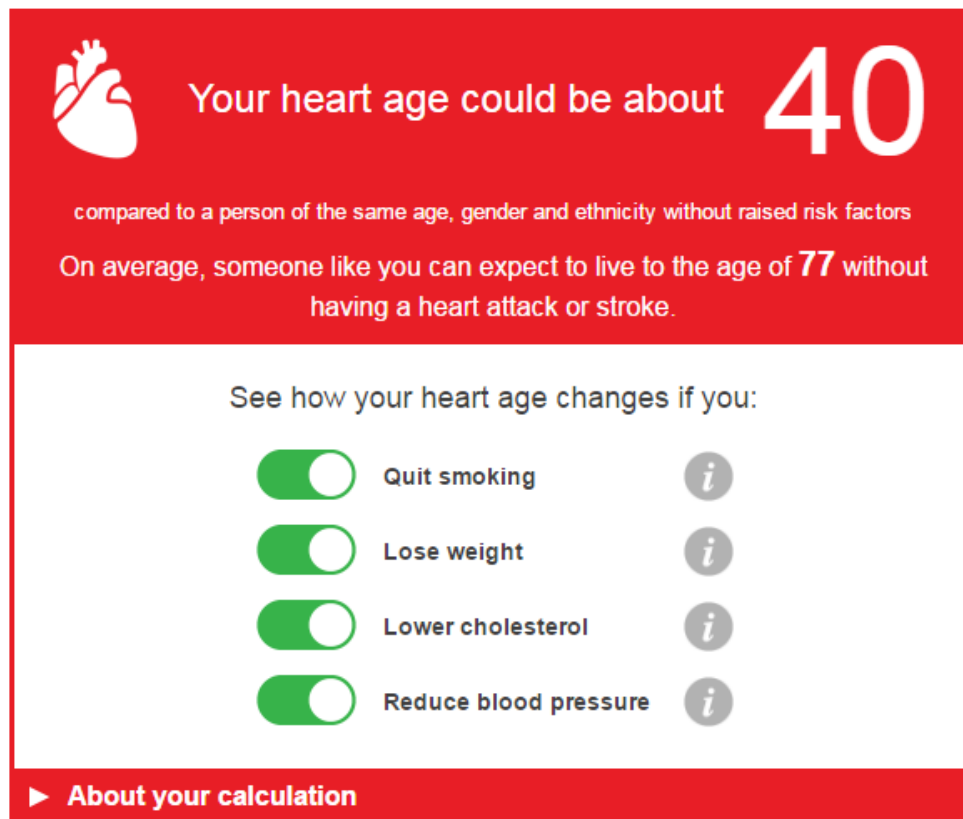
- Interventions
 - What if I?
 - Quit smoking
 - Lose weight
 - Lower cholesterol
 - Reduce BP






New results page

- Interventions
 - What if I?
 - Quit smoking
 - Lose weight
 - Lower cholesterol
 - Reduce BP











The screenshot shows a red-themed interface for a heart age calculator. At the top, a white heart icon is next to the text "Your heart age could be about" followed by a large white number "40". Below this, in smaller white text, it says "compared to a person of the same age, gender and ethnicity without raised risk factors". Further down, it states "On average, someone like you can expect to live to the age of **77** without having a heart attack or stroke." Below this is a section titled "See how your heart age changes if you:" with four rows. Each row has a green toggle switch, a text label, and an information icon (a grey circle with a white 'i'). The rows are: "Quit smoking", "Lose weight", "Lower cholesterol", and "Reduce blood pressure". At the bottom of the interface is a red bar with the text "► About your calculation" in white.

 Your heart age could be about **40**

compared to a person of the same age, gender and ethnicity without raised risk factors

On average, someone like you can expect to live to the age of **77** without having a heart attack or stroke.

See how your heart age changes if you:

	Quit smoking	
	Lose weight	
	Lower cholesterol	
	Reduce blood pressure	

► About your calculation



Tools can easily be..

- Added to your website (embed code)
- Linked via a poster or paper leaflet (QR code - right)
- Tracked as a 'campaign'
- nhs.uk/myheartage is your most direct route





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An example..



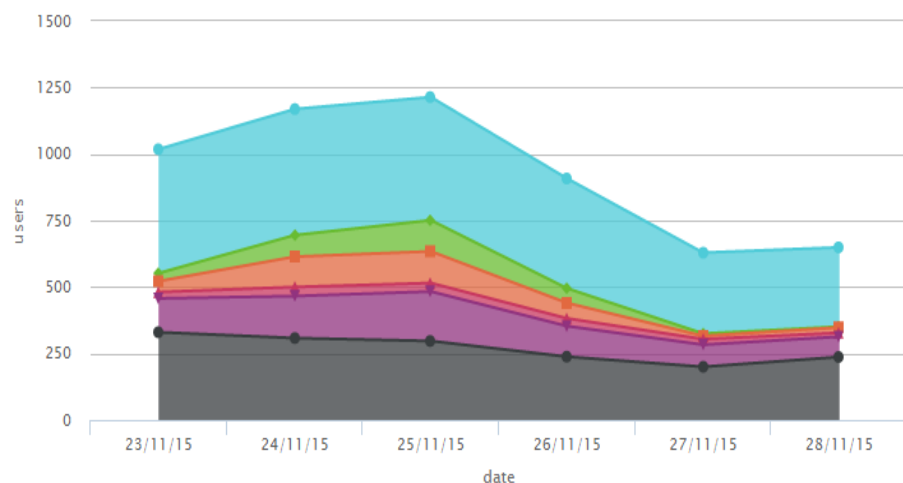
Added QR
code and
link text



First findings

User progress

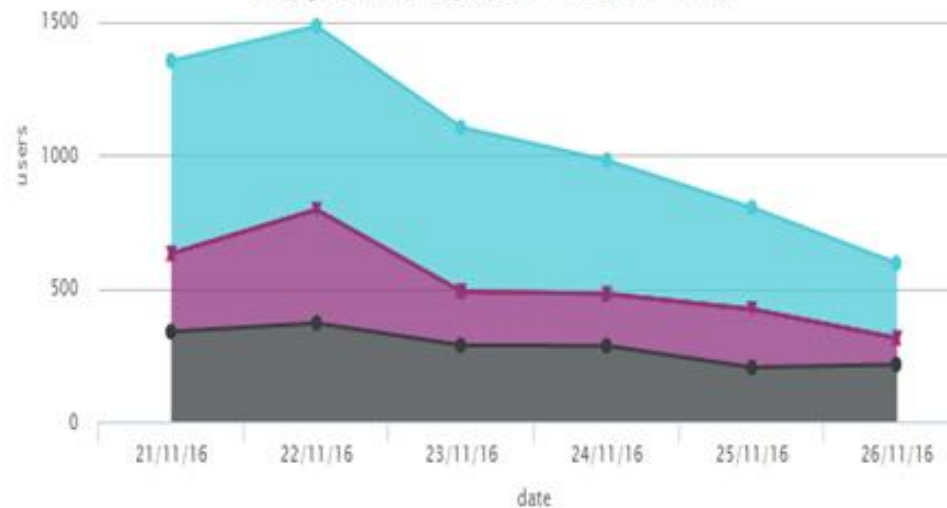
Exit page by date for the period 23/11/2015 – 29/11/2015



1 week in Nov 2015
2418 completed

User progress

Exit page by date for the period 21/11/2016 – 27/11/2016



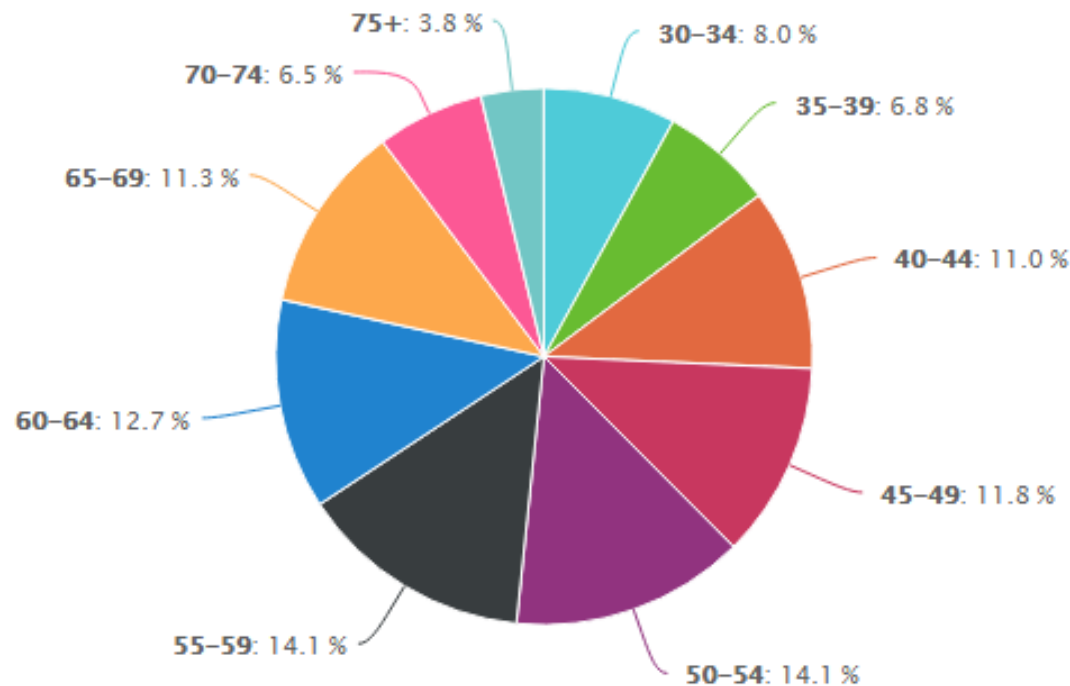
1 week in Nov 2016
3185 completed



First findings – age group

Age

By percentage for the period 28/9/2016 – 28/11/2016 **sample size: 132,388**

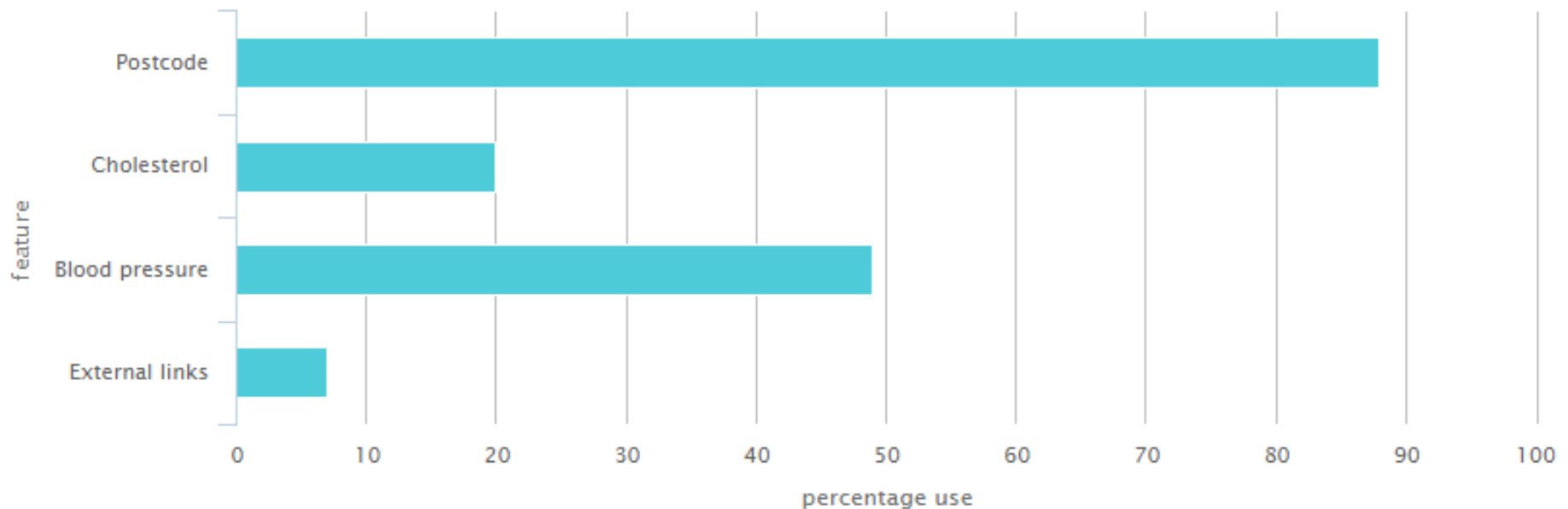




First findings – feature usage

Feature usage (completed)

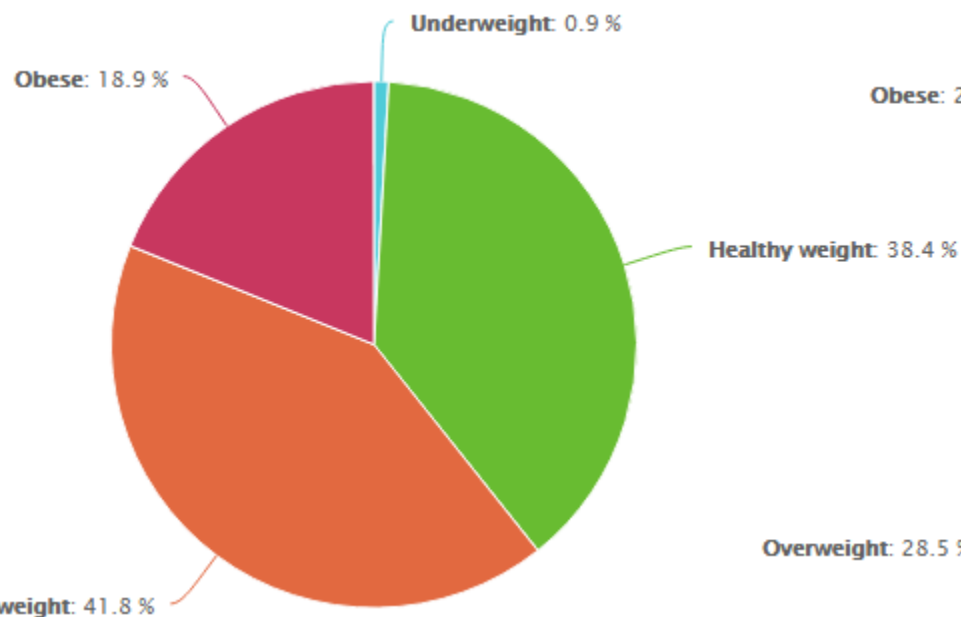
Percentage use of features for the period 28/9/2016 – 28/11/2016



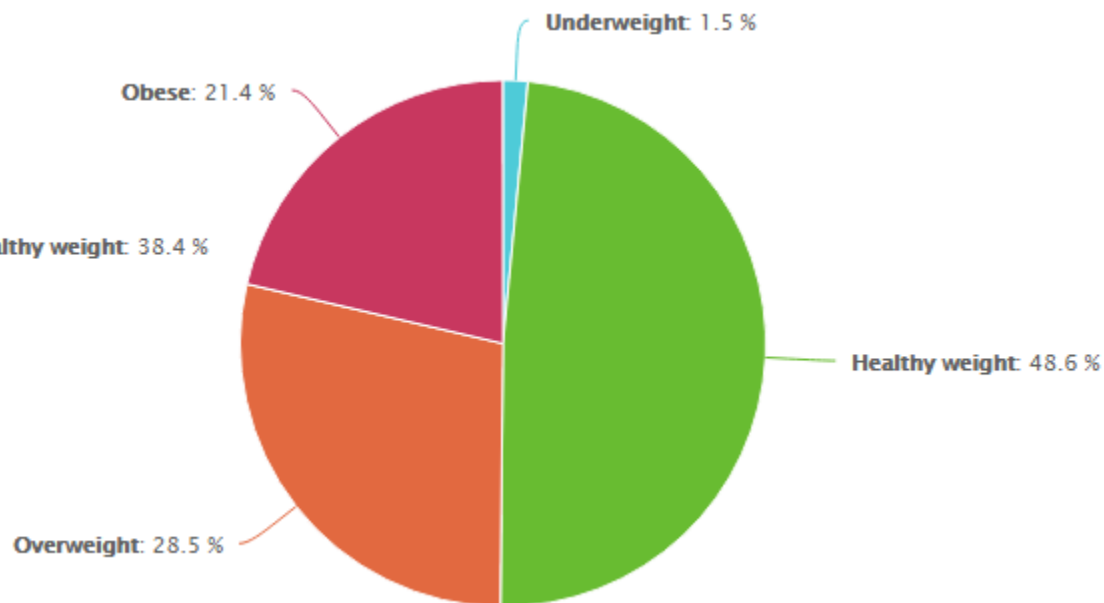


First findings – weight by gender

Male



Female





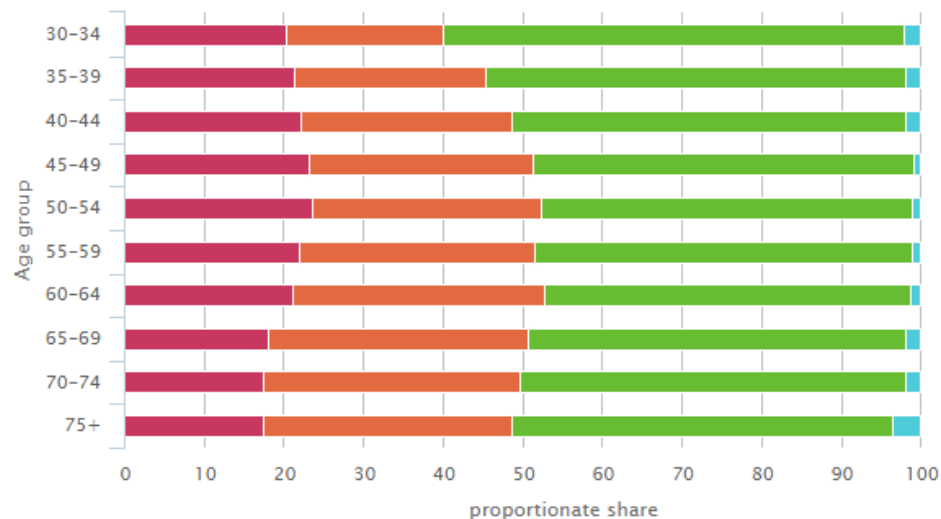
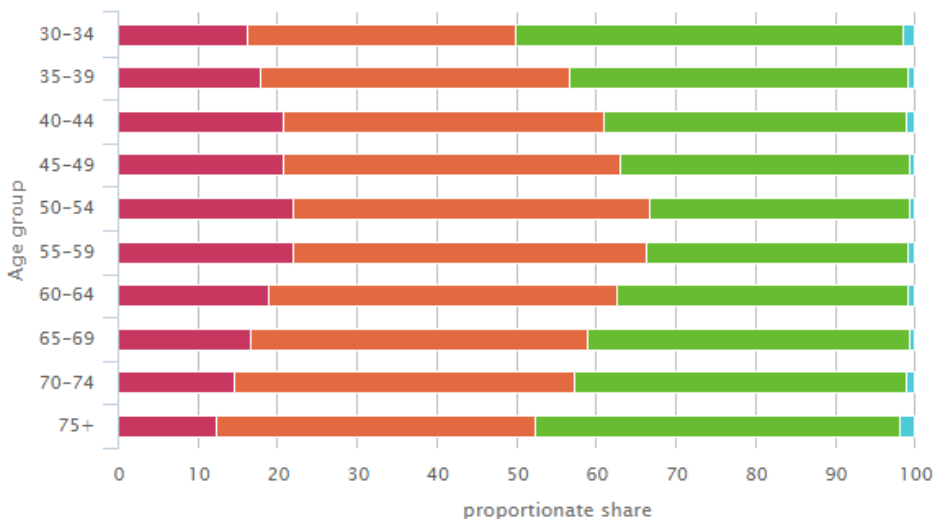
First findings – weight by gender

Male

Weight category

Female

By proportionate share for the period 28/9/2016 – 28/11/2016



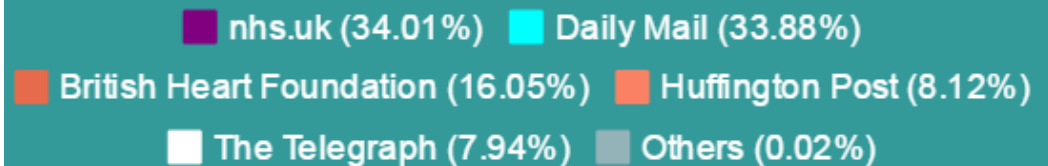
Underweight
Healthy weight
Overweight
Obese



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First findings

Websites Hosted



As the tool was syndicated out, it was available in different locations. While the majority of visits did occur on nhs.uk still, Daily Mail was not far behind



First findings

Intervention Sliders Clicked



■ lower cholesterol (33.31%) ■ reduce blood pressure (31.46%)
■ lose weight (30.08%) ■ quit smoking (5.15%)

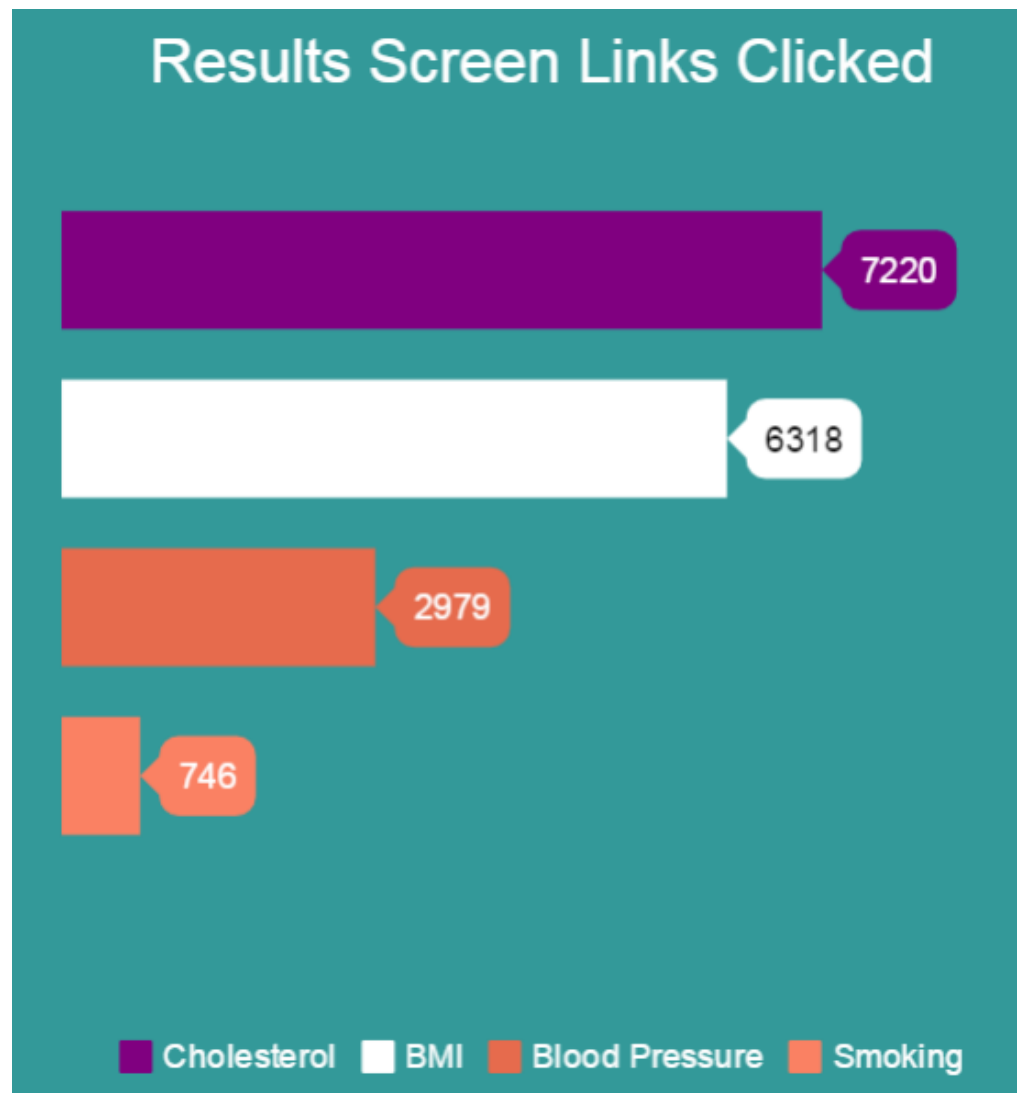
- Cholesterol was the main draw for users clicking sliders or going onto other content on Choices

- Smoking is the lowest used in both sections 91% of tool users said they did not smoke



Public Health
England

First findings





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