Wiltshire Council

Health Select Committee

6 March 2018

5-Year Evaluation of Wiltshire's NHS Health Check Programme

Purpose

1. To provide an evaluation update on the NHS Health Checks programme to the Health Select Committee.

Background

2. NHS Health Checks are intended to identify early signs of cardiovascular disease. They are delivered by primary care providers (general practice) to adults in England aged between 40 and 74 years without any pre-existing cardiovascular disease every five years. The NHS Health Checks programme is commissioned by Wiltshire Council as a mandated service required by the Health and Social Care Act (2012).

3. The NHS Health Check programme began in Wiltshire in 2011. This programme was evaluated by the public health team in May 2017. The evaluation showed an increase in the percentage of the eligible population invited to attend an NHS Health Check: from 21.7% in 2012 – 2013 to 32.2% in 2015 - 2016.

4. From 2012 to 2016 an average of 45.5% of patients who were invited for an NHS Health Check attended and the percentage uptake increased from 2012 to 2016. On average from 2012 to 2016, 55.5% of patients who were invited for an NHS Health Check did not attend.

5. In 2017 the results of the evaluation were presented to the Health Select Committee at Wiltshire Council. The committee requested more information regarding the outcomes of patients who had been invited to attend an NHS Health Check but did not attend.

Aim of the evaluation

6. The aim of this evaluation was to review anonymised case notes of patients who were invited for an NHS Health Check but did not attend the programme, to determine if they subsequently developed cardiovascular disease or other medical condition.

Methodology

7. Cluster sampling was used to identify three general practices in Wiltshire. A clinical computer system, known as SystemOne was used to perform searches and generate reports of patients who had been invited for an NHS Health Check, had not attended it and had subsequently developed cardiovascular disease. The timescale was between 2012 and 2018, and the search used in this evaluation was run in January 2018.

8. Cardiovascular disease is defined as diseases of the heart and blood vessels. The following clinical search terms (known as read codes), were used in searches: atrial fibrillation, chronic kidney disease, coronary heart disease, diabetes, heart failure, hypertension, peripheral vascular disease, stroke.

9. Eight case studies were selected based on their demonstration of significant adverse clinical outcomes. These case studies were anonymised and detailed in this report.

Results

10. In the three general practices that participated in the evaluation, 6,989 patients were clinically coded as having been invited for an NHS Health Check between 2012 to 2017. 55.8% of these patients were coded as having had their NHS health check completed.

11. 44.2% of patients invited for an NHS Health Check did not have a completed NHS Health Check clinically coded in their medical records. 6.3% of these patients were subsequently clinically coded as having later developed a cardiovascular disease.

12. The case studies (see appendix) demonstrated a variety of different cardiovascular diseases, all of which are preventable. In all cases cardiovascular risk factors, such has high blood pressure, would have been likely to have been present at the time of an NHS Health Check. Interventions lifestyle modification advice and preventative medicines could have been initiated, and these could have decreased the risk of significant cardiovascular events occurring, and their associated long-term morbidity.

13. Several limitations to this study must be acknowledged. This study used data from only three general practices in Wiltshire. This study relies on clinical codes (search terms) being used accurately by the general practices. This includes the coding of NHS Health Check invitations having been sent, the coding of NHS Health Checks having been completed and cardiovascular diseases being coded at diagnosis.

Conclusion

14. Cardiovascular diseases can take many years to develop once risk factors such as high blood pressure have developed. Therefore, it is likely that other people who were invited for an NHS Health Check and who did not attend may subsequently develop cardiovascular disease in the long term.

15. This study has demonstrated the potential poor health outcomes related to not attending for an NHS Health Check when invited. It would be recommended that further efforts are made to increase the uptake of NHS Health Checks and to use the understanding of the reasons for non-attendance to inform promotion activities.

Authors

Alice Beech, GP Registrar, Public Health, Wiltshire Council

Steve Maddern, Public Health Acting Consultant, Public Health, Wiltshire Council

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Appendix - Anonymised case studies from three Wiltshire General Practices

1. Heart attack

A 50-year-old female was invited for an NHS Health Check in July 2016 but did not attend. She had been a smoker since she was 11 years old. Three months later in October 2016 she attended an accident and emergency department with severe chest pain. An ECG, which shows the heart's electrical activity showed major abnormalities indicating that she was having a life-threatening heart attack.

She was immediately taken for an emergency procedure on her heart, where a large blockage was found in the main blood vessel supplying her heart, and it was unblocked using a stent. Following this procedure her heart stopped beating, but she was revived by doctors and nurses in the hospital.

She was then started on medications to decrease her risk of more heart attacks in future and was seen by a stop smoking specialist nurse in her GP surgery.

Her heart attack was caused by a build-up of fatty materials in the main blood vessel supplying her heart. This is commonly caused by high cholesterol and high blood pressure. These could have been identified in an NHS Health Check and subsequently treated proactively, which could have prevented the need for an emergency procedure. The health care professional performing the NHS Health Check could also have discussed her smoking with her and could have referred her to the stop smoking service.

2. Brain haemorrhage

A 73-year-old male was invited for an NHS Health Check in March 2015 but did not attend. He was previously well, had never smoked and was still working. In December 2017, he was suddenly unable to speak, blind in one eye, and unable to move his right arm and leg. He was rushed to hospital and admitted to the intensive care unit. A brain scan showed a large bleed in his brain and his blood pressure was found to be extremely high.

Medications were started to decrease his blood pressure and he was seen by physiotherapists, to help him regain power in his arm and leg, and speech therapists to help him regain his speech.

When he was discharged from hospital he was categorised as having moderate to severe disability; unable to attend to his own bodily needs without assistance, and unable to walk unassisted.

The brain haemorrhage was caused by uncontrolled high blood pressure. This could have been identified in an NHS Health Check and treated with medications and lifestyle modification.

3. Stroke and irregular heart beat

A 69-year-old male was invited for an NHS Health Check in May 2013 but did not take up the offer. He was previously well and had never smoked. In November

2015, he suddenly developed weakness in his left leg and arm, so went to hospital. A scan of his head showed a blot clot in the brain and he was diagnosed as having had an ischaemic stroke.

He remained in hospital to have more tests looking for the cause of his stroke. One of the tests was a 24-hour heart monitor, which showed that the heart was beating irregularly. He was diagnosed with atrial fibrillation, a heart condition where the heart beats irregularly and often faster than normal.

Untreated atrial fibrillation is a common cause of stroke, as the irregular heart beat can cause blood clots to form in the heart, which then travel to the brain where they become stuck in brain blood vessels and cause a stroke.

Atrial fibrillation could have been identified in an NHS Health Check, as checking for an irregular pulse is a routine part of the health check. Blood thinning medications could then have been started to decrease the risk of a blood clot forming and causing a stroke.

4. Heart failure, kidney failure and high blood pressure

A 70-year-old male was invited for an NHS Health Check in September 2013 but did not take up the offer. He was previously well and had never smoked. In January 2016, he went to his GP because he had been experiencing chest pain and breathlessness when walking.

His GP referred him to a heart specialist doctor who organised an ultrasound scan of the heart, which showed heart failure: the heart was only managing to pump out 50% of the normal amount of blood. Further tests showed that the causes of this were a blockage of one of the main heart valves and blockages in some of the blood vessels supplying the heart. He was also found to have high blood pressure.

In August 2016, he had an operation to replace his blocked heart valve with an artificial valve. He then had another operation where he had a coronary artery bypass graft; a vein from his leg was moved to his heart, to divert the blood supply away from the blocked heart blood vessels. Over this period, he had been started on nine different medications for his heart.

In December 2016, he was admitted to hospital with worsening breathlessness and swollen legs. Blood tests showed that he had now developed kidney failure, and another ultrasound scan of his heart showed that his heart failure had got worse, and his heart was now only managing to pump out 28% of the normal amount of blood. Some more medications were started, and he had a pacemaker inserted, a small electrical device fitted in the chest to help the heart to beat.

The above treatments helped his breathlessness, chest pain and leg swelling, but ultimately there is no cure for heart failure and for this type of kidney failure. High blood pressure and high cholesterol are some of the major causes of blockages of blood vessels in the heart and kidneys, and these could have been identified in an NHS Health Check and subsequently treated.

5. Diabetes

A 40-year-old male was invited for an NHS Health Check in September 2015 but did not take up the offer. He was previously well and had never smoked. In March 2017, he went to his GP with a rash in his groin that his GP thought was fungal, so treated him with an antifungal cream.

Over the next few months the rash recurred several times, so in December 2017 blood tests were performed to look for causes of recurring infections, such as diabetes. Blood tests confirmed that he had type two diabetes, and some of the blood tests taken showed that he had had high blood sugar levels for at least the last two months.

After a diabetes diagnosis was made he was seen by the diabetes specialist nurse who gave him advice about changing his diet and losing weight.

Diabetes could have been identified in an NHS Health Check, as a diabetes risk assessment is performed as part it of the appointment, and this would have triggered further tests for diabetes to be performed. Treatment could have been started earlier to reduce blood sugar levels, which would have decreased the risks of long term high sugar levels, such as kidney disease, heart disease and eye disease.

6. Blockage of blood vessels in the legs

A 73-year-old man was invited for an NHS Health Check in July 2015 but did not take up the offer. The man was a smoker but was otherwise well. In July 2016, he went to his GP with pain in his lower left leg while walking. The GP examined him and found that the blood supply to his lower left leg was significantly decreased. The GP referred him to doctors who specialise in operating on blood vessels in the limbs.

In October 2016, the specialist doctors performed an ultrasound scan of the blood vessels in his legs, which showed that one of the main blood vessels supplying the lower left leg was blocked. He was started on medications to try to stop the problem worsening, with a view to possibly doing an operation in future to unblock the blood vessels if the pain is his leg significantly worsened.

The man was diagnosed with peripheral vascular disease; a disease in which blood vessels supplying the legs become narrowed and sometimes blocked by a build-up of fatty deposits in the blood vessels supplying the legs. The fatty deposits are caused by high cholesterol and high blood pressure, and these could have been identified in an NHS Health Check and treated with medications and lifestyle modification.

7. High blood pressure

A 67-year-old female was invited for an NHS health check in May 2015 but did not take up the offer. She was previously well and had never smoked. In May 2017, she checked her blood pressure at home using a friend's blood pressure machine and found it to be high.

She went to see her GP who asked her to monitor her blood pressure at home for a week to check how high it was on average. Her blood pressure was consistently high so she was started on medications to lower her blood pressure.

Blood pressure is checked as part of an NHS Health Check, so high blood pressure could have been identified earlier and treated.

8. Blockage of blood vessels in the heart

A 63-year-old lady was invited for an NHS Health Check in July 2015 but did not take up the offer. She was previously well, had never smoked cigarettes and no one in her family had suffered from any cardiovascular diseases.

In August 2017, she needed a non-urgent operation for a bladder problem and as part of this had a pre-operative health assessment by the anaesthetist in hospital. She had an ECG, a test which checks the heart's electrical activity, looking at its rate and rhythm. This showed some abnormalities so further heart tests were performed. A test to check the heart's electrical activity while exercising showed that the heart was not receiving enough oxygen while exercising, so she was referred to heart specialist doctors in the hospital.

The heart specialist doctors saw her in their clinic and asked her if she had ever had breathlessness and chest pain while exercising. She reported that she had experienced these symptoms, though had never sought medical advice about them. The heart specialist doctors performed a specialist test looking at the main blood vessels supplying the heart. The test showed that one of the main blood vessels supplying her heart was blocked.

She was diagnosed with coronary artery disease, a disease in which the main arteries supplying the heart become narrowed by a build-up of fatty materials. The main causes of this include high blood pressure, high cholesterol and being overweight; all of which could have been identified in an NHS Health Check. These could have then been treated with medications and lifestyle modification.