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The tip of the iceberg

The immediate and longer-term effects of the Covid-19 pandemic on people with heart and circulatory diseases

Statistics summary

Foreword

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Foreword

In those first fast-moving and uncertain weeks of the Covid-19 pandemic, few may have foreseen how long the NHS would be under such intense and sustained pressure, and the scale of the impact on non-Covid care.

Despite the heroic efforts of everyone in the NHS, what subsequently unfolded would push the health service towards breaking point like never before, with potentially devastating consequences for many of the 7.6 million people living with heart and circulatory diseases in the UK.

Not only at risk of serious illness or death from Covid-19, heart and stroke patients have, for over a year now, faced long waiting times for treatment, including delayed heart operations or invasive procedures. For many, this has been very difficult, both physically and emotionally.

Tragically, in this first year of the pandemic in England, we now know the widespread disruption to care has likely contributed to over 5,800 extra deaths from heart and circulatory diseases.

However, stark figures around the high excess death toll and long waiting times for care are only the tip of the iceberg. What we cannot see, for example, are the tens of thousands of people who are not yet on waiting lists, but who are still deeply affected by the pandemic's impact.

As this briefing explains, the entire pipeline of cardiovascular healthcare has been damaged, from prevention, detection, treatment and recovery through to crucial research. This is contributing to a significant and growing backlog of care that threatens to cut more lives short for years to come.

This unseen impact is vast

There have been far fewer prescriptions for heart and circulatory conditions, and many thousands of people have likely gone months living with undiagnosed and untreated conditions such as high blood pressure.

At the same time, the impact of the pandemic hasn't been felt equally, and existing health inequalities have been made worse.

The NHS has never been under such sustained and extreme pressure in its 72 years. Yet the health service has adapted and made impressive innovations to meet this extraordinary challenge, while remaining open for everyone who needed emergency care for their heart attack and stroke at all times. However, there's a limit to what innovation alone can achieve. Staff have already been working above and beyond to tackle Covid-19 and provide urgent and emergency care for other conditions. The system needs support, and health workers need to know that support is coming to help them address the backlog of care.

All the while, a lack of financial investment for crucial medical research threatens to stall critical progress in reducing deaths from heart and circulatory diseases in the years and decades to follow.

Together, these factors risk creating a ticking cardiovascular time bomb for the future.

Since the BHF was founded 60 years ago, death rates from cardiovascular disease have fallen by three quarters in the UK. Without action now, we risk undoing some of the phenomenal progress we have made through vital research to better prevent, diagnose and treat heart diseases and stroke.

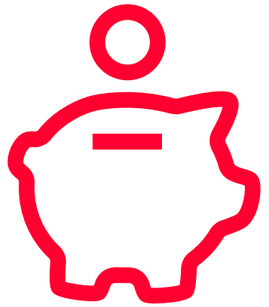
But we do have a choice

We can turn the tide on heart and circulatory diseases. With Covid-19 in decline, a clear plan and commitment to substantial and ongoing investment is needed now to shore up the hard-working and exhausted NHS, helping it to address the enormous backlog of cardiovascular care and build back routine services better.

At the same time, maintaining the UK's position as a world leader in cardiovascular research depends on support for medical research charities. The BHF, for example, funds more than half of all non-commercial research into heart and circulatory diseases. A financial life raft during this period, in which charities like the BHF have been so hard hit, will allow funding for scientific research to continue leading to scientific breakthroughs.

Additionally, investment in public health would bolster people's health as we weather this storm.

Heart and circulatory diseases did not stop for the pandemic. On behalf of the millions of people who live with these conditions in the UK, we are deeply concerned that six decades of progress in reducing death rates from heart diseases and stroke could be reversed. By acting now, we could prevent many more people with heart and circulatory diseases falling victim to the pandemic's devastating effects.



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The BHF funds more than half of all non-commercial research into heart and circulatory diseases in the UK.

The patient's perspective

Vicky Duboc, 37, has Turner syndrome and had an enlarged aorta, the body's main artery. This put her at risk of aortic dissection, a potentially life-threatening tear in the weakened wall of the aorta. In January 2020 she was told she would need surgery to replace her aortic root.

"When I was referred to a surgeon by my cardiologist in January, the waiting list was a couple of months, and we agreed to aim for surgery in May or June.

"But then Covid hit and we went into lockdown. As soon as we went into lockdown at the end of March, I realised there wasn't going to be any surgery happening for me. I contacted my hospital who confirmed all elective surgery had been put on hold.

"Time was passing by and I was sitting with this potential ticking timebomb in my chest, due to the risk of aortic dissection. I was told I wouldn't hear any news about a possible date for my operation until at least June or July. Previously, I had been monitored regularly for risk, but it was now more than a year since I had an MRI scan so I didn't know if my aortic root had enlarged further in this time.

"I eventually got a date for surgery in early September. I was very fortunate to have got a date then, they must have considered that my case needed to be prioritised. Many people have not been so fortunate and have had a longer, very worrying, wait."

Vicky and her partner Jean-Rémy

"Time was passing by and I was sitting with this potential ticking timebomb in my chest."

Delayed tests and treatments are just the 'tip of the iceberg'

Immediate effects:

- Waiting for heart surgery
- Waiting for heart procedures and tests
- Fewer cardiac hospital admissions
- Fewer diagnostic tests

Long term effects:

- Covid-19 patients newly diagnosed with heart disease
- Reduced risk factor management
- Effect on mental health
- Effect on quality of life for heart and circulatory disease patients
- Exacerbated health inequalities
- Reduced cardiovascular research funding

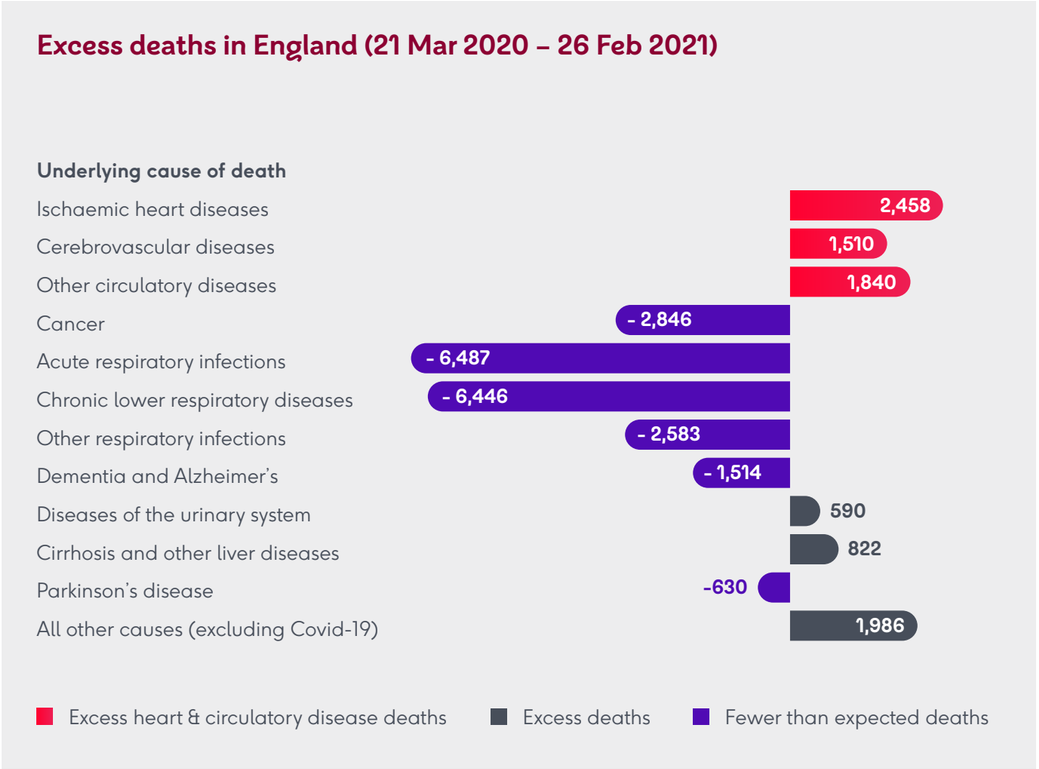
Published data from the NHS and government bodies can provide us with a clear picture of delays to referral, diagnosis and treatment for heart and circulatory disease patients, but the wider effects of the pandemic are still unfolding. The extent of the long-term impact of Covid-19 won't be known for years to come. We know that the pandemic has likely affected risk factor management, mental health, exacerbated health inequalities and could slow progress in heart and circulatory disease research.

The immediate effects

More people with heart and circulatory conditions are dying

In England, over 5,800 more people than expected died because of heart and circulatory disease in the first year of the pandemic - an average of 100 more people than we would usually expect dying of these conditions each week. Over 1,000 of these excess deaths did not mention Covid-19 on the death certificate.

Some people will have died with Covid-19 as a contributory factor - research has already shown that having a heart and circulatory condition increases your risk of dying from Covid-19. However, this increased risk does not explain all the excess deaths seen this past year; it is likely that delays to care will have contributed to the number of extra heart and circulatory disease deaths.



Source: Public Health England analysis of ONS death registration data

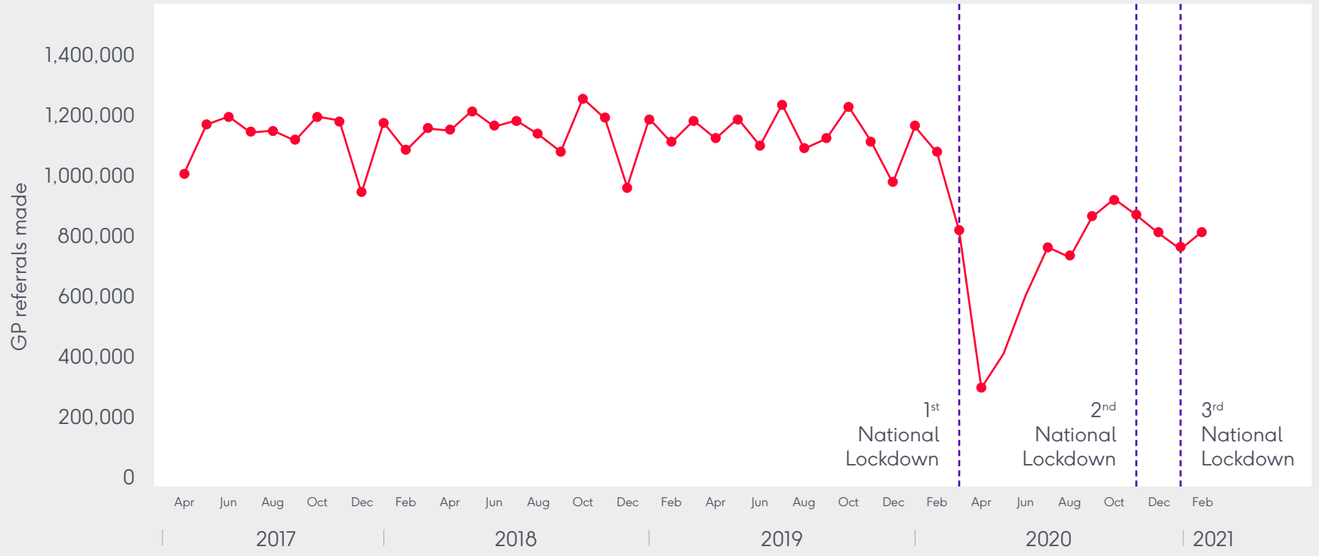
Fewer cardiac referrals and diagnostic tests

One way we can see delays in care is through the significant drop in referrals, both in general and for heart care specifically. In April 2020 in England, GP referrals for consultant-led outpatient appointments were 75% lower than the same period in the previous year. In February 2021, referrals were still 25% lower than in February 2020. Referrals* to cardiovascular specialists followed a similar pattern and in 2020 were 29% below 2019 in England.

At the same time there have been fewer diagnostic tests, such as echocardiograms, being carried out. In the first wave of the pandemic, completed echocardiograms fell dramatically in England, and have struggled to recover since. The number fell by 29% over the pandemic year, to February 2021, compared to the year prior.

These figures point to significant delays at the start of heart disease pathways, leading to delayed diagnosis, delayed treatment and ultimately poorer outcomes. It also suggests a substantial unmet need residing in communities, with people feeling concerned or unable to seek help with their heart symptoms.

Number of GP referrals, 2017-2020



*Referrals are defined as new treatment pathways starting

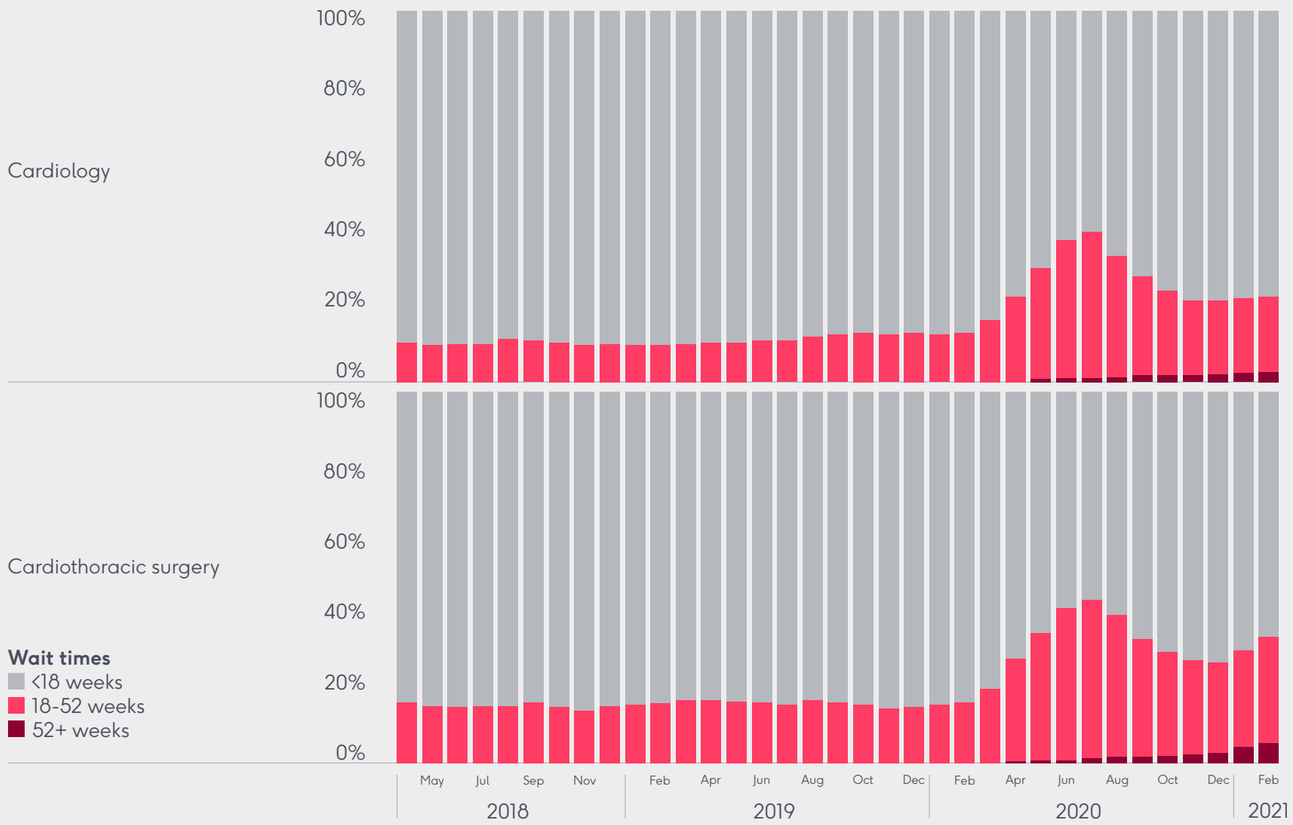
Longer waits for heart procedures and tests

Delays at the start of the pathway are further exacerbated by delays in treatment, with planned procedures particularly hard hit. There were 131,000 fewer heart procedures and operations carried out in the first year of the pandemic compared to the previous year in England.

The amount of time patients are waiting for heart treatment following referral has increased significantly. Each bar in the graph below shows the proportion of people waiting for heart procedures and operations for: less than 18 weeks (in grey), 18-52 weeks (in pink), and over a year (in dark red).

The proportion of people on the waiting list who are waiting for more than 18 weeks clearly begins to increase at the beginning of the pandemic in March 2020, peaking in July, with a growing proportion of people waiting for over a year. After the peak, the number of people waiting 18+ weeks remains substantially higher than pre-pandemic.

Number of patients waiting for heart procedures for over a year



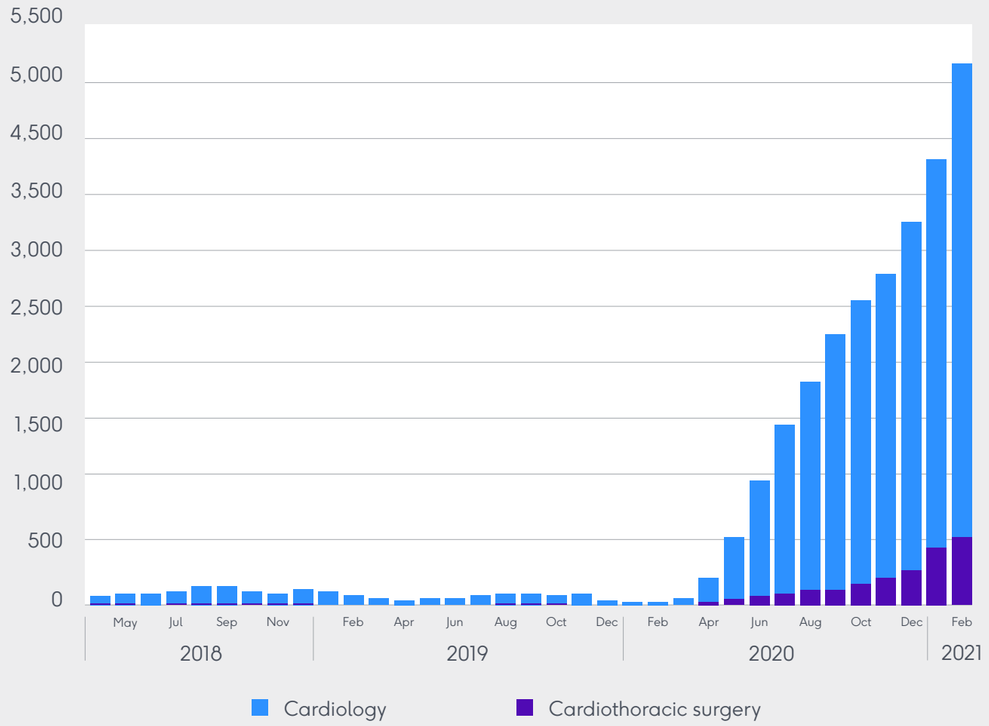
Longer waits for heart procedures and tests

The data shows a 180-fold increase in people waiting more than a year for heart procedures, including surgery, in England (graph right).

Patients who are waiting for such a long time for treatment inevitably run the risk of their symptoms worsening, possibly requiring emergency care. This is in addition to the concern and anxiety that delays to such important procedures and tests can cause.

After the peak, the number of people waiting 18+ weeks remains substantially higher than pre-pandemic.

Number of patients waiting for heart procedures for over a year



Less cardiac activity in hospitals

Lengthening waiting lists have been further exacerbated by lower available capacity in hospitals, in part due to Covid-19 patients requiring treatment and beds within intensive care, but also the need for social distancing and the impact of the pandemic on staffing.

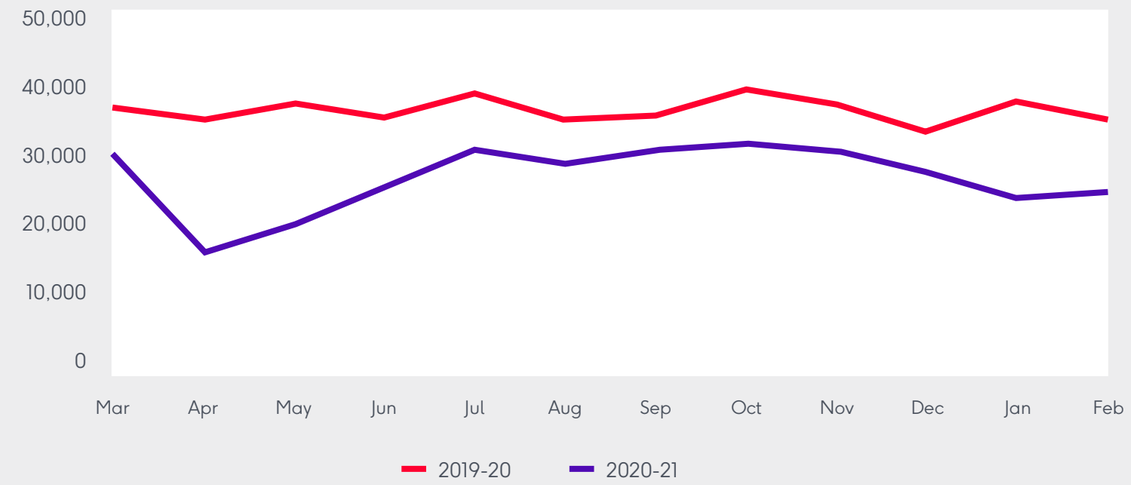
When the pandemic worsened again in November 2020, we also saw a drop in all cardiac hospital admissions. Overall, cardiac hospital admissions dropped 28% in the first year of the pandemic compared to the previous year (344k vs 475k).

Hospital admissions are not just for planned procedures and tests. The emergency care pathway has also been affected; we saw a 50% drop in people attending A&E with suspected heart attack symptoms in April 2020. Our survey of cardiologists at the time suggested that this was a drop in patients presenting themselves at A&E due to fear of catching coronavirus.

In England, there was a 22% drop in heart failure hospital admissions between January and September 2020 compared to the same period in 2019.

Such changes in patient behaviour, coupled with pressure on the healthcare system, have combined to leave a huge potential burden of unidentified or at least untreated cardiac disease.

Cardiac hospital admissions



Source: HES activity data. Cardiac hospital admissions are defined using 6 cardiac treatment function codes in finished admission episodes

The long term effects

Untreated risk factors for heart disease

The pandemic has disrupted the NHS's plans for earlier detection, diagnosis, and treatment of heart disease, including the NHS Long Term Plan target of preventing up to 150,000 heart attacks and strokes by 2028.

The rapid shift to remote consultations meant potential opportunities for identifying people with risk factors for heart disease (such as atrial fibrillation, high cholesterol and high blood pressure) were lost. According to IPPR, this resulted in 470,000 fewer new prescriptions for cardiovascular drugs in England for conditions such as high blood pressure and high cholesterol between March and October 2020 (compared to the previous year).

If these risk factors are not treated, this significantly increases an individual's risk of heart disease and stroke.

- People with uncontrolled atrial fibrillation are up to 5 times more likely to have a stroke.
- Delays to optimal treatment of hypertension could increase the risk of a cardiovascular event or death. High blood pressure is associated with 50% of heart attacks and strokes.
- Untreated familial hypercholesterolaemia, a genetic condition where you have exceptionally high levels of cholesterol in your blood, increases risk of developing coronary heart disease by 13 times.

The drop in detection and management of risk factors for heart and circulatory diseases could have devastating results, with more people needlessly suffering from heart attacks, strokes, and other cardiovascular events as a result. But this can be avoided. Cardiovascular risk factors can be managed with preventative drugs and lifestyle changes, drastically decreasing an individual's risk of heart attack and stroke.

470,000

fewer new prescriptions for cardiovascular drugs.

Mental health and quality of life have been negatively impacted

Before the pandemic people with heart and circulatory conditions were already at risk of poor mental health. A 2018 report commissioned by the BHF found that around 2 in 3 people with heart and circulatory conditions said they had experienced feeling down, depressed or anxious.

A focus group with people with heart conditions carried out in Winter 2020 suggested that shielding was taking a psychological toll. Some participants said they had experienced episodes of depression, and several said they felt isolated.

Nearly 50% of 1,409 heart patients we surveyed found it harder to get medical treatment during the first lockdown. Callers to our Heart Helpline continue to report difficulty accessing primary care and specialist cardiac services. During the pandemic the BHF Helpline saw a 38% increase in calls and emails. During this third lockdown the length of calls has increased from an average of 8 to 10 minutes, with many more callers than usual requiring emotional support and signposting from our Helpline nurses.

These trends are corroborated by a survey carried out by heart failure charity Pumping Marvellous in Summer 2020, which found that the Covid-19 pandemic has caused significant anxiety among people with heart failure. Both Covid-19 itself, and the impact on health and care services were implicated as sources of anxiety.

50%

Nearly 50% of heart patients found it harder to get medical treatment during the first lockdown.

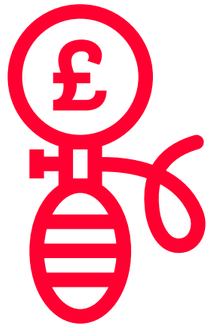
Widening health inequalities

Before the pandemic, certain population groups in the UK were already at higher risk of developing heart and circulatory diseases. Gender, age, ethnicity, and social deprivation all affect the chances of developing risk factors for heart disease, such as high blood pressure. For example, those in the most deprived communities in England are 30% more likely to have high blood pressure, which is the single largest modifiable risk factor for heart attack and stroke.

The Covid-19 pandemic has amplified existing health inequalities. We know that there have been unfair differences in cardiac healthcare, both in terms of access to care and the overall experience of different patient groups. A recent BMJ article showed that patients with a minority ethnic background are at a 'significant disadvantage' when it comes to treatment for acute myocardial infarction.

They are less likely to receive guideline-indicated care, and more likely to experience longer delays to treatment.

This inequality extends to the health and care workforce. During the pandemic we have seen a disproportionate rate of death among Black and ethnic minority health and care staff. As set out in last year's NHS Workforce Race Equality Standard report, the staff most exposed to the virus (i.e. those working in front line roles) were also more exposed to bullying, harassment, and discrimination.



30%

Those in the most deprived communities in England are 30% more likely to have high blood pressure.

The healthcare workforce is exhausted

Before the pandemic, there were already high rates of burnout and mental illness in the healthcare workforce in general and significant staff shortages across several specialities. According to Doctors in Distress, before the pandemic, the suicide rate for doctors was estimated to be 2-5 times the rate of the general population.

The pandemic created new challenges for the cardiology workforce, with many specialists redeployed to deal directly with Covid-19 patients. This was especially intense during the first wave of the pandemic in Spring 2020.

Several commentators have raised concerns about an increase in fatigue, stress (including PTSD) and moral injury in the healthcare workforce, and the short and long-term impact this will have on the health and wellbeing of staff.

According to the 2020 NHS Staff Survey, last year 44% of staff felt unwell as a result of work-related stress, a rise since 2019.

Several commentators have raised concerns about staff retention in the short and medium term. An insufficient cardiovascular workforce would lead to reduced care for people with heart conditions in the years to come.

It will be important for health systems to recognise the 'collateral impact of an exhausted workforce'. As set out by NHS Confederation, it will not be possible for the NHS to rely on overtime and weekend working to address the backlog of care.

44%

of NHS staff felt unwell as a result of work-related stress in 2020, a rise since 2019.

Medical research has been cut

Over the last six decades, medical research has led to new and improved ways to prevent, diagnose, and treat heart and circulatory diseases.

This has contributed to improved quality of life for millions of people and a significant reduction in UK death rates for these conditions.

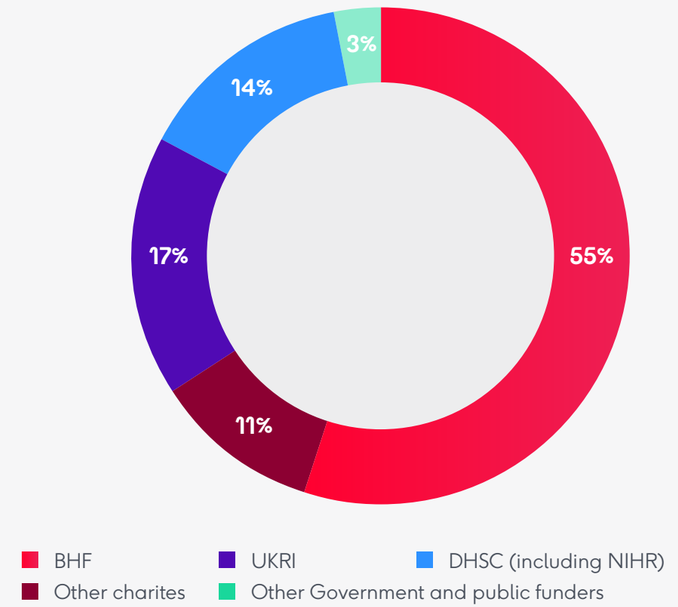
However, the pandemic has led to a sudden and significant fall in funding for research, including cardiovascular research, that threatens to slow down progress and put research careers at risk.

The BHF funds the majority (55%) of non-commercial research into heart and circulatory diseases in the UK. However, due to disruption caused by the pandemic, we had to cut our funding for new research from around £100m to £50m in 2020/21. We expect it to take several years for our funding to recover.

Other funders of cardiovascular research have also had to shrink their research budgets, creating a massive shortfall. This has had a huge impact on cardiovascular research of all kinds including basic, translational, and clinical research. Ultimately this could slow down the pace at which research advances translate into improved ways of preventing, diagnosing, and treating heart and circulatory diseases.

The pandemic is also having a worrying impact on the research workforce. A survey conducted by the BHF and the Association of Medical Research Charities found that over 45% of charity funded early career researchers had considered leaving the profession due to the pandemic (including 48% of BHF-funded early career researchers).

Breakdown of non-commercial research into cardiovascular disease in 2018



What we need

During the Covid-19 pandemic, every part of the cardiovascular pathway has been affected.

From the research and clinical trials that ultimately lead to medical breakthroughs and new treatments, to prevention, detection and treatment of risk factors for heart disease, from routine care and treatment for those with cardiac conditions, right through to palliative care for those at the end of life.

NHS
A clear plan for the NHS, including a realistic workforce strategy and immediate and sustained investment for the long-term to tackle the backlog of care. According to analysis by the Health Foundation, this should include ongoing funding increases of around £10bn a year until 2023/24. This includes the costs of addressing the backlog of care while accounting for lost productivity, meeting rising demand for mental health care and delivering the service improvements set out in the NHS Long Term Plan.

Public health
Restoration of the Public Health Grant by at least £1bn following real-terms cuts of 22% since 2015/16 to allow local authorities to adequately and equitably provide vital services, such as weight management and stop smoking support, for their population.

Medical research
Financial support for medical research funding to ensure that the pace of innovation and discoveries that improve patient care do not stall.

£10bn

According to analysis by the Health Foundation, the NHS needs ongoing funding increases of around £10bn a year until 2023/24.

Appendix

Breakdown of waiting times by region

	Feb 20 Patients waiting for heart procedures and operations				Feb 21 Patients waiting for heart procedures and operations				Feb 21 vs Feb 20	Proportion waiting
Patients in the…	**Total**	**18wks+**	**% 18wks+**	**52wks+**	**Total**	**18wks+**	**% 18wks+**	**52wks+**	**18wks+**	**18wks+**
East of England #	25,492	2,844	*11%*	-	25,352	5,992	*24%*	342	*+111%*	*+12%*
East Midlands	16,878	2,511	*15%*	-	14,754	4,361	*30%*	364	*+74%*	*+15%*
London	38,174	5,166	*14%*	3	29,645	6,418	*22%*	589	*+24%*	*+8%*
North East	10,913	671	*6%*	-	7,360	1,095	*15%*	119	*+63%*	*+9%*
North West	28,813	3,443	*12%*	-	25,030	5,906	*24%*	694	*+72%*	*+12%*
South East #	38,909	5,300	*14%*	3	33,313	6,620	*20%*	616	*+25%*	*+6%*
South West	25,666	4,665	*18%*	21	23,673	5,718	*24%*	703	*+23%*	*+6%*
West Midlands	23,946	3,035	*13%*	-	24,650	5,737	*23%*	372	*+89%*	*+11%*
Yorkshire and Humber	21,305	3,646	*17%*	-	17,091	4,557	*27%*	756	*+25%*	*+10%*
Not CCG-allocated	7,715	1,489	*19%*	1	6,870	2,629	*38%*	555	*+77%*	*+19%*
Total cardiology/cardiac waiting list	**233,081**	**32,186**	*14%*	**28**	**203,893**	**48,390**	*24%*	**5,085**	*+50%*	*+10%*

Source: BHF analysis of NHS Digital data, Feb 2020 and Feb 2021, *www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times*
NB: Regions do not add up to the national figure because some patient numbers are only allocated to the larger NHS regions and one CCG covers patients across two regions (shown#)

Appendix

Sources

Public Health England
Excess deaths analysis of ONS death registration data

NHS England
Monthly Outpatient Referrals Data

NHS England
Monthly Diagnostics Data

NHS England
Consultant-led Referral to Treatment Waiting Times

NHS England (2021)
Hospital Episode Statistics. Hospital Episode Statistics data re-used with the permission of NHS Digital. All rights reserved. Small number data suppression has been applied

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The impact of COVID-19 on the management of heart failure: a United Kingdom patient questionnaire study

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NHS Confederation (2021)
Building back elective care: a new framework for recovery

The Health Foundation (2020)
New analysis reveals daunting scale of financial challenge facing health and care post-COVID

The Health Foundation (2020)
Today's public health grant announcement provides some certainty, but more investment is needed over the longer-term

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