Why 5G will help healthcare

Mobile UK

BUILDING MOBILE BRITAIN

Why should we care about 5G?

5G will benefit our economy and society.

It will be better at doing the things that 4G does already, but significantly it will offer faster and more reliable mobile internet.

It will also do things that 4G cannot. It has the potential to change the ways in which we learn, how we communicate and how we do our jobs through the simultaneous and seamless connection of our digital devices.

But because it is often described using technical jargon, many people are unaware of how 5G will enhance their life.

This pamphlet explains the benefits of 5G using examples and language that anyone can understand.

It is one of six pamphlets that look at the impact of 5G. The topics included in these pamphlets are:

- How 5G will help healthcare
- How 5G will increase rural opportunities
- How 5G will support the emergency services
- How 5G will help councils
- How 5G will improve the home and the workplace
- How 5G will help the environment

Replace **5%** of GP appointments with 5G-enabled video and unlock **1.1m hours** of time for the health service

80% of premature heart attacks and strokes are preventable - wearables can help monitor risk factors such as high blood pressure.

How will 5G help healthcare?

While 4G already helps us to improve our health, 5G digital connectivity will enhance this in two key ways:

- **Better access to health services.** 5G technology will provide more opportunity to speak directly to healthcare professionals, and new ways to be treated by them.
- **Better information to understand our health.** 5G technology will mean more data is collected to make earlier diagnoses of health problems.

5G networks are being gradually rolled out across the UK. As and when you have access to 5G connectivity will depend on where you live, your network provider and whether you have 5G-enabled devices.

If you have further questions about 5G, some of the most common questions have been answered on the final page

Uses of 5G in healthcare

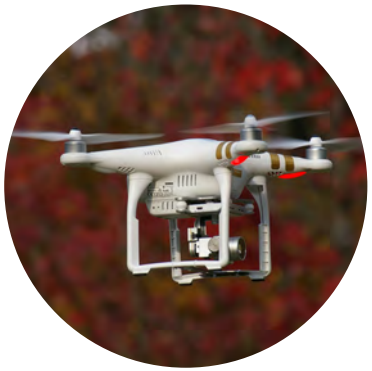
An early warning system for your health.

Many of us wear a digital device to record how many steps we walk in a day. Similar devices can record your heart rate, blood sugar level and temperature (and many other health readings). 5G technology can instantaneously transmit these readings to be examined by doctors and nurses, even when they are many miles away. This can help to stop health issues developing and support the recovery process after illness.[1]

A doctor in your living room.

COVID-19 has seen video calling explode as a method of communication with colleagues, friends and family. The same technology is being increasingly used for doctor / patient interactions. With the higher video quality and more reliable connection provided by 5G, a wider variety of consultations can happen in this way.[2] Patients will have quicker access to healthcare and doctors will be able to see more patients.

[1] TechUK and Liverpool 5G Test Bed, July 2019, *How can 5G support the transformation of health and social care services?*
[2] NHS Website, October 2019, *Moorfields Eye Consultant delivers world's first tele-examination of an eye*



Better access to the healthcare system.

5G-connected drones could help deliver medical supplies, getting essential medicines to patients in need more quickly.[3] Equally, some types of surgery can only be performed by certain specialists in certain hospitals in certain parts of the country. But remote surgery - where a specialist surgeon operates in a separate location from the patient - can happen with 5G connected equipment.[4]

More tools to solve a health crisis.

Almost two-thirds (63%) of adults in England are overweight or living with obesity.[5] There are indications that the information collected by wearable technology can encourage people to do more physical activity.[6] As wearable technology gets more sophisticated with 5G, the opportunities for healthcare professionals to get the nation fitter will increase. For example, EE is working with the University of Warwick to explore how 5G can be used to help people stay on track with their 'health and wellness' throughout normal daily activities.[7]

[3] Deloitte Insights, June 2020, Enterprises building their future with 5G and Wi-Fi
[4] TechUK, May 2019, *How 5G could transform care for patients in the hospital and at home*
[5] Department of Health and Social Care, July 2020, *Tackling obesity: government strategy*
[6] The Lancet, October 2019, *Wearable technology and lifestyle management*
[7] **https://newsroom.bt.com/bt-and-university-of-warwick-to-accelerate-5g-innovation-for-regional-economic-recovery/)**

The statistics

5G will free-up NHS resources.

Replacing 5% of GP appointments with video consultations will unlock an additional 1.1 million hours of time to be reinvested in other patients, and save patients 3.3 hours a year from not having to go to GP surgeries.[7]

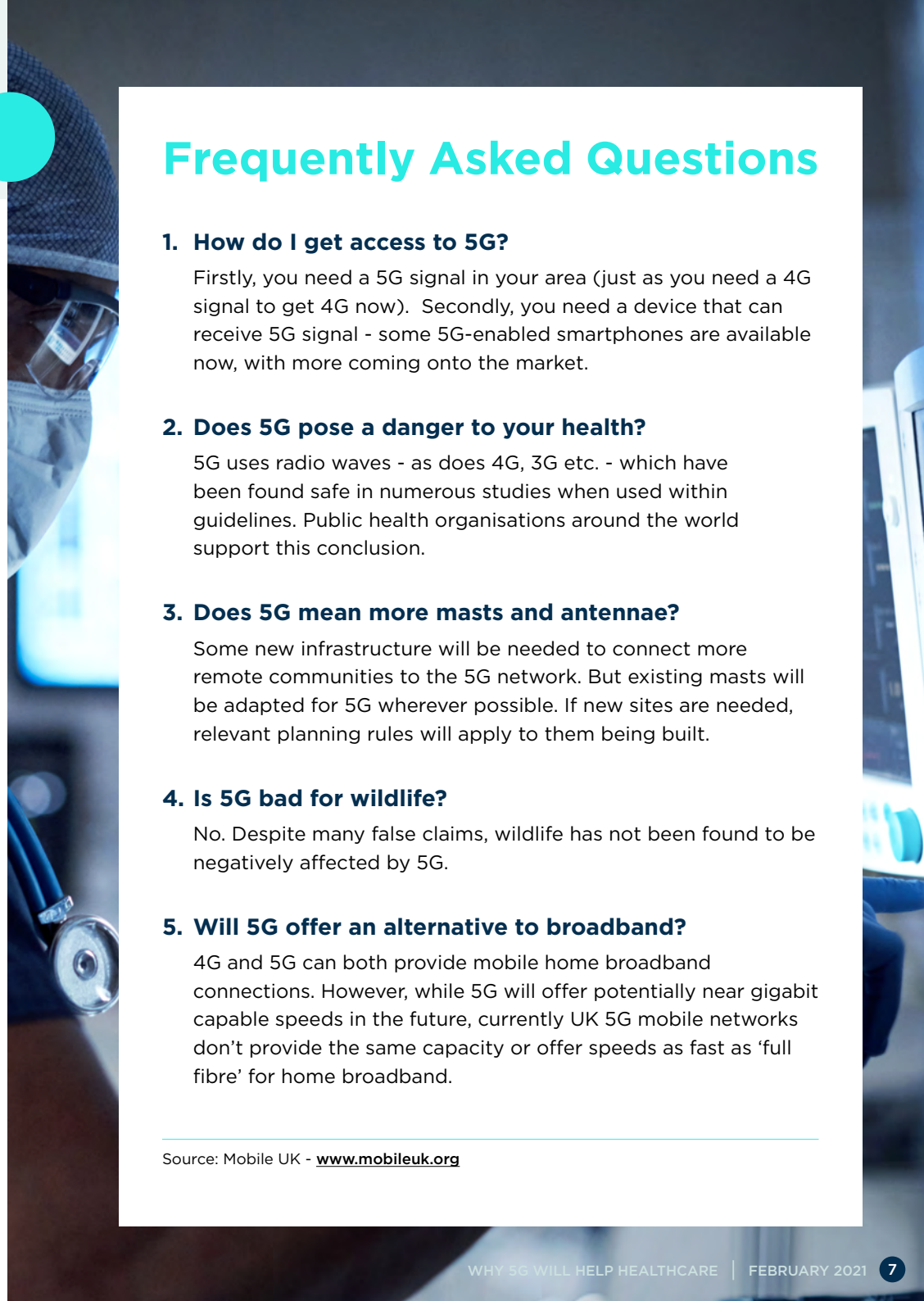
5G wearable technology could decrease the number of heart attacks and strokes.

The World Health Organisation states that 80% of premature heart attacks and strokes are preventable. Wearables can help check and control risk factors for heart disease and stroke such as high blood pressure, high cholesterol and high blood sugar.[8]

5G-enabled technology can help patient recovery.

It has been argued that virtual reality therapy has helped patients recover from chronic pain or injuries. For example, an immersive VR experience can release pain-relieving endorphins. One statistic suggests that VR has reduced chronic pain by 25%.[9]

[7] O2, the value of 5G for cities and communities
[8] World Health Organisation, *What can I do to avoid a heart attack or stroke?*
[9] Samsung, *Wearable technology in healthcare*



Frequently Asked Questions

1. How do I get access to 5G?

Firstly, you need a 5G signal in your area (just as you need a 4G signal to get 4G now). Secondly, you need a device that can receive 5G signal - some 5G-enabled smartphones are available now, with more coming onto the market.

2. Does 5G pose a danger to your health?

5G uses radio waves - as does 4G, 3G etc. - which have been found safe in numerous studies when used within guidelines. Public health organisations around the world support this conclusion.

3. Does 5G mean more masts and antennae?

Some new infrastructure will be needed to connect more remote communities to the 5G network. But existing masts will be adapted for 5G wherever possible. If new sites are needed, relevant planning rules will apply to them being built.

4. Is 5G bad for wildlife?

No. Despite many false claims, wildlife has not been found to be negatively affected by 5G.

5. Will 5G offer an alternative to broadband?

4G and 5G can both provide mobile home broadband connections. However, while 5G will offer potentially near gigabit capable speeds in the future, currently UK 5G mobile networks don't provide the same capacity or offer speeds as fast as 'full fibre' for home broadband.

Source: Mobile UK - **www.mobileuk.org**

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How 5G will support the emergency services

Mobile UK

BUILDING MOBILE BRITAIN

Why should we care about 5G?

In September in England, ambulances attended **662,906** incidents that involved a face to face response.

Dorset Police believe that its drone unit - the country's first - has saved it **£170k**

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How will 5G support the emergency services?

5G can support the emergency services such as ambulances and fire engines in their work to save lives. While 4G plays a major role through the emergency services network, 5G is expected to provide added capabilities. For instance:

- Paramedics will be able to send vital signs and 360° images, alongside high-resolution video calls between ambulance and hospital staff in real time, thanks to the ultra-low latency of 5G networks.
- 5G connectivity will enable the use of augmented reality (AR) via equipped glasses to enable emergency services to use artificial intelligence (AI) technology to guide them through critical procedures at an emergency scene or en-route to hospital.

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5G and the emergency services

Enhancing existing and introducing new ways of connecting ambulances with doctors and hospitals.

5G will further enhance the capabilities of existing 4G-enabled health technology which allows ambulance crews to instantly transmit life-saving details about a patient's condition to awaiting emergency departments. 5G will enable high-definition uninterrupted video calls assisting doctors to prescribe urgent treatment as ambulances make their journey to hospital. Information, from ultrasound images to blood pressure readings, and from heart rate to body temperature, can be sent to doctors ahead of an ambulance patient's arrival. This technology is not hypothetical – 02 and Vodafone began trialling 5G "smart ambulances" in the East of England and Milan.[1]

A handheld police helicopter.

5G-enabled drones will improve the abilities of 4G drones, surveying large areas from the sky and enhancing the images that are relayed to a handheld device carried by a police officer on the ground. The drone can provide thermal imaging to track down a crime suspect on the run, or stream live footage to help with effective control of large crowds. These drones will do some things that police helicopters do, but at less cost. Vodafone had been working with the New Zealand Police to adopt this drone technology.[2]

[1] https://www.vodafone.co.uk/business/5g-for-business/5g-customer-stories/connected-ambulance#:~:text=Connected%20ambulances%20help%20staff%20in,to%20just%20a%20few%20milliseconds

[2] Vodafone NZ, How 5G is helping New Zealand Police get a better view, https://www.vodafone.co.nz/business/insights/police-better-view-5g/

Bringing the emergency control room closer to the front line.

Emergency control rooms take 999 calls from the public and trigger the emergency services to respond. With 5G-enhanced video links at the scene of an emergency, the control room can see what is happening in real time and with more clarity than 4G - including the precise positions of all emergency personnel.[4] Augmented reality can help response teams provide information in difficult environments, such as helping firefighters navigate smoke filled environments.[5] Not only this, but the digital evidence collected at the scene of an emergency can be automatically and immediately uploaded to internal servers, reducing red tape and saving even more time through 5G than the speed possible with 4G.[6]

More quickly identifying an unfolding emergency.

Bristol harbour installed thermal cameras specifically designed to alert the authorities when people fall into the water. The technology was implemented after ten people tragically died in drowning accidents in the city in one year alone. The thermal cameras pick up when a person breaks a virtual barrier at the harbour edge - the council control centre is notified via 5G technology and the local fire and rescue is subsequently called out if required. The lives of two people have already been saved by the technology.[7]

[4] Ericsson blog, September 2019, 5G emergency response abilities highlighted by Altice and Ericsson

[5] Forbes, July 2020, 5G To The Rescue—The Future Of Better Information And Communications For First Responders

[6] TechUK, How can 5G technology support the emergency services?

[7] BristolLive, April 2019, Bristol Harbourside's 'God send' 5G cameras save two lives

The statistics

In the future 5G connectivity, with its enhanced connectivity opportunities, is expected to be used to assist in hundreds of thousands of ambulance call outs.

In September in England, ambulances attended 662,906 incidents that involved a face to face response. 388,695 incidents involved transportation to the emergency department.[8]

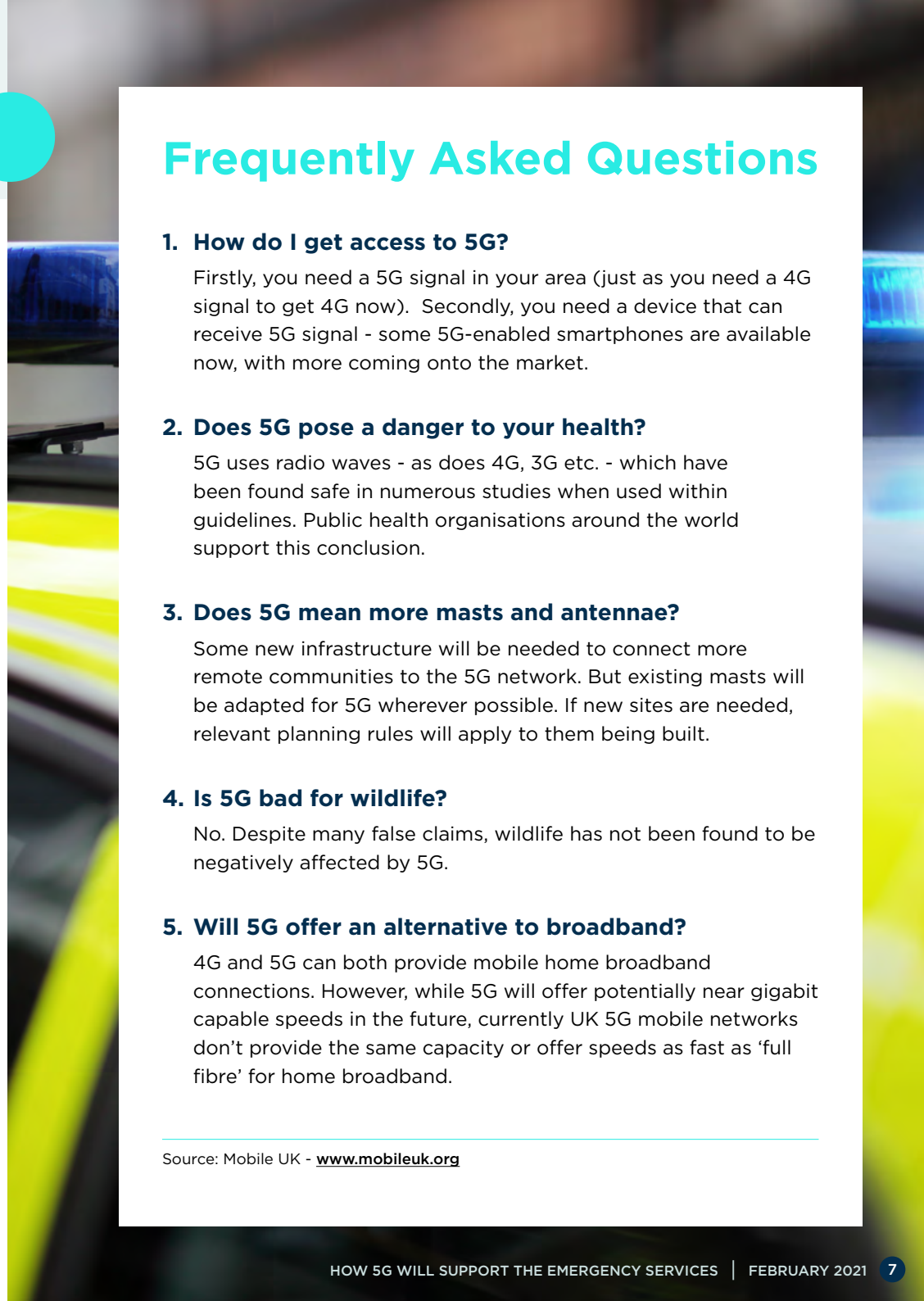
5G-enabled technology could significantly reduce the cost of some services.

Dorset Police, for example, believe that its drone unit - the country's first - has saved it £170,000.[9]

5G will become integral to the emergency services, building on and adding new capabilities to existing connectivity, and ultimately helping save lives.

Today there are 300,000 frontline emergency service users who depend on using handheld devices or operating equipment in 50,000 vehicles, 115 aircraft and 200 control rooms.[10]

[8] NHS, Ambulance Quality Indicators, September 2020
[9] Bournemouth Echo, February 2019, The NPAS police helicopter is more expensive than drones
[10] Gov.uk, Emergency Services Network



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