The Guardian

From oximeters to AI, where bias in medical devices may lurk

Level 1: Elementary / Pre-Intermediate

1 Warmer

a. The following abbreviations are found in the text. What are the missing words?

1. NHS – National _____ Service

2. MHRA – _____ and Healthcare products Regulatory Agency

3. BAME – Black, Asian and _____ ethnic

4. PPE – personal _____ equipment

5. AI – _____ intelligence

2 Key words

a. Fill the gaps in the sentences using these key words from the text.

> **assume**   **bias**   **exhale**   **gadget**   **overestimate**

1. _____ is the fact that the results of research or an experiment are not accurate because someone has not considered a particular factor when collecting the information.

2. A _____ is a small piece of equipment that does something useful.

3. If you _____ something, you make a mistake by saying it is bigger or higher than it really is.

4. When you _____, you breathe out.

5. If you _____ something, you believe it is true.

> **accurate**   **diverse**   **interpretation**   **patient**   **priority**

6. _____ is the explanation of something.

7. If you have _____ in medical treatment, you have that treatment first.

8. If something is _____, it is absolutely correct in every detail.

9. If something is _____, it includes people from many different cultures or races.

10. A _____ is someone who is receiving medical treatment.

From oximeters to AI, where bias in medical devices may lurk

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21 November, 2021

1 Racism and gender bias in medical devices could lead to problems for women and people of colour. The UK Health Secretary Sajid Javid has announced a review of these devices and said: "It is easy to look at a machine and think that everyone's getting the same experience. But people create these technologies so there can be bias."

2 These are some of the healthcare gadgets that people are worried might have racial bias.

Oximeters

3 Oximeters measure the amount of oxygen in a person's blood. We use them to decide which Covid patients may need hospital care – because some people can have dangerously low levels of oxygen without realizing.

4 People are worried that the devices work less well for patients with darker skin. NHS England and the MHRA say pulse oximeters can overestimate the amount of oxygen in the blood. Experts believe that this could be one of the reasons why death rates are higher among minority ethnic people.

PPE

5 Masks help keep healthcare workers safe from Covid because they protect against particles that others exhale. But masks must fit properly and they do not fit as well on people from some ethnic backgrounds.

6 Only respirators that fit give protection. Masks often do not fit well in female and in BAME healthcare workers.

Spirometers

7 Spirometers measure lung capacity but experts are worried that there are racial biases in the interpretation of data from these gadgets.

8 People assume BAME people have lower lung capacity than white people. This can lead to the use of "correction" factors in the interpretation of spirometer data – a situation that can affect the order in which we treat patients, with white people having priority.

Artificial intelligence systems

9 Healthcare professionals are using AI more and more to diagnose conditions. But bias in the data that we use to develop AI systems means they may be less accurate for people of colour.

10 Javid agrees this is a problem. He said we need to make sure datasets that we use in developing AI systems are "diverse and inclusive". "If we only train our AI using mostly data from white patients, it cannot help our population as a whole. We need to make sure the data that we collect is representative of our nation," he said.

3 Comprehension check

a. Answer the questions using information from the article.

1. What could lead to problems for women and people of colour?

2. What do oximeters do?

3. Why are people worried about oximeters?

4. How do masks help to keep healthcare workers safe from Covid?

5. What is the problem with masks?

6. What do spirometers measure?

7. What do some people assume about BAME people?

8. What are healthcare professionals using AI for?

9. Why could they be less accurate for people of colour?

10. What does Mr Javid want to be "diverse and inclusive"?

4 Key language

a. Match the words in the left-hand column with the words in the right-hand column to make phrases from the text.

1. death	a. care
2. medical	b. capacity
3. artificial	c. professionals
4. lung	d. rate
5. hospital	e. devices
6. healthcare	f. intelligence

5 Discussion

a. Answer this question.

- Should healthcare be free of charge? Why? Why not?

6 **In your own words**

a. **Open an internet search engine and find out as much information as possible about the health service in your country. Answer these questions.**

- How many doctors are there?

- How many nurses are there?

- How many other workers are there in the health sector?

- How many patients do they treat each year?