

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

DIAGNOSTICS ASSESSMENT PROGRAMME

Equality impact assessment – Guidance development

Artificial intelligence software to help detect fractures on X-rays in urgent care

Consultation

1. Have the potential equality issues identified during the scoping process been addressed by the Committee, and, if so, how?

The following potential equality issues were identified during scoping:

- Some fractures are more common in certain age groups, for example, hip fractures are more common in older people.
- Clinical experts explained that fractures are also more difficult to detect in children. Missed fractures in children that include the bone growth plate can have severe long term health complications including limb shortening or abnormal growth. Therefore, any artificial intelligence software packages that are not approved for use in children may disadvantage this group.
- People with conditions that affect bone health (for example, osteoporosis and osteogenesis imperfecta) may be more susceptible to fractures.
- AI technologies may perform differently in people with underlying comorbidities, such as conditions affecting bone health.
- Clinical experts highlighted that certain drugs can reduce bone density and increase the risk of developing osteoporosis. Therefore this group could be at a greater risk of a fracture.
- Clinical experts explained that bone health can vary widely with age and can be affected by other factors including socioeconomic background.

The following were identified as potential equality issues relating to the technologies:

- If the algorithm has been developed, trained and validated in populations in which particular groups (such as people from different ethnic groups, low socioeconomic status, age, or sex)

have been underrepresented, they may perform differently in these groups.

The committee discussions on equality issues are described in section 3.26. Because some of the software are not approved for use in children, the committee said that clinicians should ensure that a software is appropriate for use in the specific person they are assessing. The committee made a recommendation for further evidence generation on the diagnostic accuracy of AI-assisted fracture detection in different populations (see section 1.6).

2. Have any other potential equality issues been raised in the external assessment report, and, if so, how has the Committee addressed these?

No other potential equality issues have been raised in the external assessment report.

3. Have any other potential equality issues been identified by the Committee, and, if so, how has the Committee addressed these?

Clinical experts on the committee identified people with cancer that develop metastatic bone disease as another group where bone health is affected and so it is unclear if it would be appropriate to use AI software to help interpret their X-rays. Similarly, autoimmune and erosive arthropathies, fibrous dysplasia, myeloma, osteoarthritis, osteonecrosis, and Paget's disease, were highlighted as conditions that affect bone health and so may also impact on the performance of the AI software. All these conditions would be considered as conditions that affect bone health and so are included in the evidence generation recommendation highlighted in the response to question 1.

4. Do the preliminary recommendations make it more difficult in practice for a specific group to access the technology compared with other groups? If so, what are the barriers to, or difficulties with, access for the specific group?

A patient expert highlighted the potential for indirect discrimination because of geographical availability and access. They raised concerns around whether the AI technologies would be deployed in smaller

minor injuries units in rural areas as well as larger urgent treatment centres and emergency departments in urban areas (see section 3.29).

5. Is there potential for the preliminary recommendations to have an adverse impact on people with disabilities because of something that is a consequence of the disability?

No

6. Are there any recommendations or explanations that the Committee could make to remove or alleviate barriers to, or difficulties with, access identified in questions 4 or 5, or otherwise fulfil NICE's obligations to promote equality?

The committee considered that AI software may help reduce variation in standard care by providing a consistent baseline for X-ray interpretation which is not affected by differences in staff experience or resource between centres.

7. Have the Committee's considerations of equality issues been described in the draft guidance document, and, if so, where?

Yes. Relevant sections of the draft guidance document are referenced in the response to question 1.

Approved by Associate Director (name): Lizzy Latimer

Date: 22/11/2024

Diagnostics guidance document

1. Have any additional potential equality issues been raised during the consultation, and, if so, how has the Committee addressed these?

A consultee mentioned rickets and osteomalacia as conditions that can affect bone health. These have now been included in the final guidance document section 3.27.

2. If the recommendations have changed after consultation, are there any recommendations that make it more difficult in practice for a specific group to access the technology compared with other groups? If so, what are the barriers to, or difficulties with, access for the specific group?

The indication in the recommendation for one of the technologies (Rayvolve) has changed between draft guidance and final draft guidance to include children and young people. This change is not expected to make it more difficult in practice for a specific group to access the technology compared with other groups.

3. If the recommendations have changed after consultation, is there potential for the preliminary recommendations to have an adverse impact on people with disabilities because of something that is a consequence of the disability?

The indication in the recommendation for one of the technologies (Rayvolve) has changed between draft guidance and final draft guidance to include children and young people. This change is not expected to have an adverse impact on people with disabilities because of something that is a consequence of the disability.

4. If the recommendations have changed after consultation, are there any recommendations or explanations that the Committee could make to remove or alleviate barriers to, or difficulties with, access identified in questions 2 and 3, or otherwise fulfil NICE's obligations to promote equality?

None required as no barriers to, or difficulties with, access identified in questions 2 and 3.

5. Have the Committee's considerations of equality issues been described in the diagnostics guidance document, and, if so, where?

Yes, in section 3.26 to 3.29 of the guidance document.

Approved by Associate Director (name): Lizzy Latimer

Date: 22/11/2024