HealthTech Programme

Artificial intelligence (AI) technologies to aid opportunistic detection of vertebral fragility fractures: early value assessment

Equality Impact Assessment: Guidance

Draft guidance

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

   The committee considered the equality issues identified during the scoping process. It noted that access to radiology services is geographically uneven. It noted that it is currently unknown whether implementing the AI technologies can improve or exacerbate those inequalities. The committee recommended further evidence generation or research for all of the technologies included in this assessment. To show how the AI technologies can be implemented across a range of settings, representative of the variety in the NHS, the evidence generated should ideally be from studies done across NHS trusts with and without fracture liaison services and replicated across multiple centres (see the evidence generation plan for further details).

   Also, the committee noted that VFF risk rises with age, female sex, lower socioeconomic status, certain conditions and medications (see section 3.1 of the draft guidance). In particular, they are more common in postmenopausal women, in whom osteoporosis is more common. But other risk factors for osteoporosis include a history of falls or a hip fracture, low body mass index, smoking or high alcohol intake, rheumatoid arthritis, inflammatory bowel disease or malabsorption (which are secondary causes of osteoporosis). The committee also recalled that VFFs can also be a result of chronic or long-term corticosteroid or glucocorticoid use or malignancy in the vertebrae. The committee felt that given that several technologies which cover different age ranges were provisionally recommended, and noting existing guideline recommendations on groups who are at risk, existing inequalities would not be exacerbated.

   The committee noted that the patient age as listed in the instructions for use varies across technologies. Five of the technologies are only indicated

for people over 50 years of age. However, the committee heard from clinical experts that VFF risk rises significantly with age and that the majority of clinically relevant VFFs are in people over 50 years of age. The committee noted that one of the provisionally recommended technologies is indicated for use in in people over 18 years of age so could be used in younger age groups.

In addition, the committee noted that the technologies may perform worse for people who may have been underrepresented in the AI training datasets, including younger people, ethnic minorities, people with comorbidities or previous treatment. It noted that this may be due to variations in the prevalence of some diseases or comorbidities which cause variations in bone density. The committee also recognised that there is a lack of race-specific reference standards for the measurement of bone density, noting that variations exist in bone mineral density across various ethnic groups, which could be a contributory factor to the misdiagnosis of VFF. But, bone density assessment would usually be a consequence, rather than cause for opportunistic detection of VFFs (that is, happening later in the clinical pathway). As such, this equality consideration would not impact the recommendations of this draft guidance.

It noted that a common limitation of AI technologies is the lack of transparency with regards to the data used to train the algorithm. The committee recommended further research, which should be done across different relevant subgroups and which should include patient demographic data, including age, sex and ethnicity. It also recommended that companies should be transparent in providing details on the data the algorithms were trained on and whether they work as well for all groups.

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

In its assessment report, the EAG highlighted the differences in age cut-offs and contraindications for some technologies as described in their instructions for use. The committee noted that some of the technologies are contraindicated for use in specific subgroups such as people who have surgical hardware or spinal metalwork. It noted that technologies recommended by NICE can only be used within their indications as described in each technology's instructions for use. The committee further noted that AI technology may misidentify scans where the field of view for the radiograph includes a higher proportion of surrounding tissue. This could be more prevalent in people with obesity. It recommended that more

evidence is needed on the failure rates and reasons for failure for all of the technologies.

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

   The committee heard from clinical experts that although VFFs are overall more common in women, they are more common in younger men than in younger women due to lifestyle differences that increase fracture risk. But, it also heard that it is not known whether treating this group would prevent further fractures because they may not be due to osteoporosis. The committee recommended further evidence generation and research across all people (including those under 50) for the technologies according to their indications. To show whether the AI technologies represent value for money in younger people, the evidence generated should include data on the technologies' diagnostic accuracy and impact on clinical management across different age and risk factor groups (see the evidence generation plan for further details).

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?**

   The preliminary recommendations do not affect access to radiology services.

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?**

   No.

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

Equality issues and considerations have been described in sections 3.25 to 3.27 of the draft guidance.

Approved by Associate Director: Rebecca Albrow

Date: 09/07/2025

Final draft guidance

1. **Have any additional potential equality or health inequality issues been raised during consultation on the draft guidance? If so, how has the committee addressed these?**

   The committee noted that X-ray may be more widely available than CT services. It considered the totality of the evidence on technologies that use X-ray images for the opportunistic detection of VFFs and concluded that it is still too uncertain whether they are a clinically and cost-effective use of NHS resources and so they should only be used in a research context.

2. **Have any additional potential equality or health inequality issues been identified by the committee? If so, how has the committee addressed these?**

   No additional equality or health inequality issues were identified by the committee.

3. **If the recommendations have changed after consultation, do the updated recommendations make it more difficult for a specific group to access the technology than other groups? If so, what are the barriers to, or difficulties with, access for this group?**

   The changes to the recommendations after consultation do not make it more difficult for a specific group to access the technologies.

4. **If the recommendations have changed after consultation, has the committee made any other reasonable adjustments for the equality issues identified in its recommendations? That is, any adjustments needed to remove or alleviate barriers to, or difficulties with, access needed to fulfil NICE's obligations to promote equality.**

   The recommendations in the guidance did not materially change following consultation. Specifically, the inclusion of an additional technology

recommended as an option for use (HealthOST) did not affect the equality issues discussed previously.

5. **Have the committee's considerations of equality and health inequality issues been described in the final draft guidance? If so, where?**

   Equality and health inequality issues and considerations have been described in sections 3.26 to 3.28 of the guidance document.

Approved by associate director: Rebecca Albrow

Date: 28/08/2025