CSVS

THE COLLEGE AND SOCIETY
FOR CLINICAL VASCULAR SCIENCE
Great Britain and Ireland

Professional Guidelines

CSVS Position Statement:

Use of Artificial Intelligence (AI) in Vascular Science Diagnostics

Version 1.0

July 2026

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Purpose

This document was prepared by the Executive Committee of the College and Society for Clinical Vascular Science (CSVS) to support the practise and delivery of high quality standardised professional practice. This document outlines the commitment towards protecting the privacy of CSVS service users providing personal information.

Any questions about this document should be directed to website@csvs.org.uk.

CSVS Position Statement: Use of AI in Vascular Science Diagnostics

The use of Artificial Intelligence (AI) and other technologies for Vascular Science diagnostics should only be utilised as long as the full requirements and quality standards of the appropriate CSVS National clinical guideline are met. The current CSVS National clinical guidelines do not currently include the use of AI and other novel technologies, unless specifically stated.

Introduction & background

It is recognised that developments in AI (including machine learning and deep learning) and other technologies are emerging, or already being utilised in the UK in Radiology (for Xray & CT) & Physiological Sciences (such as cardiac ultrasound) diagnostics and reporting[1,2]. In the UK the National Institute for Health and Care Excellence (NICE) are publishing health technology guidelines and advice about AI used in health and social care delivery [3]. Guidance issued by the Medicines & Healthcare Regulatory Agency (MHRA) is also available on software and AI as a medical device [4].

Little is published about the current use of AI in Vascular Science. A large proportion of AI in radiology-based diagnostics involves diagnostic interpretation (finding mammographic abnormalities or lung nodules for example), image post-processing (such as image 3D reconstruction), and prioritisation of workflow, and not necessarily utilising ultrasound[5]. Ultrasound societies, journal editors, educators, and clinicians must collectively define the standards, validate frameworks, and create educational curricula [6, 7]. The diagnostic quality and accuracy of current AI systems which could be used in Vascular Science have not been fully demonstrated and reported by robust clinical trials, papers or other appropriate validation. It is important to note a large proportion of Vascular Science diagnostics are very operator dependent, typically utilising spectral and/or colour Doppler ultrasound. This makes it inherently difficult to acquire standardised images, which may be a limitation for AI systems. Therefore use of any AI tools must demonstrate safety and quality as demonstrated and evidenced by robust published peer-reviewed trials or internal validation processes [8]. However, in some situations AI excels at automatically recognizing complex patterns and providing quantitative assessment for imaging data, showing high potential to assist in acquiring more accurate and reproducible results, reducing operator dependency or bias. Vascular science applications should be given some consideration to determine whether this could be utilised going forward after robust research trials [9].

AI in Vascular Science

Examples of utilising AI could include measurement or reporting packages, or new ultrasound technology image acquisition and post processing systems. An example of current AI diagnostic systems in Vascular Science is the use of AI-assisted ultrasound for diagnosing lower limb DVT. An AI system should not be used to fully rule out the presence of lower limb DVT, unless the full assessment and measurements required by the CSVS National protocol for DVT have been performed. However, where AI is used to aid part of a Vascular Science diagnostic test (such as collating images, recordings or measurements as part of a report package/typing a report, or taking a specific measurement), the system needs to meet exact quality and safety standards of the relevant part of the CSVS National

clinical guideline, and the full diagnostic assessment and report must be performed to complete the entire CSVS National clinical guideline.

Considerations

- The current CSVS National clinical guidelines state that the final report should be written by the person performing the test. If an AI or similar automated tool is used for reporting, the final report should be checked and signed by the person performing the test.
- AI is not a replacement for clinical expertise, and persons performing and reporting Vascular Science investigations remain professionally and ethically responsible for interpreting findings and delivering safe, high-quality care. Vascular Science diagnostics require a high level of training and on-going CPD as per the CSVS education pathways and CSVS accreditation.
- AI, cloud-based analysis or reporting, and similar tools must comply with strict data privacy regulations. Data mismanagement can pose significant risks for patient confidentiality. Explicit consent may be required per patient if their data or images are to be used for real-time or retrospective machine learning. Third-party data processing may require a Data Impact Protection Assessment.
- Where AI technology is used for a Vascular Science diagnostic test, it must demonstrate safety and quality assurance evidenced by robust published peer-reviewed trials or internal validation processes.
- Adoption and implementation of AI products or technologies should occur only after local provider Quality and Safety / Governance review, with advice from the provider's own qualified Healthcare Profession (e.g. Vascular Scientist, Sonographer, Radiologist) on whether the product / technology meets or does not meet the CSVS National Clinical Guidelines.

Conclusion

The CSVS is clear that any AI system used in Vascular Science diagnostics should meet the CSVS National Clinical Guidance in full. AI systems **must** provide safe, accurate, and effective Vascular Science assessment and measurements equivalent to a full assessment as described in CSVS National Clinical Guidance. If these standards cannot be satisfied (as determined by a qualified Vascular Scientist employed by the clinical provider) then the relevant full CSVS National Clinical Guidance (including reporting) and physiological test (duplex ultrasound or otherwise) should also be performed to assure diagnostic accuracy, quality and patient safety. Equally, if an AI system is used to generate or write examination reports, these should be scrutinised, re-written if necessary, approved and signed by a qualified Healthcare Professional prior to being issued. In doing so, the qualified Healthcare Professional assumes professional responsibility and clinical accountability for the diagnostic interpretation and final report.

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