Eur J Vasc Endovasc Surg (2024) 67, 848–849

RESEARCH LETTER

Support For a Randomised Trial of Early Endovascular Aortic Aneurysm Repair in Women in New Zealand, Australia, and America

Thomas Williams [a], **Shirley Jansen** [b,c], **Jon Golledge** [d], **Adam Beck** [e], **Ruth Benson** [a], **Oliver Lyons** [a,*]

[a] Department of Surgery, University of Otago, Christchurch, New Zealand
[b] Curtin Medical School, Curtin University, Perth, WA, Australia
[c] Heart and Vascular Research Institute, Harry Perkins Institute of Medical Research, University of Western Australia, Perth, WA, Australia
[d] Queensland Research Centre for Peripheral Vascular Disease, James Cook University, Townsville, Qld, Australia
[e] Division of Vascular Surgery and Endovascular Therapy, Heersink School of Medicine, University of Alabama at Birmingham, Birmingham, AL, USA

The 2024 European Society for Vascular Surgery (ESVS) guidelines recommend a threshold for elective abdominal aortic aneurysm (AAA) repair of 55 mm diameter in men and 50 mm in women.[1] The Society for Vascular Surgery guidelines suggest repair in women between 50 mm and 54 mm.[2] The threshold for repair in women is recognised as an area of uncertainty.[1] Small AAA rupture rates are almost four fold higher in women than men, and best available data (individual patient meta-analysis, $n = 15\,475$) suggest that women's rupture risk at 42 mm diameter equals that at 55 mm for men.[3] New Zealand (NZ) Māori have a higher prevalence of AAA and poorer outcomes, compared with other NZ ethnicities, and some surgeons use a 50 mm threshold for Māori men.[4]

The ESVS currently recommends ultrasound screening for AAA in high risk populations.[1] The United States of America (USA) Preventive Services Task Force recommends one time screening for AAA with ultrasonography in men aged 65 – 75 years who have ever smoked. There is no national AAA screening program in NZ or Australia, however screening trials are ongoing in women in NZ.[4] Failure to optimise women's AAA management risks worsening inequity, particularly for Māori, in whom AAA prevalence in currently smoking women aged 65 – 74 years reaches 9%.[1,4]

The Women's Aneurysm Research: Repair Immediately or Routine Surveillance (WARRIORS) trial and registry (warriors@imperial.ac.uk) is underway to determine the potential benefit of earlier endovascular repair in women. This study aims to determine support for randomisation in relation to patient age, AAA diameter, and operative risk, within Australia, the USA, and NZ.

An online survey of vascular surgeons in NZ, Australia, and the USA was performed using SurveyMonkey. An invitation email was distributed to vascular surgeons in NZ ($n = 25$), Australia ($n = 230$), and the USA ($n = 761$) by the Australian and NZ Society for Vascular Surgery and the Vascular Quality Initiative group. It was additionally publicised at a NZ conference and distributed via X (Twitter). Simple frequencies were compared using chi square or Fisher's exact tests in SPSS29 (IBM, Armonk, NY, USA) with statistical significance at $p < .05$. Further details and data are available on request. The study was registered with the NZ Health and Disability Ethics Committee and deemed out of scope for ethical review.

Between May 2022 and August 2023, responses were received from 22 (four women) consultant vascular surgeons in NZ, 35 (seven women) in Australia, and 93 (27 women) in the USA. Responses included all NZ health districts, all Australian states except the Northern Territory, and 27 states in the USA. The response rates were 88% in NZ, 15% in Australia, and 12% in the USA. The extent or direction of any bias in responses was unknown.

The following numbers of respondents supported randomisation of women with small asymptomatic infrarenal AAA to early endovascular repair or standard care: 21 of 22 (96%) in NZ, 27 of 34 (79%) in Australia, and 87 of 93 (94%) in the USA. Respondents in all three countries supported randomisation in the most relevant age range of 65 – 84 years (Fig. 1A). Most surgeons were willing to randomise women with AAA of anteroposterior ultrasound diameter 45 – 54 mm (Fig. 1B), but there was reduced equipoise at 40 – 44 mm compared with 45 – 49 mm ($p < .001$). Most respondents were willing to randomise low and medium risk women (Fig. 1C). Risk was not explicitly defined and was applied as understood by the responding surgeons. Respondents in the USA were more willing to randomise high risk women (66 of 82, 81% in the USA *vs*. 11 of 22, 50% in NZ, and 14 of 34, 41% in Australia, $p < .001$).

Australasian respondents were asked additional questions. More NZ than Australian respondents reported that their unit used a standard size threshold for endovascular repair of women's AAA (21 of 22, 96% *vs.* 20 of 34, 59%, $p = .003$), and men's AAA (NZ 21 of 22, 96% *vs*. Australia 24 of 34, 71%, $p = .02$). This is consistent with variability in the per centre mean AAA diameter at the time of surgery in Australia.[5] New Zealand respondents were more likely to agree that improved guidelines are needed for the management of women's AAA (NZ 19 of 21, 91%, *vs*. Australia 22 of 33, 67%, $p = .04$). Within NZ there was consensus on the current 50 mm treatment threshold for repair of infrarenal AAA in Pākehā (European), Māori, Pacifica, and

* Corresponding author. Department of Surgery, University of Otago, Christchurch, New Zealand.
E-mail address: oliver.lyons@otago.ac.nz; (Oliver Lyons).
@nzvascular

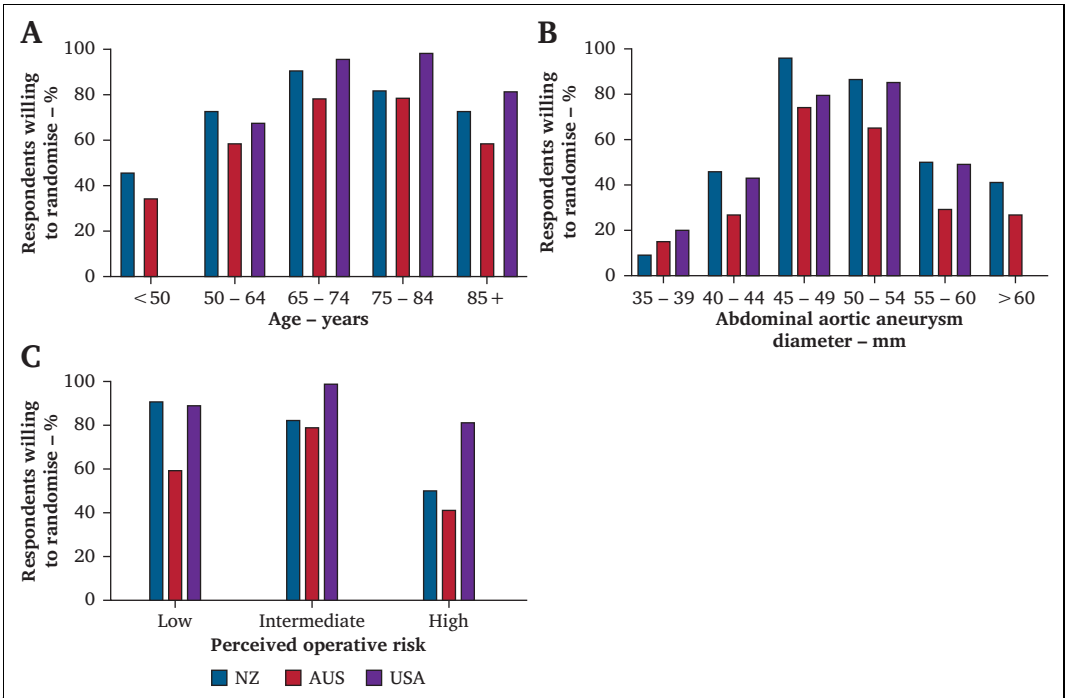

Figure 1. In a survey of Australian, New Zealand, and USA vascular surgeons, support for randomisation of women with abdominal aortic aneurysm to early endovascular repair *vs.* standard care is shown at a range of (A) patient age, (B) anteroposterior ultrasound diameter, and (C) perceived operative risk. In the USA, respondents were not asked about randomisation at age < 50 years. In the USA, 55–60 and > 60 mm were not investigated separately, and respondents were instead asked whether they would randomise any patients > 55 mm. NZ = New Zealand; AUS = Australia; USA = United States of America.

Asian women. For men, all NZ respondents reported their unit threshold was 55 mm in Pākehā and Asian men, but currently one third (7 of 21) used a threshold of 50 mm for Māori men. The NZ surgeons were more likely to agree that ethnicity specific guidelines are needed (NZ 15 of 21, 71% *vs*. Australia 7 of 32, 22%, $p < .001$). All respondents supported randomisation regardless of ethnicity.

There is agreement that better evidence is needed to guide women's AAA management, and amongst respondents there is very strong support for a trial of early endovascular repair of asymptomatic infrarenal AAA in women in NZ, Australia, and the USA.

CONFLICT OF INTEREST STATEMENT AND FUNDING

None.

REFERENCES

1 Wanhainen A, Van Herzeele I, Bastos Goncalves F, Bellmunt-Montoya S, Berard X, Boyle JR, et al. Editor's Choice – European Society for Vascular Surgery (ESVS) 2024 clinical practice guidelines on the management of abdominal aorto-iliac artery aneurysms. *Eur J Vasc Endovasc Surg* 2024;**62**:192–331.

2 Chaikof EL, Dalman RL, Eskandari MK, Jackson BM, Lee WA, Mansour MA, et al. The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm. *J Vasc Surg* 2018;**67**:2–77.

3 Rescan Collaborators, Bown MJ, Sweeting MJ, Brown LC, Powell JT, Thompson SG. Surveillance intervals for small abdominal aortic aneurysms: a meta-analysis. *JAMA* 2013;**309**:806–13.

4 Sandiford P, Grey C, Salvetto M, Hill A, Malloy T, Cranefield D, et al. The population prevalence of undetected abdominal aortic aneurysm in New Zealand Māori. *J Vasc Surg* 2020;**71**:1215–21.

5 Beck AW, Sedrakyan A, Mao J, Venermo M, Faizer R, Debus S, et al. Variations in abdominal aortic aneurysm care: a report from the International Consortium of Vascular Registries. *Circulation* 2016;**134**:1948–58.

Keywords:
Aortic aneurysm, Endovascular aneurysm repair, Randomised controlled trial, Surveys and questionnaires, Therapeutic equipoise

Available online 10 February 2024

https://doi.org/10.1016/j.ejvs.2024.02.006