**Supplementary Appendix**

**Song et al. Global and regional current prevalence and associated factors of abdominal aortic aneurysms: a systematic review and modelling analysis**

[**Table S1.** Search strategy to identify studies reporting the prevalence of AAA in the general population 2](#_Toc110615879)

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This supplementary material has been provided by the authors to give readers additional information about their work.

# **Table S1.** Search strategy to identify studies reporting the prevalence of AAA in the general population

| Database | Access date | Search terms |
| --- | --- | --- |
| PubMed | 11th Oct, 2021 | (abdominal aortic aneurysm\*[Title/Abstract] OR abdominal aorta aneurysm\*[Title/Abstract] OR AAA[Title/Abstract]) AND (prevalen\*[Title/Abstract] OR epidemiolog\*[Title/Abstract]) AND ("2020/08/01"[Date - Publication] : "3000"[Date - Publication]) |
| MEDLINE (1950-) | 11th Oct, 2021 | 1 exp Aortic Aneurysm, Abdominal/  2 (Abdominal Aortic Aneurysm\* or abdominal aorta aneurysm\* or AAA).ab,ti.  3 (prevalen\* or epidemiolog\*).ab,ti.  4 1 or 2  5 3 and 4  6 limit 5 to (humans and yr="2020 -Current" and medline) |
| EMBASE (1980-) | 11th Oct, 2021 | 1 'abdominal aortic aneurysm'/exp  2 'abdominal aortic aneurysm\*':ab,ti OR 'abdominal aorta aneurysm\*':ab,ti OR aaa:ab,ti  3 prevalen\*:ab,ti OR epidemiolog\*:ab,ti  4 #1 OR #2  5 #3 AND #4  6 #5 AND [embase]/lim  7 #5 AND [embase]/lim AND (2000:py OR 2001:py OR 2002:py OR 2003:py OR 2004:py OR 2005:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py OR 2020:py OR 2021:py) AND ('Article'/it OR 'Article in Press'/it OR 'Short Survey'/it) |

# **Table S2.** The time lag between investigation and publication in the included articles reporting the prevalence of AAA in the general population (n=54)

| **Study ID** | **Study** | **Investigation year** | **Time-lag (year)** |
| --- | --- | --- | --- |
| A1 | Adachi, K., et al. (2000) | 1999 | 1 |
| A2 | Jamrozik, K., et al. (2000) | 1996-1998 | 3 |
| A3 | Kyriakides, C., et al. (2000) | 1993-1997 | 5 |
| A4 | Lederle, F.A., et al. (2001) | 1995-1997 | 5 |
| A5 | Chichester Aneurysm Screening Group; Viborg Aneurysm Screening Study; Western Australian Abdominal Aortic Aneurysm Program; Multicentre Aneurysm Screening Study (2001) | 1988-1999 | 10 |
| A6 | Singh, K., et al. (2001) | 1994-1995 | 6 |
| A7 | Puech-Leão, P., et al. (2004) | 1999-1999 | 5 |
| A8 | Barros, F.S., et al. (2005) | 2002-2003 | 2 |
| A9 | Bekkers, S.C., et al. (2005) | 2005-2005 | 0 |
| A10 | Laws, C., et al. (2006) | 2006 | 0 |
| A11 | Ogata, T., et al. (2006) | 2001-2004 | 3 |
| A12 | Ortega-Martín, J.M., et al. (2007) | 2000-2001 | 6 |
| A13 | Badger, S.A., et al. (2008) | 2004-2006 | 3 |
| A14 | Badger, S.A., et al. (2008) | 2004-2006 | 3 |
| A15 | Schermerhorn, M., et al. (2008) | NA | NA |
| A16 | Kent, K.C., et al. (2010) | 2003-2008 | 4 |
| A17 | Yeap, B.B., et al. (2010) | 2001-2004 | 8 |
| A18 | Barba, A., et al. (2011) | 2007-2007 | 4 |
| A19 | Svensjo, S., et al. (2011) | 2006-2010 | 3 |
| A20 | Duncan, J.L., et al. (2012) | 2001-2004 | 9 |
| A21 | Jawień, A., et al. (2012) | 2009-2011 | 2 |
| A22 | Hager, J., et al. (2013) | 2008-2010 | 4 |
| A23 | Henriksen, N.A., et al. (2013) | 2008-2010 | 4 |
| A24 | Svensjo, S., M., et al. (2013) | 2007-2009 | 5 |
| A25 | Yerly, P., et al. (2013) | 2004 | 9 |
| A26 | Zarrouk, M., et al (2013) | 2010-2011 | 2 |
| A27 | Linne, A., et al. (2014) | 2010-2012 | 3 |
| A28 | Salcedo Jodar, L., et al. (2014) | 2012 | 2 |
| A29 | Svensjo, S., et al. (2014) | 2011-2012 | 2 |
| A30 | Cho, W.P., et al. (2015) | 2008-2012 | 5 |
| A31 | Chabok, M., et al. (2016) | 2012-2013 | 3 |
| A32 | Corrado, G., et al (2016) | 2010-2013 | 4 |
| A33 | Jacomelli, J., et al. (2016) | 2009-2013 | 5 |
| A34 | Makrygiannis, G., et al. (2016) | 2014 | 2 |
| A35 | Salvador-Gonzalez, B., et al. (2016) | 2007 and 2010 | 7 |
| A36 | Wanhainen, A., et al. (2016) | 2006-2014 | 6 |
| A37 | Derezinski, T.L., et al. (2017) | 2009-2012 | 6 |
| A38 | Han, S.A., et al. (2017) | NA | NA |
| A39 | Kvist, T.V., et al. (2017) | 2014-2015 | 2 |
| A40 | Liisberg, M., et al. (2017) | 2014 | 3 |
| A41 | Ohlsson, H., et al. (2017) | 2010-2014 | 5 |
| A42 | Persson, S.E., et al. (2017) | 19992010 | 7 |
| A43 | Sisó-Almirall, A., et al. (2017) | 2013-2014 | 3 |
| A44 | Dahl, M., et al. (2018) | 2011-2013 | 6 |
| A45 | Gianfagna, F., et al. (2018) | 2013-2016 | 3 |
| A46 | Castro-Ferreira, R., et al. (2019) | 2016 | 3 |
| A47 | Tkaczyk, J., et al. (2019) | 2018 | 1 |
| A48 | Carter, J.L., et al. (2020) | 2008-2013 | 9 |
| A49 | Cervin, A., et al. (2020) | 2006-2017 | 9 |
| A50 | Hultgren, R., et al. (2020) | 2010-2016 | 7 |
| A51 | Sandiford, P., et al. (2020) | 2016-2018 | 3 |
| A52 | Summers, K.L., et al (2020) | 2001-2017 | 11 |
| A53 | Rabben, T., et al. (2021) | May 2011-Sep 2019 | 6 |
| A54 | Koç, M.A., et al. (2021) | July 2013 to July 2014 | 7 |

*Note: NA=not available; The average time-lag between investigation and publication was 4.54 based on 52 articles with available information.*

# **Table S3.** Quality assessment scale for rating the risk of bias

| **Bias type** | **Low risk (score=2)** | **Moderate risk (score=1)** | **High risk (score=0)** |
| --- | --- | --- | --- |
| Selection (sample population) | 1. Sample from the general population, not a select group; 2. Consecutive unselected population; 3. Rationale for case and control selection explained. | 1. Sample selected from large population but selection criteria not defined; 2. Sample selection ambiguous but may be representative; 3. Rationale for cases and controls not explained; 4. Eligibility criteria not explained; 5. Analysis to adjust for sampling strategy bias. | 1. Highly select population making it difficult to generalise finding; 2. Sample selection ambiguous and sample unlikely to be representative. |
| Selection (sample size) | 1. Sample size calculation performed and adequate. | 1. Sample size calculation performed and reasons for not meeting sample size given; 2. Sample size calculation not performed but all eligible persons studied. | 1. Sample size estimation unclear or only sub-sample studied. |
| Selection (participation rate) | 1. High response rate (>85%). | 1. Moderate response rate (70-85%). | 1. Low response rate (<70%); 2. Response rate not reported. |
| Performance bias (outcome assessment) | 1. Diagnosis using consistent criteria and direct examination. | 1. Assessment from administrative database or register; 2. Assessment from hospital record or interviewer. | 1. Assessment from non-validated data or generic estimate from the overall population. |
| Performance bias (analytical methods to control for bias) | 1. Analysis appropriate for the type of sample (subgroup analysis/regression etc.). | 1. Analysis does not account for common adjustment. | 1. Data confusing. |

# **Table S4.** Detailed characteristics of the included articles (n=54)

| **ID** | **Author** | **Year Published** | **Country** | **Study setting** | **Inclusion criteria** | **Investigation Date** | **Reported associated factors** | **Screened sample** | **Cases** | **Age range** | **Female proportion** | **Age-specific estimate** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A1 | Adachi, K., et al. | 2000 | Japan | Ohmori, Akita | Candidates of basic medical check up | 1999 | Yes | 1591 | 4 | 35-82 | 0.568824639 | No |
| A2 | Jamrozik, K., et al. | 2000 | Australia | Perth, Western Australia | Men aged 65-80 | 1996-1998 | Yes | 12203 | 875 | 65-83 | 0 | Yes |
| A3 | Kyriakides, C., et al. | 2000 | UK | Oldham and Tameside, North England | Men aged 65 | 1993-1997 | No | 3497 | 171 | 65 | 0 | No |
| A4 | Lederle, F.A., et al. | 2001 | USA | USA | Veterans aged 50-79 | 1995-1997 | Yes | 125722 | 5259 | 50-79 | 0.027441498 | No |
| A5 | Chichester Aneurysm Screening Group; Viborg Aneurysm Screening Study; Western Australian Abdominal Aortic Aneurysm Program; Multicentre Aneurysm Screening Study. | 2001 | UK, Denmark, Australia | Chichester, Portsmouth, Oxford, Southampton, Winchester, Viborg, Western Australia | Men aged 64-83 | 1988-1999 | No | 34194 | 1686 | 64-81 | 0 | Yes |
| A6 | Singh, K., et al. | 2001 | Norway | Tromso | Age >25 | 1994-1995 | Yes | 6386 | 303 | 25-84 | 0.536172878 | Yes |
| A7 | Puech-Leão, P., et al. | 2004 | Brazil | San Paulo | Age >50 | 1999-1999 | No | 2756 | 64 | 50- | 0.554426705 | Yes |
| A8 | Barros, F.S., et al. | 2005 | Brazil | Victoria, ES | Age>60 | 2002-2003 | No | 834 | 21 | 60- | 0.659472422 | Yes |
| A9 | Bekkers, S.C., et al. | 2005 | Netherland | Maarstricht | Outpatients referred for regular transthoracic echocardiography | 2005-2005 | No | 742 | 42 | NS | 0.479784367 | Yes |
| A10 | Laws, C., et al. | 2006 | UK | Surrey | Men aged 65-80 | 2006 | No | 2870 | 118 | 65-80 | 0 | No |
| A11 | Ogata, T., et al. | 2006 | USA | Wayne State | (1) over 60 years old; (2) over 50 years old, male, and with positive family history for AAA; or (3) over 55 years old, female, and with positive family history for AAA. Similar criteria have been used in previously reported screening studies. | 2001-2004 | No | 3030 | 61 | 50- | 0.54620462 | No |
| A12 | Ortega-Martín, J.M., et al. | 2007 | Spain | Leon | Men aged 65-75 | 2000-2001 | No | 337 | 14 | 65-75 | 0 | No |
| A13 | Badger, S.A., et al. | 2008 | UK | Belfast, Saintfield, Lisburn | Men aged 65-75 | 2004-2006 | Yes | 1659 | 92 | 65-75 | 0 | No |
| A14 | Badger, S.A., et al. | 2008 | UK | Belfast | men aged 65 to 75 years were recruited from the community using lists provided by general practioners. | 2004-2006 | No | 409 | 22 | 65-75 | 0 | No |
| A15 | Schermerhorn, M., et al. | 2008 | USA | USA | Medicare beneficiaries | NS | No | 2005 | 31 | 65- | 0.480299252 | Yes |
| A16 | Kent, K.C., et al. | 2010 | USA | USA | Age<85 | 2003-2008 | Yes | 3056455 | 23446 | -85 | 0.647293351 | Yes |
| A17 | Yeap, B.B., et al. | 2010 | Australia | Perth, Western Australia | Men aged 70-88 | 2001-2004 | Yes | 3620 | 262 | 70-88 | 0 | No |
| A18 | Barba, A., et al. | 2011 | Spain | Bizkaia | Men aged 65 | 2007-2007 | No | 781 | 37 | 65 | 0 | No |
| A19 | Svensjo, S., et al. | 2011 | Sweden | Uppsala, Dalarna, Sormland, Gavleborg, and Vastmanland | Men aged 65 | 2006-2010 | Yes | 22139 | 373+136known | 65 | 0 | No |
| A20 | Duncan, J.L., et al. | 2012 | UK | Highland and Western Isles, Scotland | Men aged 65-74 | 2001-2004 | No | 8146 | 414 | 65-74 | 0 | No |
| A21 | Jawień, A., et al. | 2012 | Poland | Kuyavian-Pomeranian | Men age >60 | 2009-2011 | No | 1556 | 94 | 60-92 | 0 | No |
| A22 | Hager, J., et al. | 2013 | Sweden | Östergötlands | Men aged 70 during 2008-2010, not been screened before | 2008-2010 | Yes | 4715 | 107 | 70 | 0 | No |
| A23 | Henriksen, N.A., et al. | 2013 | Denmark | Viborg | Men aged 65-76 | 2008-2010 | Yes | 18331 | 601 | 65-76 | 0 | No |
| A24 | Svensjo, S., M., et al. | 2013 | Sweden | Uppsala, Dalarna | Women aged 70 | 2007-2009 | Yes | 5140 | 19 | 70 | 1 | No |
| A25 | Yerly, P., et al. | 2013 | Republic of Seychelles | Seychelles | Age 50-64 | 2004 | No | 329 | 1 | 50-64 | 0.541033435 | No |
| A26 | Zarrouk, M., et al | 2013 | Sweden | Malmö | Men aged 65 | 2010-2011 | No | 6630 | 117 | 65 | 0 | No |
| A27 | Linne, A., et al. | 2014 | Sweden | Stockholm | Men aged 65 | 2010-2012 | No | 18876 | 265 | 65 | 0 | No |
| A28 | Salcedo Jodar, L., et al. | 2014 | Spain | Ciudad Real | Men aged 65-80 | 2012 | Yes | 300 | 10 | 65-80 | 0 | No |
| A29 | Svensjo, S., et al. | 2014 | Sweden | Uppsala | Men aged 70 | 2011-2012 | Yes | 2247 | 54 | 70 | 0 | No |
| A30 | Cho, W.P., et al. | 2015 | South Korea | Incheon | Men age>65 | 2008-2012 | Yes | 1609 | 52 | 65- | 0 | No |
| A31 | Chabok, M., et al. | 2016 | UK and Ireland | UK and Ireland | Women age >50 | 2012-2013 | Yes | 5000 | 82 | 50- ( risk analyses for 66-85) | 1 | Yes |
| A32 | Corrado, G., et al | 2016 | Italy | Como | Age 60-85 | 2010-2013 | Yes | 1555 | 22 | 60-85 | 0.51511254 | No |
| A33 | Jacomelli, J., et al. | 2016 | UK | England | Men aged 65 | 2009-2013 | No | 700000 | 9388 | 65 | 0 | No |
| A34 | Makrygiannis, G., et al. | 2016 | Belgium | Chaudfontaine | Age 65-85 | 2014 | No | 1101 | 40 | 65-85 | 0.344232516 | Yes |
| A35 | Salvador-Gonzalez, B., et al. | 2016 | Spain | Barcelona | Men aged 65-74 | 2007 and 2010 | Yes | 651 | 15 | 65-74 | 0 | No |
| A36 | Wanhainen, A., et al. | 2016 | Sweden | Sweden | Men aged 65 | 2006-2014 | No | 253896 | 3891 | 65 | 0 | No |
| A37 | Derezinski, T.L., et al. | 2017 | Poland | Gniewkowo | Age > 60 | 2009-2012 | No | 918 | 38 | 60- | 0.397603486 | Yes |
| A38 | Han, S.A., et al. | 2017 | South Korea | Hanam, Seoul, Ulsan and Uiwang | Age >50 | NS | Yes | 2035 | 22 | 23-95 | 0.553808354 | Yes |
| A39 | Kvist, T.V., et al. | 2017 | Denmark | Funen and Odense | Age 65-74 | 2014-2015 | Yes | 1318 | 40 | 65-74 | 0.485584219 | No |
| A40 | Liisberg, M., et al. | 2017 | Denmark | Odense | Age 65-74 | 2014 | No | 526 | 24 (Ultrasound), 30 (CT) | 65-74 | 0 | No |
| A41 | Ohlsson, H., et al. | 2017 | Sweden | Skane | Men aged 65 | 2010-2014 | No | 27951 | 561 | 65 | 0 | No |
| A42 | Persson, S.E., et al. | 2017 | Denmark | Norsjö | Age 65-75 | 19,992,010 | No | 1044 | 69 | 65-75 | 0.50862069 | No |
| A43 | Sisó-Almirall, A., et al. | 2017 | Spain | Barcelona | Men age> 60 | 2013-2014 | Yes | 1009 | 11 | 60- | 0 | No |
| A44 | Dahl, M., et al. | 2018 | Denmark | Viborg | Women age 60-77 | 2011-2013 | No | 1474 | 10 | 60-77 | 1 | No |
| A45 | Gianfagna, F., et al. | 2018 | Italy | Varese | Men age 50-75, women 60-75 | 2013-2016 | No | 3726 | 34 | 50-75 | 0.365271068 | Yes |
| A46 | Castro-Ferreira, R., et al. | 2019 | Portugal | Portugal | Men age>65 | 2016 | Yes | 715 | 15 | 65- | 0 | No |
| A47 | Tkaczyk, J., et al. | 2019 | Poland | Lublin | Age > 65 | 2018 | No | 1032 | 27 | 65-91 | 0.551356589 | No |
| A48 | Carter, J.L., et al. | 2020 | USA and UK | USA and UK | Age 35-89 | 2008-2013 | No | 2331943 | 12729 | 35-89 | 0.648955399 | No |
| A49 | Cervin, A., et al. | 2020 | Sweden | Uppsala | Men aged 65 | 2006-2017 | No | 19820 | 173 | 65 | 0 | No |
| A50 | Hultgren, R., et al. | 2020 | Sweden | Stockholm | Men aged 65 | 2010-2016 | No | 55691 | 672 | 65 | 0 | No |
| A51 | Sandiford, P., et al. | 2020 | New Zealand | Auckland | Maori male and female54-79 years; women aged 60-79 years). | 2016-2018 | No | 2503 | 69 | 55-79 | 0.403515781 | Yes |
| A52 | Summers, K.L., et al | 2020 | USA | USA | NS | 2001-2017 | No | 9457 | 267 | 45-90 | 0.526276832 | Yes |
| A53 | Rabben, T., et al. | 2021 | Norway | Oslo | all 65-year-old men with permanent residence in Oslo | May 2011-Sep 2019 | Yes | 12810 | 330 | 65 | 0 | No |
| A54 | Koç, M.A., et al. | 2021 | Turkey | Kecioren district of Ankara, Turkey | volunteers | July 2013 to July 2014 | No | 239 | 11 | 60-86 | 0 | No |

# **Table S5.** List of the included articles (n=54)

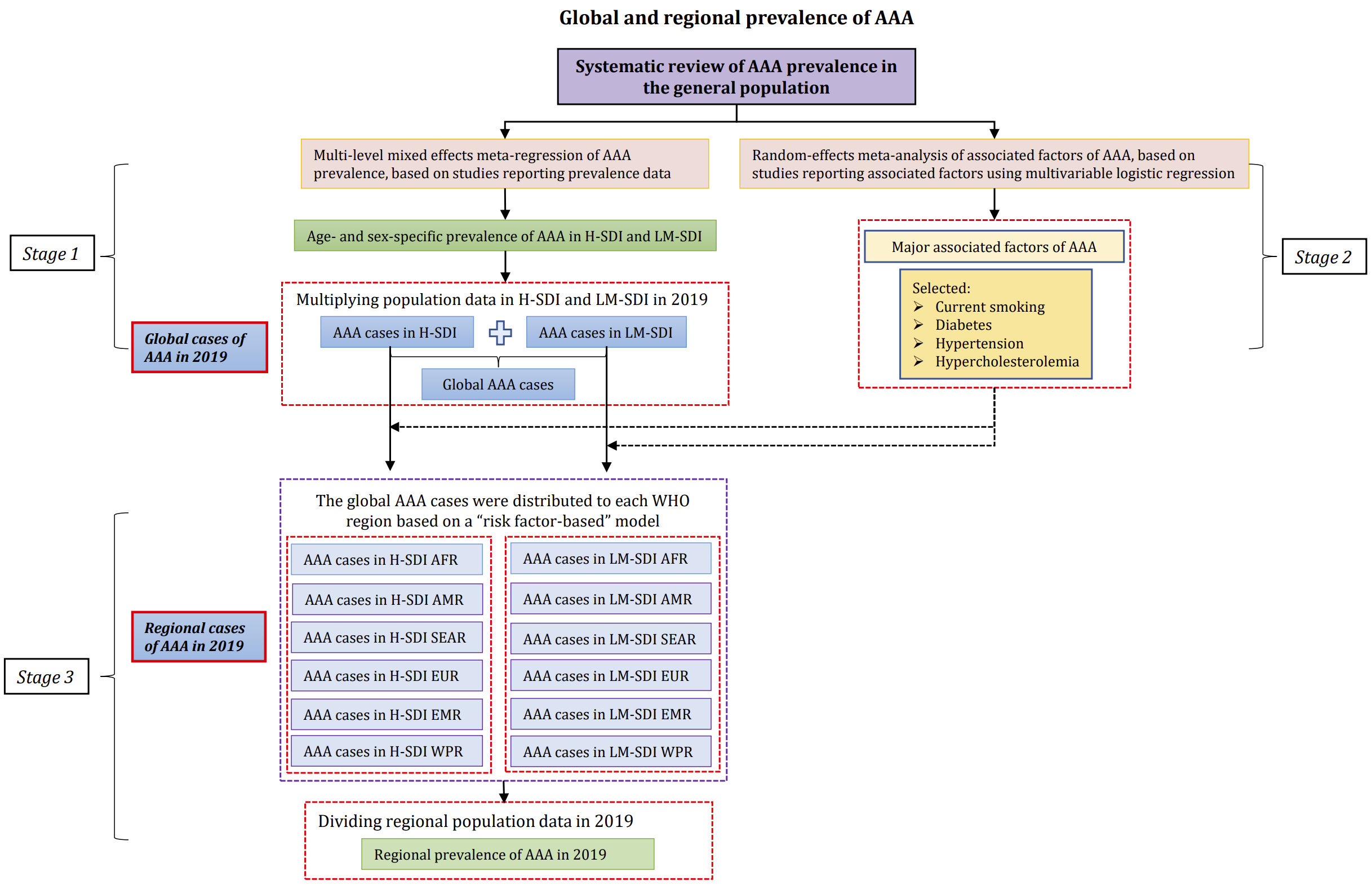
| **ID** | **Ref** |
| --- | --- |
| A1 | Adachi, K., T. Iwasawa and T. Ono, Screening for abdominal aortic aneurysms during a basic medical checkup in residents of a Japanese rural community. Surg Today, 2000. 30(7): p. 594-9. |
| A2 | Jamrozik, K., et al., Screening for abdominal aortic aneurysm: lessons from a population-based study. Med J Aust, 2000. 173(7): p. 345-50. |
| A3 | Kyriakides, C., et al., Screening of abdominal aortic aneurysm: a pragmatic approach. Ann R Coll Surg Engl, 2000. 82(1): p. 59-63. |
| A4 | Lederle, F.A., G.R. Johnson and S.E. Wilson, Abdominal aortic aneurysm in women. J Vasc Surg, 2001. 34(1): p. 122-6. |
| A5 | Chichester Aneurysm Screening Group; Viborg Aneurysm Screening Study; Western Australian Abdominal Aortic Aneurysm Program; Multicentre Aneurysm Screening Study. , A comparative study of the prevalence of abdominal aortic aneurysms in the United Kingdom, Denmark, and Australia. Journal of Medical Screening, 2001. 8(1): p. 46-50. |
| A6 | Singh, K., et al., Prevalence of and risk factors for abdominal aortic aneurysms in a population-based study : The Tromso Study. |
| A7 | Puech-Leão, P., et al., Prevalence of abdominal aortic aneurysms - A screening program in São Paulo, Brazil. Sao Paulo Medical Journal, 2004. 122(4): p. 158-160. |
| A8 | Barros, F.S., et al., Screening for abdominal aortic aneurysm in the population of the city of Vitória, ES, Brazil. Jornal Vascular Brasileiro, 2005. 4(1): p. 59-65. |
| A9 | Bekkers, S.C., et al., Abdominal aortic aneurysm screening during transthoracic echocardiography in an unselected population. J Am Soc Echocardiogr, 2005. 18(5): p. 389-93. |
| A10 | Laws, C. and J. Eastman, Screening for abdominal aortic aneurysm by general practitioners and practice-based ultrasonographers. J Med Screen, 2006. 13(3): p. 160-1. |
| A11 | Ogata, T., et al., Community-based, nonprofit organization-sponsored ultrasonography screening program for abdominal aortic aneurysms is effective at identifying occult aneurysms. Ann Vasc Surg, 2006. 20(3): p. 312-6. |
| A12 | Ortega-Martín, J.M., et al., The prevalence of abdominal aortic aneurysms in a high risk population. Angiologia, 2007. 59(4): p. 305-315. |
| A13 | Badger, S.A., et al., Risk factors for abdominal aortic aneurysm and the influence of social deprivation. Angiology, 2008. 59(5): p. 559-66. |
| A14 | Badger, S.A., et al., Advantages and pitfalls of abdominal aortic aneurysm screening in high-risk patients. Vascular, 2008. 16(4): p. 201-6. |
| A15 | Schermerhorn, M., et al., Ultrasound screening for abdominal aortic aneurysm in medicare beneficiaries. Ann Vasc Surg, 2008. 22(1): p. 16-24. |
| A16 | Kent, K.C., et al., Analysis of risk factors for abdominal aortic aneurysm in a cohort of more than 3 million individuals. J Vasc Surg, 2010. 52(3): p. 539-48. |
| A17 | Yeap, B.B., et al., Associations of total testosterone, sex hormone-binding globulin, calculated free testosterone, and luteinizing hormone with prevalence of abdominal aortic aneurysm in older men. J Clin Endocrinol Metab, 2010. 95(3): p. 1123-30. |
| A18 | Barba, A., et al., Prevalence of abdominal aortic aneurysms in 65 year-old men (PAV65 Study). Angiologia, 2011. 63(1): p. 18-24. |
| A19 | Svensjo, S., et al., Low prevalence of abdominal aortic aneurysm among 65-year-old Swedish men indicates a change in the epidemiology of the disease. Circulation, 2011. 124(10): p. 1118-23. |
| A20 | Duncan, J.L., et al., Long term outcomes in men screened for abdominal aortic aneurysm: prospective cohort study. BMJ, 2012. 344: p. e2958. |
| A21 | Jawień, A., et al., Preliminary results from the first Polish screening program for abdominal aortic aneurysm in the Kuyavian-Pomeranian Province. Acta Angiologica, 2012. 18(1): p. 9-17. |
| A22 | Hager, J., et al., Lower prevalence than expected when screening 70-year-old men for abdominal aortic aneurysm. European Journal of Vascular & Endovascular Surgery, 2013. 46(4): p. 453-9. |
| A23 | Henriksen, N.A., et al., Lack of association between inguinal hernia and abdominal aortic aneurysm in a population-based male cohort. Br J Surg, 2013. 100(11): p. 1478-82. |
| A24 | Svensjo, S., M. Bjorck and A. Wanhainen, Current prevalence of abdominal aortic aneurysm in 70-year-old women. British Journal of Surgery, 2013. 100(3): p. 367-72. |
| A25 | Yerly, P., et al., Low prevalence of abdominal aortic aneurysm in the Seychelles population aged 50 to 65 years. Cardiovasc J Afr, 2013. 24(2): p. 17-8. |
| A26 | Zarrouk, M., et al., The importance of socioeconomic factors for compliance and outcome at screening for abdominal aortic aneurysm in 65-year-old men. Journal of Vascular Surgery, 2013. 58(1): p. 50-5. |
| A27 | Linne, A., et al., Reasons for non-participation in population-based abdominal aortic aneurysm screening. British Journal of Surgery, 2014. 101(5): p. 481-7. |
| A28 | Salcedo Jodar, L., et al., [Prevalence of abdominal aortic aneurysm in a rural population of 65-80 year-old males]. Semergen Sociedad Espanola de Medicina Rural y Generalista, 2014. 40(8): p. 425-30. |
| A29 | Svensjo, S., M. Bjorck and A. Wanhainen, Editor's choice: five-year outcomes in men screened for abdominal aortic aneurysm at 65 years of age: a population-based cohort study. European Journal of Vascular & Endovascular Surgery, 2014. 47(1): p. 37-44. |
| A30 | Cho, W.P., et al., Vascular disease prevalence and risk factors in a screened Korean male population. Ann Vasc Surg, 2015. 29(2): p. 215-21. |
| A31 | Chabok, M., et al., Risk factors associated with increased prevalence of abdominal aortic aneurysm in women. Br J Surg, 2016. 103(9): p. 1132-8. |
| A32 | Corrado, G., et al., Prevalence of previously undiagnosed abdominal aortic aneurysms in the area of Como: the ComoCuore "looking for AAA" ultrasonography screening. Int J Cardiovasc Imaging, 2016. 32(8): p. 1213-7. |
| A33 | Jacomelli, J., et al., Impact of the first 5 years of a national abdominal aortic aneurysm screening programme. Br J Surg, 2016. 103(9): p. 1125-31. |
| A34 | Makrygiannis, G., et al., Extending Abdominal Aortic Aneurysm Detection to Older Age Groups: Preliminary Results from the Liège Screening Programme. Ann Vasc Surg, 2016. 36: p. 55-63. |
| A35 | Salvador-Gonzalez, B., et al., Prevalence of Abdominal Aortic Aneurysm in Men Aged 65-74 Years in a Metropolitan Area in North-East Spain. European Journal of Vascular & Endovascular Surgery, 2016. 52(1): p. 75-81. |
| A36 | Wanhainen, A., et al., Outcome of the Swedish Nationwide Abdominal Aortic Aneurysm Screening Program. Circulation, 2016. 134(16): p. 1141-1148. |
| A37 | Derezinski, T.L., et al., The prevalence of abdominal aortic aneurysms in the rural/urban population in central Poland - Gniewkowo Aortic Study. Kardiologia Polska, 2017. 75(7): p. 705-710. |
| A38 | Han, S.A., J.H. Joh and H.C. Park, Risk Factors for Abdominal Aortic Aneurysm in the Korean Population. Ann Vasc Surg, 2017. 41: p. 135-140. |
| A39 | Kvist, T.V., et al., The DanCavas Pilot Study of Multifaceted Screening for Subclinical Cardiovascular Disease in Men and Women Aged 65-74 Years. Eur J Vasc Endovasc Surg, 2017. 53(1): p. 123-131. |
| A40 | Liisberg, M., A.C. Diederichsen and J.S. Lindholt, Abdominal ultrasound-scanning versus non-contrast computed tomography as screening method for abdominal aortic aneurysm - a validation study from the randomized DANCAVAS study. BMC Med Imaging, 2017. 17(1): p. 14. |
| A41 | Ohlsson, H., et al., On the complexity of screening detected abdominal aortic aneurysms: a retrospective observational multicenter cohort study. International Angiology, 2017. 36(3): p. 261-267. |
| A42 | Persson, S.E., et al., Decreasing prevalence of abdominal aortic aneurysm and changes in cardiovascular risk factors. Journal of Vascular Surgery, 2017. 65(3): p. 651-658. |
| A43 | Sisó-Almirall, A., et al., Abdominal aortic aneurysm screening program using hand-held ultrasound in primary healthcare. PLoS ONE, 2017. 12(4). |
| A44 | Dahl, M., et al., A population-based screening study for cardiovascular diseases and diabetes in Danish postmenopausal women: acceptability and prevalence. BMC Cardiovascular Disorders, 2018. 18(1): p. 20. |
| A45 | Gianfagna, F., et al., Prevalence of Abdominal Aortic Aneurysms in the General Population and in Subgroups at High Cardiovascular Risk in Italy. Results of the RoCAV Population Based Study. Eur J Vasc Endovasc Surg, 2018. 55(5): p. 633-639. |
| A46 | Castro-Ferreira, R., et al., First Population-Based Screening of Abdominal Aortic Aneurysm in Portugal. Ann Vasc Surg, 2019. 59: p. 48-53. |
| A47 | Tkaczyk, J., et al., Prevalence and risk factors of abdominal aortic aneurysm among over 65 years old population in Lublin, Poland. Acta Angiologica, 2019. 25(1): p. 1-6. |
| A48 | Carter, J.L., et al., Sex-Specific Associations of Vascular Risk Factors With Abdominal Aortic Aneurysm: Findings From 1.5 Million Women and 0.8 Million Men in the United States and United Kingdom. J Am Heart Assoc, 2020. 9(4): p. e014748. |
| A49 | Cervin, A., A. Wanhainen and M. Bjorck, Popliteal Aneurysms are Common Among Men With Screening Detected Abdominal Aortic Aneurysms, and Prevalence Correlates With the Diameters of the Common Iliac Arteries. European Journal of Vascular & Endovascular Surgery, 2020. 59(1): p. 67-72. |
| A50 | Hultgren, R., et al., Long-Term Follow-Up of Men Invited to Participate in a Population-Based Abdominal Aortic Aneurysm Screening Program. Angiology, 2020. 71(7): p. 641-649. |
| A51 | Sandiford, P., et al., The population prevalence of undetected abdominal aortic aneurysm in New Zealand Māori. J Vasc Surg, 2020. 71(4): p. 1215-1221. |
| A52 | Summers, K.L., et al., Evaluating the prevalence of abdominal aortic aneurysms in the United States through a national screening database. J Vasc Surg, 2020. |
| A53 | Rabben, T., et al., Screening for Abdominal Aortic Aneurysms and Risk Factors in 65-Year-Old Men in Oslo, Norway. Vasc Health Risk Manag, 2021. 17: p. 561-570. |
| A54 | Koç, M.A., et al., Abdominal aortic aneurysm screening: A pilot study in Turkey. Ulus Travma Acil Cerrahi Derg, 2021. 27(1): p. 17-21. |

# **Table S6.** Quality scores for assessing the risk of bias in the included articles (n=54)

| **ID** | **Author** | **Year Published** | **Quality score** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample population** | **Sample size** | **Participation** | **Outcome assessment** | **Analytical methods** | **Total scores** |
| A1 | Adachi K, et al. | 2000 | 0 | 0 | 1 | 2 | 2 | 5 |
| A2 | Jamrozik, K., et al. | 2000 | 2 | 1 | 1 | 2 | 2 | 8 |
| A3 | Kyriakides, C., et al. | 2000 | 2 | 1 | 1 | 2 | 1 | 7 |
| A4 | Lederle, F.A. et al. | 2001 | 0 | 0 | 0 | 2 | 2 | 4 |
| A5 | Chichester Aneurysm Screening Group; Viborg Aneurysm Screening Study; Western Australian Abdominal Aortic Aneurysm Program; Multicentre Aneurysm Screening Study. | 2001 | 2 | 1 | 1 | 2 | 2 | 8 |
| A6 | Singh, K., et al. | 2001 | 2 | 1 | 0 | 2 | 2 | 7 |
| A7 | Puech-Leão, P., et al. | 2004 | 2 | 0 | 2 | 2 | 1 | 7 |
| A8 | Barros, F.S., et al. | 2005 | 2 | 2 | 0 | 2 | 1 | 7 |
| A9 | Bekkers, S.C., et al. | 2005 | 0 | 0 | 2 | 2 | 1 | 5 |
| A10 | Laws, C., et al. | 2006 | 2 | 1 | 1 | 2 | 1 | 7 |
| A11 | Ogata, T., et al. | 2006 | 0 | 0 | 2 | 2 | 1 | 5 |
| A12 | Ortega-Martín, J.M., et al. | 2007 | 2 | 2 | 1 | 2 | 2 | 9 |
| A13 | Badger, S.A., et al. | 2008 | 2 | 1 | 0 | 2 | 2 | 7 |
| A14 | Badger, S.A., et al. | 2008 | 2 | 0 | 0 | 2 | 1 | 5 |
| A15 | Schermerhorn, M., et al. | 2008 | 2 | 1 | 0 | 2 | 1 | 6 |
| A16 | Kent, K.C., et al. | 2010 | 2 | 1 | 1 | 1 | 2 | 7 |
| A17 | Yeap, B.B., et al. | 2010 | 2 | 1 | 1 | 2 | 2 | 8 |
| A18 | Barba, A., et al. | 2011 | 2 | 1 | 1 | 2 | 1 | 7 |
| A19 | Svensjo, S., et al. | 2011 | 2 | 1 | 1 | 2 | 2 | 8 |
| A20 | Conway, A.M., et al. | 2012 | 2 | 1 | 0 | 2 | 1 | 6 |
| A21 | Duncan, J.L., et al. | 2012 | 2 | 1 | 2 | 2 | 1 | 8 |
| A22 | Jawień, A., et al. | 2012 | 2 | 1 | 0 | 2 | 1 | 6 |
| A23 | Hager, J., et al. | 2013 | 2 | 1 | 1 | 2 | 2 | 8 |
| A24 | Henriksen, N.A., et al. | 2013 | 2 | 1 | 2 | 2 | 2 | 9 |
| A25 | Svensjo, S., M., et al. | 2013 | 2 | 1 | 2 | 2 | 2 | 9 |
| A26 | Yerly, P., et al. | 2013 | 2 | 1 | 1 | 2 | 2 | 8 |
| A27 | Zarrouk, M., et al | 2013 | 2 | 1 | 1 | 2 | 2 | 8 |
| A28 | Linne, A., et al. | 2014 | 2 | 1 | 1 | 2 | 1 | 7 |
| A29 | Salcedo Jodar, L., et al. | 2014 | 2 | 2 | 2 | 2 | 1 | 9 |
| A30 | Cho, W.P., et al. | 2015 | 2 | 2 | 0 | 2 | 2 | 8 |
| A31 | Chabok, M., et al. | 2016 | 2 | 0 | 0 | 2 | 2 | 6 |
| A32 | Corrado, G., et al | 2016 | 2 | 0 | 0 | 2 | 2 | 6 |
| A33 | Jacomelli, J., et al. | 2016 | 2 | 1 | 0 | 2 | 1 | 6 |
| A34 | Makrygiannis, G., et al. | 2016 | 2 | 1 | 0 | 2 | 1 | 6 |
| A35 | Salvador-Gonzalez, B., et al. | 2016 | 2 | 2 | 0 | 2 | 2 | 8 |
| A36 | Wanhainen, A., et al. | 2016 | 2 | 1 | 1 | 2 | 2 | 8 |
| A37 | Derezinski, T.L., et al. | 2017 | 1 | 0 | 2 | 2 | 1 | 6 |
| A38 | Han, S.A., et al. | 2017 | 2 | 1 | 0 | 2 | 2 | 7 |
| A39 | Kvist, T.V., et al. | 2017 | 2 | 0 | 0 | 2 | 2 | 6 |
| A40 | Liisberg, M., et al. | 2017 | 2 | 0 | 0 | 2 | 2 | 6 |
| A41 | Ohlsson, H., et al. | 2017 | 2 | 1 | 1 | 2 | 1 | 7 |
| A42 | Persson, S.E., et al. | 2017 | 2 | 2 | 2 | 2 | 1 | 9 |
| A43 | Sisó-Almirall, A., et al. | 2017 | 2 | 0 | 1 | 2 | 1 | 6 |
| A44 | Dahl, M., et al. | 2018 | 1 | 1 | 1 | 2 | 1 | 6 |
| A45 | Gianfagna, F., et al. | 2018 | 2 | 1 | 0 | 2 | 2 | 7 |
| A46 | Castro-Ferreira, R., et al. | 2019 | 2 | 1 | 1 | 2 | 2 | 8 |
| A47 | Tkaczyk, J., et al. | 2019 | 2 | 0 | 0 | 2 | 1 | 5 |
| A48 | Carter, J.L., et al. | 2019 | 1 | 1 | 0 | 2 | 1 | 5 |
| A49 | Cervin, A., et al. | 2020 | 2 | 1 | 1 | 2 | 1 | 7 |
| A50 | Hultgren, R., et al. | 2020 | 2 | 1 | 1 | 2 | 1 | 7 |
| A51 | Sandiford, P., et al. | 2020 | 2 | 1 | 0 | 2 | 2 | 7 |
| A52 | Summers, K.L., et al | 2020 | 2 | 1 | 0 | 2 | 2 | 7 |
| A53 | Rabben, T., et al. | 2021 | 2 | 1 | 0 | 2 | 2 | 7 |
| A54 | Koç, M.A., et al. | 2021 | 2 | 1 | 0 | 2 | 2 | 7 |

# **Table S7.** Meta-analyses of associated factors of AAA

| **Associated factor** | **ID** | **Author** | **Year Published** | **Country** | **Random-effects meta-analysis** |
| --- | --- | --- | --- | --- | --- |
| **Factor 1-Age (per 10-year increase)** | | | | |  |
|  | A17 | Yeap, B.B., et al. | 2010 | Australia |  |
|  | A32 | Corrado, G., et al | 2016 | Italy |
|  | A38 | Han, S.A., et al. | 2017 | South Korea |
|  | A39 | Kvist, T.V., et al. | 2017 | Denmark |
| **Factor 2-Male sex** | | |  |  |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |  |
|  | A32 | Corrado, G., et al | 2016 | Italy |
|  | A38 | Han, S.A., et al. | 2017 | South Korea |
|  | A39 | Kvist, T.V., et al. | 2017 | Denmark |
| **Factor 3-Diabetes** | | | |  |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |  |
|  | A17 | Yeap, B.B., et al. | 2010 | Australia |
|  | A18 | Barba, Á., et al. | 2013 | Spain |
|  | A30 | Cho, W.P., et al. | 2015 | South Korea |
|  | A39 | Kvist, T.V., et al. | 2017 | Denmark |
|  | A46 | Castro-Ferreira, R., et al. | 2019 | Portugal |
|  | A53 | Rabben, T., et al. | 2021 | Norway |
| **Factor 4-Hypertension** | | | |  |  |
|  | A17 | Yeap, B.B., et al. | 2010 | Australia |  |
|  | A19 | Svensjo, S., et al. | 2011 | Sweden |
|  | A18 | Barba, Á., et al. | 2013 | Spain |
|  | A23 | Henriksen, N.A., et al. | 2013 | Denmark |
|  | A24 | Svensjo, S., M., et al. | 2013 | Sweden |
|  | A30 | Cho, W.P., et al. | 2015 | South Korea |
|  | A31 | Chabok, M., et al. | 2016 | UK and Ireland |
|  | A46 | Castro-Ferreira, R., et al. | 2019 | Portugal |
|  | A16 | Kent, K.C., et al. | 2010 | USA |
|  | A53 | Rabben, T., et al. | 2021 | Norway |
| **Factor 5-** **Hypercholesterolemia** | | | | |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |  |
|  | A17 | Yeap, B.B., et al. | 2010 | Australia |
|  | A19 | Svensjo, S., et al. | 2011 | Sweden |
|  | A22 | Hager, J., et al. | 2013 | Sweden |
|  | A24 | Svensjo, S., M., et al. | 2013 | Sweden |
|  | A30 | Cho, W.P., et al. | 2015 | South Korea |
|  | A46 | Castro-Ferreira, R., et al. | 2019 | Portugal |
| **Factor 6-Obesity (BMI>=25kg/m2)** | | | | |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |  |
|  | A23 | Henriksen, N.A., et al. | 2013 | Denmark |
|  | A30 | Cho, W.P., et al. | 2015 | South Korea |
| **Factor 7-Smoking** | | |  |  |  |
| **Ever smoking** | A17 | Yeap, B.B., et al. | 2010 | Australia |  |
|  | A19 | Svensjo, S., et al. | 2011 | Sweden |
|  | A24 | Svensjo, S., M., et al. | 2013 | Sweden |
|  | A38 | Han, S.A., et al. | 2017 | South Korea |
|  | A39 | Kvist, T.V., et al. | 2017 | Denmark |
|  | A46 | Castro-Ferreira, R., et al. | 2019 | Portugal |
|  | A53 | Rabben, T., et al. | 2021 | Norway |
| **Former smoking** | A2 | Jamrozik, K., et al. | 2000 | Australia |  |
|  | A22 | Hager, J., et al. | 2013 | Sweden |
|  | A23 | Henriksen, N.A., et al. | 2013 | Denmark |
|  | A32 | Corrado, G., et al | 2016 | Italy |
| **Current smoking** | A19 | Svensjo, S., et al. | 2011 | Sweden |  |
|  | A18 | Barba, Á., et al. | 2013 | Spain |
|  | A22 | Hager, J., et al. | 2013 | Sweden |
|  | A23 | Henriksen, N.A., et al. | 2013 | Denmark |
|  | A24 | Svensjo, S., M., et al. | 2013 | Sweden |
|  | A30 | Cho, W.P., et al. | 2015 | South Korea |
|  | A32 | Corrado, G., et al | 2016 | Italy |
| **Factor 8-Family history of AAA** | | | |  |  |
|  | A2 | Jamrozik, K., et al. | 2000 | Australia |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |
|  | A18 | Barba, Á., et al. | 2013 | Spain |
|  | A23 | Henriksen, N.A., et al. | 2013 | Denmark |
|  | A31 | Chabok, M., et al. | 2016 | UK and Ireland |
| **Factor 9-Cardiovascular disease** | | | |  |  |
|  | A2 | Jamrozik, K., et al. | 2000 | Australia |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |
|  | A17 | Yeap, B.B., et al. | 2010 | Australia |
|  | A19 | Svensjo, S., et al. | 2011 | Sweden |
|  | A22-a | Hager, J., et al. | 2013 | Sweden |
|  | A22-b | Hager, J., et al. | 2013 | Sweden |
|  | A30 | Cho, W.P., et al. | 2015 | South Korea |
|  | A31 | Chabok, M., et al. | 2016 | UK and Ireland |
|  | A35 | Salvador-Gonzalez, B., et al. | 2016 | Spain |
|  | A46 | Castro-Ferreira, R., et al. | 2019 | Portugal |
| **Factor 10-Cerebrovascular diseases** | | | | |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |  |
|  | A19 | Svensjo, S., et al. | 2011 | Sweden |
|  | A18 | Barba, Á., et al. | 2013 | Spain |
| **Factor 11-Claudication** | | |  |  |  |
|  | A2-a | Jamrozik, K., et al. | 2000 | Australia |  |
|  | A2-b | Jamrozik, K., et al. | 2000 | Australia |
|  | A19 | Svensjo, S., et al. | 2011 | Sweden |
|  | A22 | Hager, J., et al. | 2013 | Sweden |
|  | A24 | Svensjo, S., M., et al. | 2013 | Sweden |
| **Factor 12-** **Peripheral artery disease** | | | | |  |
|  | A16 | Kent, K.C., et al. | 2010 | USA |  |
|  | A18 | Barba, Á., et al. | 2013 | Spain |
|  | A31 | Chabok, M., et al. | 2016 | UK and Ireland |
| **Factor 13-Pulmonary disease** | | | |  |  |
|  | A17 | Yeap, B.B., et al. | 2010 | Australia |  |
|  | A19 | Svensjo, S., et al. | 2011 | Sweden |
|  | A22 | Hager, J., et al. | 2013 | Sweden |
|  | A38 | Han, S.A., et al. | 2017 | South Korea |
| **Factor 14-Renal disease** | | |  |  |  |
|  | A18 | Barba, Á., et al. | 2013 | Spain |  |
|  | A22 | Hager, J., et al. | 2013 | Sweden |
|  | A24 | Svensjo, S., M., et al. | 2013 | Sweden |



# **Figure S1.** Study approach for estimating global and regional prevalence and cases of AAA in 2019