**Appendix 1:** Detailed MEDLINE and EMBASE search strategy for article selection (1950 to June 3, 2015).

|  |  |
| --- | --- |
| **MEDLINE** | **EMBASE** |
| 1. appendicitis.mp. or exp Appendicitis/  2. appendix/  3. appendi\*.ti,ab.  4. 1 or 2 or 3  5. exp Health Services Accessibility/ or exp Primary Health Care/ or exp "Patient Protection and Affordable Care Act"/ or exp Insurance, Health, Reimbursement/ or exp Physicians, Family/ or exp Treatment Refusal/ or exp United States/ or exp Medicaid/ or exp Health Care Reform/ or geograph.mp. or exp Insurance, Health/  6. geograph\*.ti,ab.  7. 5 or 6  8. exp Epidemiology/cl, di, ec, ed, es, hi, is, lj, ma, og, st, sn, td, ut [Classification, Diagnosis, Economics, Education, Ethics, History, Instrumentation, Legislation & Jurisprudence, Manpower, Organization & Administration, Standards, Statistics & Numerical Data, Trends, Utilization]  9. demography.mp. or exp Demography/  10. exp Risk Factors/  11. risk assessment.mp. or exp Risk Assessment/  12. incidence.mp. or exp Incidence/  13. (epidemiolog\* or demograph\* or geograph\* or risk factor\* or risk assessment\* or inciden\*).ab,ti.  14. 8 or 9 or 10 or 11 or 12 or 13  15. 7 or 14  16. 4 and 15  17. limit 16 to (comment or duplicate publication or editorial or letter)  18. 16 not 17 | 1. exp Appendicitis/  2. exp Appendix/  3. appendi\*.ti,ab.  4. 1 or 2 or 3  5. exp Geography/  6. geograph\*.ti,ab.  7. 5 or 6  8. exp Epidemiology/  9. exp Demography/  10. exp Risk Factors/  11. exp Risk Assessment/  12. exp Incidence/  13. (epidemiolog\* or demograph\* or risk factor\* or risk assessment\* or inciden\*).ti,ab.  14. 8 or 9 or 10 or 11 or 12 or 13  15. 7 or 14  16. 4 and 15  17. limit 16 to (editorial or letter)  18. 16 not 17 |

**Appendix 2:** Flow diagram outlining article selection and exclusion.

105 Studies added   
15 Additional studies found by hand

**A total of 120 studies included**

792 Potentially relevant articles identified for full-text review

9455 Citations excluded based on screening of titles or abstracts using general criteria

13590 Citations identified from literature search:

* 5462 citations from Medline
* 8128 citations from EMBASE
* 3343 duplicate citations removed

687 Articles excluded after full-text review for the following reasons:

* No incidence reported
* Not enough information to calculate incidence
* Not population based
* Not original study
* Case reports
* Examined extreme age groups
* Special cohort (e.g. military, only included women of childbearing age)

**Appendix 3:** Quality assessment of manuscripts.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **First Author (Publication Year)** | **Target Population Defined?** | **Probability Sampling**  **or**  **Entire Population Survey?** | **Study Sample Represents Target Population?** | **Used Validated Criteria for Disease Diagnosis?** |
| Pearson (1968)1 | Yes | Yes | Yes | Yes |
| Chatbanchai (1989)2 | Yes | Yes | Yes | Yes |
| OECD (2015)3 | Yes | Yes | Yes | Yes |
| Al-Omran (2003)4 | Yes | Yes | Yes | Yes |
| To (2010)5 | Yes | Yes | Yes | Yes |
| Kaplan (2009)6 | Yes | Yes | Yes | Yes |
| Gagne (2007)7 | Yes | Yes | Yes | Yes |
| Kaplan (2013)8 | Yes | Yes | Yes | Yes |
| Quan (2015)9 | Yes | Yes | Yes | Yes |
| Unknown (1952)10 | Yes | Not specified in article | Not specified in article | Not specified in article |
| Lembcke (1952)11 | Yes | Yes | Yes | Yes |
| Pearson (1964)12 | Yes | Yes | Yes | Yes |
| Rutkow (1981)13 | Yes | Yes | Yes | Yes |
| Livingston (2007)14 | Yes | Yes | Yes | Yes |
| Alder (2010)15 | Yes | Yes | Yes | Yes |
| Sugimoto (1987)16 | Yes | Yes | Yes | No |
| Addiss (1990)17 | Yes | Yes | Yes | Yes |
| Everhart (2009)18 | Yes | Not specified in article | Not specified in article | Not specified in article |
| Livingston (2011)19 | Yes | Yes | Yes | Yes |
| Luckmann (1991)20 | Yes | Yes | Yes | Yes |
| Lawrence (1996)21 | Yes | Yes | Yes | Yes |
| Luckmann (1989)22 | Yes | Yes | Yes | Yes |
| Flum (2001)23 | Yes | Yes | Yes | Yes |
| Elangovan (1997)24 | Yes | Yes | Yes | Yes |
| Zarling (1997)25 | Yes | Yes | Yes | Yes |
| Buckius (2012)26 | Yes | Yes | Yes | Yes |
| Guagliardo (2003)27 | Yes | Yes | Yes | Yes |
| Anderson (2012)28 | Yes | Yes | Yes | Yes |
| Davies (2004)29 | Yes | Yes | Yes | Yes |
| Lee (2011 & 2012) - combined30-32 | Yes | Yes | Yes | Yes |
| Aarabi (2011)33 | Yes | Yes | Yes | Yes |
| Bliss (2015)34 | Yes | Yes | Yes | Yes |
| Myer (2013)35 | Yes | Yes | Yes | Yes |
| Skerdiα (not yet published) | Yes | Yes | Yes | Yes |
| Bregendahl (2013)36 | Yes | Yes | Yes | Yes |
| Elfving (1965)37 | Yes | Yes | Yes | Yes |
| Miettinen (1996)38 | Yes | Yes | Yes | Yes |
| Ilves (2011, 2013, & 2014)39-41 | Yes | Yes | Yes | Yes |
| Lichtner (1971)42 | Yes | Yes | Yes | Yes |
| Horntrich (1990)43 | Yes | Yes | Yes | Yes |
| Haussler (1989)44 | Yes | Yes | Yes | Yes |
| Papadopoulos (2008)45 | Yes | Yes | Yes | Yes |
| Koutroubakis (1993)46 | Yes | Yes | Yes | Yes |
| Gardikis (2011)47 | Yes | Yes | Yes | Yes |
| Basoli (1993)48 | Yes | Yes | Yes | Yes |
| Gallerani (2006)49 | Yes | Yes | Yes | Yes |
| Saia (2012)50 | Yes | Yes | Yes | Yes |
| Hoogendoorn (1982)51 | Yes | Yes | Yes | No |
| Noer (1975)52 | Yes | Yes | Yes | Yes |
| Soreide (1984)53 | Yes | Yes | Yes | Yes |
| Korner (1997)54 | Yes | Yes | Yes | Yes |
| Korner (1998)55 | Yes | Yes | Yes | Yes |
| Korner (2001)56 | Yes | Yes | Yes | Yes |
| Bakken (2003)57 | Yes | Yes | Yes | Yes |
| Anielski (2001)58 | Yes | Yes | Yes | Yes |
| Cortes Vizcaino (1993)59 | Yes | Yes | Yes | Yes |
| Osta (1991)60 | Yes | Yes | Yes | Yes |
| Andreu-Ballester (2009)61 | Yes | Yes | Yes | Yes |
| Arnbjornsson (1982)62 | Yes | Yes | Yes | Yes |
| Andersson (1992, 1994 & 1995)63-65 | Yes | Yes | Yes | Yes |
| Pieper (1982)66 | Yes | Yes | Yes | Yes |
| Blomqvist (2001)67 | Yes | Yes | Yes | Yes |
| Andersson (2013)68 | Yes | Yes | Yes | Yes |
| Blomqvist (1998)69 | Yes | Yes | Yes | Yes |
| Andersson (2014)70 | Yes | Yes | Yes | Yes |
| Barker (1988)71 | Yes | Yes | Yes | Yes |
| Wright (1963)72 | Yes | Yes | Yes | Yes |
| Driver (1995)73 | Yes | Yes | Yes | Yes |
| Cumming (1984)74 | Yes | Yes | Yes | Yes |
| Gilmore (1975)75 | Yes | Yes | Yes | Yes |
| Bisset (1997)76 | Yes | Yes | Yes | Yes |
| Barker (1981)77 | Yes | Yes | Yes | Yes |
| Campbell (2002)78 | Yes | Yes | Yes | Yes |
| McCahy (1994)79 | Yes | Yes | Yes | Yes |
| Williams (1998)80 | Yes | Yes | Yes | Yes |
| Barker (1986)81 | Yes | Yes | Yes | Yes |
| Morris (1987)82 | Yes | Yes | Yes | Yes |
| Barker (1988)83 | Yes | Yes | Yes | Yes |
| Irvin (1989)84 | Yes | Yes | Yes | Yes |
| Kang (2003)85 | Yes | Yes | Yes | Yes |
| Bhopal (2014)86 | Yes | Yes | Yes | Yes |
| Paterson (2008)87 | Yes | Yes | Yes | Yes |
| Donnelly (2001)88 | Yes | Yes | Yes | Yes |
| Close (1995)89 | Yes | Yes | Yes | Yes |
| Riordan (1984)90 | Yes | Yes | Yes | Yes |
| Foster (1989)91 | Yes | Yes | Yes | Yes |
| Davoodabadi (2005)92 | Yes | Yes | Yes | Yes |
| Freud (1988)93 | Yes | Yes | Yes | Yes |
| Sulu (2010)94 | Yes | Yes | Yes | Yes |
| Li (2012)95 | Yes | Yes | Yes | Yes |
| Donnan (1986)96 | Yes | Not specified in article | Not specified in article | Yes |
| Panda (1975)97 | Yes | Yes | Yes | Yes |
| Chua (1993)98 | Yes | Yes | Yes | Yes |
| Lee (2010)99 | Yes | Yes | Yes | Yes |
| Liu (2010)100 | Yes | Yes | Yes | Yes |
| Wei (2012)101 | Yes | Yes | Yes | Yes |
| Yeh (2011)102 | Yes | Yes | Yes | Yes |
| Lin (2015)103 | Yes | Yes | Yes | Yes |
| Wei (2012)104 | Yes | Yes | Yes | Yes |
| Wang (2013)105 | Yes | Yes | Yes | Yes |
| Zoguereh (2001)106 | Yes | Yes | Yes | Yes |
| Bickler (2000)107 | Yes | Yes | Yes | Yes |
| Naaeder (1999)108 | Yes | Yes | Yes | Yes |
| Miller (1964)109 | Yes | Yes | Yes | Not specified in article |
| Langenscheidt (1999)110 | Yes | Yes | Yes | Yes |
| Koumare (1995)111 | Yes | Yes | Yes | Yes |
| Galukande (2010)112 | Yes | Yes | Yes | Yes |
| Ayoade (2006)113 | Yes | Yes | Yes | Yes |
| Oguntola (2010)114 | Yes | Yes | Yes | Yes |
| Griffiths (1981)115 | Yes | Yes | Yes | Yes |
| Segal (1986)116 | Yes | Yes | Yes | Yes |
| Walker (1989)117 | Yes | Yes | Yes | Yes |
| Rogers (2008)118 | Yes | Yes | Yes | Yes |
| Kong (2012)119 | Yes | Yes | Yes | Yes |

α Data not published, but provided by the author

**Appendix 4:** Systematic review of studies reporting the incidence of appendicitis or appendectomy stratified by geographic region between 1932 and 2014. OECD - The Organisation for Economic Co-operation and Development.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **First Author (Publication Year)** | **Area** | **Overall Incidence** | **Study Period** | **Appendicitis or Appendectomy** | **Administrative Data or Other Medical Records**α | **Age Group** |
| **Northern America** | | | | | | |
| OECD (2015)3 | Canada (Nationwide) | 101 | 1990-2012 | Appendectomy | Administrative | All ages |
| Al-Omran (2003)4 | Canada (Ontario) | 75 | 1991-1998 | Appendicitis | Administrative | All ages |
| To (2010)5 | Canada (Ontario) | 93 | 1993-2000 | Appendectomy | Administrative | Pediatric |
| Kaplan (2009)6 | Canada (Calgary, Alberta) | 67 | 1999-2006 | Appendicitis | Administrative | Adult |
| Gagne (2007)7 | Canada (Quebec) | 91 | 2002-2003 | Appendicitis | Medical records | All ages |
| Kaplan (2013)8 | Canada (12 Cities) | 89 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Calgary, Alberta) | 107 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Edmonton, Alberta) | 86 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Halifax, Nova Scotia) | 79 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Hamilton, Ontario) | 116 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (London, Ontario) | 95 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Ottawa, Ontario) | 78 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Regina, Saskatchewan) | 97 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Saskatoon, Saskatchewan) | 95 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Toronto, Ontario) | 76 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Vancouver, British Columbia) | 117 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Windsor, Ontario) | 80 | 2004-2008 | Appendicitis | Administrative | All ages |
| Kaplan (2013)8 | Canada (Winnipeg, Manitoba) | 78 | 2004-2008 | Appendicitis | Administrative | All ages |
| βQuan 20159 | Canada (Nationwide) | 86 | 2004-2008 | Appendicitis | Administrative | All ages |
| βUnknown (1952)10 | USA (Pennsylvania) | 201 | 1937 | Appendicitis | Medical records | All ages |
| βUnknown (1952)10 | USA (Pennsylvania) | 239 | 1942 | Appendicitis | Medical records | All ages |
| βUnknown (1952)10 | USA (Pennsylvania) | 232 | 1947 | Appendicitis | Medical records | All ages |
| Lembcke (1952)11 | USA (11 Counties in New York State) | 383 | 1948 | Appendectomy | Medical records | All ages |
| Pearson (1964)12 | USA (New Haven Standard Metropolitan Area, Connecticut) | 119 | 1958-1959 | Appendicitis | Medical records | All ages |
| βPearson (1968)1 | USA (New England, excluding Connecticut: Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) | 170 | 1962 | Appendectomy | Administrative | All ages |
| Rutkow (1981)13 | USA (Nationwide) | 152 | 1970-1978 | Appendectomy | Administrative | All ages |
| €Livingston (2007)14 | USA (Nationwide) | 142 | 1970-2004 | Appendicitis | Administrative | All ages |
| €Livingston (2007)14 | USA (Nationwide) | 157 | 1970-1989 | Appendicitis | Administrative | All ages |
| €Livingston (2007)14 | USA (Nationwide) | 125 | 1990-2004 | Appendicitis | Administrative | All ages |
| €Alder (2010)15 | USA (Nationwide) | 124 | 1970-2006 | Appendicitis | Administrative | All ages |
| €Alder (2010)15 | USA (Nationwide) | 141 | 1970-1989 | Appendicitis | Administrative | All ages |
| €Alder (2010)15 | USA (Nationwide) | 103 | 1990-2006 | Appendicitis | Administrative | All ages |
| Sugimoto (1987)16 | USA (South Carolina) | 97 | 1979-1981 | Appendicitis | Administrative | All ages |
| Addiss (1990)17 | USA (Nationwide) | 111 | 1979-1984 | Appendicitis | Administrative | All ages |
| Everhart (2009)18 | USA (Nationwide) | 110 | 1979-2004 | Appendicitis | Administrative | All ages |
| Everhart (2009)18 | USA (Nationwide) | 119 | 1970-1989 | Appendicitis | Administrative | All ages |
| Everhart (2009)18 | USA (Nationwide) | 103 | 1990-2004 | Appendicitis | Administrative | All ages |
| €Livingston (2011)19 | USA (Nationwide) | 146 | 1979-2006 | Appendicitis | Administrative | Pediatric |
| €Livingston (2011)19 | USA (Nationwide) | 169 | 1979-1989 | Appendicitis | Administrative | Pediatric |
| €Livingston (2011)19 | USA (Nationwide) | 130 | 1990-2006 | Appendicitis | Administrative | Pediatric |
| Luckmann (1991)20 | USA (California) | 115 | 1983-1986 | Appendicitis | Administrative | All ages |
| Lawrence (1996)21 | USA (San Antonio, Texas) | 34 | 1983-1989 | Appendectomy | Medical records | All ages |
| Luckmann (1989)22 | USA (California) | 96 | 1984 | Appendicitis | Administrative | All ages |
| €Flum (2001)23 | USA (Washington State) | 102 | 1987-1998 | Appendectomy | Administrative | All ages |
| €Flum (2001)23 | USA (Washington State) | 103 | 1987-1989 | Appendectomy | Administrative | All ages |
| €Flum (2001)23 | USA (Washington State) | 101 | 1990-1998 | Appendectomy | Administrative | All ages |
| Elangovan (1997)24 | USA (Sedgwick County, Kansas) | 58 | 1990-1991 | Appendicitis | Medical records | All ages |
| Zarling (1997)25 | USA (Illinois) | 80 | 1992 | Appendicitis | Administrative | All ages |
| Buckius (2012)26 | USA (Nationwide) | 87 | 1993-2008 | Appendicitis | Administrative | All ages |
| Guagliardo (2003)27 | USA (New York State) | 95 | 1995 | Appendicitis | Administrative | Pediatric |
| Guagliardo (2003)27 | USA (California) | 123 | 1997 | Appendicitis | Administrative | Pediatric |
| Anderson (2012)28 | USA (California) | 112 | 1995-2009 | Appendicitis | Administrative | All ages |
| Davies (2004)29 | USA (Nationwide) | 94 | 1997 | Appendicitis | Administrative | All ages |
| Lee (2011 & 2012)30-32 | USA (Southern California) | 70 | 1998-2007 | Appendicitis | Administrative | All ages |
| Aarabi (2011)33 | USA (New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) | 94 | 2000-2006 | Appendicitis | Administrative | Pediatric |
| OECD (2015)3 | United States (Nationwide) | 106 | 2000-2010 | Appendectomy | Administrative | All ages |
| Bliss (2015)34 | USA (Nationwide) | 62 | 2003-2011 | Appendicitis | Administrative | Adults |
| βQuan 20159 | USA (Nationwide) | 98 | 2004-2008 | Appendicitis | Administrative | All ages |
| Myer (2013)*35* | USA (Nationwide ER Database) | 120 | 2007 | Appendicitis | Administrative | All ages |
| **Northern Europe** | | | | | | |
| Bregendahl (2013)36 | Denmark (5 Danish Counties) | 92 | 1998-2007 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | Denmark (Nationwide) | 122 | 1990-2014 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Estonia (Nationwide) | 179 | 2003-2013 | Appendectomy | Administrative | All ages |
| Elfving (1965)37 | Finland (Nationwide) | 327 | 1960 | Appendicitis | Administrative | All ages |
| Miettinen (1996)38 | Finland (10 Municipalities) | 138 | 1985-1986 | Appendicitis | Medical records | Adult |
| €Ilves (2011, 2013, & 2014)39-41 | Finland (Nationwide) | 130 | 1987-2007 | Appendicitis | Administrative | All ages |
| €Ilves (2011, 2013, & 2014)39-41 | Finland (Nationwide) | 144 | 1970-1989 Period  (1987-1989) | Appendicitis | Administrative | All ages |
| €Ilves (2011, 2013, & 2014)39-41 | Finland (Nationwide) | 127 | Post-1990 Period  (1990-2007) | Appendicitis | Administrative | All ages |
| OECD (2015)3 | Finland (Nationwide) | 145 | 1990-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Iceland (Nationwide) | 142 | 2005-2014 | Appendectomy | Administrative | All ages |
| βMorris (1987)82 | Ireland (Nationwide) | 174 | 1979-1982 | Appendicitis | Administrative | All ages |
| βBarker (1988)83 | Ireland (Nationwide) | 181 | 1979-1982 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | Ireland (Nationwide) | 161 | 1995-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Latvia (Nationwide) | 143 | 2005-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Lithuania (Nationwide) | 200 | 2005-2013 | Appendectomy | Administrative | All ages |
| €Noer (1975)52 | Norway (Orkdal and Meldal) | 183 | 1943-1972 | Appendectomy | Medical records | All ages |
| €Noer (1975)52 | Norway (Orkdal and Meldal) | 198 | 1943-1969 | Appendectomy | Medical records | All ages |
| €Noer (1975)52 | Norway (Orkdal and Meldal) | 100 | 1970-1972 | Appendectomy | Medical records | All ages |
| Soreide (1984)53 | Norway (6 Counties) | 140 | 1977-1978 | Appendicitis | Administrative | All ages |
| Korner (1997)54 | Norway (Stavanger) | 86 | 1989-1993 | Appendicitis | Medical records | All ages |
| Korner (1998)55 | Norway (Stavanger) | 111 | 1989-1994 | Appendicitis | Medical records | All ages |
| Korner (2001)56 | Norway (Stavanger) | 84 | 1989-1998 | Appendicitis | Medical records | All ages |
| Bakken (2003)57 | Norway (Nationwide) | 90 | 1990-2001 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | Norway (Nationwide) | 117 | 1996-2013 | Appendectomy | Administrative | All ages |
| βArnbjornsson (1982)62 | Sweden (Lund) | 310 | 1945-1949 | Appendicitis | Medical records | Adult |
| βPearson (1968)1 | Sweden (Uppsala) | 290 | 1964 | Appendectomy | Administrative | All ages |
| βAndersson (1994 and 1995)63, 64 | Sweden (Jonkoping Town) | 151 | 1969-1990 | Appendicitis | Medical records | All ages |
| Pieper R (1982)66 | Sweden (Huddinge) | 116 | 1973-1976 | Appendicitis | Medical records | All ages |
| βArnbjornsson (1982)62 | Sweden (Lund) | 160 | 1975-1979 | Appendicitis | Medical records | Adult |
| βAndersson (1992 and 1994)63, 65 | Sweden (Jonkoping County) | 116 | 1984-1989 | Appendicitis | Medical records | All ages |
| Blomqvist P (2001)67 | Sweden (Nationwide) | 133 | 1987-1996 | Appendectomy | Administrative | All ages |
| Andersson (2013)68 | Sweden (Nationwide) | 104 | 1987-2006 | Appendicitis | Administrative | All ages |
| βBlomqvist (1998)69 | Sweden (Nationwide) | 146 | 1989 | Appendicitis | Administrative | All ages |
| Andersson (2014)70 | Sweden (Nationwide) | 103 | 1992-2008 | Appendicitis | Administrative | All ages |
| βBlomqvist (1998)69 | Sweden (Nationwide) | 136 | 1993 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | Sweden (Nationwide) | 120 | 2005-2013 | Appendectomy | Administrative | All ages |
| βBarker (1988)71 | UK (Anglesey, Wales) | 140 | 1932-1935 | Appendicitis | Administrative | All ages |
| Wright (1963)72 | UK (Glasgow & Kintyre Peninsula, Scotland) | 110 | 1952-1961 | Appendicitis | Medical records | All ages |
| βBarker (1988)71 | UK (Anglesey, Wales) | 262 | 1954-1955 | Appendicitis | Administrative | All ages |
| βPearson (1968)1 | UK (Liverpool) | 245 | 1962 | Appendectomy | Administrative | All ages |
| βBarker (1988)71 | UK (Anglesey, Wales) | 296 | 1964-1965 | Appendicitis | Administrative | All ages |
| βDriver (1995)73 | UK (Aberdeen, Scotland) | 99 | 1967 | Appendicitis | Medical records | Pediatric |
| €Cumming (1984)74 | UK (Dumfries and Galloway, Scotland) | 136 | 1968-1979 | Appendectomy | Medical records | All ages |
| €Cumming (1984)74 | UK (Dumfries and Galloway, Scotland) | 147 | 1968-1969 | Appendectomy | Medical records | All ages |
| €Cumming (1984)74 | UK (Dumfries and Galloway, Scotland) | 135 | 1970-1979 | Appendectomy | Medical records | All ages |
| Gilmore OJA (1975)75 | UK (Reading District, England) | 82 | 1972 | Appendicitis | Medical records | All ages |
| βBisset (1997)76 | UK (Scotland) | 194 | 1973 | Appendectomy | Administrative | All ages |
| βBarker (1981)77 | UK (York, England) | 135 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Wakefield, England) | 139 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Preston, England) | 163 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Chester, England) | 106 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Derby, England) | 122 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Stoke, England) | 85 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Ipswich, England) | 89 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Plymouth, England) | 105 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1981)77 | UK (Newport, Wales) | 123 | 1974-1977 | Appendicitis | Administrative | All ages |
| βBarker (1988)71 | UK (Anglesey, Wales) | 264 | 1974-1975 | Appendicitis | Administrative | All ages |
| €Campbell (2002)78 | UK (Exeter, England) | 89 | 1974-1998 | Appendicitis | Administrative | All ages |
| €Campbell (2002)78 | UK (Exeter, England) | 101 | 1974-1989 | Appendicitis | Administrative | All ages |
| €Campbell (2002)78 | UK (Exeter, England) | 74 | 1990-1998 | Appendicitis | Administrative | All ages |
| €McCahy (1994)79 | UK (Stockton-on-Tees, Cleveland, England) | 79 | 1975-1991 | Appendicitis | Medical records | All ages |
| €McCahy (1994)79 | UK (Stockton-on-Tees, Cleveland, England) | 83 | 1975-1989 | Appendicitis | Medical records | All ages |
| €McCahy (1994)79 | UK (Stockton-on-Tees, Cleveland, England) | 53 | 1990-1991 | Appendicitis | Medical records | All ages |
| €Williams (1998)80 | UK (Leicestershire, England) | 149 | 1975-1994 | Appendicitis | Administrative | Pediatric |
| €Williams (1998)80 | UK (Leicestershire, England) | 154 | 1975-1989 | Appendicitis | Administrative | Pediatric |
| €Williams (1998)80 | UK (Leicestershire, England) | 128 | 1990-1994 | Appendicitis | Administrative | Pediatric |
| βBarker (1986)81 | UK (Portsmouth, England) | 66 | 1978-1982 | Appendicitis | Administrative | All ages |
| βBarker (1986)81 | UK (Anglesey, Wales) | 206 | 1978-1982 | Appendicitis | Administrative | All ages |
| βChatbanchai (1989)2 | UK (Nottinghamshire, England) | 118 | 1978 | Appendectomy | Medical records | All ages |
| βMorris (1987)82 | UK (England) | 103 | 1979-1982 | Appendicitis | Administrative | All ages |
| βMorris (1987)82 | UK (Scotland) | 111 | 1979-1982 | Appendicitis | Administrative | All ages |
| βMorris (1987)82 | UK (Wales) | 123 | 1979-1982 | Appendicitis | Administrative | All ages |
| βBarker (1988)83 | UK (England) | 94 | 1979-1982 | Appendicitis | Administrative | All ages |
| βBarker (1988)83 | UK (Wales) | 114 | 1979-1982 | Appendicitis | Administrative | All ages |
| βBarker (1988)83 | UK (Scotland) | 117 | 1979-1982 | Appendicitis | Administrative | All ages |
| βChatbanchai (1989)2 | UK (Leeds, England) | 86 | 1979 | Appendectomy | Medical records | All ages |
| Irvin (1989)84 | UK (Exeter, Devon, England) | 17 | 1984-1987 | Appendicitis | Medical records | All ages |
| Kang (2003)85 | UK (England) | 68 | 1989-1997 | Appendicitis | Administrative | All ages |
| βDriver (1995)73 | UK (Aberdeen, Scotland) | 73 | 1992 | Appendicitis | Medical records | Pediatric |
| βBisset (1997)76 | UK (Scotland) | 96 | 1993 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | United Kingdom (Nationwide) | 88 | 2000-2013 | Appendectomy | Administrative | All ages |
| Bhopal (2014)86 | UK (Scotland) | 65 | 2001-2010 | Appendicitis | Administrative | All ages |
| Paterson (2008)87 | UK (Lothian, Scotland) | 44 | 2000-2005 | Appendectomy | Medical records | All ages |
| **Southern Europe** | | | | | | |
| ζSkerdi (not yet published) | Albania (Tirana District) | 146 | 2005-2013 | Appendicitis | Administrative | All ages |
| ζSkerdi (not yet published) | Albania (Tirana District) | 142 | 2014 | Appendicitis | Administrative | Adults only |
| €Papadopoulos (2008)45 | Greece (Nationwide) | 326 | 1970-1999 | Appendicitis | Administrative | All ages |
| €Papadopoulos (2008)45 | Greece (Nationwide) | 401 | 1970-1989 | Appendicitis | Administrative | All ages |
| €Papadopoulos (2008)45 | Greece (Nationwide) | 175 | 1990-1999 | Appendicitis | Administrative | All ages |
| Koutroubakis (1993)46 | Greece (Heraklion) | 125 | 1986-1991 | Appendectomy | Medical records | All ages |
| OECD (2015)3 | Greece (Nationwide) | 128 | 1996-2010 | Appendectomy | Administrative | All ages |
| Gardikis (2011)47 | Greece (New Thrace) | 82 | 2003-2009 | Appendicitis | Medical records | Pediatric |
| βBasoli (1993)48 | Italy (Nationwide) | 570 | 1955 | Appendicitis | Administrative | All ages |
| βBasoli (1993)48 | Italy (Nationwide) | 370 | 1987 | Appendicitis | Administrative | All ages |
| Gallerani (2006)49 | Italy (Ferrara) | 127 | 1998-2004 | Appendicitis | Administrative | All ages |
| Saia (2012)50 | Italy (Veneto Region) | 91 | 2000-2008 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | Italy (Nationwide) | 107 | 2001-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Portugal (Nationwide) | 126 | 1993-2009 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Slovenia (Nationwide) | 117 | 2005-2013 | Appendectomy | Administrative | All ages |
| Cortes Vizcaino (1993)59 | Spain (Nationwide) | 203 | 1977-1988 | Appendicitis | Administrative | Adult |
| Osta (1991)60 | Spain (Soria) | 80 | 1984-1989 | Appendectomy | Medical records | All ages |
| OECD (2015)3 | Spain (Nationwide) | 107 | 1997-2013 | Appendectomy | Administrative | All ages |
| Andreu-Ballester (2009)61 | Spain (Valencian Community) | 96 | 1998-2007 | Appendicitis | Administrative | All ages |
| **Eastern Europe** | | | | | | |
| OECD (2015)3 | Czech Republic (Nationwide) | 115 | 2005-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Hungary (Nationwide) | 99 | 2005-2012 | Appendectomy | Administrative | All ages |
| Anielski (2001)58 | Poland (Cracow) | 62 | 1989-1998 | Appendicitis | Medical records | All ages |
| OECD (2015)3 | Poland (Nationwide) | 79 | 2005-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Slovak Republic (Nationwide) | 156 | 1994-2013 | Appendectomy | Administrative | All ages |
| **Western Europe** | | | | | | |
| OECD (2015)3 | Austria (Nationwide) | 200 | 1998-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Belgium (Nationwide) | 146 | 2005-2012 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | France (Nationwide) | 176 | 1997-2013 | Appendectomy | Administrative | All ages |
| Lichtner (1971)42 | Germany (Hannover) | 601 | 1966-1967 | Appendectomy | Medical records | All ages |
| Horntrich (1990)43 | Germany (Nationwide; East Germany) | 236 | 1970-1988 | Appendicitis | Administrative | All ages |
| Haussler (1989)44 | Germany (Heilbron) | 130 | 1985 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | Germany (Nationwide) | 177 | 2005-2013 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Luxembourg (Nationwide) | 157 | 1996-2013 | Appendectomy | Administrative | All ages |
| €Hoogendoorn (1982)51 | Netherlands (Nationwide) | 214 | 1966-1979 | Appendectomy | Administrative | All ages |
| €Hoogendoorn (1982)51 | Netherlands (Nationwide) | 252 | 1966-1969 | Appendectomy | Administrative | All ages |
| €Hoogendoorn (1982)51 | Netherlands (Nationwide) | 199 | 1970-1979 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Netherlands (Nationwide) | 96 | 1990-2010 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Switzerland (Nationwide) | 173 | 2002-2013 | Appendectomy | Administrative | All ages |
| **Oceania** | | | | | | |
| Donnelly (2001)88 | Australia (Western) | 185 | 1981-1997 | Appendectomy | Administrative | All ages |
| βClose (1995)89 | Australia (New South Wales) | 220 | 1986 | Appendectomy | Administrative | Pediatric |
| βClose (1995)89 | Australia (New South Wales) | 170 | 1989-1990 | Appendectomy | Administrative | Pediatric |
| OECD (2015)3 | Australia (Nationwide) | 146 | 1993-2012 | Appendectomy | Administrative | All ages |
| βRiordan (1984)90 | New Zealand (Nationwide) | 331 | 1940 | Appendicitis | Administrative | All ages |
| βRiordan (1984)90 | New Zealand (Nationwide) | 285 | 1950 | Appendicitis | Administrative | All ages |
| βRiordan (1984)90 | New Zealand (Nationwide) | 253 | 1960 | Appendicitis | Administrative | All ages |
| βRiordan (1984)90 | New Zealand (Nationwide) | 196 | 1970 | Appendicitis | Administrative | All ages |
| βRiordan (1984)90 | New Zealand (Nationwide) | 159 | 1980 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | New Zealand (Nationwide) | 132 | 1996-2013 | Appendectomy | Administrative | All ages |
| Foster (1989)91 | Papua New Guinea (North Solomons) | 17 | 1983-1985 | Appendicitis | Medical records | All ages |
| **Middle East** | | | | | | |
| Davoodabadi (2005)92 | Iran (Kashan) | 158 | 2000-2002 | Appendicitis | Medical records | Adult |
| Freud (1988)93 | Israel (Negev Region) | 38 | 1973-1983 | Appendicitis | Medical records | Pediatric |
| OECD (2015)3 | Israel (Nationwide) | 123 | 2000-2013 | Appendectomy | Administrative | All ages |
| Sulu (2010)94 | Turkey (Kars) | 150 | 2004-2007 | Appendicitis | Medical records | All ages |
| OECD (2015)3 | Turkey (Nationwide) | 170 | 2010-2012 | Appendectomy | Administrative | All ages |
| **Asia** | | | | | | |
| Li (2012)95 | China (Yaqianzhen Town in Xiaoshan District, Zhejiang) | 24 | 2008-2010 | Appendicitis | Medical records | All ages |
| €Donnan (1986)96 | Hong Kong (Nationwide) | 168 | 1953-1983 | Appendicitis | Administrative | All ages |
| €Donnan (1986)96 | Hong Kong (Nationwide) | 96 | 1953-1969 | Appendicitis | Administrative | All ages |
| €Donnan (1986)96 | Hong Kong (Nationwide) | 225 | 1970-1983 | Appendicitis | Administrative | All ages |
| Panda (1975)97 | Indonesia (Menado) | 134 | 1973-1974 | Appendicitis | Medical records | All ages |
| Chua (1993)98 | Malaysia (Taiping District) | 59 | 1990 | Appendectomy | Medical records | All ages |
| Lee (2010)99 | South Korea (Nationwide) | 227 | 2005-2007 | Appendicitis | Administrative | All ages |
| OECD (2015)3 | South Korea (Nationwide) | 198 | 2010-2013 | Appendectomy | Administrative | All ages |
| Liu (2010)100 | Taiwan (Nationwide) | 73 | 1996-2001 | Appendicitis | Administrative | Adults |
| Wei (2012)101 | Taiwan (Nationwide) | 105 | 2000-2009 | Appendicitis | Administrative | All ages |
| Yeh (2011)102 | Taiwan (Nationwide) | 89 | 2001-2008 | Appendicitis | Administrative | All ages |
| Lin (2015)103 | Taiwan (Nationwide) | 98 | 2003-2011 | Appendicitis | Administrative | All ages |
| Wei (2012)104 | Taiwan (Nationwide) | 95 | 2007-2009 | Appendicitis | Administrative | All ages |
| Wang (2013)105 | Taiwan (Nationwide) | 95 | 2007-2009 | Appendicitis | Administrative | All ages |
| βChatbanchai (1989)2 | Thailand (Khon Kaen) | 32 | 1979 | Appendectomy | Medical records | All ages |
| βChatbanchai (1989)2 | Thailand (Khon Kaen) | 37 | 1981 | Appendectomy | Medical records | All ages |
| **Africa** | | | | | | |
| Zoguereh (2001)106 | Central African Republic (Bangui) | 37 | 1991 | Appendectomy | Medical records | All ages |
| Bickler (2000)107 | Gambia (Nationwide) | 60 | 1996-1998 | Appendicitis | Medical records | Pediatric |
| Naaeder (1999)108 | Ghana (Accra) | 3 | 1997-1998 | Appendicitis | Medical records | All ages |
| Miller (1964)109 | Kenya (Nairobi) | 29 | 1960-1963 | Appendicitis | Medical records | All ages |
| Langenscheidt (1999)110 | Madagascar (Mahajanga) | 77 | 1994 | Appendicitis | Medical records | All ages |
| Koumare (1995)111 | Mali (Bamako) | 16 | 1982 | Appendicitis | Medical records | All ages |
| Galukande (2010)112 | Mozambique (Chokwe and Catandica) | 4 | 2007 | Appendectomy | Medical records | All ages |
| Ayoade (2006)113 | Nigeria (Sagamu) | 75 | 2002-2004 | Appendicitis | Medical records | All ages |
| Oguntola (2010)114 | Nigeria (Osogbu) | 11 | 2003-2008 | Appendicitis | Medical records | All ages |
| βGriffiths (1981)115 | South Africa (Former Republic of Bophuthatswana) | 10 | 1959-1960 | Appendicitis | Medical records | All ages |
| βGriffiths (1981)115 | South Africa (Former Republic of Bophuthatswana) | 10 | 1977-1978 | Appendicitis | Medical records | All ages |
| Segal (1986)116 | South Africa (Soweto) | 9 | 1979-1983 | Appendicitis | Medical records | All ages |
| βWalker (1989)117 | South Africa (Potchefstroom) | 57 | 1985-1987 | Appendectomy | Medical records | Pediatric |
| βWalker (1989)117 | South Africa (Bloemfontein) | 14 | 1985-1987 | Appendectomy | Medical records | Pediatric |
| βWalker (1989)117 | South Africa (Johannesburg) | 3 | 1985-1987 | Appendectomy | Medical records | Pediatric |
| Rogers (2008)118 | South Africa (Central part of Eastern Cape Province) | 15 | 2003-2005 | Appendectomy | Medical records | All ages |
| Kong (2012)119 | South Africa (Pietermaritzburg) | 15 | 2010-2011 | Appendicitis | Medical records | All ages |
| Galukande (2010)112 | Tanzania (Bagamoyo and Kasulu) | 6 | 2007 | Appendectomy | Medical records | All ages |
| Galukande (2010)112 | Uganda (Mityana, Kiryandongo, Iganga, and Buluba) | 4 | 2006 | Appendectomy | Medical records | All ages |
| **Southern and Central America** | | | | | | |
| OECD (2015)3 | Chile (Nationwide) | 202 | 2007-2012 | Appendectomy | Administrative | All ages |
| OECD (2015)3 | Mexico (Nationwide) | 76 | 1996-2013 | Appendectomy | Administrative | All ages |

αMedical records include some or all of: histological reports, operative reports and findings, or chart reviews.

βData from a single study is presented in multiple rows in the table when the incidence of appendicitis was reported with multiple time periods or geographic regions.

€Data from a single study is presented in multiple rows in the table when we were able to present incidence for the entire time period and also stratified for the following time periods: <1970, 1970-1989, or ≥1990.

ζThe author met our team at a conference and provided the data and relevant information towards this study. The results are not yet published.

**Appendix 5:** Incidence of appendicitis or appendectomy since 2000 in Northern America, Northern Europe, Southern Europe, Western Europe, Eastern Europe, Africa, Asia, Southern America, the Middle East, and Oceania. Pooled results are presented as incidence per 100,000 with 95% confidence intervals. OECD: Organisation for Economic Co-operation and Development.

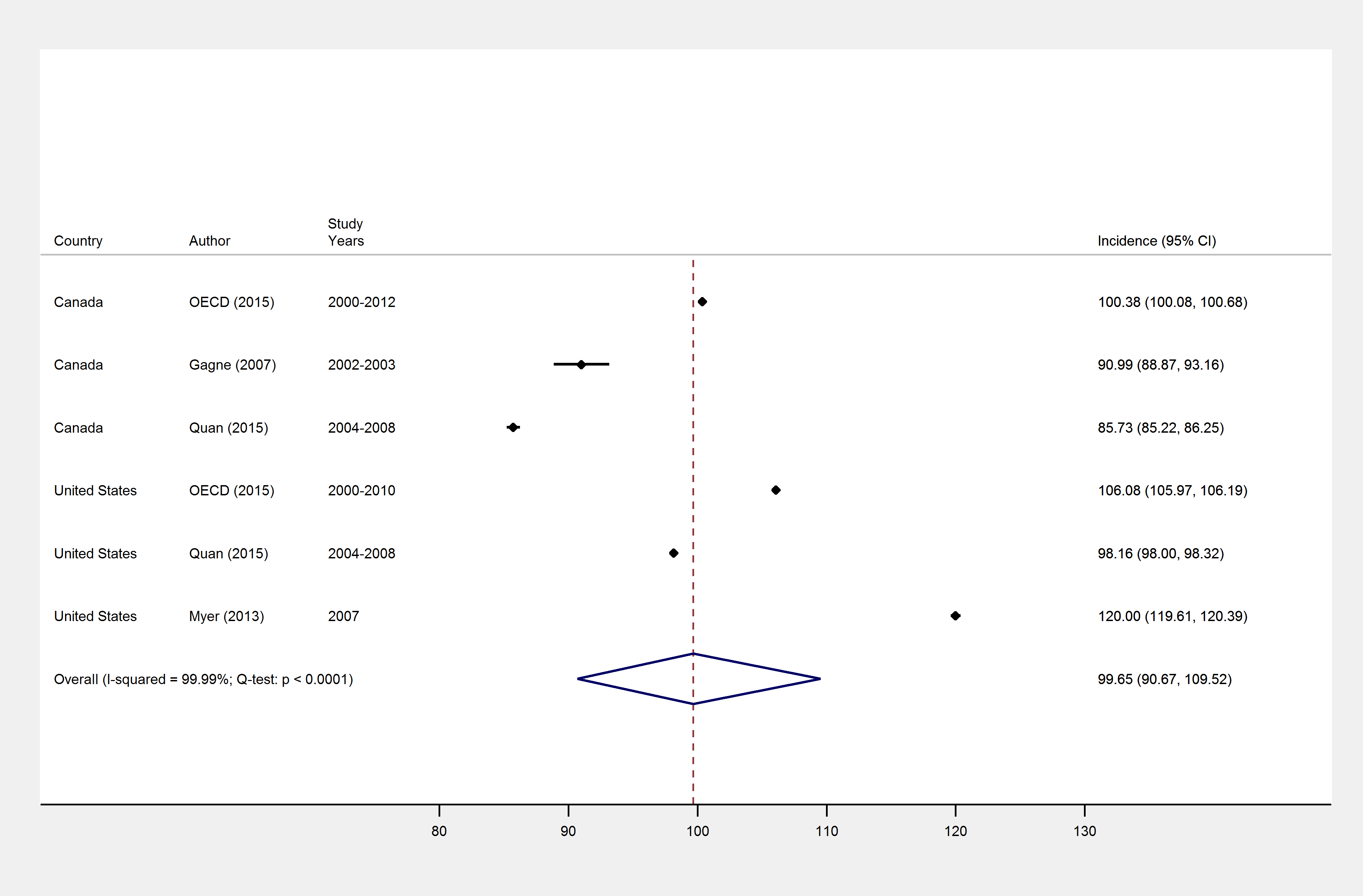
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| --- | --- | --- | --- | --- | --- |
| **First Author (Publication Year)** | **Area** | **Overall Incidence** | **Study Period** | **Appendicitis or Appendectomy** | **Estimated # of cases of appendicitis per country in 2015** |
| **Northern America (n=6)** | | | | | |
| OECD (2015)3 | Canada (Nationwide) | 100 | 2000-2012 | Appendectomy |  |
| Gagne (2007)7 | Canada (Quebec) | 91 | 2002-2003 | Appendicitis |
| Quan 20159 | Canada (Nationwide) | 86 | 2004-2008 | Appendicitis |
| Canada Pooled | | 92 (84-101) | | | 33,066 |
| OECD (2015)3 | United States (Nationwide) | 106 | 2000-2010 | Appendectomy |  |
| Quan 20159 | USA (Nationwide) | 98 | 2004-2008 | Appendicitis |
| Myer (2013)35 | USA (Nationwide ER Database) | 120 | 2007 | Appendicitis |
| USA Pooled | | 108 (96-121) | | | 345,548 |
| Northern America Pooled | | 100 (91-110) | | | |
| **Northern Europe (n=13)** | | | | | |
| Bregendahl (2013)36 | Denmark (5 Danish Counties) | 90 | 2000-2007 | Appendicitis |  |
| OECD (2015)3 | Denmark (Nationwide) | 111 | 2000-2014 | Appendectomy |
| Denmark Pooled | | 100 (81-123) | | | 5,658 |
| OECD (2015)3 | Estonia (Nationwide) | 179 | 2003-2013 | Appendectomy | 2,342 |
| OECD (2015)3 | Finland (Nationwide) | 127 | 2000-2013 | Appendectomy | 6,939 |
| OECD (2015)3 | Iceland (Nationwide) | 142 | 2005-2014 | Appendectomy | 469 |
| OECD (2015)3 | Ireland (Nationwide) | 154 | 2000-2013 | Appendectomy | 7,179 |
| βOECD (2015)3 | Latvia (Nationwide) | 144 | 2005-2013 | Appendectomy | 2,844 |
| βOECD (2015)3 | Lithuania (Nationwide) | 201 | 2005-2013 | Appendectomy | 5,855 |
| OECD (2015)3 | Norway (Nationwide) | 118 | 2000-2013 | Appendectomy | 6,125 |
| OECD (2015)3 | Sweden (Nationwide) | 120 | 2005-2013 | Appendectomy | 11,694 |
| OECD (2015)3 | United Kingdom (Nationwide) | 88 | 2000-2013 | Appendectomy |  |
| Bhopal (2014)86 | UK (Scotland) | 65 | 2001-2010 | Appendicitis |
| Paterson (2008)87 | UK (Lothian, Scotland) | 44 | 2000-2005 | Appendectomy |
| UK Pooled | | 63 (43-93) | | | 40,910 |
| Northern Europe Pooled | | 113 (90-142) | | | |
| **Southern Europe (n=8)** | | | | | |
| αSkerdi (not yet published) | Albania (Tirana district) | 146 | 2005-2013 | Appendicitis | 4,229 |
| OECD (2015)3 | Greece (Nationwide) | 122 | 2000-2010 | Appendectomy | 13,395 |
| βSaia (2012)50 | Italy (Veneto Region) | 92 | 2000-2008 | Appendicitis |  |
| OECD (2015)3 | Italy (Nationwide) | 107 | 2001-2013 | Appendectomy |
| Italy Pooled | | 99 (85-115) | | | 60,688 |
| OECD (2015)3 | Portugal (Nationwide) | 108 | 2000-2009 | Appendectomy | 11,231 |
| OECD (2015)3 | Slovenia (Nationwide) | 117 | 2005-2013 | Appendectomy | 2,411 |
| OECD (2015)3 | Spain (Nationwide) | 108 | 2000-2013 | Appendectomy |  |
| Andreu-Ballester (2009)61 | Spain (Valencian Community) | 105 | 2000-2007 | Appendicitis |
| Spain Pooled | | 107 (104-109) | | | 49,596 |
| Southern Europe Pooled | | 112 (102-123) | | | |
| **Eastern Europe (n=4)** | | | | | |
| OECD (2015)3 | Czech Republic (Nationwide) | 115 | 2005-2013 | Appendectomy | 12,148 |
| OECD (2015)3 | Hungary (Nationwide) | 99 | 2005-2012 | Appendectomy | 9,737 |
| OECD (2015)3 | Poland (Nationwide) | 79 | 2005-2013 | Appendectomy | 30,021 |
| OECD (2015)3 | Slovak Republic (Nationwide) | 133 | 2000-2013 | Appendectomy | 7,243 |
| Eastern Europe Pooled | | 105 (84-130) | | | |
| **Western Europe (n=7)** | | | | | |
| OECD (2015)3 | Austria (Nationwide) | 192 | 2000-2013 | Appendectomy | 16,456 |
| OECD (2015)3 | Belgium (Nationwide) | 146 | 2005-2012 | Appendectomy | 16,448 |
| OECD (2015)3 | France (Nationwide) | 158 | 2000-2013 | Appendectomy | 104,982 |
| OECD (2015)3 | Germany (Nationwide) | 177 | 2005-2013 | Appendectomy | 142,614 |
| OECD (2015)3 | Luxembourg (Nationwide) | 139 | 2000-2013 | Appendectomy | 784 |
| OECD (2015)3 | Netherlands (Nationwide) | 94 | 2000-2010 | Appendectomy | 15,847 |
| OECD (2015)3 | Switzerland (Nationwide) | 173 | 2002-2013 | Appendectomy | 14,336 |
| Western Europe Pooled | | 151 (127-180) | | | |
| **Oceania (n=2)** | | | | | |
| OECD (2015)3 | Australia (Nationwide) | 149 | 2000-2012 | Appendectomy | 35,367 |
| OECD (2015)3 | New Zealand (Nationwide) | 132 | 2000-2013 | Appendectomy | 6,006 |
| Oceania Pooled | | 140 (125-158) | | | |
| **Middle East (n=4)** | | | | | |
| βDavoodabadi (2005)92 | Iran (Kashan) | 230 | 2000-2002 | Appendicitis | 181,959 |
| OECD (2015)3 | Israel (Nationwide) | 123 | 2000-2013 | Appendectomy | 10,252 |
| Sulu (2010)94 | Turkey (Kars) | 150 | 2004-2007 | Appendicitis |  |
| OECD (2015)3 | Turkey (Nationwide) | 170 | 2010-2012 | Appendectomy |
| Turkey Pooled | | 160 (141-181) | | | 122,854 |
| **Asia (n=6)** | | | | | |
| βLee (2010)99 | South Korea (Nationwide) | 218 | 2005-2007 | Appendicitis |  |
| βOECD (2015)3 | South Korea (Nationwide) | 196 | 2010-2013 | Appendectomy |
| South Korea Pooled | | 206 (186-230) | | | 104,627 |
| βWei (2012)101 | Taiwan (Nationwide) | 104 | 2000-2009 | Appendicitis |  |
| βYeh CC (2011)102 | Taiwan (Nationwide) | 91 | 2001-2008 | Appendicitis |
| Lin (2015)103 | Taiwan (Nationwide) | 98 | 2003-2011 | Appendicitis |
| Wei (2012)104 and Wang (2013)105 | Taiwan (Nationwide) | 95 | 2007-2009 | Appendicitis |
| Taiwan Pooled | | 97 (91-102) | | | 22,682 |
| **Africa (n=7)** | | | | | |
| Galukande (2010)112 | Mozambique (Chokwe and Catandica) | 4 | 2007 | Appendectomy | 103 |
| Ayoade (2006)113 | Nigeria (Sagamu) | 75 | 2002-2004 | Appendicitis |  |
| Oguntola (2010)114 | Nigeria (Osogbu) | 11 | 2003-2008 | Appendicitis |
| Nigeria Pooled | | 28 (4-192) | | | 51,697 |
| Rogers (2008)118 | South Africa (Central part of Eastern Cape Province) | 15 | 2003-2005 | Appendectomy |  |
| Kong (2012)119 | South Africa (Pietermaritzburg) | 15 | 2010-2011 | Appendicitis |
| South Africa Pooled | | 15 (14-16) | | | 8,309 |
| Galukande (2010)112 | Tanzania (Bagamoyo and Kasulu) | 6 | 2007 | Appendectomy | 3,345 |
| Galukande (2010)112 | Uganda (Mityana, Kiryandongo, Iganga, and Buluba) | 4 | 2006 | Appendectomy | 1,731 |
| **Southern and Central America (n=2)** | | | | | |
| OECD (2015)3 | Chile (Nationwide) | 202 | 2007-2012 | Appendectomy | 36,311 |
| OECD (2015)3 | Mexico (Nationwide) | 81 | 2000-2013 | Appendectomy | 102,314 |

α Data not published, but provided by the author.

β For Appendix 5, incidence was calculated as total cases / total person-years in order to adequately conduct the statistical analysis necessary to pool the results. Therefore, these studies shown in Appendix 5 have different incidences compared to the other sections of the paper as we calculated incidence separately for Appendix 5, while the rest of the paper we reported the incidence the authors reported and avoided making additional assumptions or calculations whenever possible.

**Appendix 6:** Forrest plots of the incidence of appendicitis or appendectomy since 2000 for A) Northern America, B) Northern Europe, C) Southern Europe, D) Western Europe, E) Eastern Europe, and F) Oceania. Pooled results are presented as incidence per 100,000 with 95% confidence intervals. OECD: Organisation for Economic Co-operation and Development. Heterogeneity was assessed using the using the I2 and the Cochran Q-statistic.

A) Northern America



B) Northern Europe



C) Southern Europe



D) Western Europe



E) Eastern Europe



F) Oceania



**Appendix 7:** The annual percent change (APC) with 95% confidence intervals (CI) of appendicitis or appendectomy stratified by time periods: <1970; 1970 to 1989; and after 1989. APC that do not cross 0 are significant. APC that do not cross 0 are significant.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **First Author (Years of study)** | | **Country** | **< 1970**  **APC (95% CI)** | **1970 to 1989**  **APC (95% CI)** | **≥ 1990**  **APC (95% CI)** |
| Northern America, Europe, and Oceania | | | | | |
| OECD (1990-2012)3 | Canada | |  |  | -0.09 (-0.28 : 0.09) |
| Al Omran (1991-1998)4 | Canada | |  |  | -1.10 (-1.69 : -0.51) |
| To (1993-2000)5 | Canada | |  |  | -0.86 (-2.06 : 0.36) |
| Quan (2004-2008)9 | Canada | |  |  | 1.55 (0.95 : 2.15) |
| Unknown (1937-1947)10 | USA | | 1.39 (0.22 : 2.59) |  |  |
| Rutkow (1970-1978)13 | USA | |  | -2.06 (-2.50 : -1.61) |  |
| Flum (1987-1998)23 | USA | |  |  | -0.61 (-0.94 : -0.28) |
| Livingston (1970-1989)14 | USA | |  | -2.08 (-2.55 : -1.61) |  |
| Livingston (1990-2004)14 | USA | |  |  | 1.01 (0.40 : 1.61) |
| Livingston (1979-1989)19 | USA | |  | -3.63 (-4.27 : -3.00) |  |
| Livingston (1990-2006)19 | USA | |  |  | 0.43 (-0.40 : 1.27) |
| Everhart (1979-1989)18 | USA | |  | -1.99 (-2.87 : -1.09) |  |
| Everhart (1990-2004)18 | USA | |  |  | 1.41 (0.63 : 2.19) |
| Buckius (1993-2008)26 | USA | |  |  | 1.77 (1.43 : 2.12) |
| Aarabi (2000-2006)33 | USA | |  |  | -1.90 (-3.01 : -0.77) |
| Alder (1970-1989)15 | USA | |  | -2.33 (-2.63 : -2.02) |  |
| Alder (1990-2005)15 | USA | |  |  | 1.22 (0.43 : 2.00) |
| Anderson (1995-2009)28 | USA | |  |  | 1.87 (1.68 : 2.07) |
| OECD (2000-2010)3 | USA | |  |  | -1.31 (-2.33 : -0.28) |
| Quan (2004-2008)9 | USA | |  |  | -0.25 (-1.08 : 0.59) |
| Bliss (2003-2011)34 | USA | |  |  | -0.17 (-1.32 : 1.00) |
| Skerdi (2005-2013)α | Albania | |  |  | 0.71 (-0.55 : 1.98) |
| OECD (1993-2012)3 | Australia | |  |  | 0.74 (0.15 : 1.34) |
| OECD (1998-2013)3 | Austria | |  |  | -3.17 (-3.44 : -2.89) |
| OECD (2005-2012)3 | Belgium | |  |  | -1.60 (-2.23 : -0.97) |
| OECD (2005-2013)3 | Czech Republic | |  |  | -5.28 (-6.16 : -4.40) |
| OECD (1996-2014)3 | Denmark | |  |  | -2.53 (-3.24 : -1.81) |
| Bregendahl (1998-2007)36 | Denmark | |  |  | -1.89 (-2.52 : -1.25) |
| OECD (2003-2013)3 | Estonia | |  |  | -1.25 (-1.63 : -0.87) |
| Ilves (1987-1989)39-41 | Finland | |  | -1.73 (-3.08 : -0.35) |  |
| Ilves (1990-2007)39-41 | Finland | |  |  | -2.09 (-2.67 : -1.49) |
| OECD (1990-2013)3 | Finland | |  |  | -2.20 (-2.68 : -1.72) |
| OECD (1997-2013)3 | France | |  |  | -4.95 (-5.42 : -4.48) |
| Horntrich (1970-1988)43 | Germany | |  | -2.12 (-2.67 : -1.57) |  |
| OECD (2005-2013)3 | Germany | |  |  | -1.21 (-1.48 : -0.94) |
| Papadopoulos (1970-1989)45 | Greece | |  | -6.10 (-6.52 : -5.69) |  |
| Papadopoulos (1990-1999)45 | Greece | |  |  | -0.55 (-1.18 : 0.09) |
| OECD (1996-2010)3 | Greece | |  |  | -2.36 (-2.98 : -1.73) |
| OECD (2005-2012)3 | Hungary | |  |  | 1.19 (-0.64 : 3.05) |
| OECD (2005-2014)3 | Iceland | |  |  | -0.07 (-1.15 : 1.02) |
| OECD (1995-2013)3 | Ireland | |  |  | -1.20 (-1.65 : -0.75) |
| OECD (2001-2013)3 | Italy | |  |  | -4.71 (-5.06 : -4.36) |
| OECD (2005-2013)3 | Latvia | |  |  | -3.06 (-3.77 : -2.35) |
| OECD (2005-2013)3 | Lithuania | |  |  | -2.30 (-3.02 : -1.59) |
| OECD (1996-2013)3 | Luxembourg | |  |  | -4.67 (-5.45 : -3.89) |
| Hoogendoorn (1966-1969)51 | Netherlands | | -2.51 (-3.33 : -1.69) |  |  |
| Hoogendoorn (1970-1979)51 | Netherlands | |  | -3.62 (-4.20 : -3.03) |  |
| OECD (1990-2010)3 | Netherlands | |  |  | -0.49 (-0.79 : -0.19) |
| Noer (1945-1970)52 | Norway | | -4.12 (-4.88 : -3.36) |  |  |
| Korner (1989-1998)56 | Norway | |  |  | -0.61 (-1.66 : 0.45) |
| Bakken (1990-2000)57 | Norway | |  |  | 0.82 (0.23 : 1.41) |
| OECD (1996-2013)3 | Norway | |  |  | 0.53 (0.32 : 0.74) |
| OECD (2005-2013)3 | Poland | |  |  | -2.56 (-4.06 : -1.05) |
| OECD (1993-2009)3 | Portugal | |  |  | -3.51 (-3.94 : -3.07) |
| OECD (1994-2013)3 | Slovak Republic | |  |  | -4.46 (-4.94 : -3.98) |
| OECD (2005-2013)3 | Slovenia | |  |  | 0.28 (-0.54 : 1.10) |
| Cortes (1977-1988)59 | Spain | |  | -5.29 (-6.12 : -4.45) |  |
| OECD (1997-2013)3 | Spain | |  |  | 0.44 (0.25 : 0.63) |
| Andreu-Ballester (1998-2007)61 | Spain | |  |  | -0.79 (-1.22 : -0.35) |
| Andersson (1972-1987)63 | Sweden | |  | -2.37 (-2.96 : -1.78) |  |
| Andersson (1990-2004)68 | Sweden | |  |  | -1.24 (-1.65 : -0.83) |
| Andersson (1994-2006)70 | Sweden | |  |  | -1.44 (-2.06 : -0.82) |
| OECD (2005-2013)3 | Sweden | |  |  | 1.61 (0.93 : 2.29) |
| OECD (2002-2013)3 | Switzerland | |  |  | 0.44 (-0.10 : 0.99) |
| Barker (1934-1974)71 | United Kingdom | | 1.54 (0.37 : 2.72) |  |  |
| Wright (1952-1961)72 | United Kingdom | | -5.24 (-6.44 : -4.02) |  |  |
| Cumming (1968-1979)74 | United Kingdom | |  | -2.63 (-4.25 : -0.98) |  |
| Williams (1975-1989)80 | United Kingdom | |  | -1.61 (-2.33 : -0.88) |  |
| Williams (1990-1994)80 | United Kingdom | |  |  | -5.16 (-7.47 : -2.79) |
| Kang (1989-1999)85 | United Kingdom | |  |  | -1.63 (-2.05 : -1.20) |
| McCahy (1975-1991)79 | United Kingdom | |  | -2.98 (-4.03 : -1.92) |  |
| Campbell (1974-1989)78 | United Kingdom | |  | -2.41 (-2.67 : -2.14) |  |
| Campbell (1990-1998)78 | United Kingdom | |  |  | -1.83 (-2.34 : -1.32) |
| OECD (2000-2013)3 | United Kingdom | |  |  | 0.68 (0.35 : 1.01) |
| Riordan (1940-1980)90 | New Zealand | | -1.78 (-1.98 : -1.58) |  |  |
| OECD (1996-2013)3 | New Zealand | |  |  | 0.08 (-0.22 : 0.37) |
| Asia, Middle East, Southern and Central America, and Africa | | | | | |
| Oguntola (2003-2008)114 | | Nigeria |  |  | 14.50 (10.80 : 18.33) |
| Freud (1973-1983)93 | | Israel |  | 7.63 (2.29 : 13.23) |  |
| OECD (2000-2013)3 | | Israel |  |  | 0.58 (0.23 : 0.92) |
| Donnan (1953-1969)96 | | Hong Kong | 7.28 (4.62 : 10.00) |  |  |
| Donnan (1972-1983)96 | | Hong Kong |  | 2.73 (1.76 : 3.71) |  |
| Wei (2000-2009)101 | | Taiwan |  |  | -2.55 (-3.21 : -1.89) |
| Lin (2003-2011)103 | | Taiwan |  |  | -1.12 (-1.54 : -0.70) |
| OECD (2007-2012)3 | | Chile |  |  | 3.87 (0.66 : 7.19) |
| OECD (1996-2013)3 | | Mexico |  |  | 3.09 (2.88 : 3.29) |

α Data not published, but provided by the author.

**Appendix 8:** Incidence of appendicitis or appendectomy stratified by sex. Incidence is reported in per 100,000 person-years.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **First Author (Publication Year)** | **Area** | **Overall Incidence** | **Study Period** | **Incidence Males** | **Incidence Females** | **Male:Female Ratio** |
| **Northern America** | | | | | | |
| Al-Omran (2003)4 | Canada (Ontario) | 75 | 1991-1998 | 88 | 62 | 1.42 |
| Quan (2015)9 | Canada (Nationwide) | 86 | 2004-2008 | 94 | 78 | 1.20 |
| Pearson (1964)12 | USA (New Haven Standard Metropolitan Area, Connecticut) | 119 | 1958-1959 | 144 | 94 | 1.52 |
| Pearson (1968)1 | USA (New England, excluding Connecticut: Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) | 170 | 1962 | 200 | 140 | 1.43 |
| Livingston (2007)14 | USA (Nationwide) | 142 | 1970-2004 | 173 | 113 | 1.53 |
| Addiss (1990)17 | USA (Nationwide) | 111 | 1979-1984 | 136 | 102 | 1.34 |
| Everhart (2009)18 | USA (Nationwide) | 110 | 1979-2004 | 118 | 98 | 1.20 |
| Luckmann (1991)20 | USA (California) | 115 | 1983-1986 | 135 | 92 | 1.47 |
| Luckmann (1989)22 | USA (California) | 96 | 1984 | 116 | 78 | 1.48 |
| Elangovan (1997)24 | USA (Sedgwick County, Kansas) | 58 | 1990-1991 | 77 | 39 | 1.96 |
| Zarling (1997)25 | USA (Illinois) | 80 | 1992 | 98 | 63 | 1.56 |
| Buckius (2012)26 | USA (Nationwide) | 87 | 1993-2008 | 102 | 71 | 1.44 |
| αGuagliardo (2003)27 | USA (New York State) | 95 | 1995 | 73 | 118 | 0.62 |
| αGuagliardo (2003)27 | USA (California) | 123 | 1997 | 146 | 98 | 1.49 |
| Davies (2004)29 | USA (Nationwide) | 94 | 1997 | 107 | 82 | 1.30 |
| αAarabi (2011)33 | USA (New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) | 94 | 2000-2006 | 111 | 77 | 1.44 |
| Quan (2015)9 | USA (Nationwide) | 98 | 2004-2008 | 101 | 77 | 1.32 |
| Myer (2013)35 | USA (Nationwide ER Database) | 120 | 2007 | 140 | 100 | 1.40 |
| **Northern Europe** | | | | | | |
| Ilves (2011)39 | Finland (Nationwide) | 145 | 1987 | 163 | 125 | 1.30 |
| Ilves (2011)39 | Finland (Nationwide) | 132 | 1997 | 145 | 116 | 1.25 |
| Ilves (2011)39 | Finland (Nationwide) | 98 | 2007 | 109 | 85 | 1.28 |
| Soreide (1984)53 | Norway (6 Counties) | 140 | 1977-1978 | 153 | 126 | 1.21 |
| Korner (1997)54 | Norway (Stavanger) | 86 | 1989-1993 | 100 | 72 | 1.39 |
| Korner (2001)56 | Norway (Stavanger) | 84 | 1989-1998 | 97 | 72 | 1.35 |
| Bakken (2003)57 | Norway (Nationwide) | 90 | 1990-2001 | 101 | 79 | 1.27 |
| Pearson (1968)1 | Sweden (Uppsala) | 290 | 1964 | 310 | 270 | 1.15 |
| Pieper R (1982)66 | Sweden (Huddinge) | 116 | 1973-1976 | 133 | 99 | 1.34 |
| Blomqvist (1998)69 | Sweden (Nationwide) | 146 | 1989 | 147 | 145 | 1.02 |
| Blomqvist (1998)69 | Sweden (Nationwide) | 136 | 1993 | 141 | 130 | 1.08 |
| Pearson (1968)1 | UK (Liverpool) | 245 | 1962 | 230 | 260 | 0.88 |
| γBarker (1981)77 | UK (York, England) | 135 | 1974-1977 | 127 | 91 | 1.40 |
| γBarker (1981)77 | UK (Wakefield, England) | 139 | 1974-1977 | 145 | 77 | 1.88 |
| γBarker (1981)77 | UK (Preston, England) | 163 | 1974-1977 | 134 | 123 | 1.09 |
| γBarker (1981)77 | UK (Chester, England) | 106 | 1974-1977 | 89 | 61 | 1.46 |
| γBarker (1981)77 | UK (Derby, England) | 122 | 1974-1977 | 103 | 71 | 1.45 |
| γBarker (1981)77 | UK (Stoke, England) | 85 | 1974-1977 | 82 | 54 | 1.52 |
| γBarker (1981)77 | UK (Ipswich, England) | 89 | 1974-1977 | 101 | 67 | 1.51 |
| γBarker (1981)77 | UK (Plymouth, England) | 105 | 1974-1977 | 88 | 59 | 1.49 |
| γBarker (1981)77 | UK (Newport, Wales) | 123 | 1974-1977 | 116 | 64 | 1.81 |
| αWilliams (1998)80 | UK (Leicestershire, England) | 149 | 1975-1994 | 159 | 138 | 1.15 |
| Kang (2003)85 | UK (England) | 68 | 1989-1997 | 74 | 60 | 1.23 |
| Bhopal (2014)86 | UK (Scotland) | 65 | 2001-2010 | 75 | 55 | 1.36 |
| **Southern Europe** | | | | | | |
| Basoli (1993)48 | Italy (Nationwide) | 570 | 1955 | 420 | 710 | 0.59 |
| Basoli (1993)48 | Italy (Nationwide) | 370 | 1987 | 300 | 430 | 0.70 |
| βCortes Vizcaino (1993)59 | Spain (Nationwide) | 203 | 1977-1988 | 205 | 201 | 1.02 |
| Andreu-Ballester (2009)61 | Spain (Valencian Community) | 96 | 1998-2007 | 124 | 89 | 1.40 |
| **Eastern Europe** | | | | | | |
| Anielski (2001)58 | Poland (Cracow) | 62 | 1989-1998 | 75 | 50 | 1.50 |
| **Western Europe** | | | | | | |
| Lichtner (1971)42 | Germany (Hannover) | 601 | 1966-1967 | 522 | 668 | 0.78 |
| Horntrich (1990)43 | Germany (Nationwide; East Germany) | 236 | 1970-1988 | 251 | 221 | 1.13 |
| Hoogendoorn (1982)51 | Netherlands (Nationwide) | 214 | 1966-1979 | 178 | 222 | 0.80 |
| **Oceania** | | | | | | |
| Donnelly (2001)88 | Australia (Western Australia, Metropolitan Area) | 313 | 1981 | 240 | 386 | 0.62 |
| Donnelly (2001)88 | Australia (Western Australia, Metropolitan Area) | 143 | 1997 | 142 | 144 | 0.99 |
| Donnelly (2001)88 | Australia (Western Australia, Non-Metropolitan Area) | 326 | 1981 | 258 | 393 | 0.66 |
| Donnelly (2001)88 | Australia (Western Australia, Non-Metropolitan Area) | 213 | 1997 | 204 | 221 | 0.92 |
| γFoster (1989)91 | Papua New Guinea (North Solomons) | 17 | 1983-1985 | 13 | 4 | 3.25 |
| **Middle East** | | | | | | |
| βγDavoodabadi (2005)92 | Iran (Kashan) | 158 | 2000-2002 | 186 | 159 | 1.17 |
| αFreud (1988)93 | Israel (Negev Region) | 38 | 1973-1983 | 52 | 23 | 2.26 |
| Sulu (2010)94 | Turkey (Kars) | 150 | 2004-2007 | 155 | 145 | 1.07 |
| **Asia** | | | | | | |
| Lee (2010)99 | South Korea (Nationwide) | 227 | 2005-2007 | 236 | 218 | 1.08 |
| **Africa** | | | | | | |
| Langenscheidt (1999)110 | Madagascar (Mahajanga) | 77 | 1994 | 40 | 120 | 0.33 |

α:The incidence reported is specific to a pediatrics only population.

β: The incidence reported is specific to an adult only population.

γ: Regarding these papers, the results displayed in this table are exactly as published and reported in the original manuscript. It should be noted that the reported overall incidence for these three papers were outside the range of the gender-specific incidence. One reason for this may be a result of adjustments made when calculating age- and sex-adjusted incidences, but inaccurate reporting may be another reason.

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