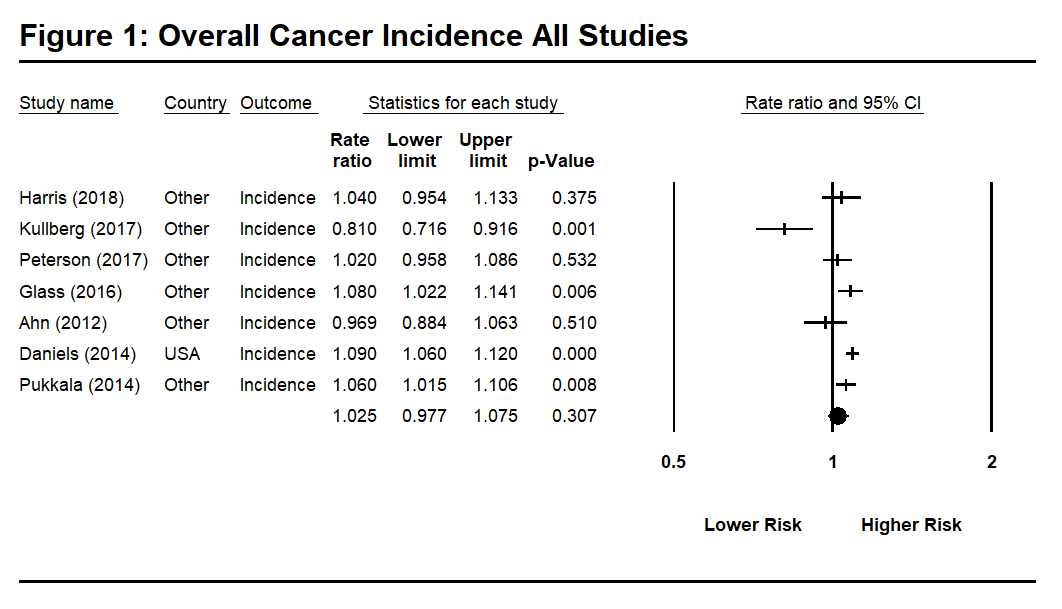
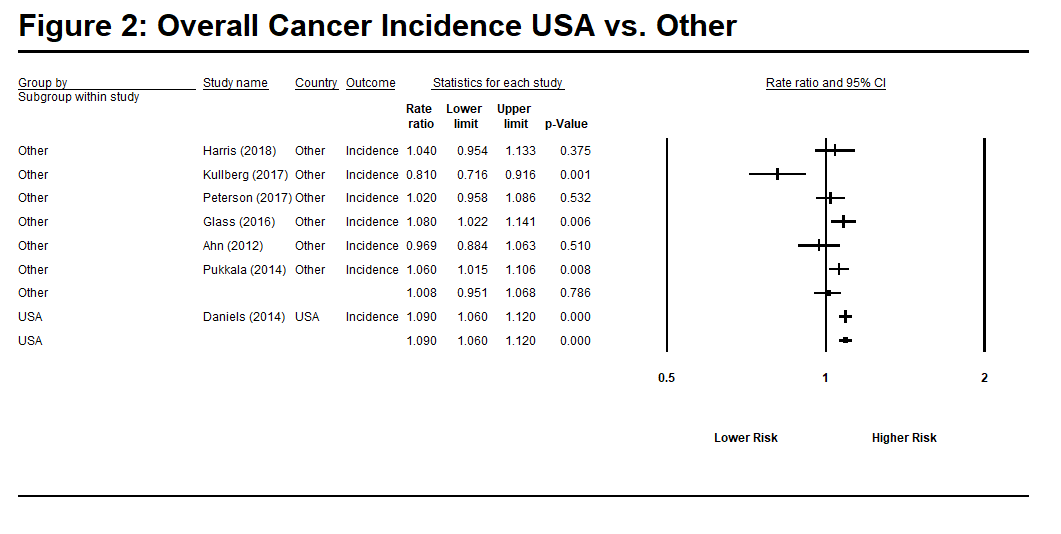
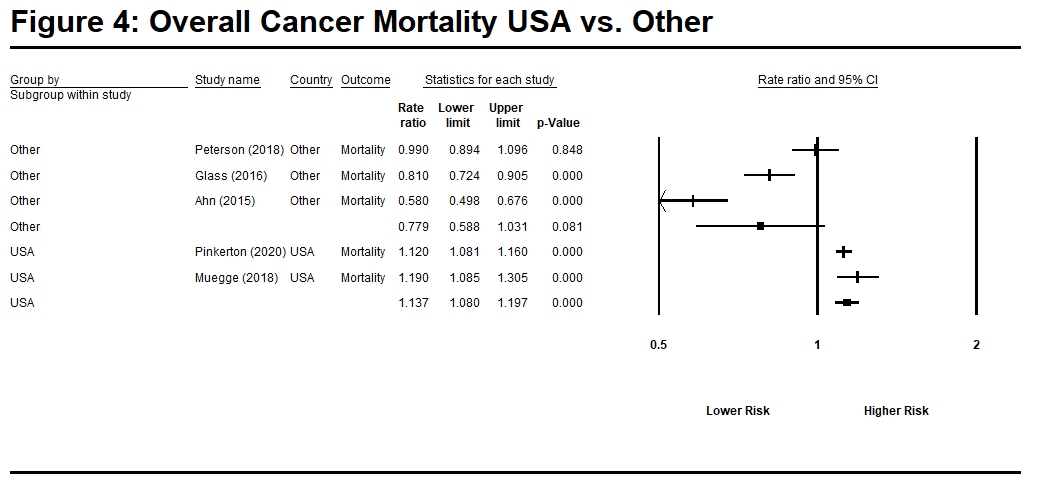
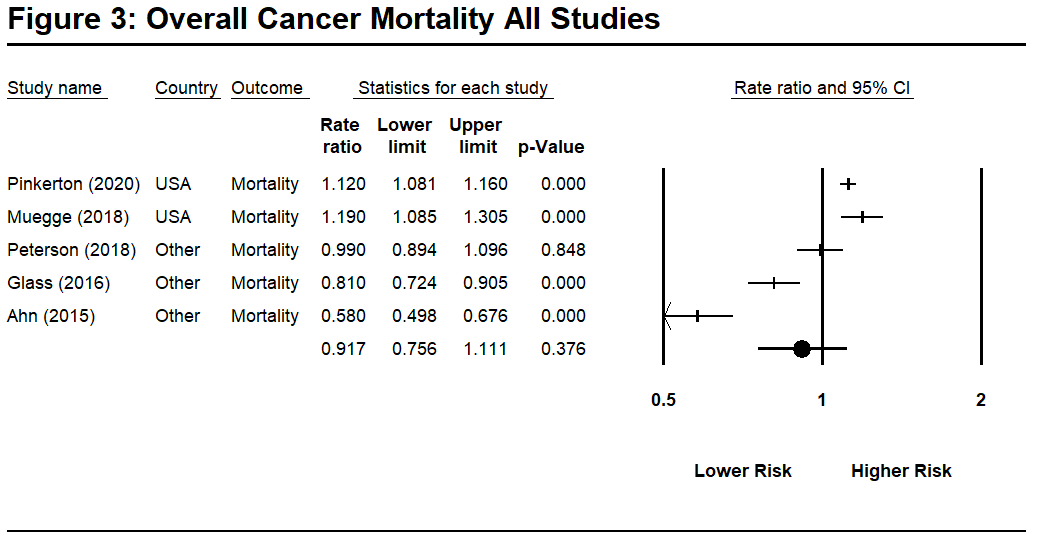
**APPENDIX B**

**Table 1: All Cancers**

****

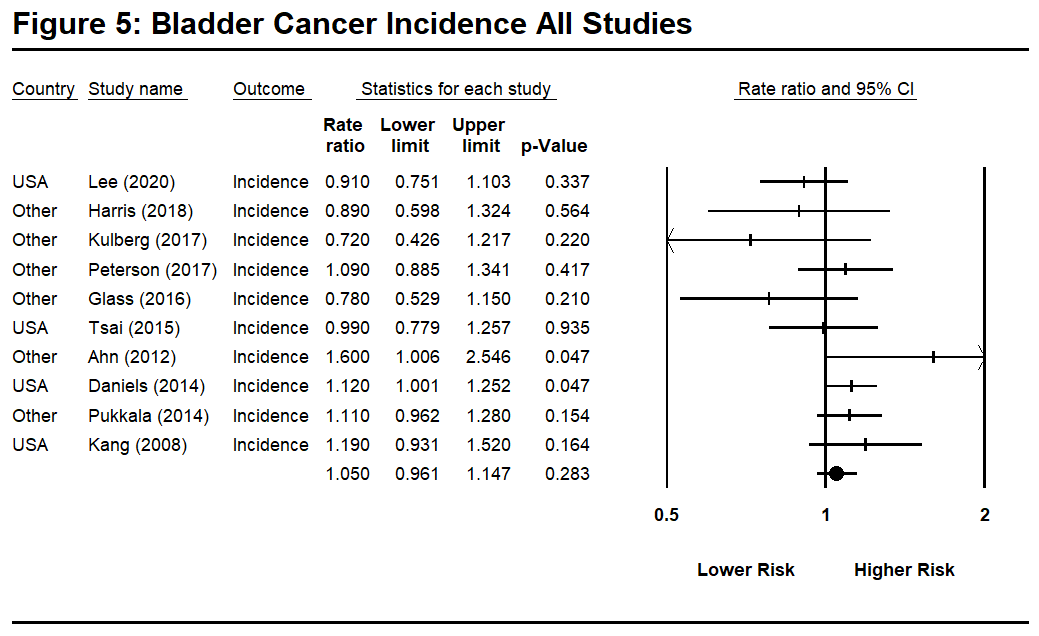
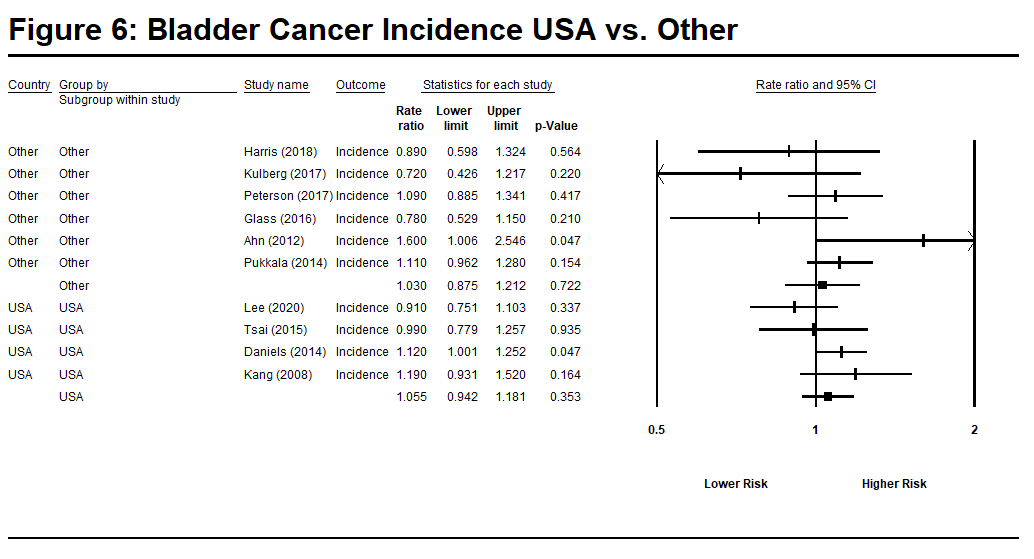
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.113 | 0.018 | 1.12 |
| Muegge et al (2018) | US | Mortality | 0.174 | 0.047 | 1.19 |
| Peterson et al (2018) | Denmark | Mortality | -0.010 | 0.052 | 0.99 |
| Harris et al (2018) | Canada | Incidence | 0.039 | 0.044 | 1.04 |
| Kulberg et al (2017) | Sweden | Incidence | -0.211 | 0.063 | 0.810 |
| Petersen et al (2017) | Denmark | Incidence | 0.020 | 0.032 | 1.02 |
| Glass, et al (2016) | Australia | Incidence  Mortality | 0.077  -0.211 | 0.028  0.057 | 1.08  0.81 |
| Ahn et al (2015) | Korea | Mortality | -0.545 | 0.078 | 0.580 |
| Ahn et al (2012) | Korea | Incidence | -0.031 | 0.047 | 0.97 |
| Daniels, et al (2014) | US | Incidence | 0.086 | 0.014 | 1.09 |
| Pukkala et al (2014) | Nordic | Incidence | 0.058 | 0.022 | 1.06 |

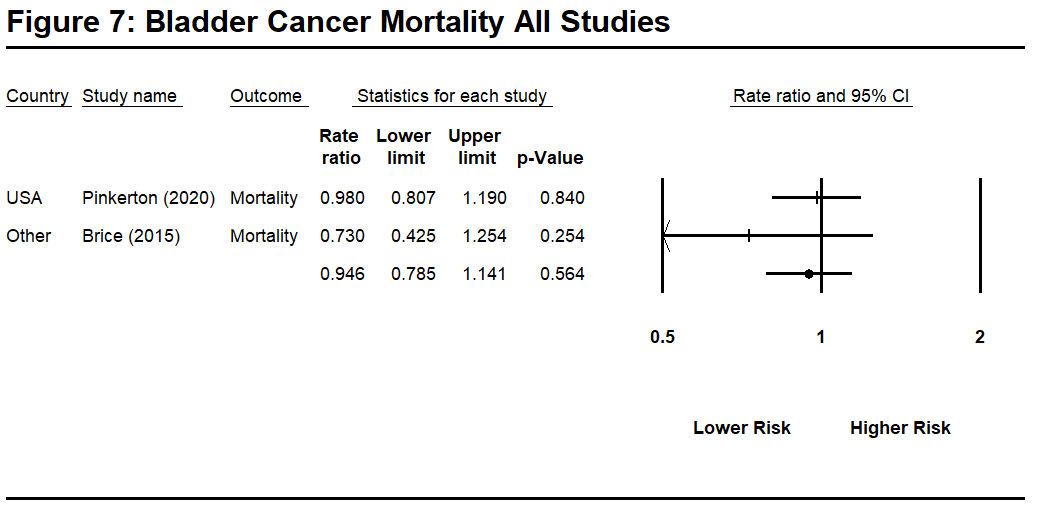
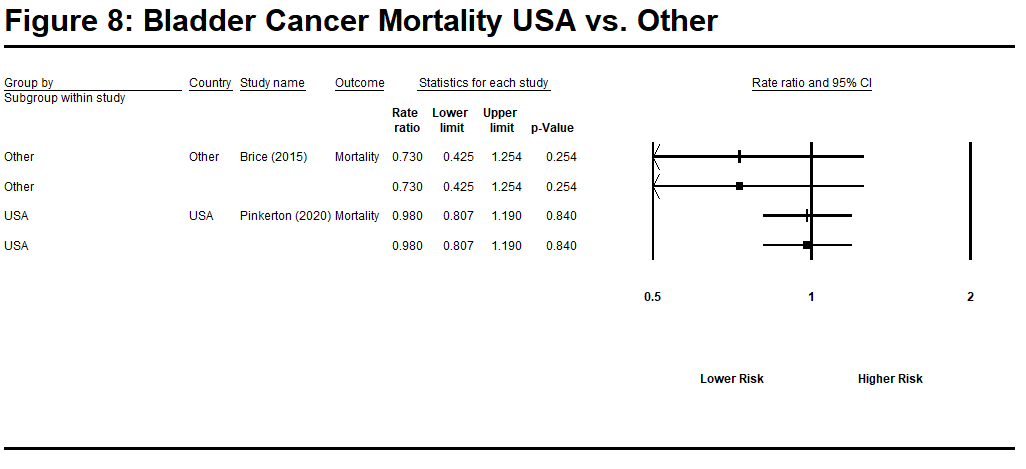
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**Table 2: Bladder Cancer**

**Table 2: Detailed Analysis of Bladder Cancer Rates in Firefighters**

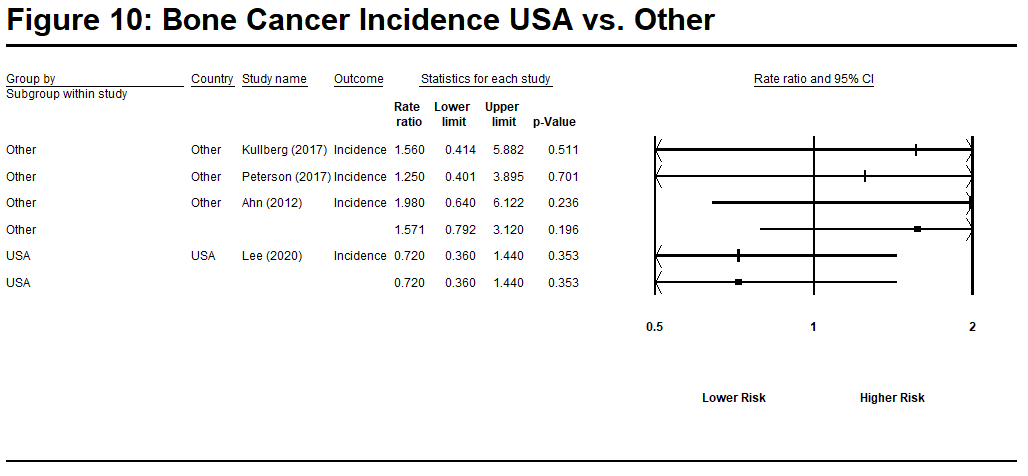
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | -0.020 | 0.099 | 0.98 |
| Lee et al (2020)*.* | US | Incidence | -0.094 | 0.098 | 0.91 |
| Harris et al (2018) | Canada | Incidence | -0.117 | 0.203 | 0.89 |
| Kulberg et al (2017) | Sweden | Incidence | -0.329 | 0.268 | 0.72 |
| Petersen et al (2017) | Denmark | Incidence | 0.086 | 0.106 | 1.09 |
| Glass, et al (2016) | Australia | Incidence | -0.248 | 0.198 | 0.78 |
| Tsai et al (2015) | US | Incidence | -0.010 | 0.122 | 0.99 |
| Brice, et al (2015) | French | Mortality | -0.315 | 0.276 | 0.73 |
| Ahn et al (2012) | Korea | Incidence | 0.470 | 0.237 | 1.60 |
| Daniels, et al (2014) | US | Incidence | 0.113 | 0.057 | 1.12 |
| Pukkala et al (2014) | Nordic | Incidence | 0.104 | 0.073 | 1.11 |
| Kang et al (2008) | US | Incidence | 0.174 | 0.125 | 1.19 |

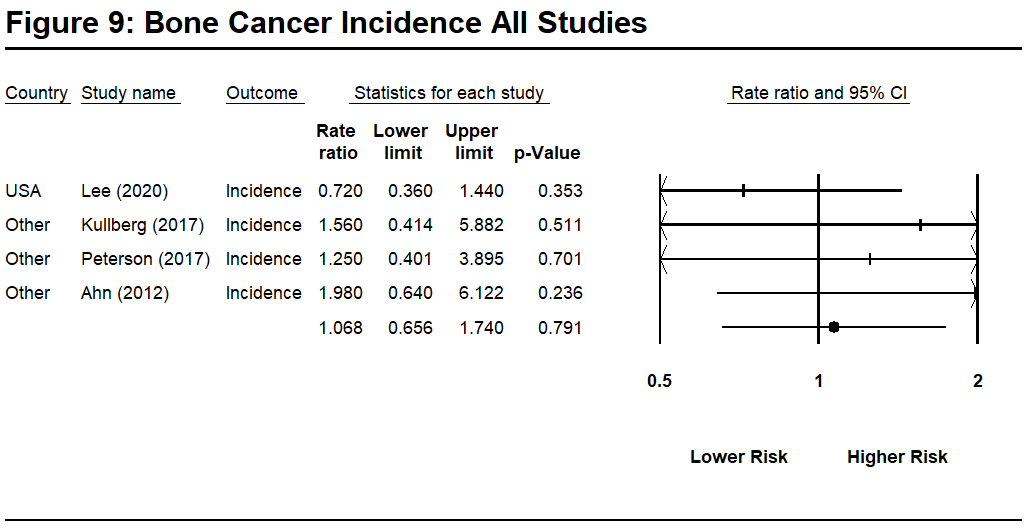




**Table 3: Bone Cancer**

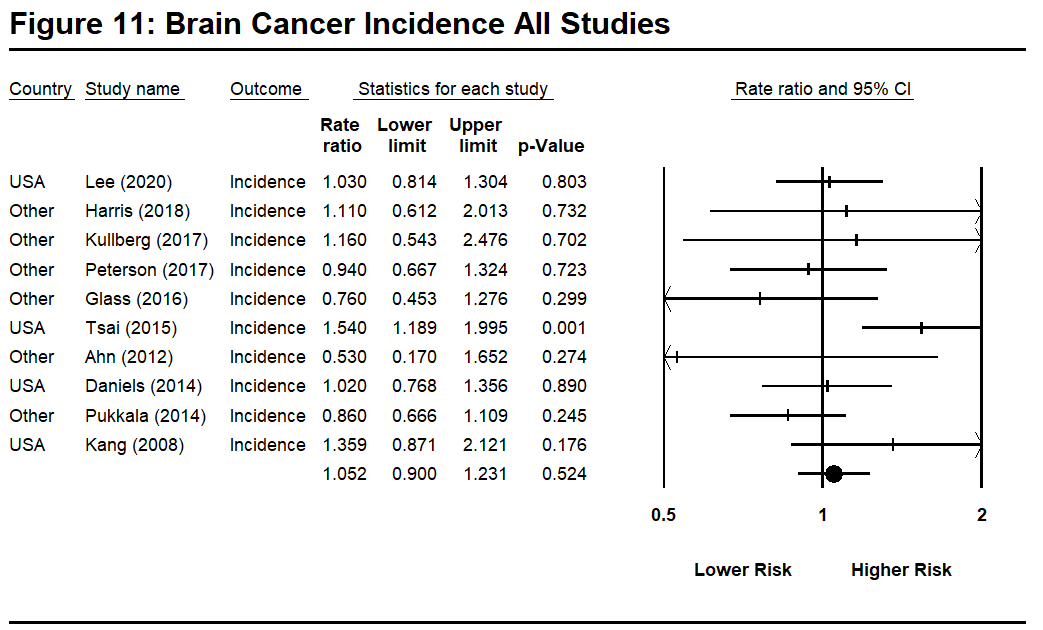
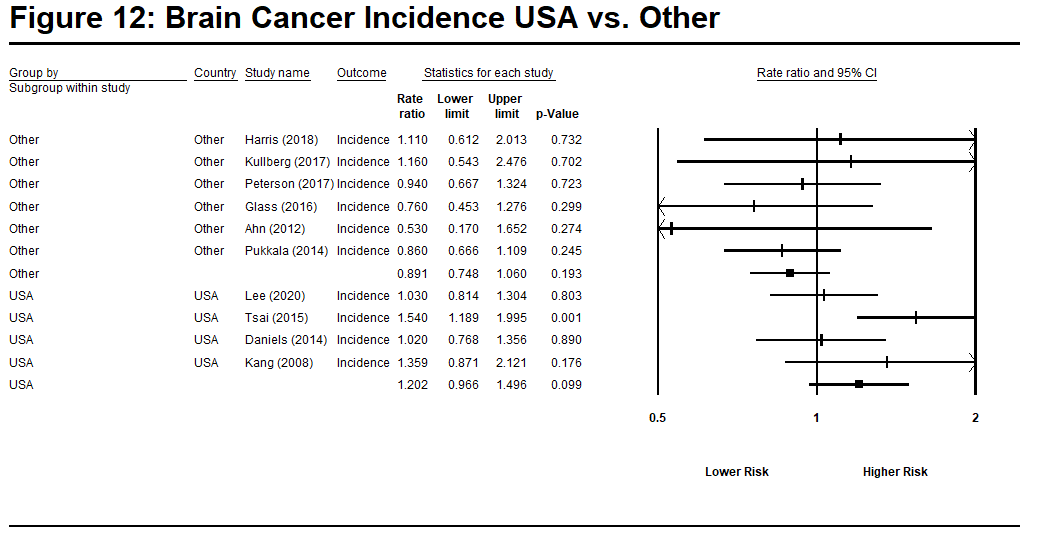
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020)*.* | US | Incidence | -0.329 | 0.354 | 0.72 |
| Kulberg et al (2017) | Sweden | Incidence | 0.445 | 0.677 | 1.56 |
| Petersen et al (2017) | Denmark | Incidence | 0.223 | 0.580 | 1.25 |
| Ahn et al (2012) | Korea | Incidence | 0.683 | 0.576 | 1.98 |

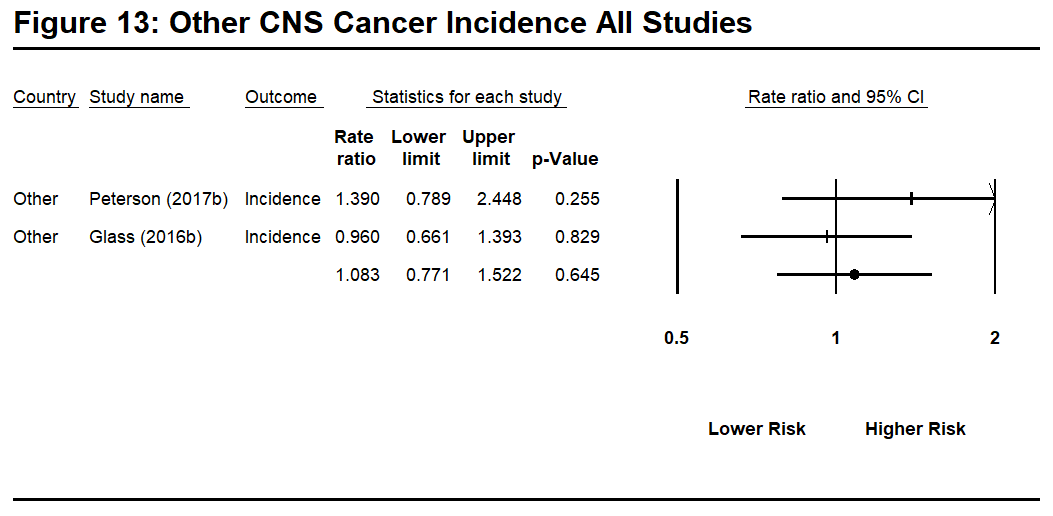
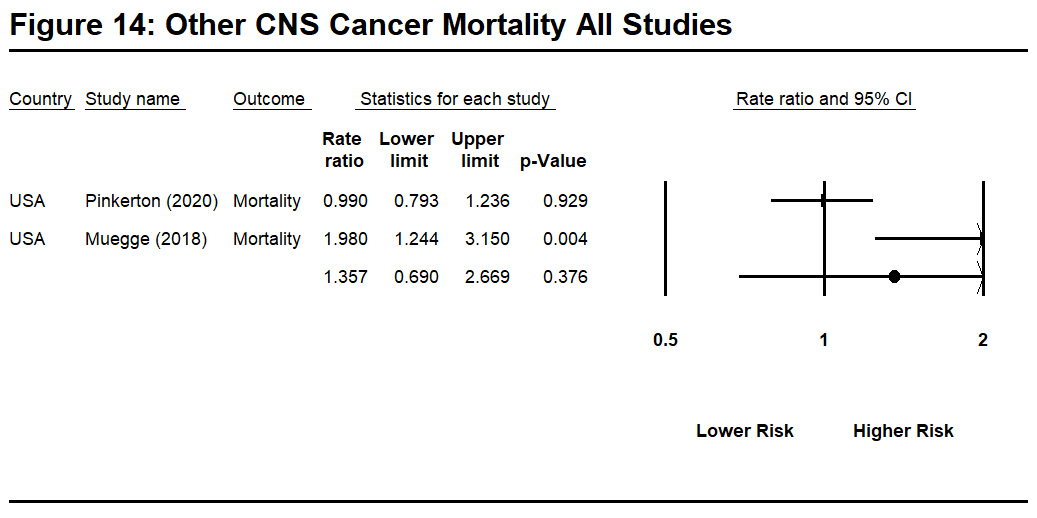




**Table 4: Brain Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | -0.010 | 0.113 | 0.99 |
| Lee et al (2020)*.* | US | Incidence | 0.030 | 0.120 | 1.03 |
| Muegge et al (2018) | US | Mortality | 0.683 | 0.237 | 1.98 |
| Harris et al (2018) | Canada | Incidence | 0.104 | 0.304 | 1.11 |
| Kulberg et al (2017) | Sweden | Incidence | 0.148 | 0.387 | 1.16 |
| Petersen et al (2017) | Denmark | Incidence  Meninges  Brain  Other CNS | 0.199  -0.062  0.329 | 0.332  0.175  0.289 | 1.22  0.94  1.39 |
| Glass, et al (2016) | Australia | Incidence  Other CNS  Brain | -0.041  -0.274 | 0.190  0.264 | 0.96  0.76 |
| Tsai et al (2015) | US | Incidence | 0.432 | 0.132 | 1.54 |
| Ahn et al (2012) | Korea | Incidence | -0.635 | 0.580 | 0.53 |
| Daniels, et al (2014) | US | Incidence | 0.020 | 0.145 | 1.02 |
| Pukkala et al (2014) | Nordic | Incidence | -0.151 | 0.130 | 0.86 |
| Kang et al (2008) | US | Incidence | 0.307 | 0.227 | 1.36 |

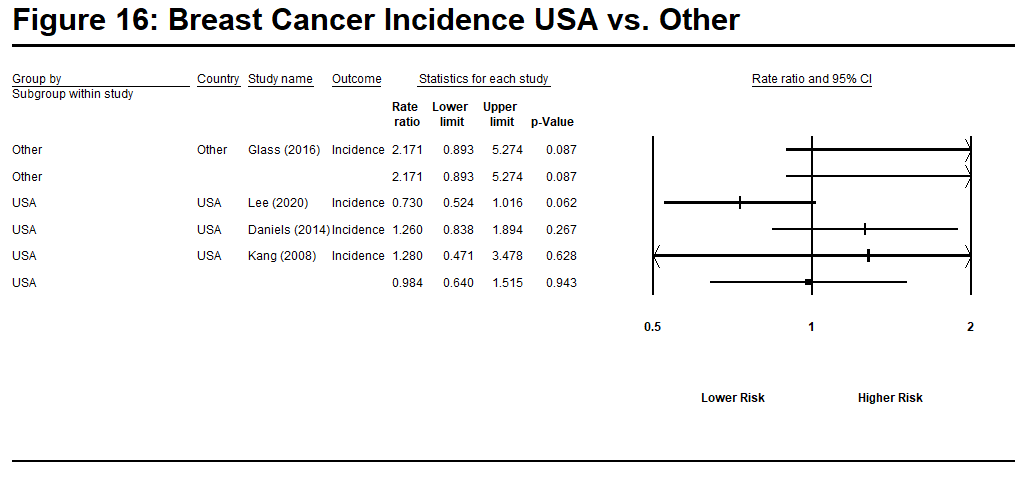




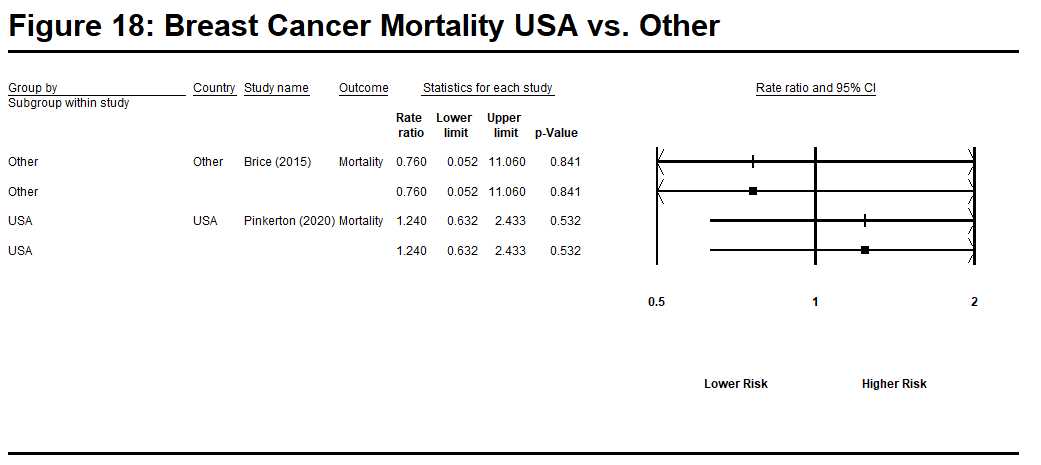
Note: Meninges cancer not shown given there was only a single study reporting on this cancer type.

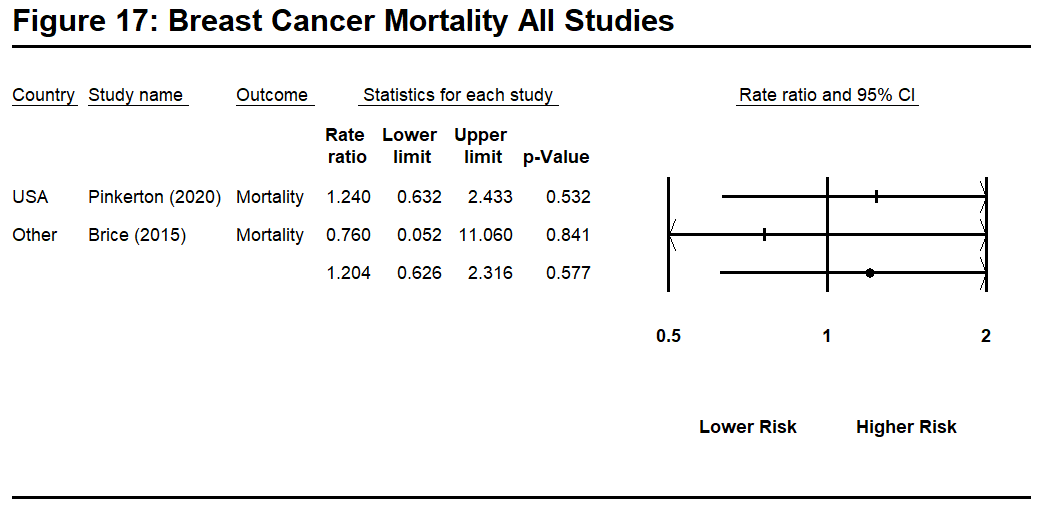
**Table 5: Breast Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.215 | 0.344 | 1.24 |
| Lee et al (2020)*.* | US | Incidence | -0.315 | 0.169 | 0.73 |
| Glass, et al (2016) | Australia | Incidence | 0.775 | 0.453 | 2.17 |
| Brice, et al (2015) | French | Mortality | -0.274 | 1.366 | 0.76 |
| Daniels, et al (2014) | US | Incidence | 0.231 | 0.2087 | 1.26 |
| Kang et al (2008) | US | Incidence | 0.247 | 0.510 | 1.28 |

Table

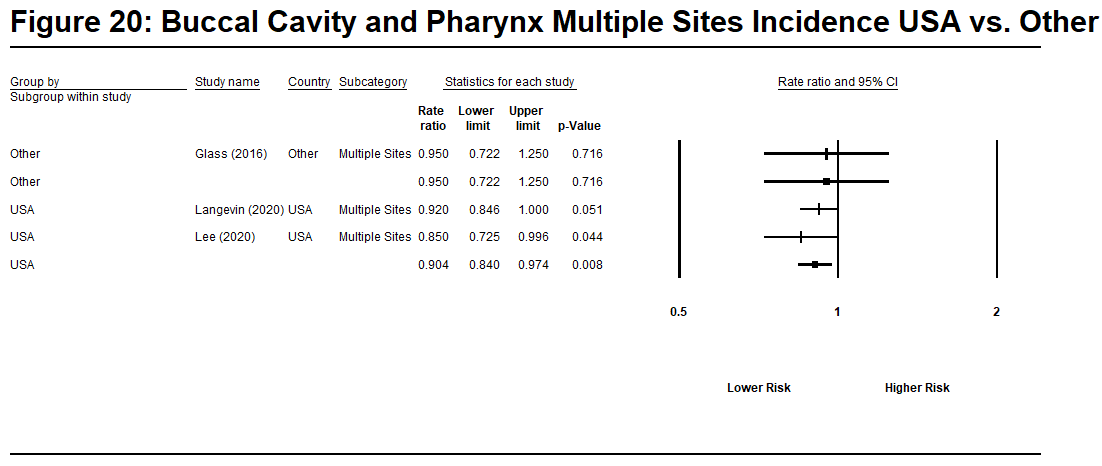
Description automatically generated with medium confidence





**Table 6: Buccal Cavity and Pharynx**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Risk Ratio** |
| Lee, et al (2020) | US | Incidence  Oral Cavity and pharynx | -0.163 | 0.081 | 0.85 |
| Muegge, et al (2018) | US | Mortality  Buccal cavity and pharynx  Other Parts Buccal Cavity  Pharynx | 0.765  1.386  0.815 | 0.296  0.673  0.380 | 2.149  4.00  2.26 |
| Peterson, et al (2018) | Denmark | Mortality  Oral Cavity and esophagus | 1.27 | 0.239 | 0.204 |
| Harris, et al (2018) | Canada | Mortality  Lip  Oral | 0.737  0.010 | 0.449  0.241 | 2.09  1.01 |
| Kulberg, et al (2017) | Sweden | Incidence  Lip | 0.372 | 0.861 | 1.45 |
| Petersen, et al (2017) | Denmark | Incidence  Lip  Tongue  Mouth  Salivary  Pharynx | 0.039  0.419  -0.511  0.582  -0.094 | 0.501  0.290  0.382  0.501  0.222 | 1.04  1.52  0.60  1.79  0.91 |
| Glass, et al (2016) | Australia | Incidence  Lip, Oral Cavity, and Pharynx | -0.051 | 0.14 | 0.95 |
| Tsai, et al (2015) | US | Incidence  Lip  Tongue  Salivary gland  Mouth/Oral  Pharyngeal | 0.365  0.166  0.262  0.068  0.058 | 0.246  0.186  0.280  0.279  0.177 | 1.44  1.18  1.30  1.07  1.06 |
| Brice, et al (2015) | French | Mortality  Lip, Oral Cavity, and Pharynx | 0.140 | 0.126 | 1.15 |
| Ahn, et al (2012) | Korea | Mortality  Salivary Gland | 0.85 | 0.683 | 2.34 |
| Pukkala, et al (2014) | Nordic | Incidence  Lip  Tongue  Salivary glands  Oral Cavity  Pharynx | -0.223  0.039  0.525  -0.223  0.000 | 0.261  0.329  0.343  0.325  0.245 | 0.80  1.04  1.69  0.80  1.00 |
| Paget-Bailly, et al (2013) | France | Incidence  Oral Cavity  Oropharynx  Hypopharynx | 2.322  0.642  1.131 | 0.611  0.819  0.855 | 10.2  1.9  3.1 |
| Kang, et al (2008) | US | Incidence  Lip  Buccal Cavity  Nasopharynx | 0.049  -0.416  0.270 | 0.587  0.242  0.717 | 1.05  0.66  1.31 |
| Langevin, et al (2020) | US | Incidence  Head and Neck | -0.083 | 0.043 | 0.920 |

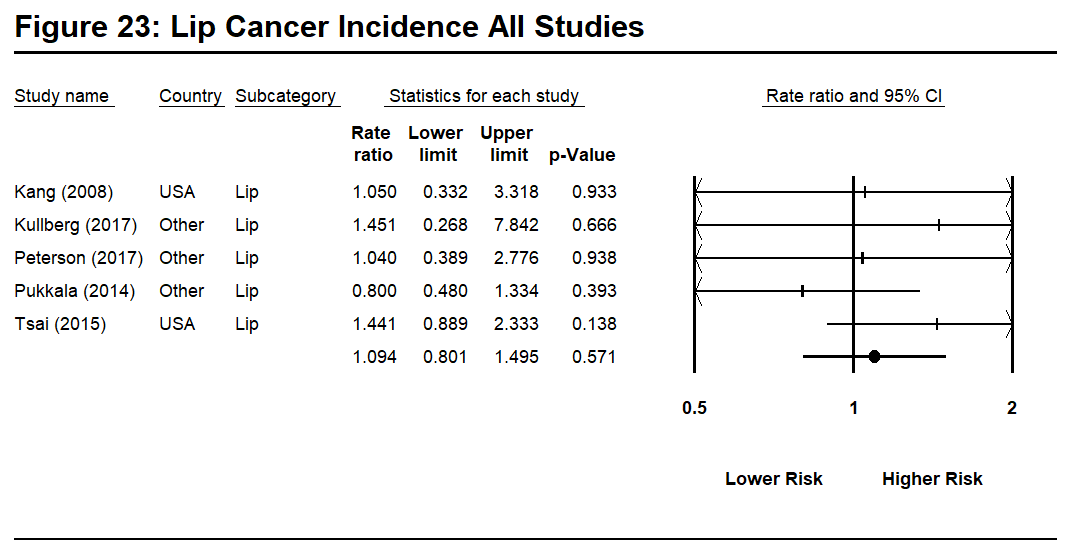
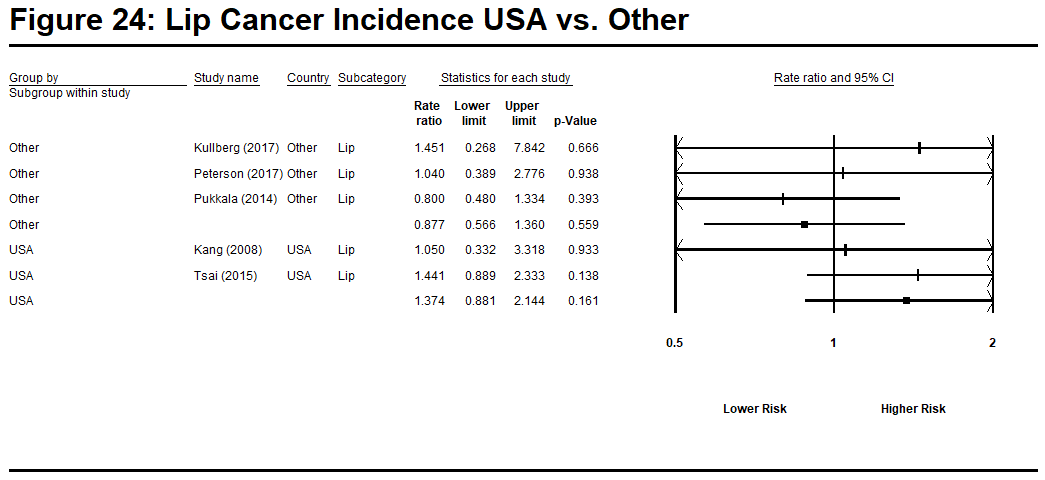
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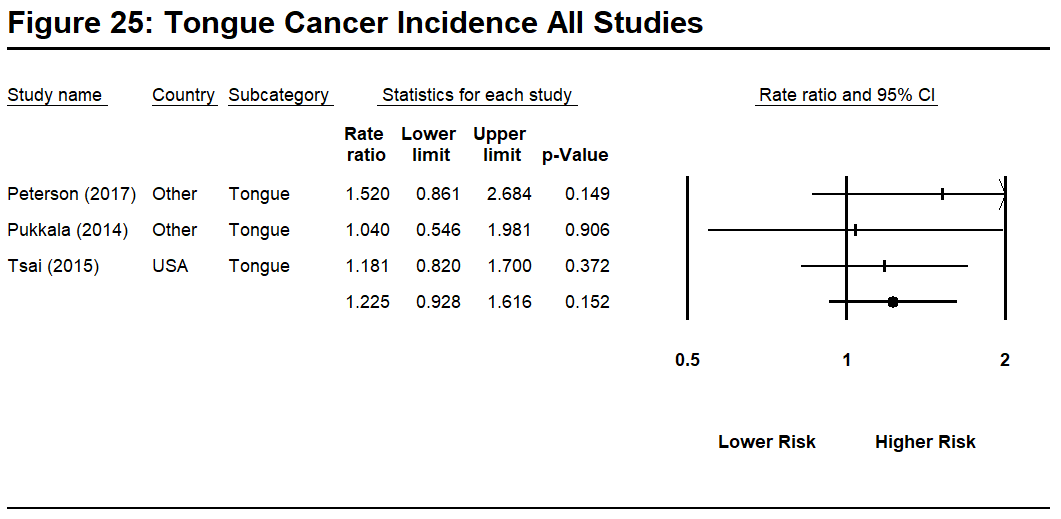
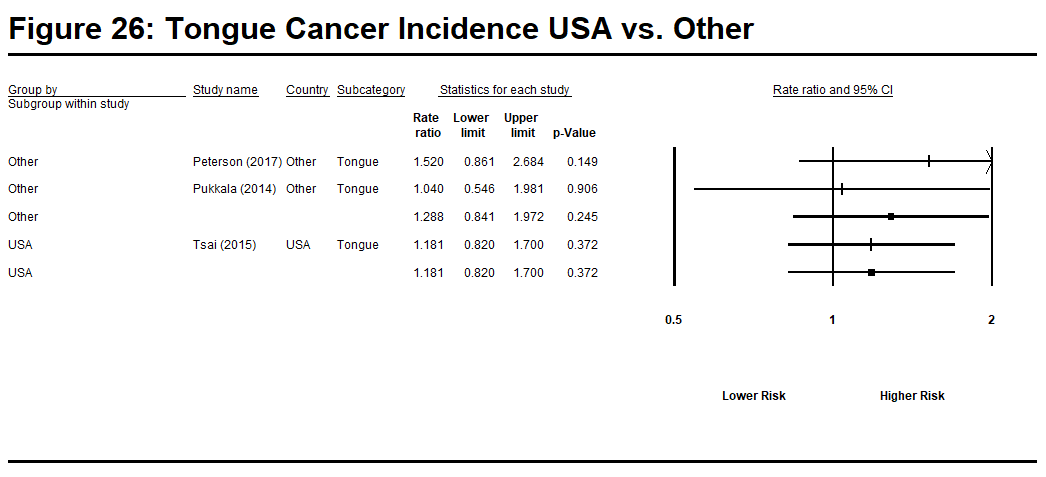
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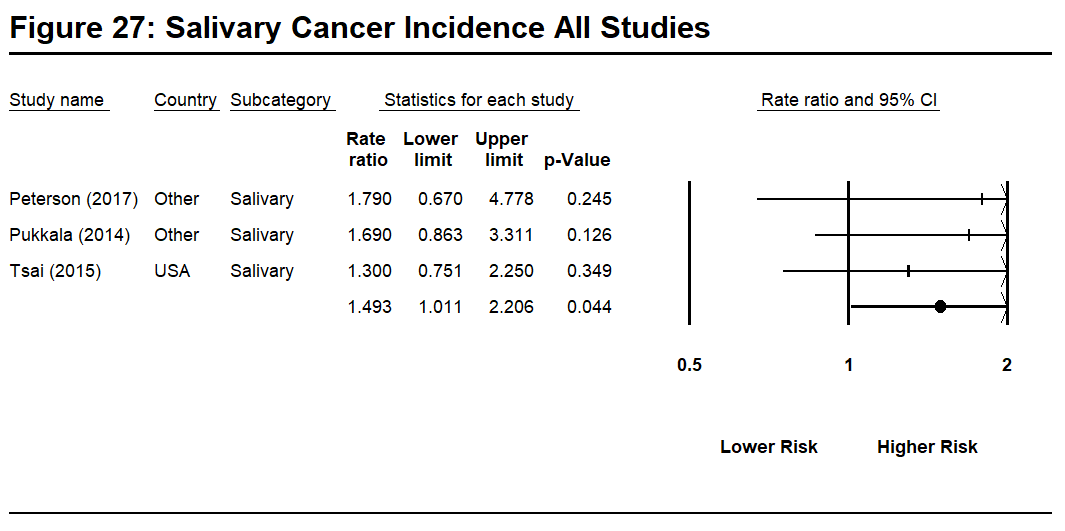
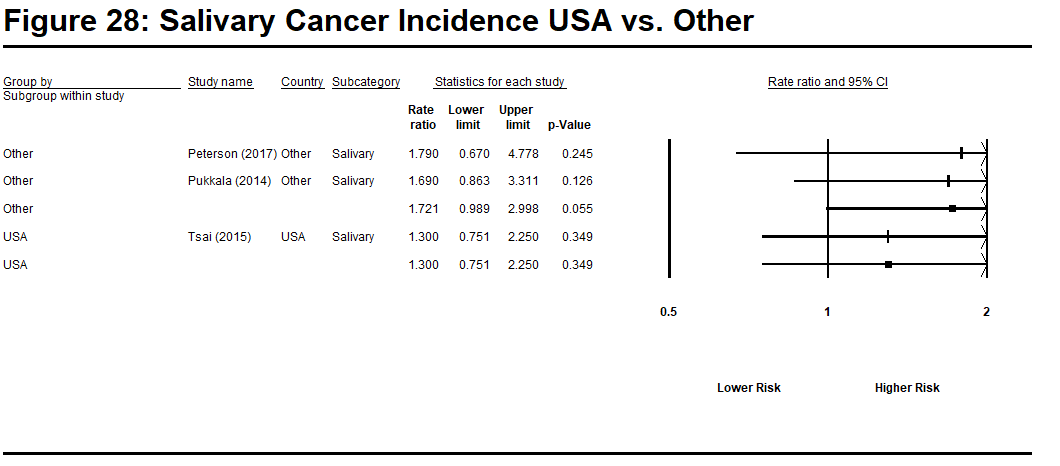
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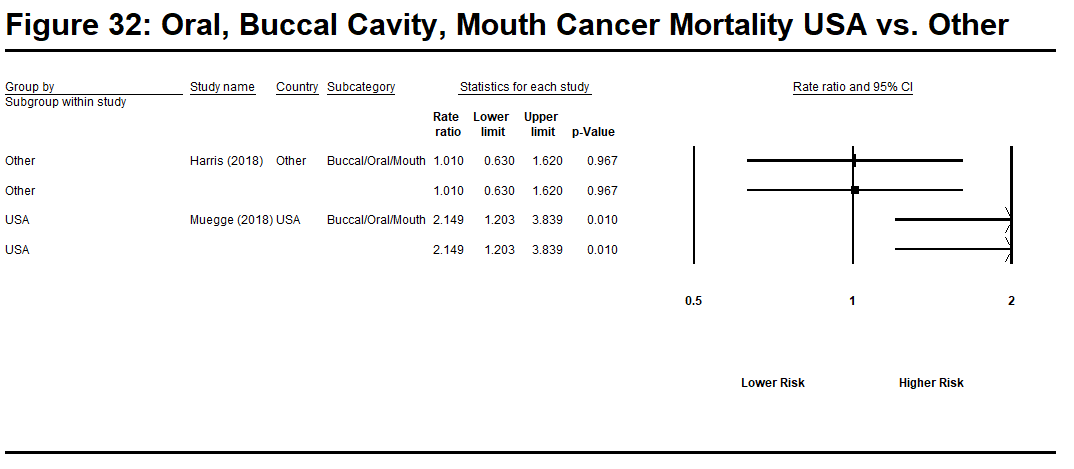
Description automatically generated with medium confidenceTable

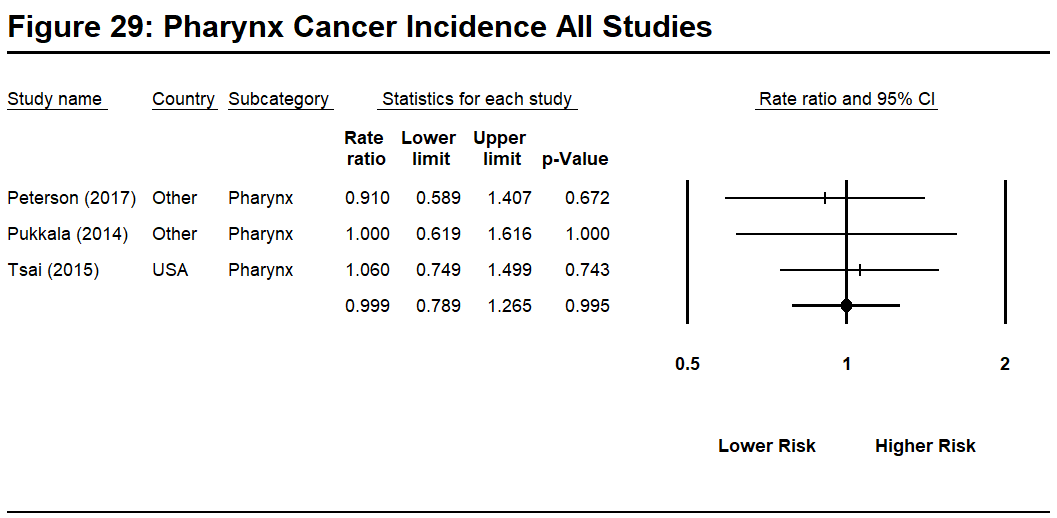
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Description automatically generated

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Description automatically generated

Note: The remaining subcategories of Buccal Cavity and Pharynx cancer not shown given there was only a single study reporting mortality this cancer type.

**Table 7: Colon Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.239 | 0.052 | 1.27 |
| Lee et al (2020 | US | Incidence | 0.010 | 0.068 | 1.01 |
| Peterson et al (2018) | Denmark | Mortality | 0.104 | 0.200 | 1.11 |
| Harris et al (2018) | Canada | Incidence | -0.105 | 0.153 | 0.90 |
| Kulberg et al (2017) | Sweden | Incidence | -0.151 | 0.237 | 0.86 |
| Petersen et al (2017) | Denmark | Incidence | -0.315 | 0.130 | 0.73 |
| Glass, et al (2016) | Australia | Incidence | 0.068 | 0.093 | 1.07 |
| Tsai et al (2015) | US | Incidence | 0.095 | 0.087 | 1.10 |
| Brice, et al (2015) | French | Mortality | -0.315 | 0.219 | 0.73 |
| Ahn et al (2015) | Korea | Mortality | -0.431 | 0.309 | 0.65 |
| Ahn et al (2012) | Korea | Incidence | 0.239 | 0.116 | 1.27 |
| Daniels, et al (2014) | US | Incidence  Mortality | 0.191  0.262 | 0.051  0.055 | 1.21  1.30 |
| Kang et al (2008) | US | Incidence | 0.140 | 0.110 | 1.15 |

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Description automatically generatedA picture containing box and whisker chart

Description automatically generatedChart, box and whisker chart

Description automatically generated

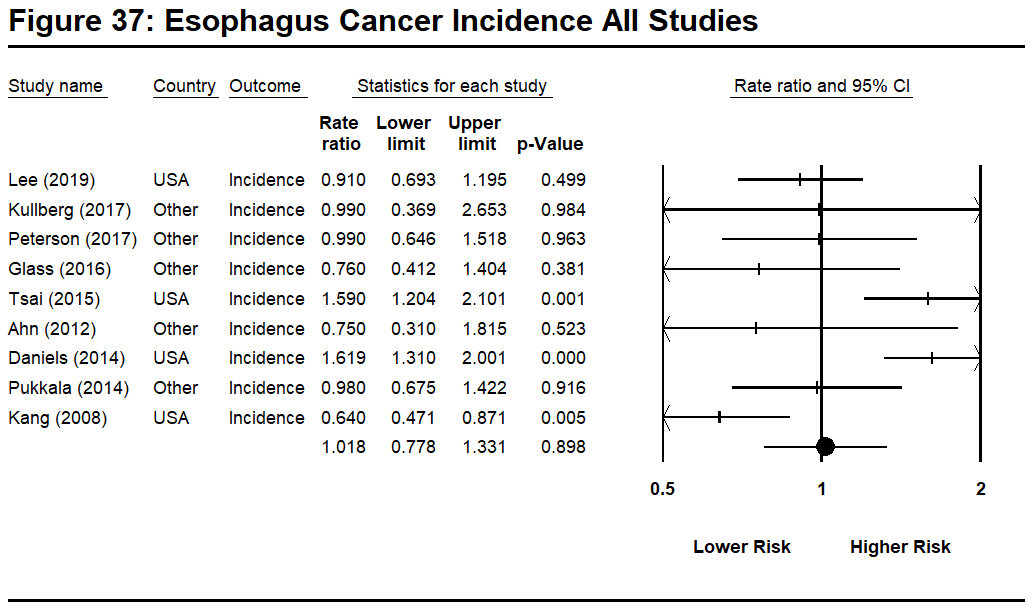
A picture containing box and whisker chart

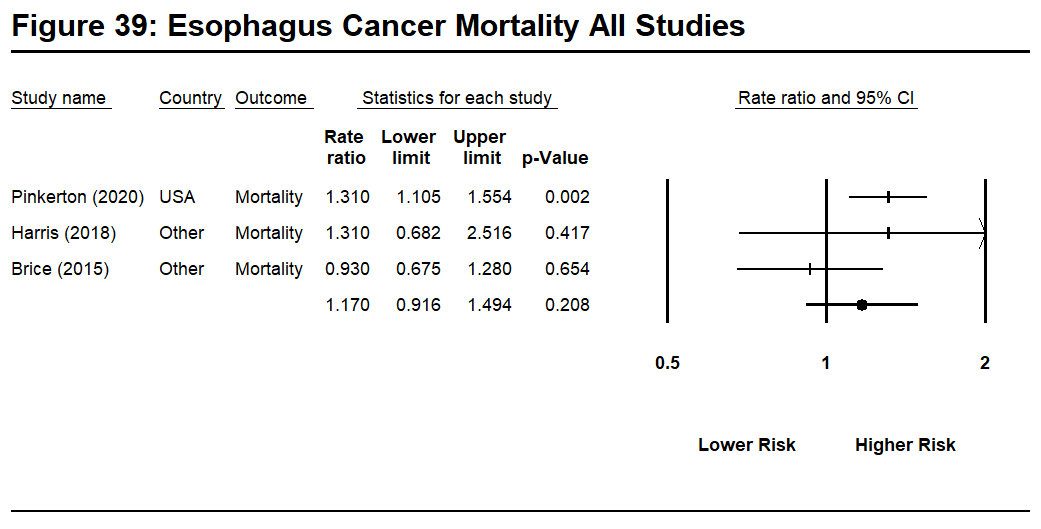
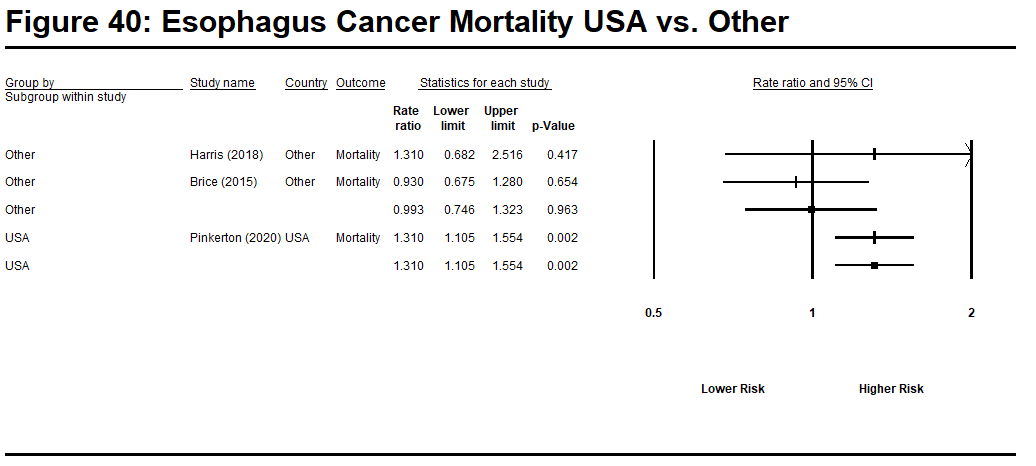
Description automatically generated

**Table 8: Esophagus Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.270 | 0.087 | 1.31 |
| Lee et al (2019) | US | Incidence | -0.094 | 0.139 | 0.91 |
| Harris et al (2018) | Canada | Mortality | 0.270 | 0.333 | 1.31 |
| Kulberg et al (2017) | Sweden | Incidence | -0.010 | 0.503 | 0.99 |
| Petersen et al (2017) | Denmark | Incidence | -0.01 | 0.218 | 0.99 |
| Glass, et al (2016) | Australia | Incidence | -0.274 | 0.313 | 0.76 |
| Tsai, et al (2015) | US | Incidence | 0.464 | 0.142 | 1.59 |
| Brice, et al (2015) | French | Mortality | -0.073 | 0.163 | 0.93 |
| Ahn et al (2012) | Korea | Incidence | -0.288 | 0.451 | 0.75 |
| Daniels, et al (2014) | US | Incidence | 0.482 | 0.108 | 1.62 |
| Pukkala et al (2014) | Nordic | Incidence | -0.020 | 0.190 | 0.98 |
| Kang et al (2008) | US | Incidence | -0.446 | 0.157 | 0.64 |

Box and whisker chart

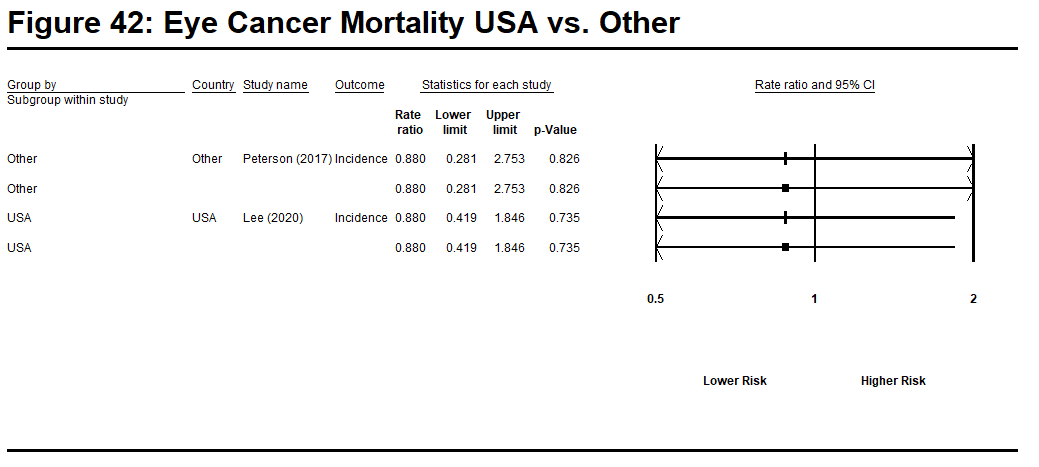
Description automatically generated with low confidence



**Table 9: Eye Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020)*.* | US | Incidence | -0.128 | 0.378 | 0.88 |
| Petersen et al (2017) | Denmark | Incidence | -0.128 | 0.582 | 0.88 |

Table

Description automatically generated

**Table 10: Hodgkin’s Disease**

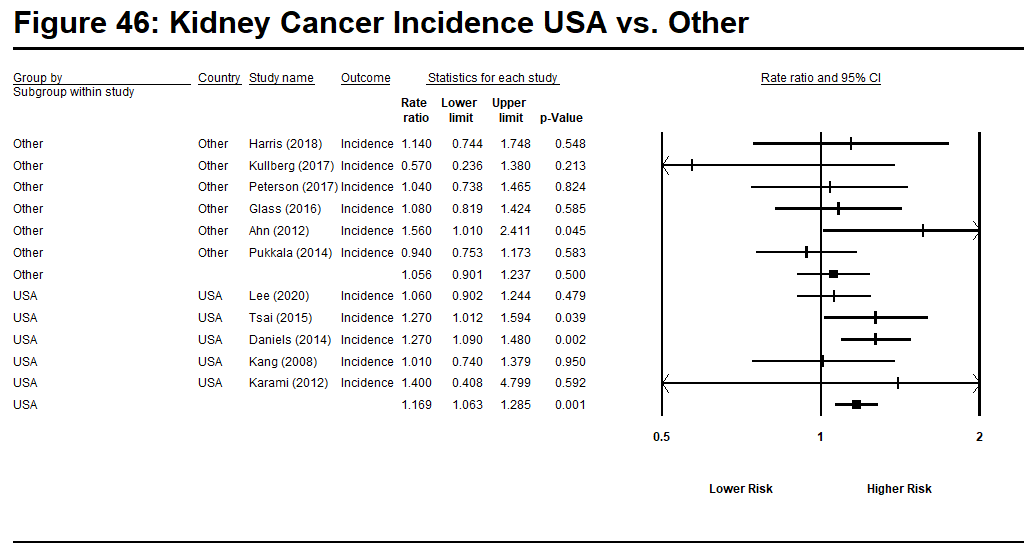
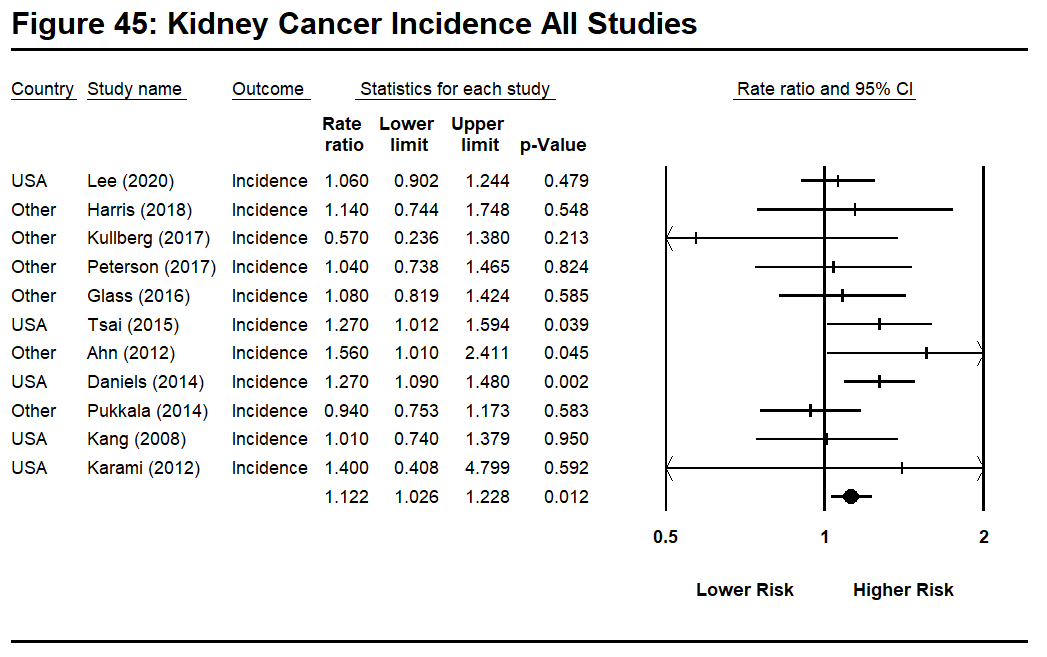
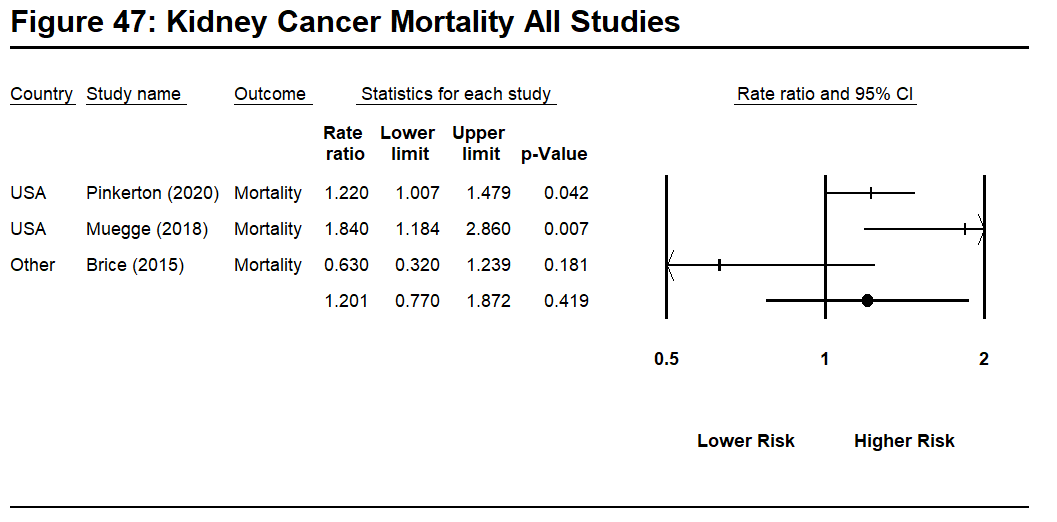
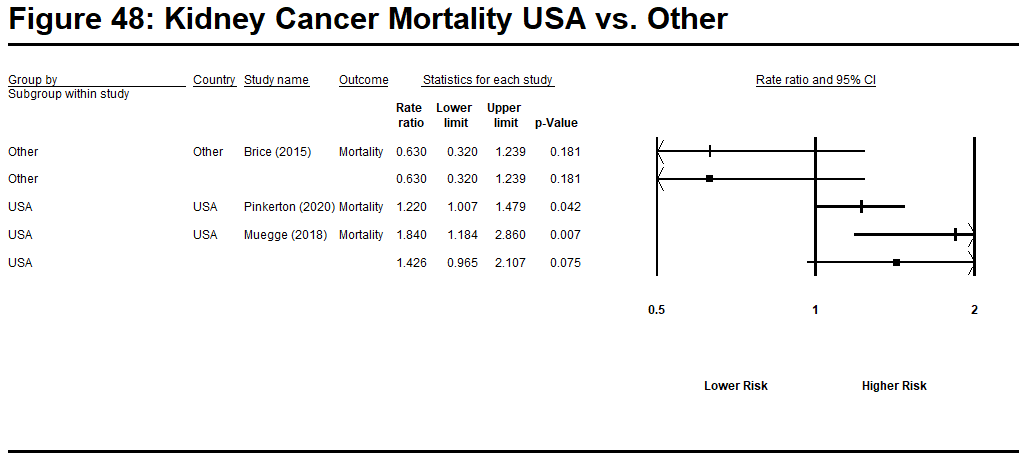
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020)*.* | US | Incidence | -0.163 | 0.179 | 0.85 |
| Harris et al (2018) | Canada | Incidence | 1.061 | 0.411 | 2.89 |
| Kulberg et al (2017) | Sweden | Incidence | 0.329 | 0.863 | 1.39 |
| Petersen et al (2017) | Denmark | Incidence | 0.495 | 0.278 | 1.64 |
| Glass, et al (2016) | Australia | Incidence | -0.010 | 0.340 | 0.99 |
| Tsai et al (2015) | US | Incidence | 0.140 | 0.238 | 1.15 |
| Kang et al (2008) | US | Incidence | 0.445 | 0.402 | 1.56 |

Table

Description automatically generatedTable

Description automatically generated with low confidence

**Table 11: Kidney Cancer**



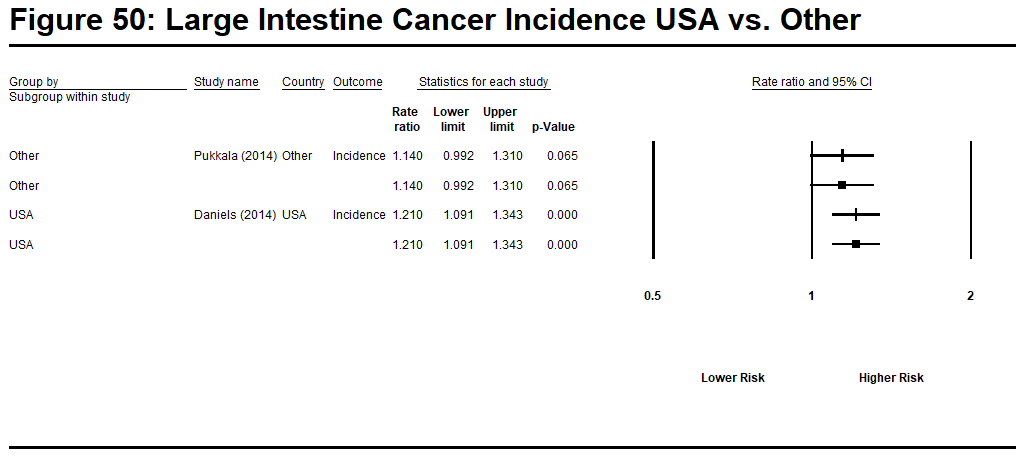
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| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.199 | 0.098 | 1.22 |
| Lee et al (2020) | US | Incidence | 0.058 | 0.082 | 1.06 |
| Muegge et al (2018) | US | Mortality | 0.610 | 0.225 | 1.84 |
| Harris et al (2018) | Canada | Incidence | 0.131 | 0.218 | 1.14 |
| Kulberg et al (2017) | Sweden | Incidence | -0.562 | 0.451 | 0.57 |
| Petersen et al (2017) | Denmark | Incidence  Kidney  Renal pelvis | 0.039  0.378 | 0.175  0.315 | 1.04  1.46 |
| Glass, et al (2016) | Australia | Incidence | 0.077 | 0.141 | 1.08 |
| Tsai et al (2015) | US | Incidence | 0.239 | 0.116 | 1.27 |
| Brice, et al (2015) | French | Mortality | -0.462 | 0.345 | 0.63 |
| Ahn et al (2012) | Korea | Incidence | 0.445 | 0.222 | 1.56 |
| Daniels, et al (2014) | US | Incidence | 0.239 | 0.078 | 1.27 |
| Pukkala et al (2014) | Nordic | Incidence | -0.062 | 0.113 | 0.94 |
| Kang et al (2008) | US | Incidence | 0.010 | 0.159 | 1.01 |
| Karami (2012) | US | Incidence | 0.336 | 0.629 | 1.400 |

Note: Renal Pelvis cancer rates not shown given only one study reported on this cancer type.

**Table 12: Large Intestine Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Daniels, et al (2014) | US | Incidence  Mortality | 0.191  0.270 | 0.053  0.062 | 1.21  1.31 |
| Pukkala et al (2014) | Nordic | Incidence | 0.131 | 0.071 | 1.14 |

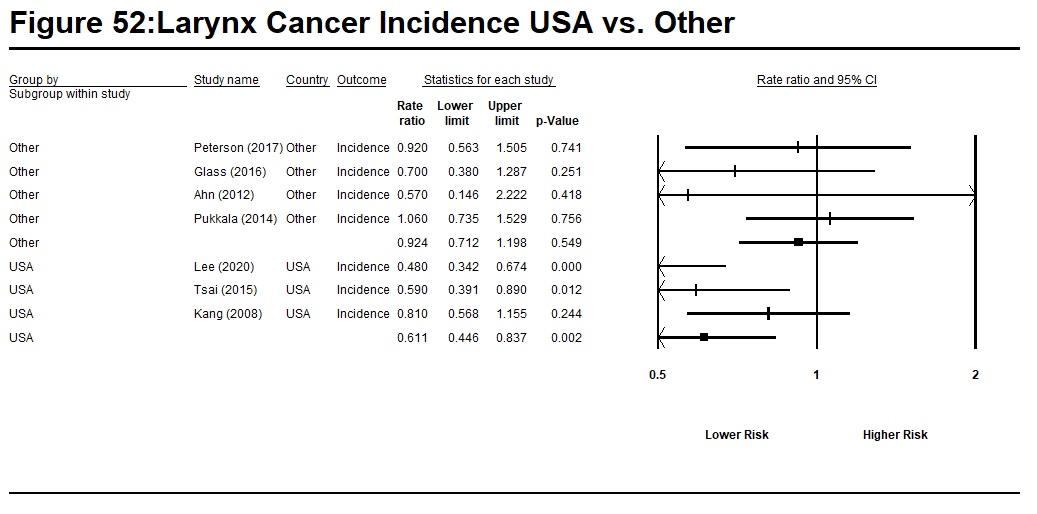
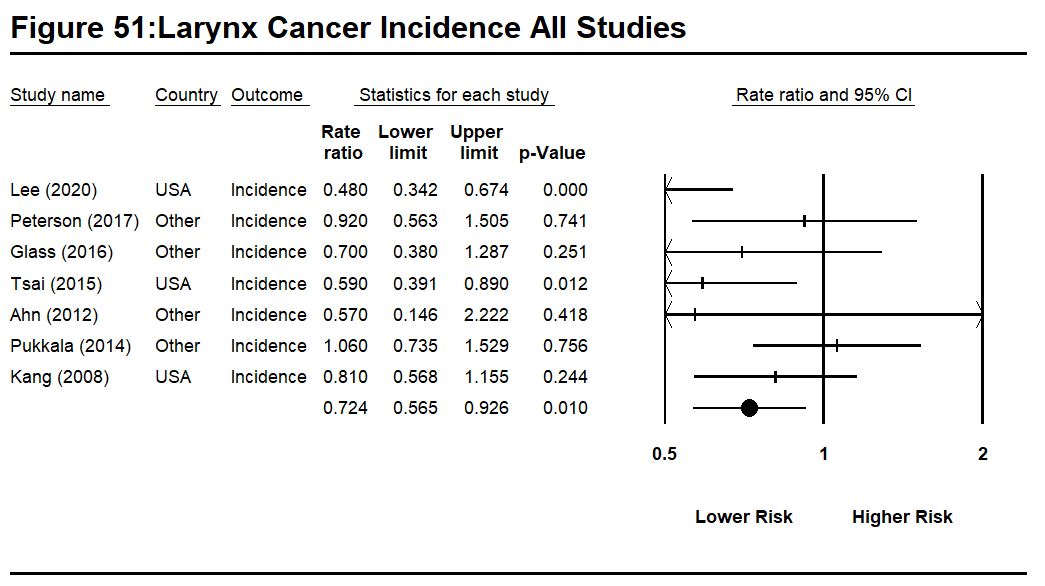
Table

Description automatically generated

Note: only one study provides data for large intestine cancer mortality.

**Table 13: Larynx Cancer**

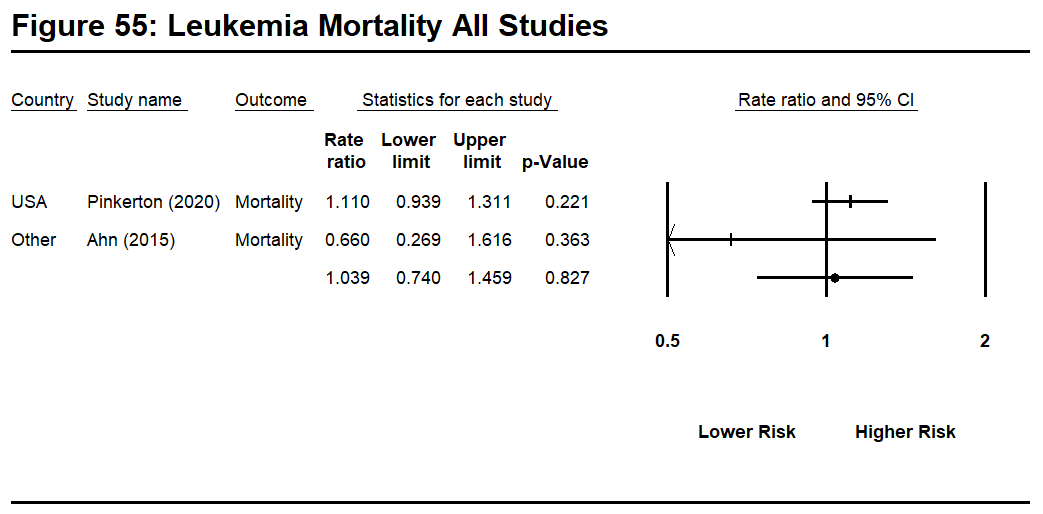
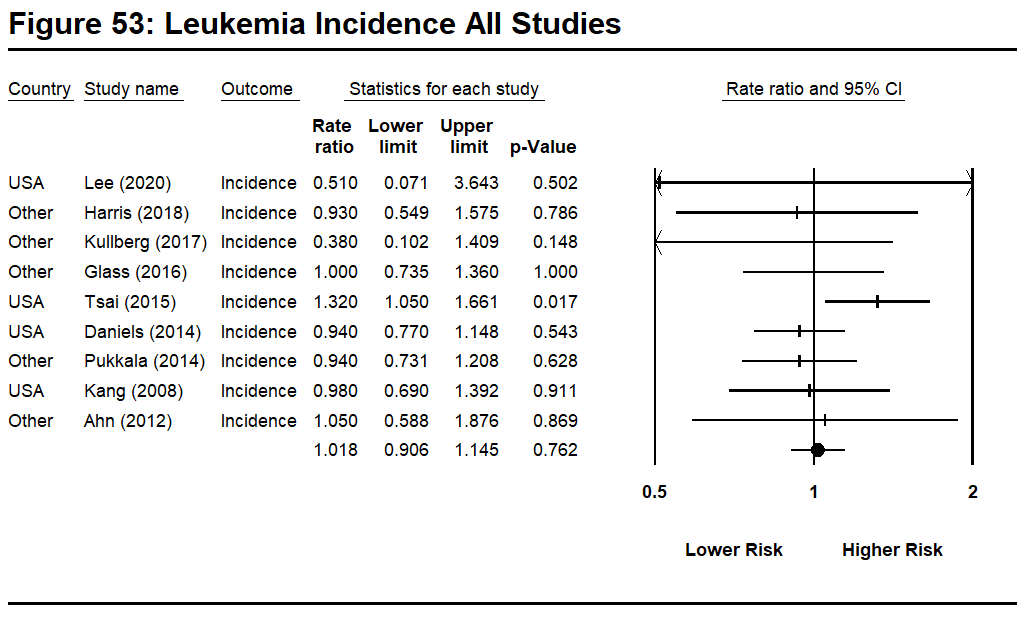
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020) | US | Incidence | -0.734 | 0.173 | 0.48 |
| Petersen et al (2017) | Denmark | Incidence | -0.083 | 0.251 | 0.92 |
| Glass, et al (2016) | Australia | Incidence | -0.357 | 0.311 | 0.70 |
| Tsai et al (2015) | US | Incidence | -0.528 | 0.210 | 0.59 |
| Brice, et al (2015) | French | Mortality | 0.095 | 0.199 | 1.10 |
| Ahn et al (2012) | Korea | Incidence | -0.562 | 0.694 | 0.57 |
| Pukkala et al (2014) | Nordic | Incidence | 0.058 | 0.187 | 1.06 |
| Kang et al (2008) | US | Incidence | -0.211 | 0.181 | 0.81 |



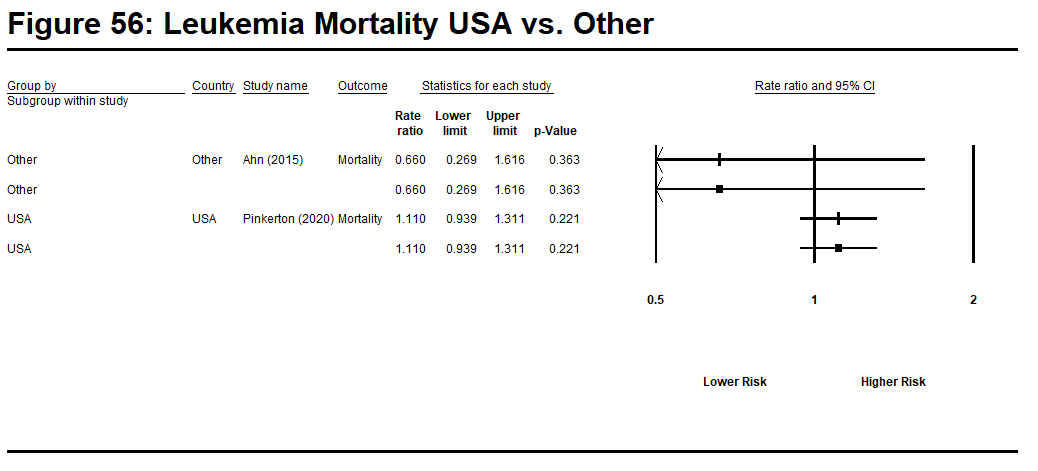
Note: Only one study reported data on larynx cancer mortality.

**Table 14: Leukemia**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.104 | 0.085 | 1.11 |
| Lee et al (2020)*.* | US | Incidence | -0.673 | 1.003 | 0.51 |
| Harris et al (2018) | Canada | Incidence | -0.073 | 0.269 | 0.93 |
| Kulberg et al (2017) | Sweden | Incidence | -0.968 | 0.669 | 0.38 |
| Petersen et al (2017) | Denmark | Incidence  Lymphatic  Myeloid | -0.094  -0.274 | 0.258  0.330 | 0.91  0.76 |
| Glass, et al (2016) | Australia | Incidence | 0.000 | 0.157 | 1.00 |
| Tsai et al (2015) | US | Incidence | 0.278 | 0.117 | 1.32 |
| Ahn et al (2015) | Korea | Mortality | -0.416 | 0.457 | 0.66 |
| Ahn et al (2012) | Korea | Incidence | 0.049 | 0.296 | 1.05 |
| Daniels, et al (2014) | US | Incidence | -0.062 | 0.102 | 0.94 |
| Pukkala et al (2014) | Nordic | Incidence | -0.062 | 0.138 | 0.94 |
| Kang et al (2008) | US | Incidence | -0.020 | 0.179 | 0.98 |

A picture containing table

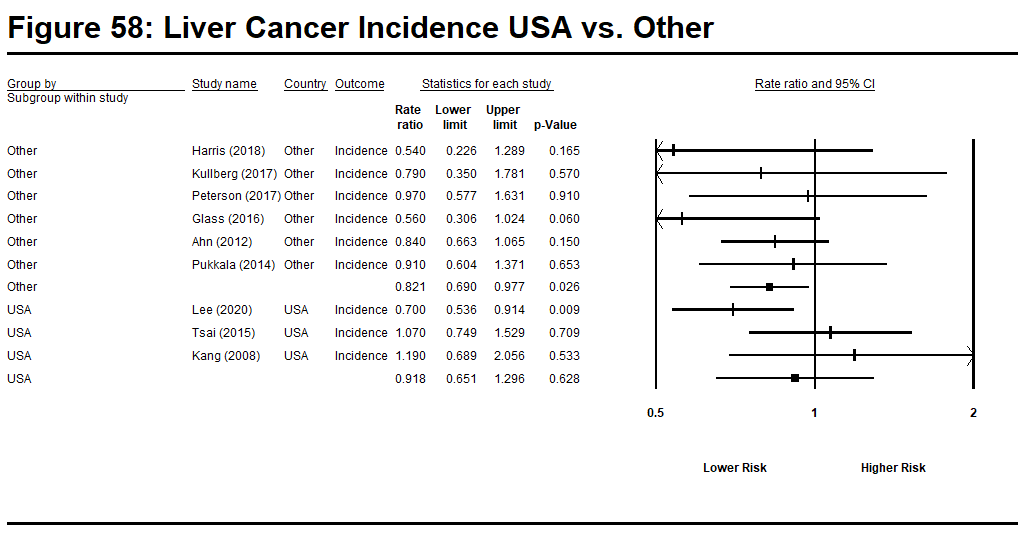
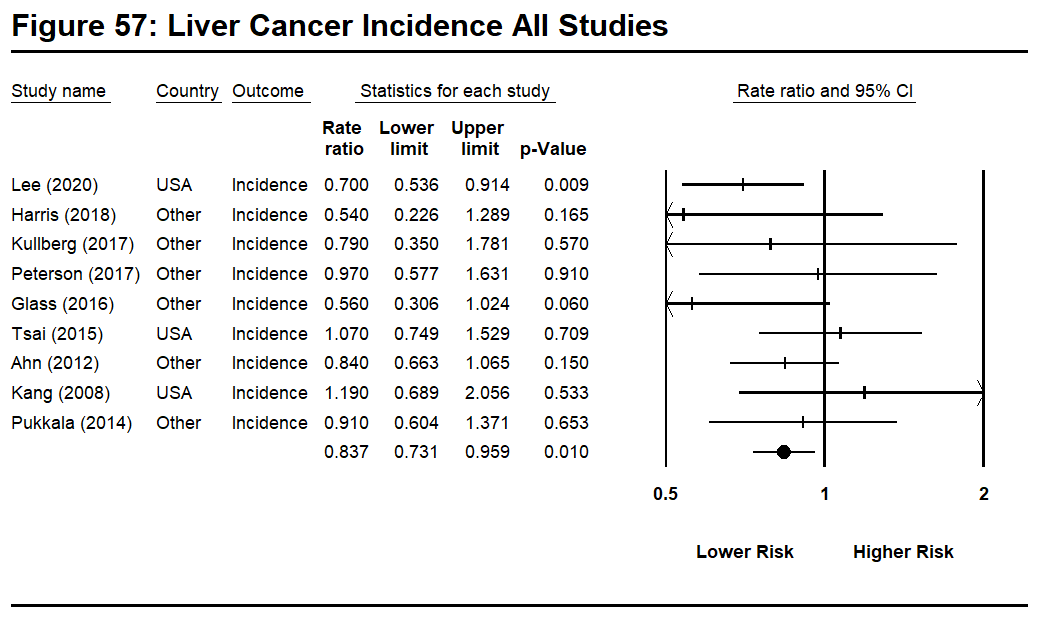
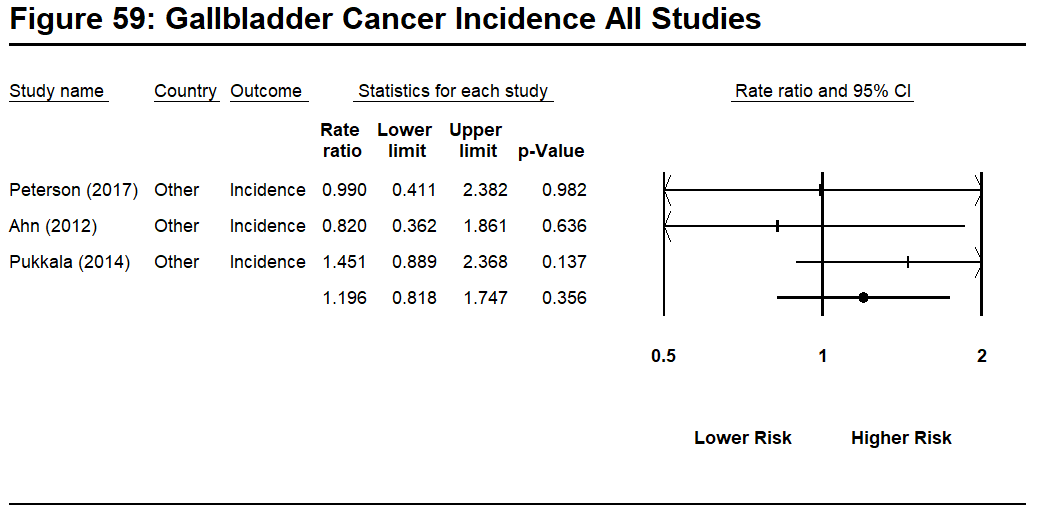
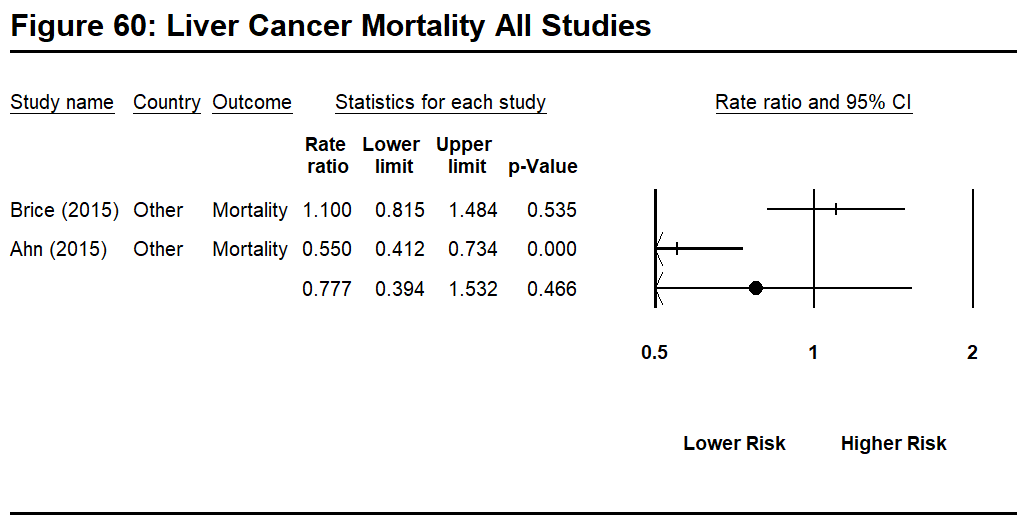
Description automatically generated



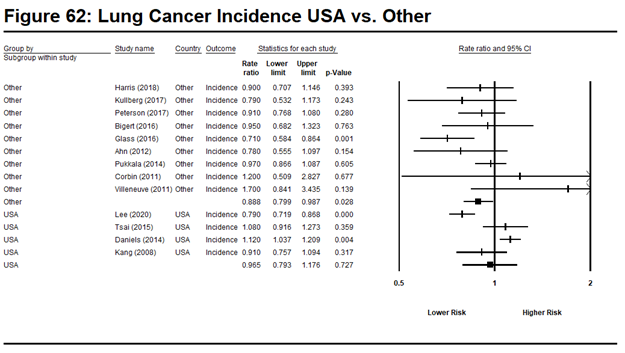
Note: only one study each provided data on Lymphatic and Myeloid cancer.

**Table 15: Liver/Gallbladder Cancer**

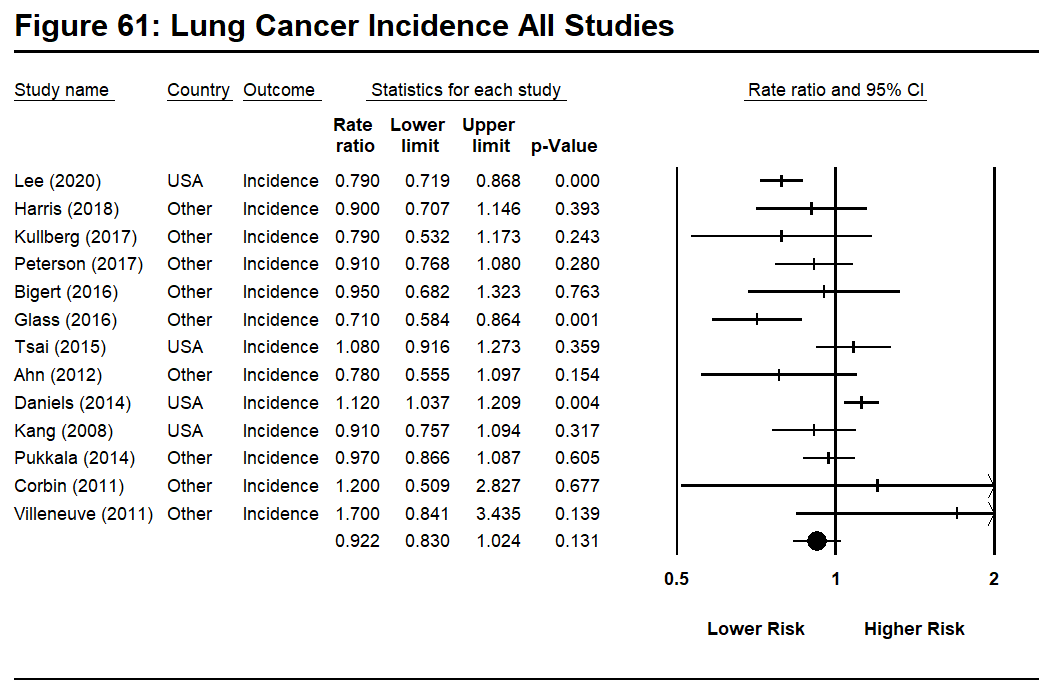
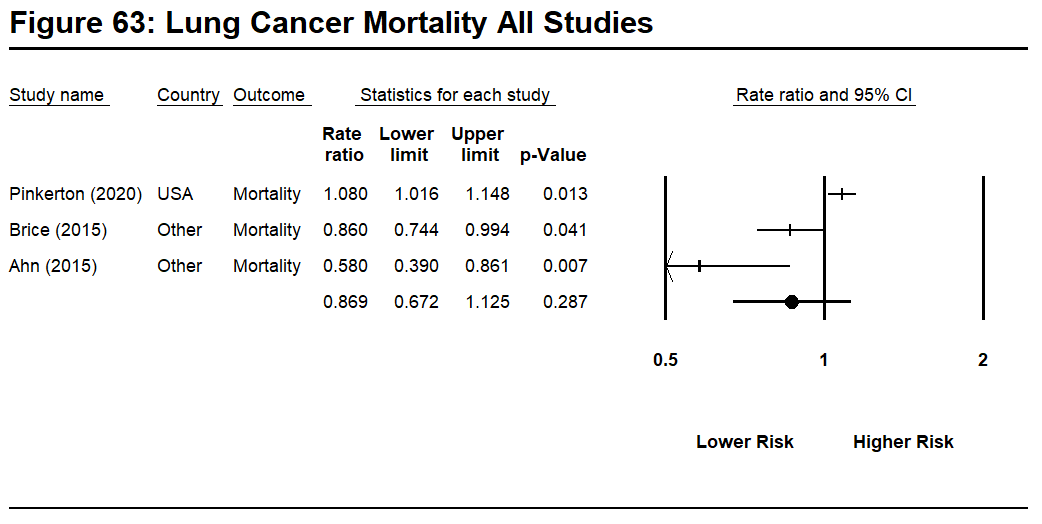
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020) | US | Incidence | -0.357 | 0.136 | 0.70 |
| Harris et al (2018) | Canada | Incidence | -0.616 | 0.444 | 0.54 |
| Kulberg et al (2017) | Sweden | Incidence | -0.236 | 0.415 | 0.79 |
| Petersen et al (2017) | Denmark | Incidence  Liver  Gallbladder | -0.030  -0.010 | 0.265  0.448 | 0.97  0.99 |
| Glass, et al (2016) | Australia | Incidence | -0.580 | 0.308 | 0.56 |
| Tsai et al (2015) | US | Incidence | 0.068 | 0.182 | 1.07 |
| Brice, et al (2015) | French | Mortality | 0.095 | 0.153 | 1.10 |
| Ahn et al (2015) | Korea | Mortality | -0.598 | 0.147 | 0.55 |
| Ahn et al (2012) | Korea | Incidence  Liver  Gallbladder) | -0.174  -0.198 | 0.121  0.418 | 0.84  0.82 |
| Pukkala et al (2014) | Nordic | Incidence  Liver  Gallbladder | -0.094  0.372 | 0.209  0.250 | 0.91  1.45 |
| Kang et al (2008) | US | Incidence | 0.174 | 0.279 | 1.19 |

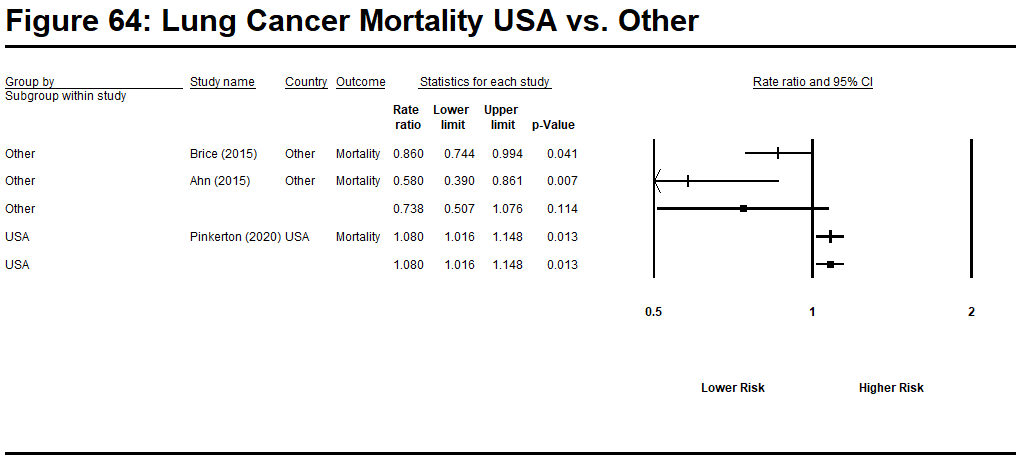
Note: Studies not providing separate outcomes for liver and gallbladder examined liver cancer only. No US studies provided risk estimates for gallbladder cancer. Only US studies provided liver cancer mortality risk estimates.

**Table 16: Lung Cancer**



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.077 | 0.031 | 1.08 |
| Lee et al (2020) | US | Incidence | -0.236 | 0.048 | 0.79 |
| Harris et al (2018) | Canada | Incidence | -0.105 | 0.123 | 0.90 |
| Kullberg et al (2017) | Sweden | Incidence | -0.236 | 0.202 | 0.79 |
| Petersen et al (2017) | Denmark | Incidence | -0.094 | 0.087 | 0.91 |
| Bigert et al (2016) | Europe, Canada,  New Zealand, China | Incidence | -0.051 | 0.169 | 0.95 |
| Glass, et al (2016) | Australia | Incidence | -0.342 | 0.100 | 0.71 |
| Tsai et al (2015) | US | Incidence | 0.077 | 0.084 | 1.08 |
| Brice, et al (2015) | French | Mortality | -0.151 | 0.074 | 0.86 |
| Ahn et al (2015) | Korea | Mortality | -0.545 | 0.202 | 0.58 |
| Ahn et al (2012) | Korea | Incidence | -0.248 | 0.174 | 0.78 |
| Daniels, et al (2014) | US | Incidence | 0.113 | 0.039 | 1.12 |
| Pukkala et al (2014) | Nordic | Incidence | -0.030 | 0.058 | 0.97 |
| Kang et al (2008) | US | Incidence | -0.094 | 0.094 | 0.91 |
| Corbin (2011) | New Zealand | Incidence | 0.182 | 0.437 | 1.20 |
| Villeneuve (2011) | Canada | Incidence | 0.531 | 0.359 | 1.70 |



**Table 17: Multiple Myeloma**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | -0.073 | 0.140 | 0.93 |
| Lee et al (2020) | US | Incidence | -0.223 | 0.159 | 0.80 |
| Harris et al (2018) | Canada | Incidence | 0.419 | 0.317 | 1.52 |
| Kulberg et al (2017) | Sweden | Incidence | 0.166 | 0.505 | 1.18 |
| Petersen et al (2017) | Denmark | Incidence | -0.478 | 0.354 | 0.62 |
| Glass, et al (2016) | Australia | Incidence | 0.000 | 0.251 | 1.00 |
| Tsai et al (2015) | US | Incidence | 0.300 | 0.153 | 1.35 |
| Daniels, et al (2014) | US | Incidence | -0.329 | 0.174 | 0.72 |
| Pukkala et al (2014) | Nordic | Incidence | 0.122 | 0.162 | 1.13 |
| Kang et al (2008) | US | Incidence | -0.083 | 0.237 | 0.92 |

A picture containing box and whisker chart

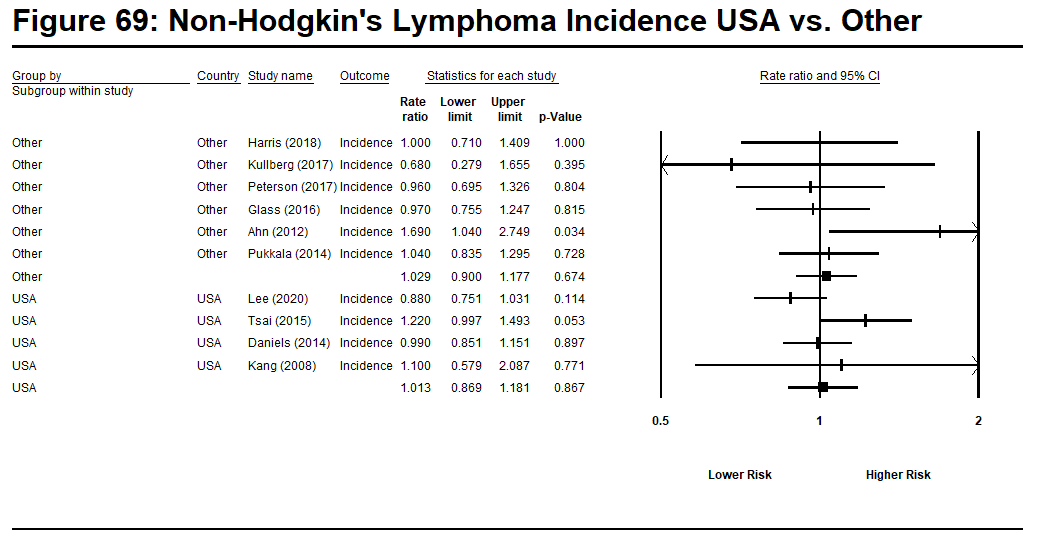
Description automatically generatedBox and whisker chart

Description automatically generated with low confidence

Note: Only one study provided estimates for multiple myeloma mortality

**Table 18: Non-Hodgkin’s Lymphoma**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.191 | 0.082 | 1.21 |
| Lee et al (2020) | US | Incidence | -0.128 | 0.081 | 0.88 |
| Harris et al (2018) | Canada | Incidence | 0.000 | 0.175 | 1.00 |
| Kulberg et al (2017) | Sweden | Incidence | -0.386 | 0.454 | 0.68 |
| Petersen et al (2017) | Denmark | Incidence | -0.041 | 0.165 | 0.96 |
| Glass, et al (2016) | Australia | Incidence | -0.030 | 0.128 | 0.97 |
| Tsai et al (2015) | US | Incidence | 0.199 | 0.103 | 1.22 |
| Ahn et al (2012) | Korea | Incidence | 0.525 | 0.248 | 1.69 |
| Daniels, et al (2014) | US | Incidence | -0.010 | 0.077 | 0.99 |
| Pukkala et al (2014) | Nordic | Incidence | 0.039 | 0.112 | 1.04 |
| Kang et al (2008) | US | Incidence | 0.095 | 0.327 | 1.10 |

Chart

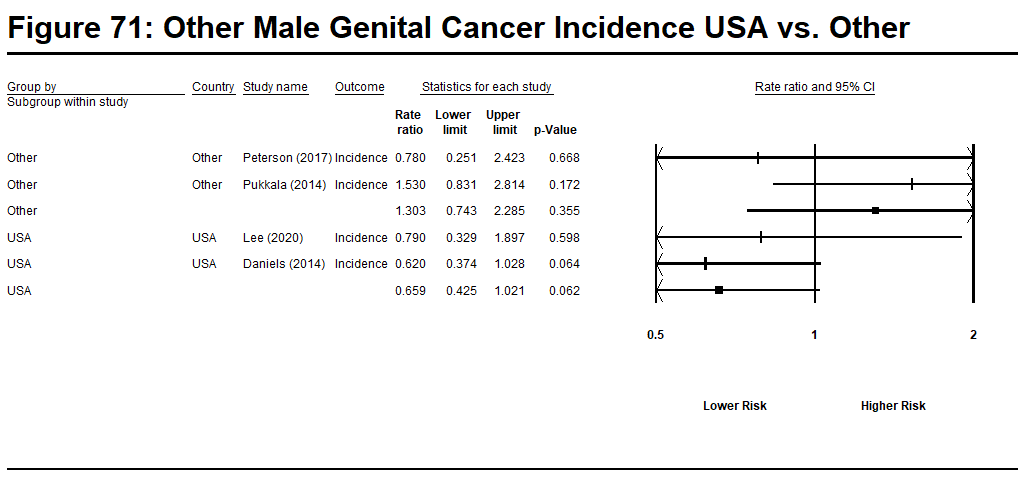
Description automatically generated with medium confidence

Note: Only one study reported estimates for Non-Hodgkin’s Lymphoma mortality

**Table 19: Other Male Genital Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | -0.942 | 0.563 | 0.39 |
| Lee et al (2020) | US | Incidence | -0.236 | 0.447 | 0.79 |
| Petersen et al (2017) | Denmark | Incidence | -0.248 | 0.578 | 0.78 |
| Daniels, et al (2014) | US | Incidence | -0.478 | 0.258 | 0.62 |
| Pukkala et al (2014) | Nordic | Incidence | 0.425 | 0.311 | 1.53 |

Table

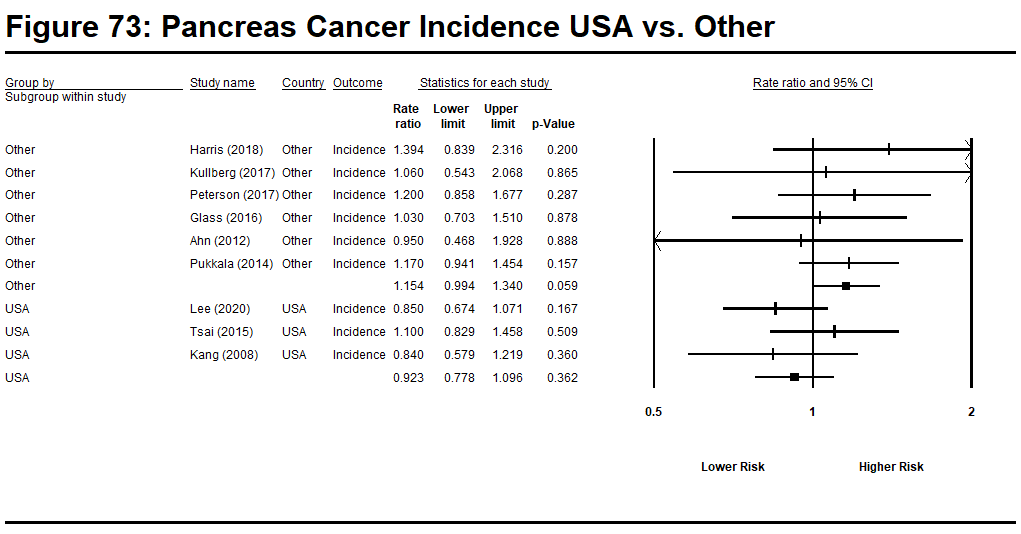
Description automatically generated

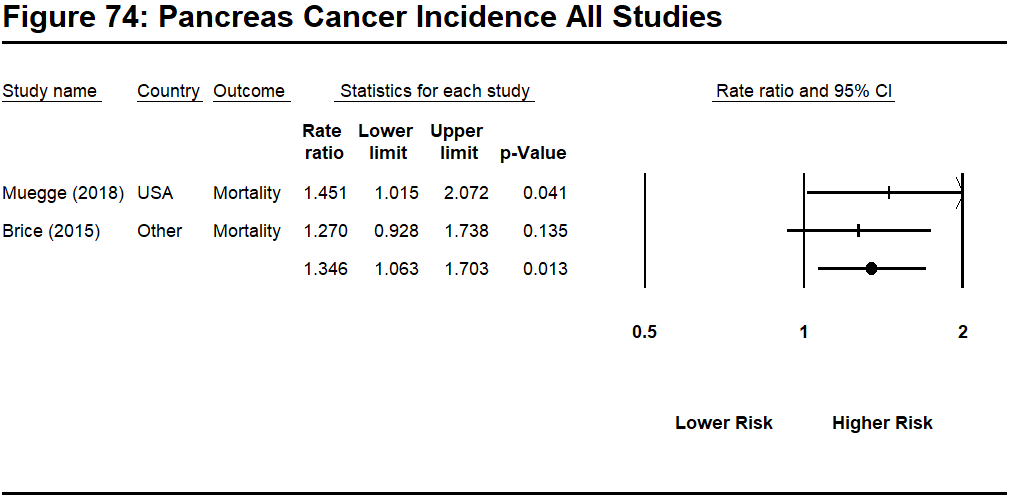
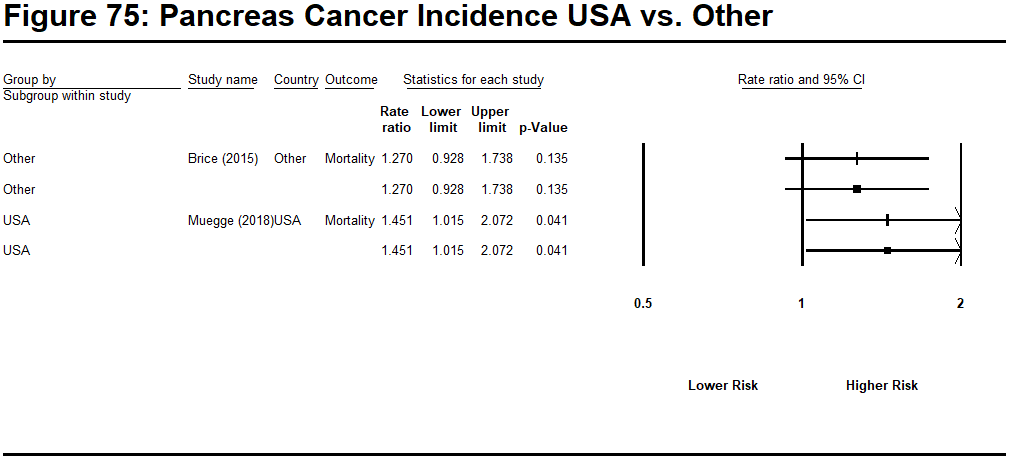
Note: Only one study provides estimates for Other Male Genital Cancer mortality.

**Table 20: Pancreas Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020) | US | Incidence | -0.163 | 0.118 | 0.85 |
| Muegge et al (2018) | US | Mortality | 0.372 | 0.182 | 1.45 |
| Harris et al (2018) | Canada | Incidence | 0.332 | 0.259 | 1.38 |
| Kullberg et al (2017) | Sweden | Incidence | 0.058 | 0.341 | 1.06 |
| Petersen et al (2017) | Denmark | Incidence | 0.182 | 0.171 | 1.20 |
| Glass, et al (2016) | Australia | Incidence | 0.030 | 0.195 | 1.03 |
| Tsai et al (2015) | US | Incidence | 0.095 | 0.144 | 1.10 |
| Brice, et al (2015) | French | Mortality | 0.239 | 0.160 | 1.27 |
| Ahn et al (2012) | Korea | Incidence | -0.051 | 0.361 | 0.95 |
| Pukkala et al (2014) | Nordic | Incidence | 0.157 | 0.111 | 1.17 |
| Kang et al (2008) | US | Incidence | -0.174 | 0.190 | 0.84 |

Chart, box and whisker chart

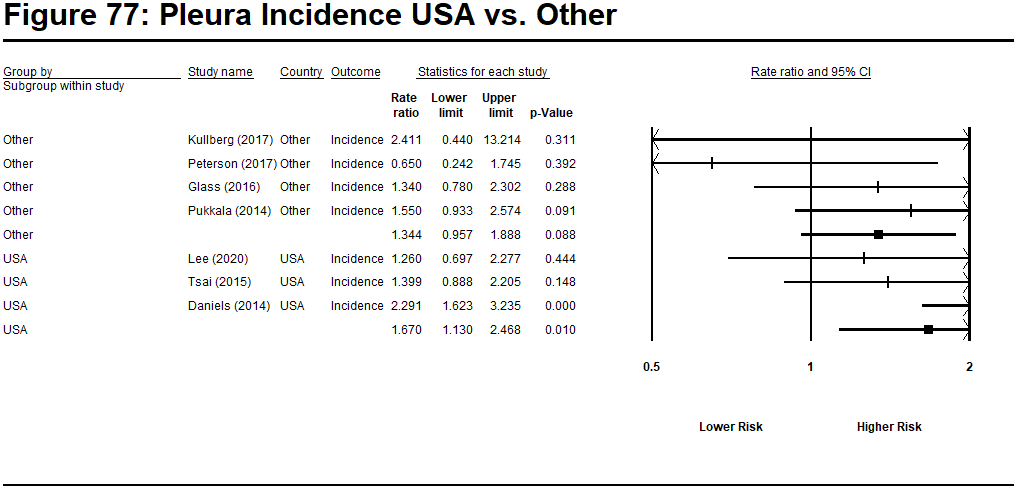
Description automatically generated



**Table 21: Pleura (Mesothelioma)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.621 | 0.251 | 1.86 |
| Lee et al (2020) | US | Incidence | 0.231 | 0.302 | 1.26 |
| Kulberg et al (2017) | Sweden | Incidence | 0.880 | 0.868 | 2.41 |
| Petersen et al (2017) | Denmark | Incidence | -0.431 | 0.504 | 0.65 |
| Glass, et al (2016) | Australia | Incidence | 0.293 | 0.276 | 1.34 |
| Tsai et al (2015) | US | Incidence | 0.336 | 0.232 | 1.40 |
| Daniels, et al (2014) | US | Incidence | 0.829 | 0.176 | 2.29 |
| Pukkala et al (2014) | Nordic | Incidence | 0.438 | 0.259 | 1.55 |

A picture containing box and whisker chart

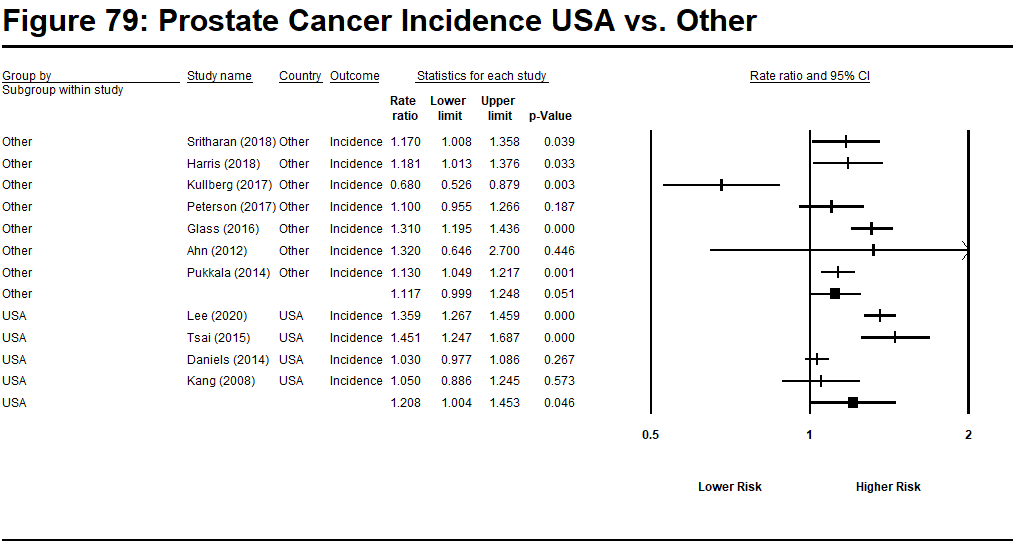
Description automatically generated

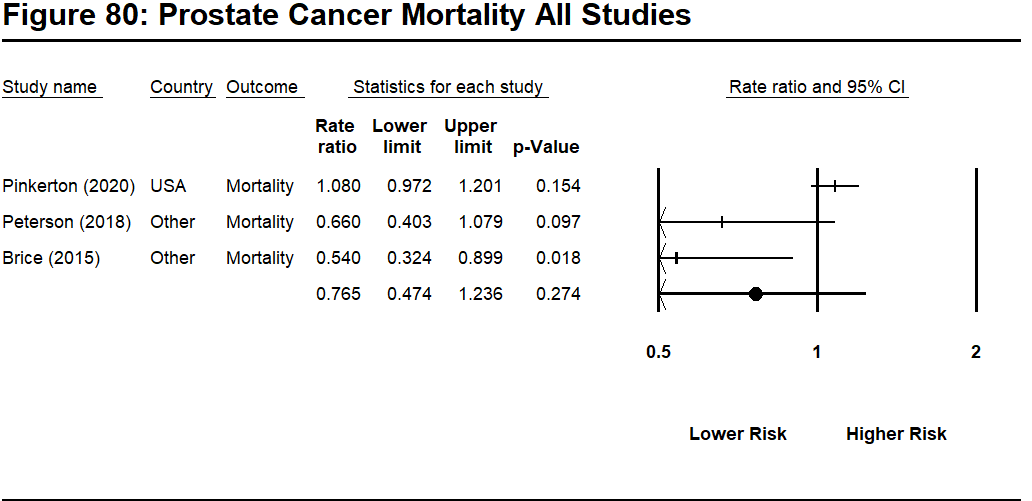
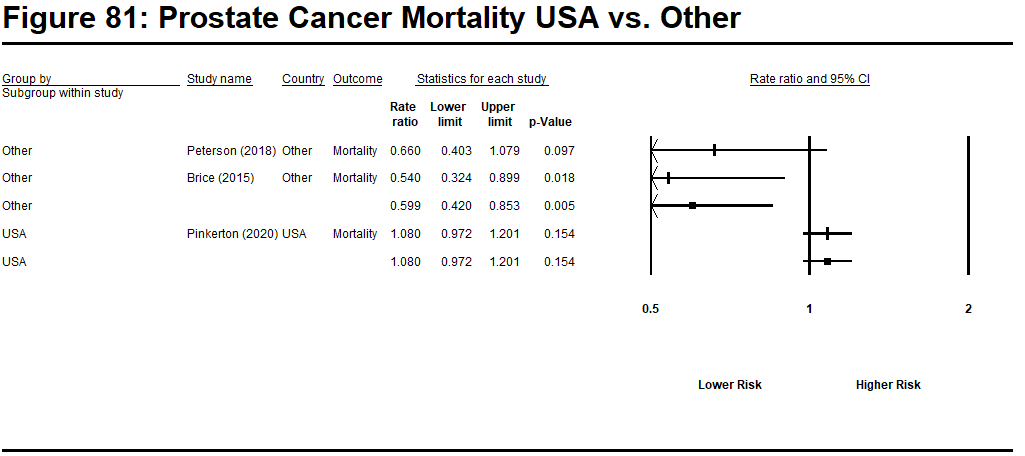
Note: Only one study provided estimates for Pleura mortality

**Table 22: Prostate Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.077 | 0.054 | 1.08 |
| Lee et al (2020) | US | Incidence | 0.307 | 0.036 | 1.36 |
| Sritharan et al (2018) | Canada | Incidence | 0.157 | 0.076 | 1.17 |
| Peterson et al (2018) | Denmark | Mortality | -0.416 | 0.251 | 0.66 |
| Harris et al (2018) | Canada | Incidence | 0.166 | 0.078 | 1.18 |
| Kulberg et al (2017) | Sweden | Incidence | -0.386 | 0.131 | 0.68 |
| Petersen et al (2017) | Denmark | Incidence | 0.095 | 0.072 | 1.10 |
| Glass, et al (2016) | Australia | Incidence | 0.270 | 0.047 | 1.31 |
| Tsai et al (2015) | US | Incidence | 0.372 | 0.077 | 1.45 |
| Brice, et al (2015) | French | Mortality | -0.616 | 0.260 | 0.54 |
| Ahn et al (2012) | Korea | Incidence | 0.278 | 0.365 | 1.32 |
| Daniels, et al (2014) | US | Incidence | 0.030 | 0.027 | 1.03 |
| Pukkala et al (2014) | Nordic | Incidence | 0.122 | 0.038 | 1.13 |
| Kang et al (2008) | US | Incidence | 0.049 | 0.087 | 1.05 |

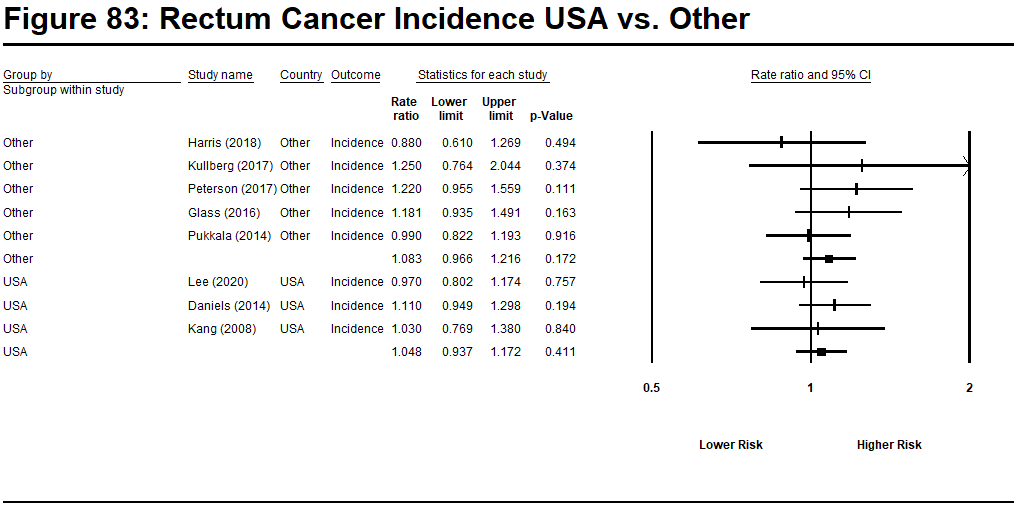
Chart, box and whisker chart

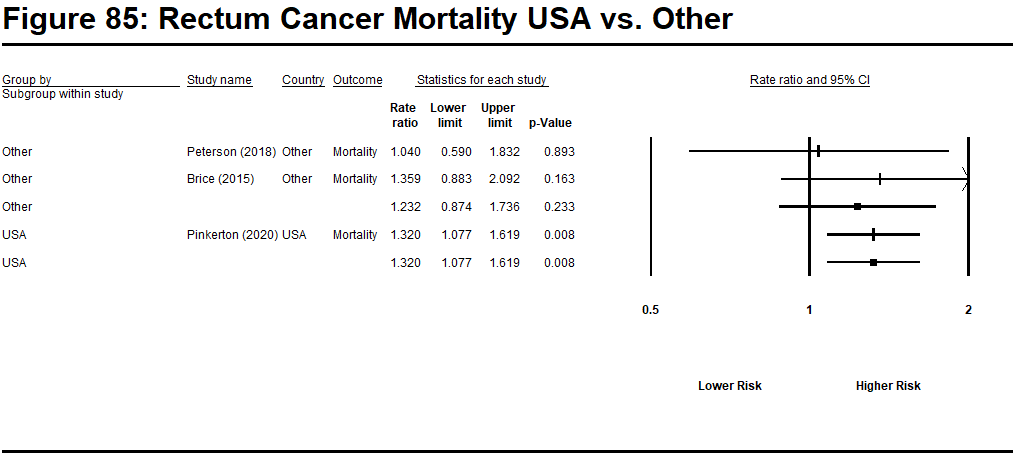
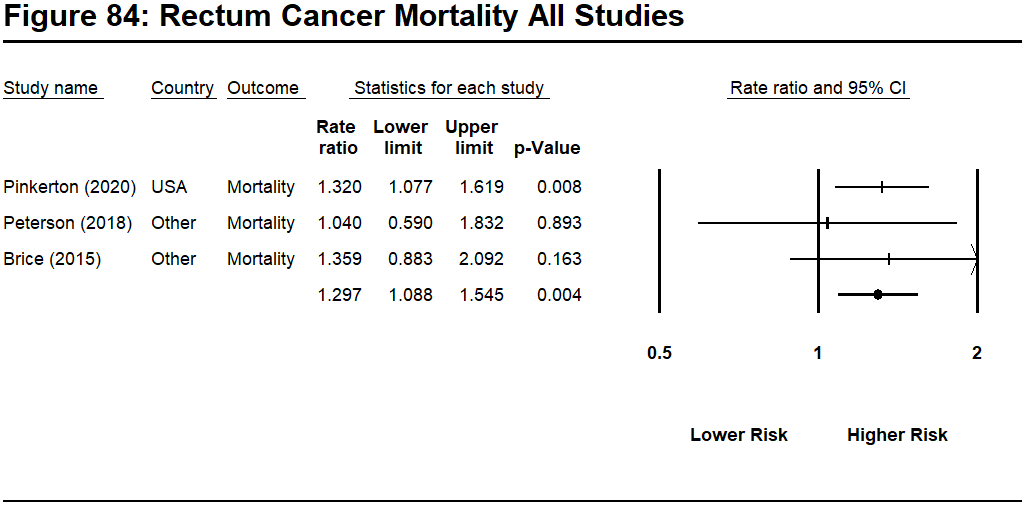
Description automatically generated



**Table 23: Rectum Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.278 | 0.104 | 1.32 |
| Lee et al (2020) | US | Incidence | -0.030 | 0.097 | 0.97 |
| Peterson et al (2018) | Denmark | Mortality | 0.039 | 0.289 | 1.04 |
| Harris et al (2018) | Canada | Incidence | -0.128 | 0.187 | 0.88 |
| Kulberg et al (2017) | Sweden | Incidence | 0.223 | 0.251 | 1.25 |
| Petersen et al (2017) | Denmark | Incidence | 0.199 | 0.125 | 1.22 |
| Glass, et al (2016) | Australia | Incidence | 0.166 | 0.119 | 1.18 |
| Brice, et al (2015) | French | Mortality | 0.307 | 0.220 | 1.36 |
| Daniels, et al (2014) | US | Incidence | 0.104 | 0.080 | 1.11 |
| Pukkala et al (2014) | Nordic | Incidence | -0.010 | 0.095 | 0.99 |
| Kang et al (2008) | US | Incidence | 0.030 | 0.149 | 1.03 |



Chart

Description automatically generated with medium confidence

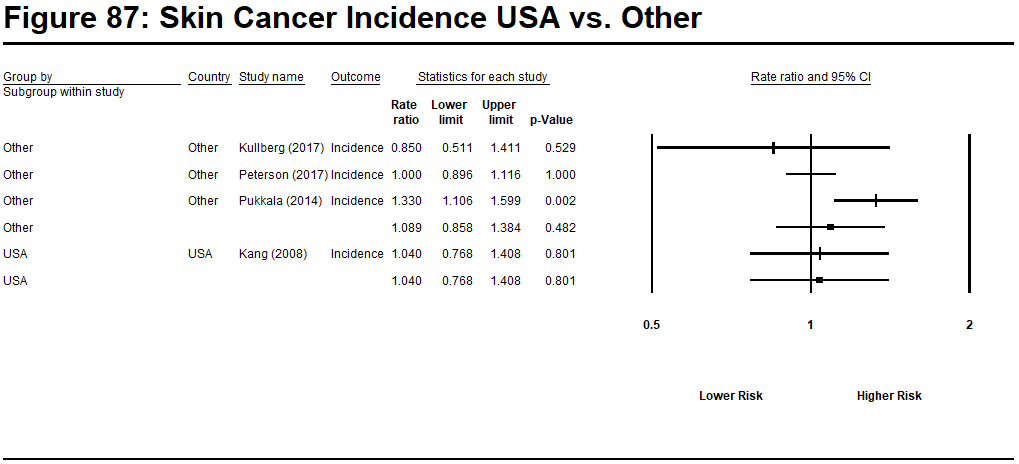
**Table 24: Skin Cancer/Malignant Melanoma**

**Table 24.1: Skin Cancer**

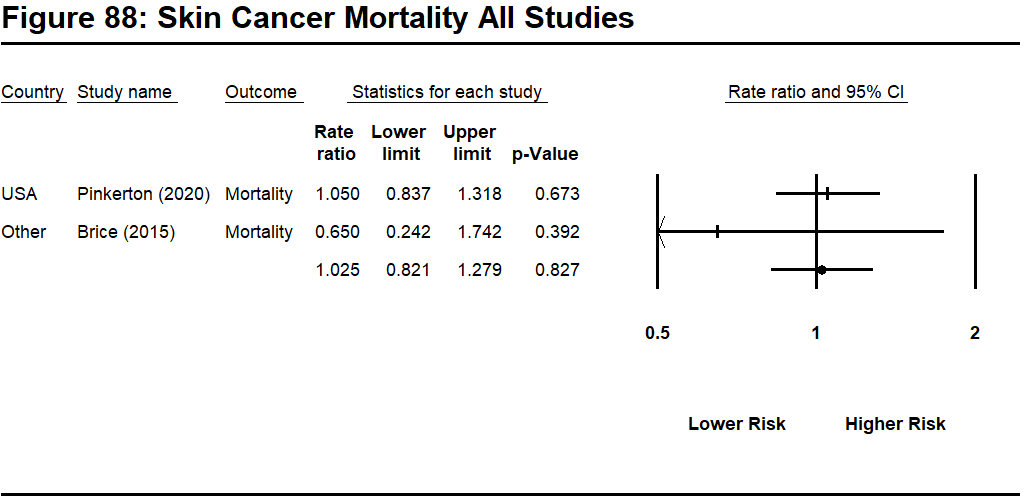
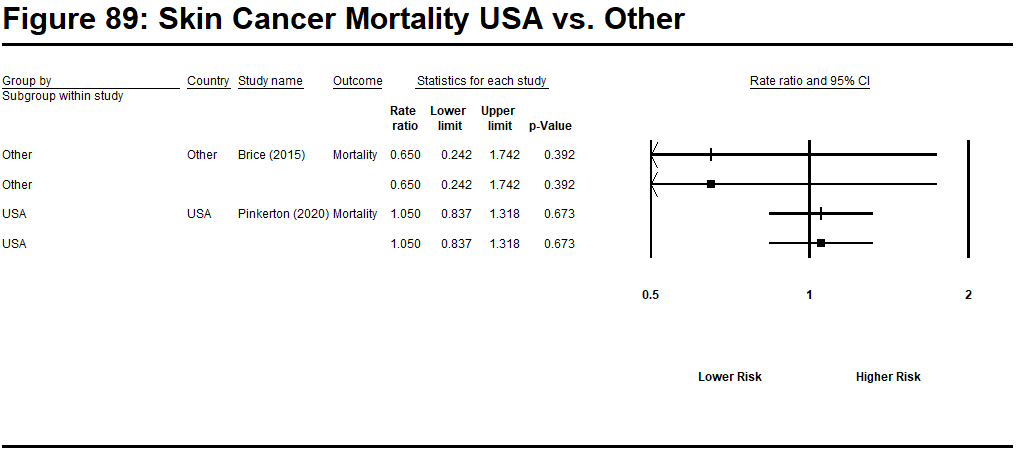
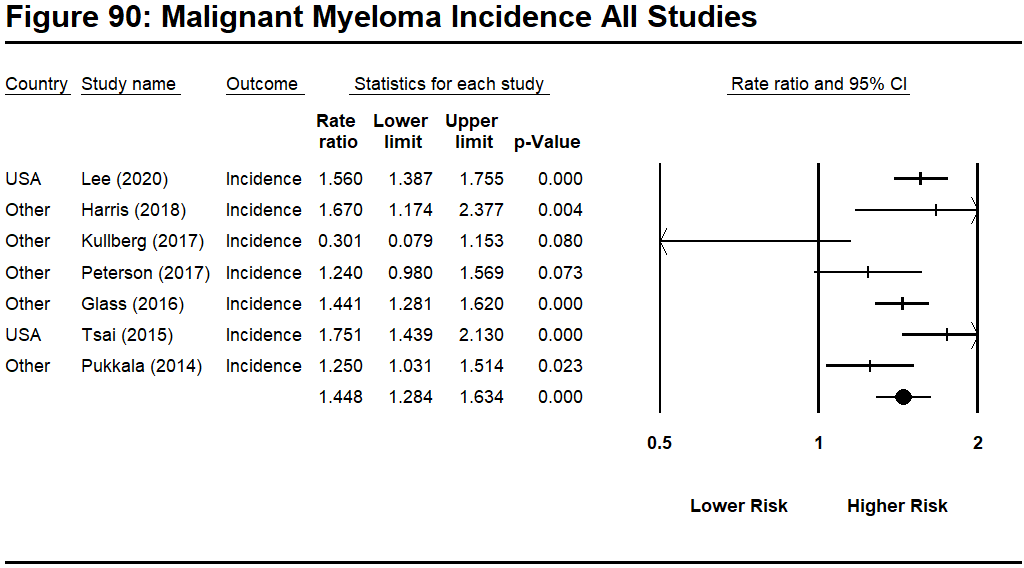
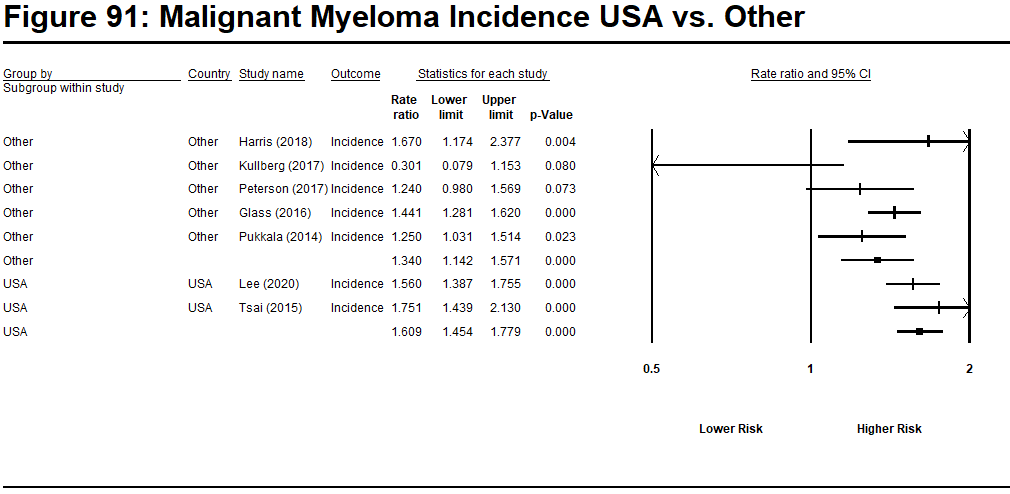
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.049 | 0.116 | 1.05 |
| Kulberg et al (2017) | Sweden | Incidence | -0.163 | 0.259 | 0.85 |
| Petersen et al (2017) | Denmark | Incidence | 0.000 | 0.056 | 1.00 |
| Brice, et al (2015) | French | Mortality | -0.431 | 0.503 | 0.65 |
| Pukkala et al (2014) | Nordic | Incidence | 0.285 | 0.094 | 1.33 |
| Kang et al (2008) | US | Incidence | 0.039 | 0.156 | 1.04 |

**Table 24.2: Malignant Melanoma**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020) | US | Incidence | 0.445 | 0.060 | 1.56 |
| Harris et al (2018) | Canada | Incidence | 0.513 | 0.180 | 1.67 |
| Kulberg et al (2017) | Sweden | Incidence | -1.204 | 0.685 | 0.30 |
| Petersen et al (2017) | Denmark | Incidence | 0.215 | 0.120 | 1.24 |
| Glass, et al (2016) | Australia | Incidence | 0.365 | 0.060 | 1.44 |
| Tsai et al (2015) | US | Incidence | 0.560 | 0.100 | 1.75 |
| Pukkala et al (2014) | Nordic | Incidence | 0.223 | 0.098 | 1.25 |

Table

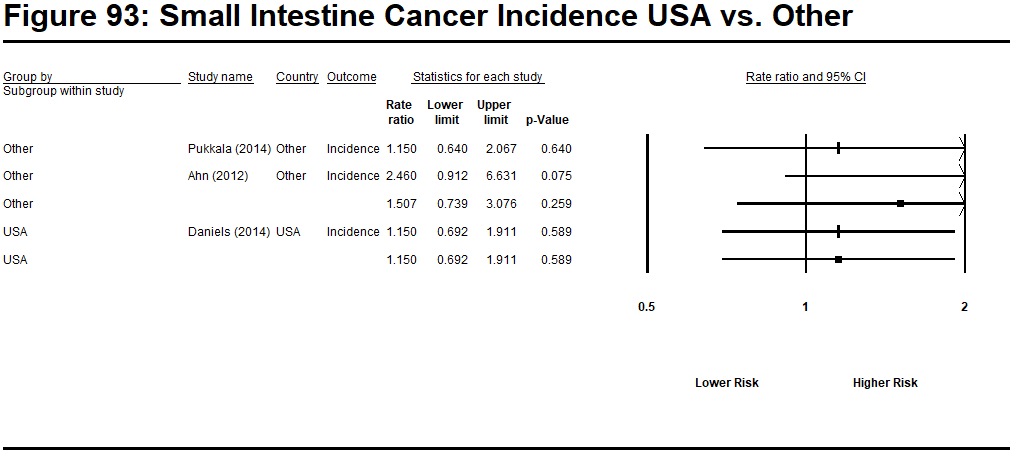
Description automatically generated with medium confidence



Note: No study provided estimates for Malignant Myeloma Mortality.

**Table 25: Small Intestine Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Ahn et al (2012) | Korea | Incidence | 0.900 | 0.506 | 2.46 |
| Daniels, et al (2014) | US | Incidence  Mortality | 0.140  0.507 | 0.259  0.386 | 1.15  1.66 |
| Pukkala et al (2014) | Nordic | Incidence | 0.140 | 0.299 | 1.15 |

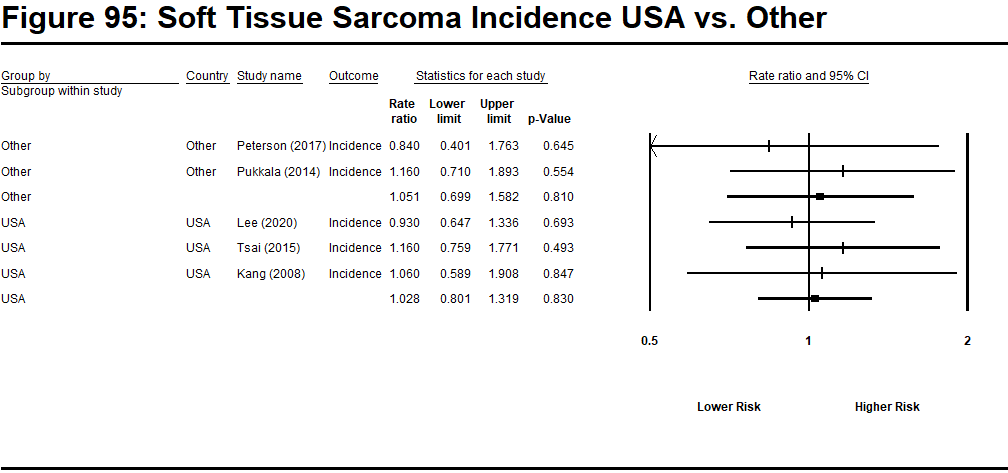
Table

Description automatically generated with medium confidence

Note: Only one study provided estimates for Small Intestine Cancer Mortality

**Table 26: Soft Tissue Sarcoma**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020) | US | Incidence | -0.073 | 0.185 | 0.93 |
| Muegge et al (2018) | US | Mortality | 0.916 | 0.449 | 2.50 |
| Petersen et al (2017) | Denmark | Incidence | -0.174 | 0.378 | 0.84 |
| Tsai et al (2015) | US | Incidence | 0.148 | 0.216 | 1.16 |
| Pukkala et al (2014) | Nordic | Incidence | 0.148 | 0.250 | 1.16 |
| Kang et al (2008) | US | Incidence | 0.058 | 0.300 | 1.06 |

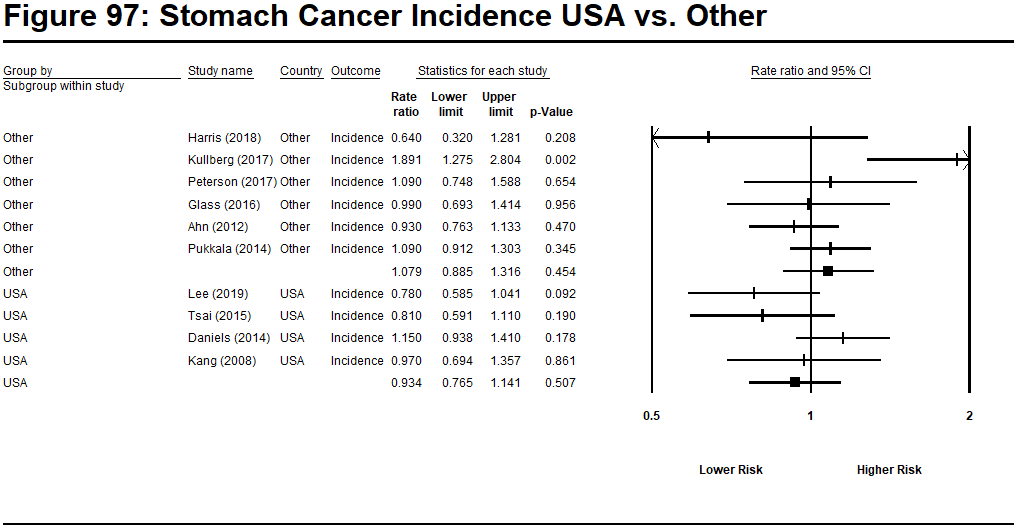
Chart, box and whisker chart

Description automatically generated

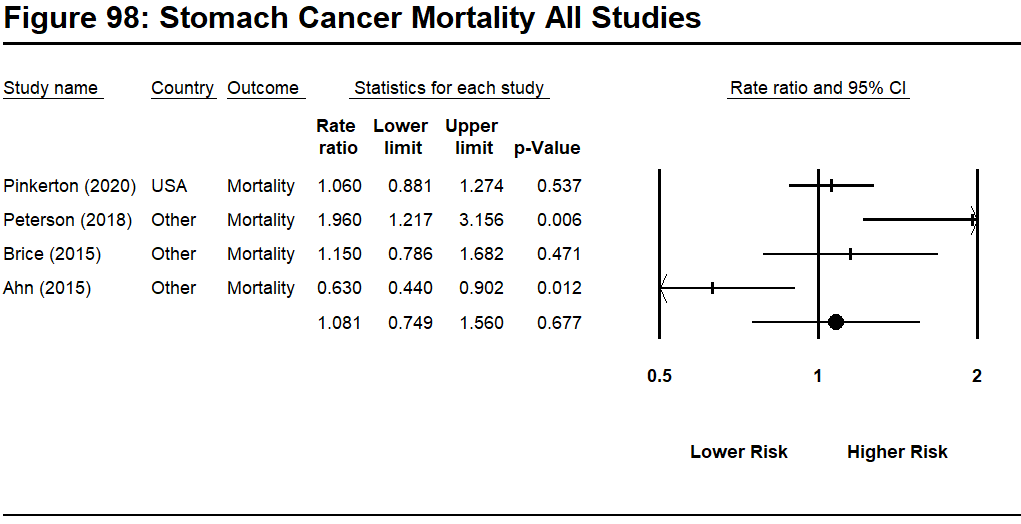
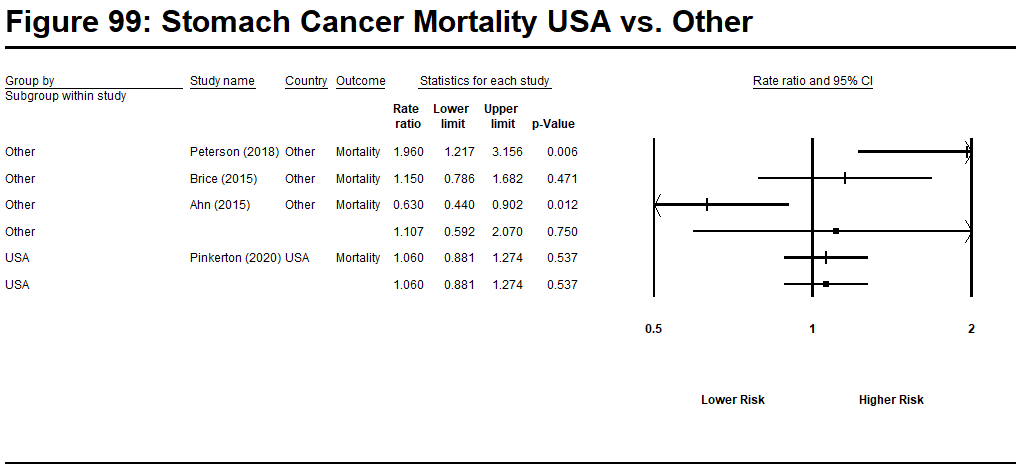
Note: Only one study provided estimates for Soft Tissue Sarcoma Mortality.

**Table 27: Stomach Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Pinkerton et al (2020) | US | Mortality | 0.058 | 0.094 | 1.06 |
| Lee et al (2019) | US | Incidence | -0.248 | 0.147 | 0.78 |
| Peterson et al (2018) | Denmark | Mortality | 0.673 | 0.243 | 1.96 |
| Harris et al (2018) | Canada | Incidence | -0.446 | 0.354 | 0.64 |
| Kulberg et al (2017) | Sweden | Incidence | 0.637 | 0.201 | 1.89 |
| Petersen et al (2017) | Denmark | Incidence | 0.086 | 0.192 | 1.09 |
| Glass, et al (2016) | Australia | Incidence | -0.010 | 0.182 | 0.99 |
| Tsai et al (2015) | US | Incidence | -0.211 | 0.161 | 0.81 |
| Brice, et al (2015) | French | Mortality | 0.140 | 0.194 | 1.15 |
| Ahn et al (2015) | Korea | Mortality | -0.462 | 0.183 | 0.63 |
| Ahn et al (2012) | Korea | Incidence | -0.073 | 0.101 | 0.93 |
| Daniels, et al (2014) | US | Incidence | 0.140 | 0.104 | 1.15 |
| Pukkala et al (2014) | Nordic | Incidence | 0.086 | 0.091 | 1.09 |
| Kang et al (2008) | US | Incidence | -0.030 | 0.171 | 0.97 |

Chart, box and whisker chart

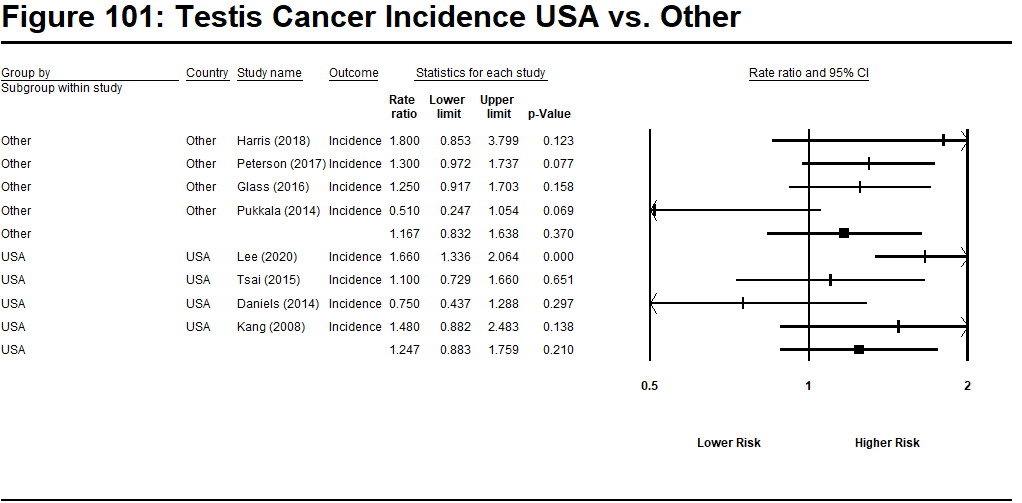
Description automatically generated



**Table 28: Testis Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020) | US | Incidence | 0.507 | 0.111 | 1.66 |
| Harris et al (2018) | Canada | Incidence | 0.588 | 0.381 | 1.80 |
| Petersen et al (2017) | Denmark | Incidence | 0.262 | 0.148 | 1.30 |
| Glass, et al (2016) | Australia | Incidence | 0.223 | 0.158 | 1.25 |
| Tsai et al (2015) | US | Incidence | 0.095 | 0.210 | 1.10 |
| Daniels, et al (2014) | US | Incidence  Morality | -0.288  -0.315 | 0.276  0.678 | 0.75  0.73 |
| Pukkala et al (2014) | Nordic | Incidence | -0.673 | 0.370 | 0.51 |
| Kang et al (2008) | US | Incidence | 0.392 | 0.264 | 1.48 |

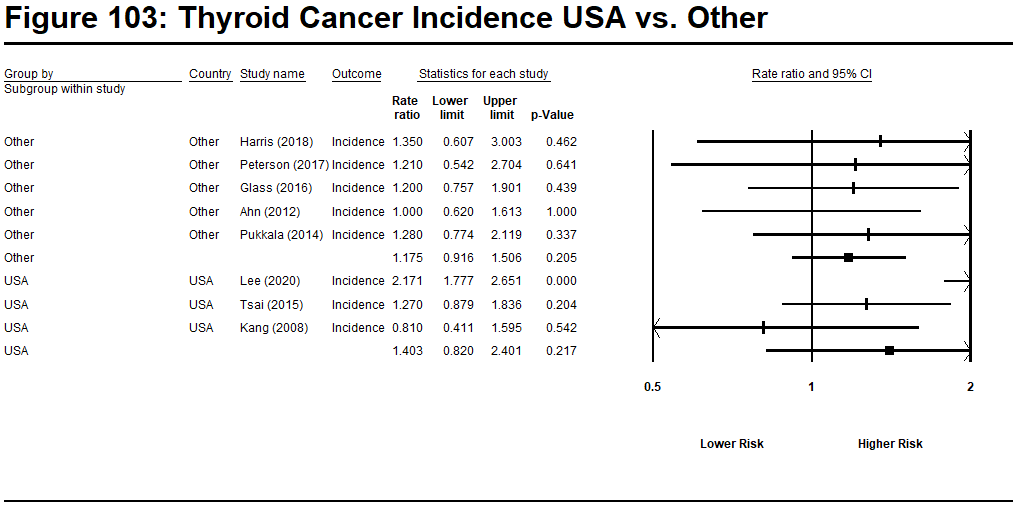
A picture containing box and whisker chart

Description automatically generated

Note: only one study provided estimates for testicular cancer mortality.

**Table 29: Thyroid Cancer**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Outcome** | **Rate Ratio (log)** | **Std Error (log)** | **Rate Ratio** |
| Lee et al (2020) | US | Incidence | 0.775 | 0.102 | 2.17 |
| Harris et al (2018) | Canada | Incidence | 0.300 | 0.408 | 1.35 |
| Petersen et al (2017) | Denmark | Incidence | 0.191 | 0.410 | 1.21 |
| Glass, et al (2016) | Australia | Incidence | 0.182 | 0.235 | 1.20 |
| Tsai et al (2015) | US | Incidence | 0.239 | 0.188 | 1.27 |
| Ahn et al (2012) | Korea | Incidence | 0.000 | 0.244 | 1.00 |
| Pukkala et al (2014) | Nordic | Incidence | 0.247 | 0.257 | 1.28 |
| Kang et al (2008) 3 | US | Incidence | -0.211 | 0.346 | 0.81 |



Table

Description automatically generated

**Table 30: Additional outcomes for Swedish cohort of the NOCCA study (Bigert et al., 2020 Swedish subsample)**

|  |  |  |
| --- | --- | --- |
| **Cancer Type** | **Risk Ratio** | **95% Confidence Interval** |
| All cancers | 1.03 | 0.97-1.09 |
| Buccal Cavity and Pharynx | 1.04 | 0.55-1.78 |
| Esophagus | 0.71 | 0.38-1.21 |
| Stomach | 1.08 | 0.83-1.39 |
| Colon | 1.01 | 0.82-1.23 |
| Rectum | 0.89 | 0.69-1.14 |
| Liver/Gallbladder | 0.89 | 0.50-1.47 |
| Pancreas | 1.17 | 0.85-1.58 |
| Larynx | 0.92 | 0.48-1.61 |
| Lung | 0.87 | 0.72-1.05 |
| Pleura (mesothelioma) | 1.11 | 0.45-2.29 |
| Soft Tissue Sarcoma | 1.46 | 0.82-2.41 |
| Malignant Melanoma | 1.22 | 0.95-1.54 |
| Skin | **1.48** | **1.20-1.80** |
| Prostate | 1.06 | 0.96-1.16 |
| Testis | 0.39 | 0.11-1.01 |
| Bladder | 1.08 | 0.89-1.31 |
| Brain | 0.89 | 0.63-1.23 |
| Multiple Myeloma | 1.25 | 0.82-1.83 |
| Leukemia | 0.94 | 0.65-1.33 |

Note: Participants were 8136 Swedish male firefighters. These firefighters were part of the larger NOCCA cohort presented in Pukkala et al, 2014