**Appendix 6: Outcome data from studies not included in meta-analysis**

**Age: categorical outcomes**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study code** | **Outcome (95%CI)** | **Risk factor** | **Reference**  | **Outcome (95%CI)** | **Risk factor** | **Reference**  |  | **Outcome (95%CI)** | **Risk factor** | **Reference**  |  |
| Agaba2017 | 0.74 (0.58-0.93)  | 15-49 | >50 |  |  |  |  |  |  |  |  |  |
| Ahonkhai2012a | 1.07 (0.97-1.19) | ≤35 | >35 |  |  |  |  |  |  |  |  |  |
| Allam2014 | 0.7 (0.46-1.05) | 15-30 | >45 |  | 0.79 (0.54-1.16) | 31-45 | >45 |  |  |  |  |  |
| Alvarez-Uria2013a | 1.33 (1.01-1.76) | ≤25 | 25-35 |  | 0.99(0.79-1.24) | 35-45 | 25-35 |  | 1.27(0.97-1.68) | >45 | 25-35 |  |
| Ambia2019 | 1.61 (0.95-2.72) | <20 | >50 |  | 1.89 (1.22-2.94) | 20-29 | >50 |  | 1.70 (1.09-2.64) | 30-39 | >50 | \*1 |
| Arnesen2017 | 1.65 (0.89-3.07) | ≤18 | >45 |  | 1.79 (1.05-3.07) | 18-35 | >45 |  | 1.57 (0.92-2.67) | 35-45 | >45 |  |
| Assemie2018 | 0.76 (0.5-1.16) | 29-34 | 15-28 |  | 0.85 (0.56-1.29) | 35-45 | 15-28 |  | 0.44 (0.24-0.83) | >45 | 15-28 |  |
| Auld2016a | 0.84 (0.8-0.88) | 20-25 | 15-20 |  | 0.7 (0.66-0.74) | 25-30 | 15-20 |  | 0.6 (0.56-0.64) | 30-40 | 15-20 | \*2 |
| Balde2019 | 0.93 (0.85-1.01) | 30-40 | ≤30 |  | 0.85 (0.77-0.93) | >40 | ≤30 |  |  |  |  |  |
| Bernard2018 | 0.83 (080-0.85) | 30-39 | 16-29 |  | 0.76 (0.73-0.79) | 40-49 | 16-29 |  | 0.78 (0.74-0.82) | 50-59 | 16-29 | \*3 |
| Blevins2015 | 0.6 (0.53-0.67) | 40  | 20 |  | 0.63 (0.51-0.78) | 60  | 20  |  |  |  |  |  |
| Bock2019 | 1.45 (0.86-2.45) | 15-25 | 26-35 |  | 1.12 (0.66-1.91) | 36-45 | 26-35 |  | 0.75 (0.36-1.58) | >45 | 26-35 |  |
| Boyles2011 | 0.69 (0.39-1.24) | ≤25 | 25-50 |  | 1.33 (0.92-1.93) | >50 | 25-50 |  |  |  |  |  |
| Charalambous2016 | 0.9 (0.81-1.00) | 30-40 | ≤30 |  | 0.96 (0.85-1.08) | 40-50 | ≤30 |  | 1.03 (0.89-1.21) | >50 | ≤30 |  |
| Dalhatu2016 | 0.92 (0.78-1.08) | 25-34 | 19-24 |  | 0.9 (0.73-1.09) | 35-44 | 19-24 |  | 0.75 (0.52-1.10) | 45-54 | 19-24 | \*4 |
| Evans2013 | 1.78 (1.34-2.36) | 20-25 | >25 |  | 0.43 (0.26-0.69) | 15-19 | >25 |  |  |  |  |  |
| Farahani2016 | 0.86 (0.82-0.89) | >40 | ≤40 |  |  |  |  |  |  |  |  |  |
| Gesesew2017 | 0.8 (0.6-1.3) | 25-50 | 15-25 |  | 0.9 (0.5-1.1) | 50+ | 15-25 |  |  |  |  |  |
| Honge2013 | 0.68 (0.54-0.86) | 30-39 | ≤30 |  | 0.62 (0.48-0.79) | >40 | ≤30 |  |  |  |  |  |
| Khumalo2016 | 0.63 (0.5-0.7) | 35-49 | 20-34 |  | 0.62 (0.5-0.8) | >50 | 20-34 |  |  |  |  |  |
| Koole2014a | 1.3 (1.14-1.47) | ≤30 | >30 |  |  |  |  |  |  |  |  |  |
| Lay2017 | 0.72 (0.55-0.94) | >40 | ≤40 |  |  |  |  |  |  |  |  |  |
| McNairy2017 | 1 (0.7-1.3) | 15-19 | 20-24 |  | 0.6 (0.6-0.7) | 25-39 | 20-24 |  | 0.5 (0.4-0.6) | 40-44 | 20-24 | \*5 |
| Melaku2015 | 0.77 (0.72-0.83) | 25-39 | 15-24 |  | 0.67 (0.6-0.75) | 40-49 | 15-24 |  | 0.67 (0.54-0.81) | 50+ | 15-24 |  |
| Meloni2014b | 0.81 (0.66-0.98) | 30-34 | <≤0 |  | 0.75 (0.59-0.95) | 35-40 | ≤30 |  | 0.66 (0.5-0.86) | >40 | ≤30 |  |
| Moyo2016 | 0.77 (0.7-0.86) | 30-39.9 | 18-29.9 |  | 0.72 (0.65-0.8) | 40-49.9 | 18-29.9 |  | 0.7 (0.61-0.8) | >50 | 18-29.9 |  |
| Mugisha2014 | 1.2 (0.7-2.2) | 15-20 | 31-40 |  | 1.4 (1.2-1.7) | 21-30 | 31-40 |  | 0.8 (0.7-0.9) | 41-50 | 31-40 | \*6 |
| Mulissa2010 | 0.9 (0.5-1.5) | >45 | <45 |  |  |  |  |  |  |  |  |  |
| Nakiwogga-Muwanga2014 | 1.56 (0.82-3.00) | >30 | ≤30 |  |  |  |  |  |  |  |  |  |
| Nglazi2011 | 0.74 (0.56-0.98) | 26-30 | ≤25 |  | 0.53 (0.4-0.69) | 31-40 | ≤25 |  | 0.48 (0.35-0.64) | >41 | ≤25 |  |
| Ochieng-Ooko2010 | 0.59 (0.55-0.64) | >36.2 | ≤36.2 |  |  |  |  |  |  |  |  |  |
| Onoka2012 | 0.93 (0.70-1.24) | >35 | ≤35 |  |  |  |  |  |  |  |  |  |
| Rachlis2016 | 0.7 (0.63-0.78) | 25-34.9 | ≤25 |  | 0.57 (0.51-0.63) | 35-44.9 | ≤25 |  | 0.56 (0.5-0.63) | 45+ | ≤25 |  |
| Teshome2015 | 0.59 (0.42-0.83) | 26-39 | 15-25 |  | 0.73 (0.5-1.07) | >40 | 15-25 |  |  |  |  |  |
| Tiruneh2016 | 1.34 (0.87-2.08) | 18-34 | >35 |  |  |  |  |  |  |  |  |  |
| Tweya2018 | 1.35 (1.21-1.49) | 15-24 | 25-34 |  | 0.7 (0.63-0.78) | 35-44 | 25-34 |  | 0.75 (0.65-0.88) | >45 | 25-34 |  |
| Vinikoor2014 | 0.76 (0.72-0.79) | 30-39 | 16-29 |  | 0.69 (0.65-0.73) | 40-49 | 16-29 |  | 0.71 (0.64-0.78) | 50-59 | 16-29 | \*7 |
| Wolff2018 | 0.93 (0.89-0.98) | 35 | 20 |  | 0.95 (0.93-0.97) | 35 | 25 |  | 1.05 (1.03-1.06)  | 35 | 45 | \*8 |
| Zhu2012 | 1.1 (1.02-1.19)  | 18-29 | >45 |  | 0.94 (0.88-1.00)  | 30-44 | >45 |  |  |  |  |  |
| Aliyu2015 | 1.0 (0.97-1.03) | Increase of 5  |  |  |  |  |  |  |  |
| Auld2015 | 0.89(0.82-0.97) | Increase of 10 |  |  |  |  |  |  |  |
| Balogun2019 | 0.96 (0.90-1.02) | Increase of 10 |  |  |  |  |  |  |  |
| Cichowitz2017 | 1.03 (0.97-1.08) | Increase of 5  |  |  |  |  |  |  |  |
| Hermanides2013 | 0.63 (0.41-0.98) | Increase of 10  |  |  |  |  |  |  |  |
| VanCutsem2011 | 0.94 (0.89-0.99) | Increase of 5 |  |  |  |  |  |  |  |
| Risk factor and reference in years.\* More than 3 categories reported. See below for results 1: Ambia 2019. Outcome (95% CI): 1.76 (1.09-2.83); risk factor 40-49; reference >50. 2: Auld 2016. Outcome (95% CI): 0.53 (0.49-0.57); risk factor >40; reference 15-203: Bernard2018. Outcome (95%CI): 0.97 (0.88-1.06); risk factor >60; reference 16-294: Dalhatu 2016. Outcome (95%CI): 0.89 (0.6-1.33); risk factor >55; reference 19-24 5: McNairy 2017. Outcome (95%CI): 0.5 (0.4-0.6); risk factor >45; reference 20-246: Mugisha 2014. Outcome (95%CI): 0.8(0.6-1.1); risk factor 51-60; reference 31-40. Outcome (95%CI): 0.8 (0.4-1.4); risk factor >60; reference 31-407: Vinikoor2014. Outcome (95%CI): 0.7 (0.58-0.85); risk factor 60-95; reference 16-29. 8: Wolff2018. Outcome (95% CI): 1.05 (1.03-1.08); risk factor 35; reference 55. Outcome (95%CI): 1.05 (1.01-1.10); risk factor 35; reference 65 |
|  |

**CD4 count: all study outcomes**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study code** | **Outcome** | **Risk factor** | **Reference**  | **Outcome (95%CI)** | **Risk factor** | **Reference**  | **Outcome (95%CI)** | **Risk factor** | **Reference**  |
| Ahonkhai2012a | 1.21 (0.99-1.49) | ≤50 | >200 |  | 1.03 (0.83-1.27) | 51-100 | >200 |  | 1.01 (0.83-1.23) | 101-200 | >200 |  |
| Akilimali2017 | 1.81 (0.95-3.42) | ≤250 | >250 |  |  |  |  |  |  |  |  |  |
| Aliyu2015 | 0.89 (0.82-0.97) | 50 | 200 |  | 1.08 (1.02-1.13) | 350 | 200 |  | 1.14 (1.04-1.25) | 500 | 200 |  |
| Allam2014 | 1.19 (0.85-1.67) | ≤100 | >200 |  | 0.99 (0.72-1.38) | 101-200 | >200 |  |  |  |  |  |
| Alvarez-Uria2013a | 1.59 (1.17-2.16) | ≤50 | 151-200 |  | 1.25 (0.95-1.65) | 51-100 | 151-200 |  | 1.14 (0.86-1.49) | 101-150 | 151-200 | \*1 |
| Arnesen2017 | 2.64 (1.61-4.35) | ≤200 | >500 |  | 1.24 (0.8-1.88) | 201-500 | >500 |  |  |  |  |  |
| Auld2015 | 1.01 (0.84-1.21) | 51-200 | >200 |  | 1.31 (1.09-1.57) | ≤50 | >200 |  |  |  |  |  |
| Auld2016a | 0.9 (0.88-0.93) | 51-200 | ≤50 |  | 0.93 (0.89-0.97) | 351-500 | ≤50 |  | 0.99 (0.92-1.06) | >500 | ≤50 | \*2 |
| Bernard2018 | 1.30 (1.23-1.37) | ≤50 | >350 |  | 1.14 (1.07-1.20) | 50-99 | >350 |  | *0.96 (0.91-1.01)~* | *100-199* | *>350* | \*3 |
| Blevins2015 | 1.23 (1.08-1.4) | 25 | 350 |  | 1.22 (1.07-1.4) | 50 | 350 |  | 1.2 (1.02-1.40) | 100 | 350 | \*4 |
| Bock2019 | 0.62 (0.36-1.05) | 351-500 | >500 |  | 0.68 (0.39-1.19) | 201-350 | >500 |  | 0.63 (0.33-1.19) | 0-200 | >500 |  |
| Boyles2011 | 1.76 (1.23-2.52) | ≤50 | 51-200 |  | 1.17 (0.73-1.86) | >200 | 51-200 |  |  |  |  |  |
| Charalambous2016 | 0.88 (0.7-1.11) | ≤50 | >350 |  | 0.89 (0.72-1.11) | 51-200 | >350 |  | *1.09 (0.86-1.37)~* | *201-350* | *>350* |  |
| Cornell2009 | 0.62 (0.37-1.05) | 51-100 | ≤50 |  | 0.57 (0.33-1.0) | 101-150 | ≤50 |  | 1.01 (0.64-1.59) | >150 | ≤50 |  |
| *Dalhatu2016~* | *0.98 (0.6-1.27)~* | *200-350* | *>350* |  | *1.19 (0.89-1.59)~* | *100-200* | *>350* |  | *1.1 (0.79-1.74)~* | *<100* | *>350* |  |
| Evans2012 | 1.19 (1.02-1.38) | ≤50 | >50 |  |  |  |  |  |  |  |  |  |
| Evans2013 | 1.01 (0.92-1.09) | 101-200 | 201-350 |  | 0.99 (0.9-1.09) | 51-100 | 201-350 |  | *1.04 (0.95-1.14)~* | ≤50 | *201-350* |  |
| Farahani2016 | 1.1 (1.05-1.15) | 50-250 | ≤50 |  | 0.77 (0.71-0.84) | 250-500 | ≤50 |  | 1.27 (1.10-1.48) | >500 | ≤50 |  |
| Fatti2012 | 1.06 (0.94-1.19) | 101-200 | 201-350 |  | 1.21 (1.06-1.37) | 51-100 | 201-350 |  | *1.36 (1.2-1.53)~* | ≤50 | *201-350* | \*5 |
| Fatti2016a | 1 (1.00-1.00) | Baseline CD4 count |  |  |  |  |  |  |  |  |  |
| *Fox2010b~* | *0.79 (0.5-1.25)* | ≤*200* | *>200* |  |  |  |  |  |  |  |  |  |
| *Gesesew2017~* | *1.8 (0.9-2.1)~* | *>200* | ≤*200* |  |  |  |  |  |  |  |  |  |
| Grimsrud2015a | 1.08 (0.94-1.24) | ≤50 | 151-200 |  | 0.98 (0.85-1.13) | 51-100 | 151-200 |  | 1 (0.87-1.14) | 101-150 | 151-200 | \*6 |
| Honge2013 | 2.71 (2.04-3.61) | ≤200 | >350 |  | *2.31 (1.71-3.13)~* | *201-350* | *>350* |  |  |  |  |  |
| Koole2014a | 0.88 (0.78-1.0) | 10fold increase |  |  |  |  |  |  |  |  |  |
| Kranzer2010 | 1.32 (0.99-1.76) | 101-200 | 100 |  | 1.39 (1.02-1.91) | >200 | 100 |  |  |  |  |  |
| *Lay2017~* | *1.11 (0.85-1.44)~* | ≤*200* | *>200* |  |  |  |  |  |  |  |  |  |
| McGuire2013 | 0.78 (0.66-0.93) | 51-100 | ≤50 |  | 0.83 (0.71-0.97) | 101-200 | ≤50 |  | 0.71 (0.59-0.85) | 201-250 | ≤50 | \*7 |
| *McNairy2017~* | *1.1 (1.0-1.3)~* | ≤*100* | *>350* |  | *0.8 (0.7-1.0)~* | *101-200* | *>350* |  | *0.8 (0.7-0.9)~* | *201-350* | *>350* |  |
| *Melaku2015~* | *1.43 (1.2-1.71)~* | ≤*100* | *>350* |  | *1.09 (0.91-1.31)~* | *101-200* | *>350* |  | *0.96 (0.78-1.19)~* | *201-350* | *>350* |  |
| Meloni2014b | 0.56 (0.47-0.68) | 51-100 | ≤50 |  | 0.34 (0.25-0.47) | 101-200 | ≤50 |  | 0.19 (0.16-0.24) | >200 | ≤50 |  |
| Mekonnen2019 | 0.58 (0.38-0.88) | 201-350 | ≤*200* |  | 1.37 (0.86-2.20) | 351-499 | ≤*200* |  | 1.10 (0.58-2.07) | >500 | ≤*200* |  |
| Mossdorf2011 | 2.55 (1.45-4.5) | ≤100 | >100 |  |  |  |  |  |  |  |  |  |
| *Mugisha2014~* | *0.6 (0.4-0.9)~* | ≤*100* | *>350* |  | *0.7 (0.5-0.9)~* | *101-200* | *>350* |  | *0.6 (0.5-0.8)~* | *201-350* | *>350* |  |
| *Nakiwogga-Muwanga2014~* | *4.71 (2.85-7.79)~* | ≤*200* | *>200* |  |  |  |  |  |  |  |  |  |
| *Nuwagaba2018~* | *1.02 (0.97-1.08)* | *≤100* | *>350* |  | *0.86 (0.81-0.91)* | *101-200* | *>350* |  | *0.81 (0.77-0.86)* | *201-350* | *>350* |  |
| *Ochieng-Ooko2010~* | *0.98 (0.91-1.06)~* | *>200* | ≤*200* |  |  |  |  |  |  |  |  |  |
| Odafe2012 | 1.16 (0.88-1.53) | ≤50 | >350 |  | 0.84 (0.65-1.10) | 51-200 | >350 |  | *0.9 (0.7-1.17)~* | *201-350* | *>350* |  |
| *Onoka2012~* | *0.69 (0.49-0.96)* | *>200* | *≤200* |  |  |  |  |  |  |  |  |  |
| *Reepalu2017~* | *0.8 (0.3-2.1)~* | *201-350* | *>350* |  | *1.6 (0.6-3.7)~* | *101-200* | *>350* |  | *0.9 (0.3-2.6)~* | ≤*100* | *>350* |  |
| *Schoni-Affolter2011~* | *1.84 (1.71-1.97)~* | ≤*100* | *>350* |  | *1.19 (1.11-1.29)~* | *101-200* | *>350* |  | *1.08 (1.0-1.17)~* | *201-350* | *>350* |  |
| Seifu2018 | 0.7 (0.5-1.0) | ≤200 | >350 |  | 0.6 (0.4-1.8) | 201-250 | >350 |  | 0.7 (0.6-1.0) | 251-300 | >350 | \*8 |
| Tang2017 | 1.08 (0.99-1.17) | 351-500 | <350 |  | 1.17 (1.03-1.33) | >500 | ≤350 |  |  |  |  |  |
| Teshome2015 | 0.92 (0.67-1.26) | >100 | ≤100 |  |  |  |  |  |  |  |  |  |
| Tiruneh2016 | 1.62 (1.03-2.55) | ≤100 | 101-200 |  | 2.06 (1.15-3.70) | >200 | 101-200 |  |  |  |  |  |
| Toure2008 | 1.1 (0.91-1.33) | 101-150 | >150 |  | 1.0 (0.83-1.21) | 51-100 | >150 |  | 1.01 (0.85-1.2) | ≤50 | >150 |  |
| Tran2013 | 0.75 (0.32-1.29) | 51-100 | <50 |  | 0.74 (0.18-1.26) | 101-200 | ≤50 |  | 0.49 (0.27-1.08) | 351-500 | ≤50 | \*9 |
| VanCutsem2011 | 1 (0.74-1.35) | ≤50 | >150 |  | 1.04 (0.8-1.37) | 51-150 | >150 |  |  |  |  |  |
| Vinikoor2014 | 1.02 (1.01-1.03) | per 50 increase |  |  |  |  |  |  |  |
| *Wubshet2012~* | *1.33 (0.95-1.88)~* | *<200* | ≤*200* |  |  |  |  |  |  |  |  |  |
| Zhu 2012 | 1.76 (1.55-2.0) | >350 | ≤50 |  | 0.99 (0.93-1.05) | 51-200 | ≤50 |  | *1.07 (1.0-1.14)~* | *201-350* | ≤*50* |  |
| Risk factor and reference in cells/mm3. \* More than 3 categories reported. See below for results~ *Data already included in meta-analysis*1: Alvarez-Uria2013: Outcome (95%CI): 1.11 (0.84-1.46); risk factor >200; reference 151-2002: *Auld2016a~. Outcome (95%CI): 0.85 (0.82-0.88); risk factor 201-350; reference* ≤*50* 3: *Bernard2018*~*. Outcome (95%CI): 0.91 (0.87-0.96); risk factor 200-350; reference >350*4: Blevins2015. Outcome (95%CI): 1.1(1.02-1.19); risk factor 200; reference 3505: *Fatti2012~. Outcome (95%CI): 0.98 (0.77-1.23); risk factor >350; reference 201-350* 6: Grimsrud2015a. Outcome (95%CI): 0.89 (0.77-1.04); risk factor 201-250; reference 151-200; Outcome (95%CI): 1.18 (0.95-1.46); risk factor 251-300; reference 151-200; Outcome (95%CI): 1.35(1.12- 1.63); risk factor >300; reference 151-200. 7: McGuire 2013; Outcome (95%CI): 0.9 (0.75-1.07); risk factor >250; reference ≤50. 8: Seifu 2018; Outcome (95%CI): 0.9 (0.1-1.8); risk factor 301-350; reference >3509: Tran 2013; Outcome (95%CI): 0.41 (0.31-1.09); risk factor >500; reference ≤50; *Outcome (95%CI) 0.5 (0.29-1.12)~; risk factor 201-350; reference* ≤*50* |
|  |

**Year of initiation – categorical outcomes**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study code** | **Outcome (95%CI)** | **Risk factor** | **Reference** |  | **Outcome (95%CI)** | **Risk factor** | **Reference** |  | **Outcome (95%CI)** | **Risk factor** | **Reference** |  | **Outcome (95%CI)** | **Risk factor** | **Reference** |  |
| Ahonkhai2012a | 0.49 (0.39-0.62) | 2008 | 2004 |  | 0.66 (0.53-0.83) | 2007 | 2004 |  | 0.8 (0.64-0.99) | 2006 | 2004 |  | 0.96 (0.77-1.19) | 2005 | 2004 |  |
| Alvarez-Uria2013a | 0.61 (0.41-0.89) | 2011 | 2010 |  | 1.05 (0.8-1.39) | 2009 | 2010 |  | 1.28 (0.97-1.68) | 2008 | 2010 |  | *1.36 (1.03-1.81)~* | *2007* | *2010* |  |
| Auld2014b | 1.34 (0.98-1.85) | 2005 | 2004 |  | 2.16 (1.63-2.88) | 2006 | 2004 |  | 2.98 (2.17-4.09) | 2007 | 2004 |  |  |  |  |  |
| Auld2016a | 0.92 (0.72-1.16) | 2005 | 2004 |  | 1.09 (0.89-1.34) | 2006 | 2004 |  | 1.25 (1.02-1.53) | 2007 | 2004 |  | 1.43 (1.15-1.77) | 2008 | 2004 | \*1 |
| Ambia 2019 | 1.71 (1.24-2.36) | 2015 | 2014 |  | 3.41 (2.31-5.02) | 2016 | 2014 |  | 5.16 (1.71-15.53) | 2017 | 2014 |  |  |  |  |  |
| Balde 2019 | 0.75 (0.66-0.85) | 2008-2009 | 2006-2007 |  | 1.71 (1.53-1.91) | 2010-2012 | 2006-2007 |  | 2.71 (2.37-3.10) | 2013 | 2006-2007 |  |  |  |  |  |
| Balogun2019 | 3.15 (2.74-3.61) | 2011 | 2010 |  | 1.04 (0.89-1.20) | 2012 | 2010 |  | 0.88 (0.71-1.08) | 2013 | 2010 |  | 1.21 (0.99-1.48) | 2014 | 2010 |  |
| Bernard2018 | 1.01 (0.98-1.05) | 2007-2010 | <2007 |  | 1.63 (1.57-1.69) | >2010 | <2007 |  |  |  |  |  |  |  |  |  |
| Blevins2015 | 1.73 (1.49-2.02) | 2008 | 2007 |  | 1.65 (1.42-1.92) | 2009 | 2007 |  | 3.46 (2.76-4.35) | 2011 | 2007 |  | *2.17 (1.85-2.54)~* | *2010* | *2007* |  |
| Bock2019 | 1.60 (1.00-2.57) | 2015 | 2014 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dalhatu2016 | 1.4 (1.0-1.9) | 2007-2009 | 2004-2006 |  | 1.83 (1.0-3.1) | 2010-2012 | 2004-2006 |  |  |  |  |  |  |  |  |  |
| Farahani2016 | 0.56 (0.53-0.59) | >2008 | <2008 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Fatti2011a | 2.25 (1.95-2.59) | 2008-2009 | 2004-2005 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lay2017 | 1.31 (1.03-1.67) | 2007-2010 | 2003-2006 |  | 1.28 (0.87-1.88) | 2011-2013 | 2003-2006 |  |  |  |  |  |  |  |  |  |
| McGuire2013 | 1.02 (0.87-1.19) | 2008 | 2007 |  | 0.9 (0.77-1.06) | 2009 | 2007 |  | *0.78 (0.63-0.97)~* | *2010* | *2007* |  |  |  |  |  |
| McNairy2017 | 0.6 (0.4-0.8) | 2008 | 2007 |  | 0.6 (0.5-0.8) | 2009 | 2007 |  | 0.7 (0.5-0.9) | 2011 | 2007 |  | 0.9 (0.7-1.1) | 2012 | 2007 | \*2 |
| Meloni2014b | 1.24 (1.11-1.37) | 2006 | 2004-2005 |  | 1.74 (1.34-2.27) | 2007 | 2004-2005 |  | 1.52 (1.2-1.93) | 2008 | 2004-2005 |  | 1.89 (1.60-2.23) | 2009 | 2004-2005 | \*3 |
| Mugisha2014 | 0.3 (0.1-0.9) | 2005 | 2010 |  | 0.5 (0.3-1.0) | 2006 | 2010 |  | 0.6 (0.4-0.8) | 2008 | 2010 |  | 0.7 (0.6-0.9) | 2009 | 2010 | \*4 |
| Mulissa2010 | 2 (1.1-2.9) | rapid scale-up | early |  | 2.1 (1.2-3.8) | Recent | early |  |  |  |  |  |  |  |  |  |
| Nglazi2011 | 1.76 (1.24-2.48) | 2004 | 2002 |  | 3.14 (2.24-4.39) | 2005 | 2002 |  | 3.64 (2.54-5.22) | 2006 | 2002 |  | 4.86 (3.32-7.11) | 2007 | 2002 |  |
| Nuwagaba2018 | 0.98 (0.90-1.07) | 2005-2009 | 2000-2004 |  | 1.29 (1.17-1.41) | 2010-2012 | 2000-2004 |  | 1.21 (1.08-1.35) | 2013-2014 | 2000-2004 |  |  |  |  |  |
| Ochieng-Ooko2010 | 0.85 (0.79-0.9) | 2005-2007 | 2001-2004 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rachlis2016 | 1.07 (1.02-1.12) | 2007-2009 | 2000-2006 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tran2013 | 0.73 (0.32-1.46) | 2006 | 2005 |  | 0.76 (0.28-0.93) | 2007 | 2005 |  | 0.82 (0.48-0.94) | 2008 | 2005 |  | 0.85 (0.32-0.91) | 2009 | 2005 |  |
| VanCutsem2011 | 3.22 (2.09-4.95) | 2004 | 2001-2003 |  | 5.71 (3.66-8.92) | 2005 | 2001-2003 |  | 12.42 (7.84-19.69) | 2006 | 2001-2003 |  | 14.75 (8.35-26.07) | 2007 | 2001-2003 |  |
| Vinikoor2014 | 1.64 (1.55-1.73) | 2007-2011 | 2004-2006 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wolff2018 | 0.95 (0.92-0.98) | 2008 | 2003 |  | 0.9 (0.88-0.92) | 2008 | 2004 |  | 0.88 (0.86-0.90) | 2008 | 2005 |  | 0.91 (0.89-0.93) | 2008 | 2006 | \*5 |
| Zhu2012 | 3.29 (2.84-3.81 | 2003-2004 | 2009-2010 |  | 1.7 (1.58-1.83) | 2005-2006 | 2009-2010 |  | 1.25 (1.17-1.32) | 2007-2008 | 2009-2010 |  |  |  |  |  |
| Risk factor and reference: ‘year of initiation’ \* More than 4 categories reported. See below for results~ *Data already included in meta-analysis*1: Auld 2016. Outcome (95%CI): 1.42(1.06-1.91); risk factor 2009; reference 2004. Outcome (95%CI): 1.63 (1.12-2.36); risk factor 2010; reference 2009. Outcome (95%CI): 1.98 (1.3-3.01); risk factor 2011; reference 2004. Outcome (95%CI): 2.45 (1.55-3.86); risk factor 2011; reference 2004. Outcome (95%CI): 2.73 (1.59-4.67); risk factor 2013; reference 2004. 2: McNairy2017. Outcome (95%CI): 1.0 (0.8-1.3); risk factor 2013; reference 2007; *Outcome (95%CI): 0.5 (0.4-0.7)~; risk factor 2010; reference 2007.*3: Meloni2014b. Outcome (95%CI): 2.12 (1.58-2.86); risk factor 2010-2011; reference 2004-2005. 4: *Mugisha2014~. Outcome (95%CI): 0.5 (0.3-0.7)~; risk factor 2007; reference 2010.* 5: Wolff2018. Outcome (95%CI): 0.96 (0.95-0.97); risk factor 2008; reference 2007. Outcome (95%CI): 0.99 (0.98-1.0); risk factor 2008; reference 2009. Outcome (95%CI): 0.91 (0.9-0.92); risk factor 2008; reference 2010. Outcome (95%CI): 0.79 (0.77-0.81); risk factor 2008; reference 2011. Outcome (95%CI): 0.66 (0.63-0.69); risk factor 2008; reference 2012. Outcome (95%CI): 0.55 (0.52-0.59); risk factor 2008; reference 2013. Outcome (95%CI): 0.46 (0.43-0.5); risk factor 2008; reference 2014.  |
|  |

**Hemoglobin/ anemia**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study code** | **Outcome (95%CI)** | **Risk factor** | **Reference**  |  | **Outcome (95%CI)** | **Risk factor** | **Reference**  |  | **Outcome (95%CI)** | **Risk factor** | **Reference**  |
| Auld2015 | 1.48 (1.01-2.18) | <8 | ≥8 |  |  |  |  |  |  |  |  |
| Bernard2018 | 1.20 (1.12-1.28) | 10-12 >12 |  | 1.42 (1.33-1.52) | 7.5-10 | >12 |  | 1.64 (1.50-1.80) | <7.5 | >12 |
| Blevins2015 | 0.94 (0.91-0.97) | 1 higher |  |  |  |  |  |  |  |  |
| Dalhatu2016 | 1.21 (0.93-1.59) | mild anemia1 | No anemia2 |  | 1.46 (1.13-1.9) | Moderate anemia3 | No anemia2 |  | 1.38 (1.0-1.9) | Severe anemia4 | No anemia2 |
| Evans2012a | 1.4 (1.25-1.56) | <10 | ≥10 |  |  |  |  |  |  |  |  |
| Evans2013 | 1.39 (1.26-1.53) | <8 | ≥8 |  |  |  |  |  |  |  |  |
| Moyo2016 | 1.22 (1.24-1.39) | mild anemia1 | No anemia2 |  | 1.13 (1.15-1.31) | moderate anemia 3 | no anemia2 |  | 1.61 (1.49-1.73) | Severe anemia4 | No anemia2 |
| Shroufi2013 | 1.16 (0.81-1.65) | <11 | ≥11 |  |  |  |  |  |  |  |  |
| Toure2008 | 1.07 (1.03-1.13) | 1 lower |  |  |  |  |  |  |  |  |
| Zhu2012 | 1.24 (1.1-1.39)  | <8 | ≥8 |  |  |  |  |  |  |  |  |
| Risk factor and reference are hemoglobine (g/dl) unless otherwise specified below1: mild anemia (11-12.9 for men; 11-11.9 for women)2: no anemia (≥13 for men; ≥12 for women)3: moderate anemia (8-10.9 for both men and women)4: severe anemia (<8 for both men and women) |
|  |

**Alcohol use**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Study code** | **Outcome (95%CI)** | **Risk factor** | **Reference**  |  | **Outcome (95%CI)** | **Risk factor** | **Reference**  |
| Akilimali2017 | 1.29 (0.82-2.04) | yes 1 | no |  |  |  |  |
| Deribe2008 | 1.02 (0.49-2.12) | sometimes | never |  | 3.57 (1.78-7.14) | most of the time | never |
| Gross2016 | 1.4 (0.98-2.0) | Yes2 | no |  |  |  |  |
| Cichowitz2017 | 3.89 (1.7-8.97) | CAGE≥23 | CAGE<2 |  |  |  |  |
| Pecoraro2015 | 2.76 (2.18-3.4) | Yes4 | no  |  |  |  |  |
| 1: no further definition2: in the past year; 14 or more units for men; 7 or more for women3: CAGE screening tool; maximum 4 points. 4: in the last 30 days  |
|  |

**Clinic size**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Study code** | **Outcome (95%CI)** | **Risk factor1** | **Reference1**  |  | **Outcome (95%CI)** | **Risk factor1** | **Reference1**  |
| Auld2014b | 1.14 (0.65-1.99) | ≤1000 | >1000 |  |  |  |  |
| Auld2016a | 0.84 (0.64-1.11) | 5th quintile | 1st quintile |  |  |  |  |
| Bernard2018 | 1.02 (0.98-1.05) | 500-1000 | ≤500 |  | 0.71 (0.68-0.74) | >1000 | ≤500 |
| Dalhatu2016 | 0.69 (0.45-1.1) | 500-1500 | >1500 |  | 1.63 (1.1-2.4) | ≤500 | >1500 |
| Ahonkhai2012a | 0.53 (0.29-0.97) | 101-500 | ≤100 |  | 0.58 (0.23-1.48) | 501-1000 | ≤100 \*2 |
| Fatti2011a | 1.67 (1.52-1.83) | >950 | ≤950 |  |  |  |  |
| McNairy2017 | 1.6 (1.5-1.8) | >1000 | ≤1000 |  |  |  |  |
| Tweya2018 | 0.25 (0.2-0.3) | ≤400/yr | >400/yr |  |  |  |  |
| \* More than 2 categories reported. See below for results1: number of patients unless stated otherwise 2: HR 0.74 (0.31-1.74) risk factor >1000, reference ≤100 |