S1 Table. Parameter table

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| --- | --- | --- | --- |
| **Parameter** | **Value (95% uncertainty interval)** | **Source** | **In PSA?** |
| *Cohort generation* |
| Fraction of incident cohort with RR-TB | 0.016 (0.010 - 0.022) | WHO 2022 [1] | Yes  |
| Fraction of recorded SINAN deaths that are true deaths | 0.71 | Chitwood 2022 [2] | No  |
| Additional uncertainty in total TB incidence | 1 (0.96 – 1.04)  | Annual variation in SINAN treatment notifications 2017 – 2019 | Yes |
| *Mortality* |
| Background mortality rate (per year) | see S2 Fig | UN Pop Division 2023 [3] | No |
| Mortality rate for individuals with late TB (vs. background) | see S2 Fig | Base rate calibrated to available data; age-dependent adjustment from SINAN | Yes (base rate) |
| Mortality rate ratio of HIV (vs. no HIV) | 4.54 (3.40 – 5.67) | Calibrated to available data | Yes |
| Mortality rate ratio for cured late TB (vs. background) | 1.14 (1.10 – 1.18) | Menzies 2021 [4] | Yes |
| Mortality rate ratio for TB treatment following false-positive diagnosis (vs. background) | 1.07 (1.02 – 1.13) | Blount 2010 [5] | Yes  |
| *Cure/treatment failure* |
| Rate of self-cure with late TB (per year) | 0.10 (0.05 – 0.15) | Tiemersma 2011 [6] | Yes |
| Rate ratio of self-cure with early TB, compared with late TB | 2.0 (1.5 – 2.5) | Assumption\* | Yes |
| Rate of treatment completion for first line regimen (per year)  | 2.0 | Assumed 6-month treatment duration | No |
| Rate of treatment completion for second line regimen (per year)  | 0.67 | Assumed 18-month treatment duration [7] | No |
| Probability of cure for individuals with RS-TB completing the first-line regimen | 0.96 (0.92 – 0.98) | Cox 2008 [8] | Yes |
| Risk ratio of cure for individuals with RR-TB completing the first-line regimen (vs. RS-TB receiving first-line regimen) | 0.20 (0.10 - 0.30) | Miglori 2002 [9] |   |
| Risk ratio of cure for individuals with RR-TB completing the second-line regimen (vs. RS-TB receiving first-line regimen) | 0.93 (0.89 - 0.96)  | Miglori 2002 [9] | Yes |
| Rate of return to treatment from undiagnosed treatment failure (late TB) (per year) | 2.53 (1.27 - 3.80) | Maior 2012 [10] | Yes |
| Rate ratio of return to treatment from undiagnosed treatment failure (early TB), compared with late TB | 0.100 (0.075 - 0.125) | Assumption\* | Yes |
| Probability of identifying treatment failure given treatment completion without cure | 0.10 (0.05 - 0.20) | SINAN | Yes |
| *Diagnosis* |
| Rate of presentation for diagnosis with undiagnosed late TB (per year) | see S2 Table | Calibrated to available data | Yes (ratio from baseline) |
| Rate ratio of presentation for diagnosis with undiagnosed early TB, compared with late TB | 0.100 (0.075 - 0.125) | Assumption\* | Yes |
| Sensitivity of diagnostic testing | 0.87 (0.80 - 0.95) | Derived from sensitivity, specificity, and fraction of SINAN cases with clinical vs bacteriologic testing | Yes |
| Specificity of diagnostic testing | 0.92 (0.85 - 0.99) | Derived from sensitivity, specificity, and fraction of SINAN cases with clinical vs bacteriologic testing | Yes |
| Fraction of TB treatment cohort with no TB (misdiagnosed) | 0.095 (0.033 - 0.157) | Assumption\* | Yes |
| *Drug resistance* |
| Probability of testing for drug resistance upon TB diagnosis | 0.30 (0.25 - 0.35) | SINAN | Yes |
| Probability of testing for drug resistance on TB retreatment | 0.38 (0.32 – 0.44) | SINAN | Yes |
| Rate of drug resistance acquisition on first line TB treatment (per year) | 0.010 (0.006 - 0.016) | Menzies 2012 [11] | Yes |
| *Loss to follow up* |
| Probability of loss to follow up between TB diagnosis and treatment initiation (primary loss to follow-up) | 0.05 (0.04 - 0.06) national average; see S2 Table for state-level estimates | Assumption\* (national average), SINAN loss to follow-up (state-level) | Yes  |
| Rate of loss to follow up from TB treatment (per year) | See S2 Table | SINAN | Yes |
| Rate of return from loss to follow up (late TB) to treatment (per year) | 2.53 (1.27 - 3.80) | Maior 2012 [10] | Yes |
| Rate ratio of return from loss to follow up (early TB), compared with late TB | 0.100 (0.075 - 0.125) | Assumption\* | Yes |
| *Progression* |
| Rate of disease progression from early to late TB with HIV negative TB (per year) | 2.0 (1.5 - 3.0) | Ku 2021 [12] | Yes  |
| Rate of disease progression from early to late TB with HIV positive TB (per year) | 9.0 (4.5 - 13.5) | Ku 2021 [12] | Yes |
| *Disability weights* |
| Disability weight for HIV negative TB | 0.333 (0.250 - 0.417)  | Salomon 2015 [13] | Yes |
| Disability weight for HIV positive TB | 0.400 (0.300 - 0.500) | Salomon 2015 [13] |   |
| Disability weight for HIV (no TB) | 0.200 (0.150 - 0.250) | Salomon 2015 [13] | Yes |
| Disability weight for cured late TB | 0.036 (0.027 - 0.045) | Salomon 2015 [13] | Yes |
| Disability weight for TB treatment for TB negative patient  | 0.049 (0.036 - 0.060) | Salomon 2015 [13] | Yes |
| *Costs* |
| Cost of TB diagnosis | 54.3 (27.2 - 108.7) | Nsengiyumva 2022 [14] | Yes |
| Diagnostic cost for RR-TB from treatment failure state | 16.6 (8.4 - 33.4) | Nsengiyumva 2022 [14] | Yes |
| Monthly treatment cost for RS-TB | 144 (108 - 180) | Nsengiyumva 2022 [14] | Yes |
| Monthly treatment cost for RR-TB | 619 (464 - 773) | Nsengiyumva 2022 [14] | Yes |
| Monthly primary care cost for untreated TB | 33.4 (16.7 - 66.8) | Nsengiyumva 2022 [14] | Yes |

\* Parameters based on assumption were determined through discussion between study investigators and Ministry of Health staff and informed with programmatic data where available. HIV: Human Immunodeficiency Virus, RS/RR: rifampin-susceptible/resistant, TB: Tuberculosis

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