

- (01) Additional at risk fraction from affliction cross impact = Maximum additional at risk fraction from affliction cross impact * Affliction prevalence
- (02) Additional at risk fraction from living conditions = Maximum additional at risk fraction from living conditions * Adverse living conditions prevalence
- (03) Adverse living conditions for full program demand = 0.2
- (04) Adverse living conditions prevalence = INTEG(Increase in ALC prevalence - Reduction in ALC prevalence , Adverse living conditions prevalence initial)
- (05) Adverse living conditions prevalence initial = 0.2216
- (06) Affliction burden = Affliction prevalence * Effect of programs on affliction severity * 365
- (07) Affliction burden initial = INITIAL(Affliction burden)
- (08) Affliction incidence = MAX (0, At risk fraction - Affliction prevalence) * Incidence rate for nonafflicted at risk
- (09) Affliction mortality = Affliction prevalence * Affliction mortality rate
- (10) Affliction mortality rate = Baseline affliction mortality rate * Effect of programs on affliction severity
- (11) Affliction prevalence = INTEG(Affliction incidence - Affliction mortality - Affliction recovery , Affliction prevalence initial)
- (12) Affliction prevalence for full program demand = 0.2
- (13) Affliction prevalence initial = 0.1675
- (14) Affliction programs = MIN (1, MIN (Demand for affliction programs , Internal capacity for affliction programs) + Assistance for affliction programs)
- (15) Affliction recovery = Affliction prevalence * Affliction recovery rate
- (16) Affliction recovery rate = Baseline affliction recovery rate * Effect of programs on affliction recovery
- (17) Assistance for affliction programs = Fraction of assistance to affliction programs * Max boost in affliction programs from assistance * IF THEN ELSE (Time >= Start time for outside assistance , IF THEN ELSE (Time < End time for outside assistance , 1, 0) , 0)
- (18) Assistance for living conditions programs = Max boost in living conditions programs from assistance * Fraction of assistance to living conditions programs * IF THEN ELSE (Time >= Start time for outside assistance , IF THEN ELSE (Time < End time for outside assistance , 1, 0) , 0)
- (19) At risk fraction = MIN (1, Baseline at risk fraction + Additional at risk fraction from living conditions + Additional at risk fraction from affliction cross impact)

- (20) Avg affliction burden = INTEG(Chg in avg affliction burden , Affliction burden initial)
- (21) Avg ALC prevalence = INTEG(Chg in wtd avg ALC prevalence , Adverse living conditions prevalence initial)
- (22) Avg commun strength = INTEG(Chg in avg commun strength , Community strength initial)
- (23) Baseline adverse living conditions prevalence = 0.26
- (24) Baseline affliction mortality rate = 0.005
- (25) Baseline affliction recovery rate = 0.1
- (26) Baseline at risk fraction = 0.1
- (27) Baseline community strength = 0.4
- (28) Baseline contagious incidence rate = 0.6
- (29) Baseline noncontagious incidence rate = 0.1
- (30) Chg in avg affliction burden = IF THEN ELSE (Time >= Start time for computing cumul avgs , (Affliction burden - Avg affliction burden) / (Time - Start time for computing cumul avgs + TIME STEP) , 0)
- (31) Chg in avg commun strength = IF THEN ELSE (Time >= Start time for computing cumul avgs , (Community strength - Avg commun strength) / (Time - Start time for computing cumul avgs + TIME STEP) , 0)
- (32) Chg in wtd avg ALC prevalence = IF THEN ELSE (Time >= Start time for computing cumul avgs , (Adverse living conditions prevalence - Avg ALC prevalence) / (Time - Start time for computing cumul avgs + TIME STEP) , 0)
- (33) Community strength = INTEG(Increase in community strength - Reduction in community strength , Community strength initial)
- (34) Community strength boost from assistance = Fraction of assistance to community building * Max boost in community strength from assistance * IF THEN ELSE (Time >= Start time for outside assistance , IF THEN ELSE (Time < End time for outside assistance , 1, 0) , 0)
- (35) Community strength development time = 4
- (36) Community strength erosion time = 8
- (37) Community strength initial = 0.2945
- (38) Demand for affliction programs = MIN (1, Affliction prevalence / Affliction prevalence for full program demand)

- (39) Demand for living conditions programs = $\text{MIN} (1, \text{Adverse living conditions prevalence} / \text{Adverse living conditions for full program demand})$
- (40) Effect of max professional work on community strength = 0.5
- (41) Effect of max programs on adverse conditions = 0.5
- (42) Effect of max programs on affliction incidence = 0.6
- (43) Effect of max programs on affliction recovery = 2
- (44) Effect of max programs on affliction severity = 0.6
- (45) Effect of max public work on community strength = 2
- (46) Effect of max social disparity on community strength = 0.5
- (47) Effect of professional work on community strength = $1 + (\text{Effect of max professional work on community strength} - 1) * \text{Professional work programs}$
- (48) Effect of programs on adverse living conditions = $1 + (\text{Effect of max programs on adverse conditions} - 1) * \text{Living conditions programs}$
- (49) Effect of programs on affliction incidence = $1 + (\text{Effect of max programs on affliction incidence} - 1) * \text{Affliction programs}$
- (50) Effect of programs on affliction recovery = $1 + (\text{Effect of max programs on affliction recovery} - 1) * \text{Affliction programs}$
- (51) Effect of programs on affliction severity = $\text{DELAY1} (1 + (\text{Effect of max programs on affliction severity} - 1) * \text{Affliction programs} , \text{Time for programs to affect affliction severity})$
- (52) Effect of public and professional work on community strength = $\text{Effect of public work on community strength} * \text{Effect of professional work on community strength}$
- (53) Effect of public work on community strength = $1 + (\text{Effect of max public work on community strength} - 1) * \text{Public work programs}$
- (54) Effect of social disparity on community strength = $1 + (\text{Effect of max social disparity on community strength} - 1) * \text{Social disparity}$
- (55) Efforts to build community strength = $\text{MAX} (0, \text{Baseline community strength} - \text{Community strength}) + \text{Community strength boost from assistance}$
- (56) End time for outside assistance = 12
- (57) FINAL TIME = 20
- (58) Fraction of assistance to affliction programs = 1

- (59) Fraction of assistance to community building = $1 - \text{Fraction of assistance to affliction programs} - \text{Fraction of assistance to living conditions programs}$
- (60) Fraction of assistance to living conditions programs = 0
- (61) Incidence rate for nonafflicted at risk = $(\text{Baseline noncontagious incidence rate} + \text{Baseline contagious incidence rate} * \text{Affliction prevalence}) * \text{Effect of programs on affliction incidence}$
- (62) Increase in ALC prevalence = $\text{MAX} (0, (\text{Indicated adverse living conditions prevalence} - \text{Adverse living conditions prevalence}) / \text{Living conditions erosion time})$
- (63) Increase in community strength = $\text{MAX} (0, (\text{Indicated community strength} - \text{Community strength}) / \text{Community strength development time})$
- (64) Indicated adverse living conditions prevalence = $\text{Baseline adverse living conditions prevalence} * \text{Effect of programs on adverse living conditions}$
- (65) Indicated community strength = $\text{MIN} (1, \text{Baseline community strength} * \text{Effect of social disparity on community strength} * \text{Effect of public and professional work on community strength} + \text{Community strength boost from assistance})$
- (66) INITIAL TIME = 0
- (67) Internal capacity for affliction pgms if full community strength = 1
- (68) Internal capacity for affliction pgms if no community strength = 0.33
- (69) Internal capacity for affliction programs = $\text{Internal capacity for affliction pgms if no community strength} + (\text{Internal capacity for affliction pgms if full community strength} - \text{Internal capacity for affliction pgms if no community strength}) * \text{Community strength}$
- (70) Internal capacity for LC pgms if full community strength = 1
- (71) Internal capacity for LC pgms if no community strength = 0
- (72) Internal capacity for LC programs = $\text{Internal capacity for LC pgms if no community strength} + (\text{Internal capacity for LC pgms if full community strength} - \text{Internal capacity for LC pgms if no community strength}) * \text{Community strength}$
- (73) Living conditions erosion time = 8
- (74) Living conditions improvement time = 4
- (75) Living conditions programs = $\text{MIN} (1, \text{MIN} (\text{Demand for living conditions programs} , \text{Internal capacity for LC programs}) + \text{Assistance for living conditions programs})$
- (76) Magnitude of affliction and LC programs for community strength = $\text{Affliction programs} * \text{Reltv weight on affliction programs for community strength} + \text{Living conditions programs} * (1 - \text{Reltv weight on affliction programs for community strength})$
- (77) Max boost in affliction programs from assistance = 0.3

- (78) Max boost in community strength from assistance = 0.3
- (79) Max boost in living conditions programs from assistance = 0.5
- (80) Max public work fraction = 0.8
- (81) Maximum additional at risk fraction from affliction cross impact = 0.4
- (82) Maximum additional at risk fraction from living conditions = 0.75
- (83) Professional work programs = (1 - Public work fraction) * Magnitude of affliction and LC programs for community strength
- (84) Public work fraction = Community strength * Max public work fraction
- (85) Public work programs = Public work fraction * Magnitude of affliction and LC programs for community strength
- (86) Reduction in ALC prevalence = MAX (0, - (Indicated adverse living conditions prevalence - Adverse living conditions prevalence) / Living conditions improvement time)
- (87) Reduction in community strength = MAX (0, - (Indicated community strength - Community strength) / Community strength erosion time)
- (88) Reltv weight on affliction for social disparity = 0.4
- (89) Reltv weight on affliction programs for community strength = 0.5
- (90) SAVEPER = TIME STEP
- (91) Social disparity = Social disparity from affliction * Reltv weight on affliction for social disparity + Social disparity from living conditions * (1 - Reltv weight on affliction for social disparity)
- (92) Social disparity from affliction = Social disparity table (Affliction prevalence)
- (93) Social disparity from living conditions = Social disparity table (Adverse living conditions prevalence)
- (94) Social disparity table ([(0,0)-(1,1)],(0,0),(0.1,0.15),(0.2,0.4),(0.3,0.7),(0.4,0.9),(0.5,1),(0.6,0.9),(0.7,0.7),(0.8,0.4),(0.9,0.15),(1,0))
- (95) Start time for computing cumul avgs = 4
- (96) Start time for outside assistance = 99
- (97) Time for programs to affect affliction severity = 1
- (98) TIME STEP = 0.25