TABLE 9: MOBILIZING COMMUNITY INITIATIVES TO SUPPORT PLWH

(green: parameters that can be modified by users) (blue: dynamic formula) (purple: dynamic effect exported to other module[s])

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Initiation of the Mobilizing Community Initiatives to Support PLWH Action Strategy				
Community Programming OFF ON	auxiliary	dmnl	0	This is a mechanism used in the model to turn "On" (1) and "Off" (0) each of the community Action Strategies independently. Because community level programs like this one are not available or in place in all communities, this switch allows model users to select whether or not to engage this Action Strategy during model simulations.
Community HIV initiatives 6 month kickoff	auxiliary	dmnl	IF (TIME > 6) THEN Peer Advocacy ON OFF ELSE 0	This is a mechanism to initiate the "On" condition (variable set to 1) at Month 6 of simulation runs, to allow a period of base case simulation prior to initiating the Action Strategy. The default of the Action Strategy is "Off" (set to 0).
Resources, Capacity and Reach for Community Initiatives to Support PLWH				
Annual funding for Comm HIV initiatives	auxiliary	Dollars	300000	Stakeholder-proposed[a] budget allocated to community HIV educational and PLWH support initiatives.
Community HIV initiative budget period	auxiliary	Months	12	Stakeholder-estimated[a] budget period for funding to support community HIV educational and PLWH support initiatives.
Comm HIV initiative funding rate	flow	Dollars/ Month	((Annual funding for Comm HIV initiatives - Funding for Community Education and Support Initiatives) / Community HIV initiative budget period) * Community HIV initiatives 6 month kickoff {UNIFLOW}	Monthly rate of available funding to support community HIV educational and PLWH support initiatives.
Funding for Community Education and Support Initiatives	stock	Dollars	Funding for Community Education and Support Initiatives(t - dt) + (Comm HIV initiative funding rate) * dt **Initial value** = 1	Total available funding over time to fund community HIV educational and PLWH support initiatives.
Time to develop capacity for community initiatives	auxiliary	Month	6	Stakeholder-estimated[a] time needed to develop funding capacity to implement community HIV educational and PLWH support initiatives.
Increase in community education and support capacity	flow	Dollars/ Month	(Funding for Community Education and Support Initiatives - Capacity for Community Education and Support Initiatives) / Time to develop capacity for community initiatives {UNIFLOW}	Monthly rate of change in funding capacity to implement community HIV educational and PLWH support initiatives.
Capacity for Community Education and Support Initiatives	stock	Dollars	Capacity for Community Education and Support Initiatives(t - dt) + (Increase in community education and support capacity) * dt {NON-NEGATIVE} **Initial value** = 1	Total available funding capacity for community HIV educational and PLWH support initiatives.
Prop of capacity allocated to high risk pop initiatives	auxiliary	dmnl	.50	Stakeholder-proposed[a] proportion of the community HIV educational and PLWH support initiatives budget allocated to programs targeting high risk populations in the catchment area.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Capacity for high risk population	auxiliary	Dollars	Capacity for Community Education and Support Initiatives * Prop of capacity allocated to high risk pop initiatives	Total available funding capacity for community HIV educational and PLWH support initiatives targeted to high risk populations.
Avg per person cost of high risk pop initiatives	auxiliary	Dollars/ Person	10	Stakeholder-estimated[a] per person cost of community HIV educational and PLWH support initiatives targeted to high risk populations.
Expected reach to high risk population	auxiliary	Persons	MIN((Capacity for high risk population / Avg per person cost of high risk pop initiatives), High Risk Population)	Maximum capacity to reach high risk populations with community HIV educational and PLWH support initiatives targeted to high risk populations.
Prop of capacity allocated to PLWH family initiatives	auxiliary	dmnl	.25	Stakeholder-proposed[a] proportion of the community HIV educational and PLWH support initiatives budget allocated to programs targeting families of PLWH in the catchment area.
Capacity for PLWH family initiatives	auxiliary	Dollars	Capacity for Community Education and Support Initiatives * Prop of capacity allocated to PLWH family initiatives	Total available funding capacity for community HIV educational and PLWH support initiatives targeted to families of PLWH.
Avg per family cost of PLWH family initiatives	auxiliary	Dollars/ Family	50	Stakeholder-estimated[a] per family cost of community HIV educational and PLWH support initiatives targeted to families of PLWH.
Families per PLWH	auxiliary	Families/ Person	1	This is a function used to limit the number of families per PLWH to one.
Expected reach to families affected by HIV	auxiliary	Families	MIN((Capacity for PLWH family initiatives / Avg per family cost of PLWH family initiatives), (HIV INFECTION AND TREATMENT AS PREVENTION.Total DIAGNOSED PLWH/Families per PLWH))	Maximum capacity to reach families of PLWH with community HIV educational and PLWH support initiatives targeted to families of PLWH. To calibrate this variable, the total number of diagnosed PLWH is being imported from the "HIV Infection and Treatment as Prevention" module.
Prop of capacity allocated to general pop initiatives	auxiliary	dmnl	.25	Stakeholder-proposed[a] proportion of the community HIV educational and PLWH support initiatives budget allocated to programs targeting the general population in the catchment area.
Capacity for general Population initiatives	auxiliary	Dollars	Capacity for Community Education and Support Initiatives * Prop of capacity allocated to general pop initiatives	Total available funding capacity for community HIV educational and PLWH support initiatives targeted to the general population.
Avg per person cost of general population initiatives	auxiliary	Dollars/ Person	1	Stakeholder-estimated[a] per person cost of community HIV educational and PLWH support initiatives targeted to the general population.
Expected reach to general population	auxiliary	Persons	MIN((Capacity for general population initiatives / Avg per person cost of general population initiatives), HIV INFECTION AND TREATMENT AS PREVENTION.Total Population in Catchment Area)	Maximum capacity to reach the general population with community HIV educational and PLWH support initiatives targeted to the general population. To calibrate this variable, the total population in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Community, Families, and High-Risk Populations Engaged in Community Initiatives to Support PLWH				
Prop in High Risk Population	auxiliary	dmnl	(HIV INFECTION AND TREATMENT AS PREVENTION.Prop of total population living in high prevalence communities) * HIV TESTING AND PREVENTION SERVICES.Prop served by targeted HIV testing in HIGH prevalence areas	To calibrate this variable, the proportion of the total population living in high prevalence communities is being imported from the "HIV Infection and Treatment as Prevention" module, and the proportion being served by targeted HIV testing in high prevalence areas is being imported from the "HIV Testing and Prevention Services" module.
High Risk Population	auxiliary	Persons	HIV INFECTION AND TREATMENT AS PREVENTION.Total Population in Catchment Area * Prop in High Risk Population	To calibrate this variable, the total population in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module.
Time to reach high risk persons	auxiliary	Month	12	Stakeholder-estimated[a] time needed to reach high risk individuals with community initiatives targeted to them.
Change in reach of high risk persons	flow	Persons/ month	Expected reach to high risk population / Time to reach high risk persons	Monthly rate of reaching high risk individuals with community initiatives targeted to them.
High Risk Persons Engaged in Initiatives	stock	persons	High Risk Persons Engaged in Initiatives(t - dt) + (Change in reach of high risk persons - Rate of HR person disengagement) * dt {NON-NEGATIVE} **Initial value** = 0	Number of high risk individuals over time who are reached with community initiatives targeted to them and who engage in those programs.
Time for high risk persons to disengage from initiatives	auxiliary	Months	18	Stakeholder-estimated[a] time until high risk individuals disengage from community initiatives targeted to them.
Rate of HR person disengagement	flow	Persons/ month	High Risk Persons Engaged in Initiatives / Time for high risk persons to disengage from initiatives {UNIFLOW}	Monthly rate at which high risk individuals disengage from community initiatives targeted to them.
Effect of resistance to PLWH Family Outreach	auxiliary	Families/ Month	GRAPH(Families of PLWH Engaged in Support Programs / HIV INFECTION AND TREATMENT AS PREVENTION.Total DIAGNOSED PLWH) (0.000, 1.000), (0.100, 0.991), (0.200, 0.983), (0.300, 0.943), (0.400, 0.842), (0.500, 0.649), (0.600, 0.303), (0.700, 0.158), (0.800, 0.132), (0.900, 0.096), (1.000, 0.105)	This is a graphic function of the effect of resistance to engaging in programs for families of PLWH on how many families are engaged in those programs. This relationship follows a non-linear reverse-S-curve that drops after a period and then levels off, with lowest number of families engaging in programs (0.000) associated with the highest effect of resistance (1.000), and the highest number of families engaged (1.000) associated with the lowest effect of resistance (0.105). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.1**.) To calibrate this variable, the total number of diagnosed PLWH is being imported from the "HIV Infection and Treatment as Prevention" module.
Time to be exposed to family support programs	auxiliary	Month	12	Stakeholder-estimated[a] time needed to expose families of PLWH to community initiatives targeted to them.
Change in family reach	flow	Families/ Month	Expected reach to families affected by HIV * Effect of resistance to PLWH Family Outreach / Time to be exposed to family support programs	Monthly rate of reaching families of PLWH with community initiatives targeted to them.
Families of PLWH Engaged in Support Programs	stock	Families	Families of PLWH Engaged in Support Programs(t - dt) + (Change in family reach - Rate of family disengagement) * dt {NON-NEGATIVE} **Initial value** = 0	Number of families of PLWH over time who are reached with community initiatives targeted to them and who engage in those programs.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Time for families to disengage from family support programs	auxiliary	Months	48	Stakeholder-estimated[a] time until families of PLWH disengage from community initiatives targeted to them.
Rate of family disengagement	flow	Families/ Month	Families of PLWH Engaged in Support Programs / Time for families to disengage from family support programs {UNIFLOW}	Monthly rate at which families of PLWH disengage from community initiatives targeted to them.
Effect of resistance to community awareness programs	auxiliary	Families/ Month	GRAPH(Persons Engaged in Community Awareness Programs / HIV INFECTION AND TREATMENT AS PREVENTION.Total Population in Catchment Area) (0.000, 1.000), (0.100, 0.991), (0.200, 0.983), (0.300, 0.943), (0.400, 0.842), (0.500, 0.649), (0.600, 0.303), (0.700, 0.158), (0.800, 0.132), (0.900, 0.096), (1.000, 0.105)	This is a graphic function of the effect of resistance to engaging in community awareness programs on the number of people engaged in those programs. This relationship follows a non-linear reverse-S-curve that drops after a period and then levels off, with lowest number of persons engaging in community awareness programs (0.000) associated with the highest effect of resistance (1.000), and the highest number of persons engaged (1.000) associated with the lowest effect of resistance (0.105). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.2**.) To calibrate this variable, the total population in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module.
Time to be exposed to gen pop community awareness programs	auxiliary	Month	12	Stakeholder-estimated[a] time needed to expose community members to community initiatives targeted to the general population in the catchment area.
Change in community reach	flow	Person/ Month	Expected reach to general population * Effect of resistance to community awareness programs / Time to be exposed to gen pop community awareness programs	Monthly rate of reaching community members with community initiatives targeted to the general population in the catchment area.
Persons Engaged in Community Awareness Programs	stock	Persons	Persons Engaged in Community Awareness Programs(t - dt) + (Change in community reach - Rate of comm disengagement) * dt {NON-NEGATIVE} **Initial value** = 0	Number of community members in the catchment area over time who are reached with community initiatives targeted to the general population and who engage in those programs.
Time to forget effect of comm aware programs	auxiliary	Months	24	Stakeholder-estimated[a] time until community members disengage from community initiatives targeted to the general population in the catchment area.
Rate of comm disengagement	flow	Person/ Month	Persons Engaged in Community Awareness Programs / Time to forget effect of comm aware programs {UNIFLOW}	Monthly rate at which community members disengage from community initiatives targeted to the general population in the catchment area.
Effects of Community Initiatives on Community HIV Knowledge, Medical Mistrust, and Stigma				
Initial level of Community Knowledge of HIV	auxiliary	HIV knowledge units	50	Stakeholder-estimated[a] level of community knowledge of HIV in the catchment area at the start of the simulation period, on a scale of 1 to 100.
Initial level of Medical Mistrust in the community	auxiliary	Medical mistrust units	60	Stakeholder-estimated[a] level of medical mistrust in the catchment area at the start of the simulation period, on a scale of 1 to 100.
Initial level of HIV Stigma in the community	auxiliary	Stigma units	70	Stakeholder-estimated[a] level of HIV-related stigma in the catchment area at the start of the simulation period, on a scale of 1 to 100.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Effect of community awareness programs on community knowledge of HIV	auxiliary	HIV knowledge units	GRAPH(Persons Engaged in Community Awareness Programs / HIV INFECTION AND TREATMENT AS PREVENTION.Total Population in Catchment Area) (0.000, 50.0), (0143, 70.143), (0.286, 80.571), (0.429, 85.171), (0.571, 86.886), (0.714, 87.714), (0.857, 88.714), (1.000, 90.0)	This is a graphic function of the effect of community awareness programs and persons engaged in those programs as it affects the amount of general community knowledge of HIV. This relationship follows a non-linear curve that rises quickly and then levels off, with lowest level of community engagement (0.000) associated with a mid-level effect of community awareness programs (50.0), and the highest level of community engagement (1.000) associated with the highest effect of community awareness programs (0.90). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.3**.) The Effect of community awareness on community knowledge of HIV is a multiplier in the rate of change in community knowledge of HIV. To calibrate this variable, the total population in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module.
Time to change community knowledge of HIV	auxiliary	Month	24	Stakeholder-estimated[a] time needed for community knowledge and awareness of HIV to change in response to community initiatives in the catchment area.
Community Knowledge of HIV	stock	HIV knowledge units	Community Knowledge of HIV(t - dt) + (Change in comm knowledge of HIV) * dt {NON-NEGATIVE} **Initial value** = Initial level of Community Knowledge of HIV	Total knowledge of HIV in the community over time. This stock has a range from 0 to 100.
Change in comm knowledge of HIV	flow	HIV knowledge units/ Month	(Effect of community awareness programs on community knowledge of HIV - Community Knowledge of HIV) / Time to change community knowledge of HIV	Monthly rate of change in community knowledge and awareness of HIV.
Effect of community awareness programs on medical mistrust	auxiliary	Medical mistrust units	GRAPH(Persons Engaged in Community Awareness Programs / HIV INFECTION AND TREATMENT AS PREVENTION.Total Population in Catchment Area) (0.000, 60.1), (0.071, 59.6), (0.143, 59.2), (0.214, 57.5), (0.286, 53.1), (0.357, 48.2), (0.429, 40.8), (0.500, 32.5), (0.571, 23.2), (0.643, 18.4), (0.714, 14.9), (0.786, 12.3), (0.857, 11.4), (0.929, 11.0), (1.000, 10.0)	This is a graphic function of the effect of community awareness programs and persons engaged in those programs as it affects the amount of medical mistrust in the general community. This relationship follows a non-linear reverse-S-curve that drops quickly after a period of time and then levels off, with the lowest level of community engagement in HIV awareness programs (0.000) associated with a mid-level amount of medical mistrust (60.0), and the highest level of community engagement (1.000) associated with a low effect on medical mistrust (10.0). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.4**.) The Effect of community awareness programs on medical mistrust is a multiplier in the rate of change in medical mistrust. To calibrate this variable, the total population in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module.
Time to change medical mistrust	auxiliary	Month	24	Stakeholder-estimated[a] time needed for community-level medical mistrust to change in response to all community initiatives in the catchment area.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Medical Mistrust	stock	Medical mistrust units	Medical Mistrust(t - dt) + (Change in medical mistrust) * dt {NON-NEGATIVE} **Initial value** = Initial level of Medical Mistrust in the community	Total amount of medical mistrust in the community over time. This stock has a range from 0 to 100.
Change in medical mistrust	flow	Medical mistrust units/ Month	(Effect of community awareness programs on medical mistrust - Medical Mistrust) / Time to change medical mistrust	Monthly rate of change in medical mistrust in the community.
Effect of community awareness programs on HIV stigma	auxiliary	Stigma units	GRAPH(Persons Engaged in Community Awareness Programs/HIV INFECTION AND TREATMENT AS PREVENTION.Total Population in Catchment Area) (0.000, 70.2), (0.071, 69.7), (0.1429, 68.9), (0.214, 68.0), (0.286, 66.7), (0.357, 64.0), (0.429, 58.3), (0.500, 44.3), (0.571, 38.2), (0.643, 34.2), (0.714, 31.1), (0.786, 29.8), (0.857, 29.8), (0.929, 30.3), (1.000, 30.3)	This is a graphic function of the effect of community awareness programs and persons engaged in those programs as it affects the amount of HIV-related stigma in the general community. This relationship follows a non-linear reverse-S-curve that drops quickly after a period of time and then levels off, with the lowest level of community engagement in HIV awareness programs (0.000) associated with a relatively high level of HIV-related stigma (70.0), and the highest level of community engagement (1.000) associated with a low level of HIV related stigma (30.3). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.5**.) The Effect of community awareness on HIV stigma is a multiplier in the rate of change in HIV stigma. To calibrate this variable, the total population in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module.
Effect of family support programs on HIV stigma	auxiliary	Stigma units	GRAPH(Families of PLWH Engaged in Support Programs / HIV INFECTION AND TREATMENT AS PREVENTION.Total DIAGNOSED PLWH) (0.000, 70.0), (0.0714, 69.6), (0.143, 67.9), (0.214, 66.7), (0.286, 65.0), (0.357, 63.7), (0.429, 60.0), (0.500, 54.6), (0.571, 47.5), (0.643, 44.6), (0.714, 41.7), (0.786, 40.8), (0.857, 39.6), (0.929, 39.2), (1.000, 39.2)	This is a graphic function of the effect of support programs for families of PLWH and families engaged in those programs as it affects the amount of HIV-related stigma. This relationship follows a non-linear reverse-S-curve that drops slightly after a period of time and then levels off, with the lowest level of engagement in family support programs (0.000) associated with a relatively high level of HIV-related stigma (70.0), and the highest engagement in family support programs (1.000) is associated with a low level of HIV related stigma (39.2). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.6**.) The Effect of family support programs on HIV stigma is a multiplier in the rate of change in HIV stigma. To calibrate this variable, the total diagnosed PLWH in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module.
Time to change HIV stigma	auxiliary	Month	24	Stakeholder-estimated[a] time needed for HIV related stigma to change in response to community initiatives in the catchment area.
HIV Stigma	stock	Stigma units	HIV Stigma(t - dt) + (Change in HIV stigma) * dt {NON-NEGATIVE} **Initial value** = Initial level of HIV Stigma in the community	Total amount of HIV related stigma in the community over time. This stock has a range from 0 to 100.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Change in HIV stigma	flow	Stigma Units/ Month	(((Effect of family support programs on HIV stigma + Effect of community awareness programs on HIV stigma) / 2) - HIV Stigma) / Time to change HIV stigma	Monthly rate of change in HIV related stigma, as affected by programs to support families of PLWH and programs to increase general awareness of HIV.
Effects of Community Initiatives on HIV Care Continuum Outcomes				
Effect of HR pop engaged on HIV testing rate	auxiliary	dmnl	GRAPH(High Risk Persons Engaged in Initiatives/High Risk Population) (0.000, 1.000), (1.000, 2.000)	This is a graphic function of the effect of engagement in HIV programs targeting high risk populations and the number of high-risk persons engaged in those programs as it affects the rate of HIV testing in the community. This is a linear relationship, with lowest level of high-risk persons' engagement (0.000) associated with a neutral effect on HIV testing (1.000), and the highest level of high-risk persons' engagement (1.000) associated with a high effect on the rate of HIV testing (2.000) (see **Fig. 9.7**). The Effect of HR (high risk) population engaged on HIV testing is exported to the "HIV Testing & Prevention Services" module, and is a multiplier in the monthly rates of HIV testing in all testing settings and programs.
Effect of Community Knowledge of HIV on HIV testing rate	auxiliary	dmnl	GRAPH(Community Knowledge of HIV) (0.000, 0.058), (7.143, 0.075), (14.286, 0.075), (21.429, 0.092), (28.571, 0.100), (35.714, 0.125), (42.8571, 0.158), (50.0, 0.217), (57.143, 0.300), (64.286, 0.442), (71.429, 0.625), (78.571, 0.825), (85.714, 1.267), (92.857, 1.558), (100.0, 2.000)	This is a graphic function of the effect of community knowledge of HIV in the general population and the total amount of community HIV knowledge on the rate of HIV testing. This relationship follows a non-linear curve that remains low for a period of time and then increases rapidly, with lowest level of community knowledge of HIV (0.000) associated with a low effect of community knowledge on the HIV testing rate (0.058), and the highest level of community knowledge of HIV (100.0) associated with a high effect of community knowledge on the HIV testing rate (2.000). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.8**.) The Effect of Community knowledge of HIV variable is exported to the "HIV Testing & Prevention Services" module and used as a multiplier in the rates of testing in all testing settings and programs.
Effect of Medical Mistrust on HIV testing rate	auxiliary	dmnl	GRAPH(Medical Mistrust) (0.000, 1.967), (7.143, 1.967), (14.286, 1.967), (21.429, 1.950), (28.571, 1.925), (35.714, 1.908), (42.857, 1.858), (50.0, 1.825), (57.143, 1.775), (64.286, 1.683), (71.429, 1.558), (78.571, 1.442), (85.714, 1.325), (92.857, 0.883), (100.0, 0.025)	This is a graphic function of the effect of community-level medical mistrust and the total amount of medical mistrust on the rate of HIV testing. This relationship follows a non-linear curve that remains high for a period of time and then drops rapidly, with lowest level of medical mistrust (0.000) associated with a high level of effect of medical mistrust on the HIV testing rate (1.967), and the highest level of medical mistrust (100.0) associated with an extremely low level of effect of medical mistrust on the HIV testing rate (0.025). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.9**.) The Effect of Medical Mistrust variable is exported to the "HIV Testing & Prevention Services" module and used as a multiplier in the rates of testing in all testing settings and programs.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Effect of HIV stigma on HIV testing rate	auxiliary	dmnl	GRAPH(HIV Stigma) (0.000, 1.975), (7.143, 1.942), (14.286, 1.900), (21.429, 1.883), (28.571, 1.883), (35.714, 1.858), (42.857, 1.833), (50.0, 1.817), (57.143, 1.750), (64.286, 1.675), (71.429, 1.558), (78.571, 1.400), (85.714, 1.092), (92.857, 0.667), (100.0, 0.042)	This is a graphic function of the effect of community-level HIV related stigma and the total amount of HIV stigma in the community on the rate of HIV testing. This relationship follows a non-linear curve that remains high for a period of time and then drops rapidly, with lowest level of HIV related stigma in the community (0.000) associated with a very high effect of HIV stigma on the rate of HIV testing (1.975), and the highest level of HIV related stigma (100.0) associated with an extremely low effect of HIV stigma on the rate of HIV testing (0.042). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.10**.) This variable is exported to the "HIV Testing & Prevention Services" module and used as a multiplier in the rates of testing in all testing settings and programs.
Effect of family support programs on lost to care rate	auxiliary	dmnl	GRAPH(Families of PLWH Engaged in Support Programs/HIV INFECTION AND TREATMENT AS PREVENTION.Total DIAGNOSED PLWH) (0.000, 2.000), (0.0714, 1.982), (0.143, 1.930), (0.214, 1.825), (0.286, 1.623), (0.357, 1.395), (0.429, 0.982), (0.500, 0.544), (0.571, 0.342), (0.643, 0.254), (0.714, 0.237), (0.786, 0.228), (0.857, 0.219), (0.929, 0.219), (1.000, 0.216)	This is a graphic function of the effect of support programs for families of PLWH and the number of families engaged in those programs on the monthly rate of PLWH being lost to HIV medical care. This relationship follows a non-linear reverse-S-curve that drops rapidly after a period of time and then levels off, with the lowest level of engagement in family support programs (0.000) associated with a high effect of family support programs on the lost to care rate (2.000), and the highest level of family engagement (1.000) associated with a low effect of family support programs on the lost to care rate (0.216). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.11**.) To calibrate this variable, the total diagnosed PLWH in the catchment area is being imported from the "HIV Infection and Treatment as Prevention" module. This variable is exported to the "Medical Care Services" module to contribute to the "Effect of Action Strategies on Risk of being Lost to Care" variable.
Effect of Community Knowledge of HIV on lost to care rate	auxiliary	dmnl	GRAPH(Community Knowledge of HIV) (0.000, 1.950), (7.143, 1.950), (14.286, 1.925), (21.429, 1.925), (28.571, 1.925), (35.714, 1.925), (42.857, 1.925), (50.0, 1.883), (57.143, 1.817), (64.286, 1.742), (71.429, 1.642), (78.571, 1.450), (85.714, 1.325), (92.857, 1.050), (100.0, 0.033)	This is a graphic function of the effect of community knowledge of HIV and the total amount of community knowledge on the monthly rate of PLWH being lost to HIV medical care. This relationship follows a non-linear curve that remains high for a period of time and then drops quickly, with the lowest level of community knowledge of HIV (0.000) associated with a high effect of community knowledge on the lost to care rate (1.950), and the highest community knowledge of HIV (100.0) associated with a very low effect of community knowledge on the lost to care rate (0.033). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.12**.) This variable is exported to the "Medical Care Services" module to contribute to the "Effect of Action Strategies on Risk of being Lost to Care" variable.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Effect of Medical Mistrust on lost to care rate	auxiliary	dmnl	GRAPH(Medical Mistrust) (0.000, 0.033), (7.143, 0.050), (14.286, 0.058), (21.429, 0.075), (28.571, 0.108), (35.714, 0.150), (42.857, 0.208), (50.0, 0.267), (57.143, 0.317), (64.286, 0.450), (71.429, 0.617), (78.571, 0.917), (85.714, 1.108), (92.857, 1.608), (100.0, 1.967)	This is a graphic function of the effect of community-level medical mistrust and the total amount of medical mistrust on the monthly rate of PLWH being lost to HIV medical care. This relationship follows a non-linear curve that remains low for a period of time and then rises quickly, with the lowest level of medical mistrust (0.000) associated with a very low effect of medical mistrust on the lost to care rate (0.033), and the highest level of medical mistrust (100.0) associated with a very high effect of medical mistrust on the lost to care rate (1.967). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.13**.) This variable is exported to the "Medical Care Services" module to contribute to the "Effect of Action Strategies on Risk of being Lost to Care" variable.
Effect of HIV stigma on lost to care rate	auxiliary	dmnl	GRAPH(HIV Stigma) (0.000, 0.017), (7.143, 0.058), (14.286, 0.083), (21.429, 0.108), (28.571, 0.133), (35.714, 0.167), (42.857, 0.200), (50.0, 0.225), (57.143, 0.292), (64.286, 0.350), (71.429, 0.500), (78.571, 0.708), (85.714, 0.967), (92.857, 1.450), (100.0, 1.942)	This is a graphic function of the effect of community-level HIV-related stigma and the total amount of HIV stigma in the community on the monthly rate of PLWH being lost to HIV medical care. This relationship follows a non-linear curve that remains low for a period of time and then rises quickly, with the lowest level of HIV-related stigma (0.000) associated with a very low effect of community stigma on the lost to care rate (0.017), and the highest level of HIV-related stigma (100.0) associated with a very high effect of community stigma on the lost to care rate (1.942). (Interim points on the curve graph are indicated in the formula and in **Fig. 9.14**.) This variable is exported to the "Medical Care Services" module to contribute to the "Effect of Action Strategies on Risk of being Lost to Care" variable.

[a] Stakeholder-estimated and stakeholder-proposed parameters were set through a deliberative process with a broadly mixed stakeholder community modeling group that represented the spectrum of HIV medical and other care services and PLWH.

Fig. 9.1 Effect of resistance to PLWH Family Outreach

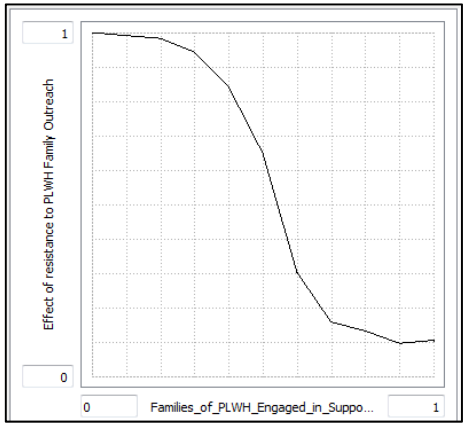

Fig. 9.2 Effect of resistance to community awareness programs

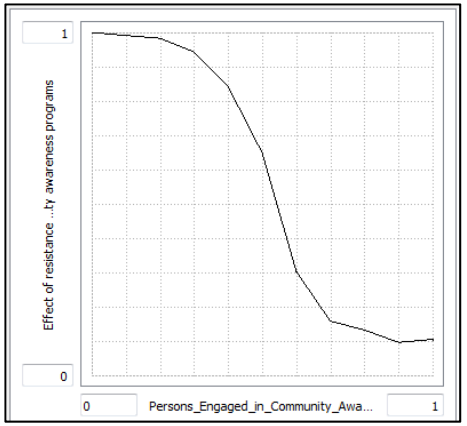

Fig. 9.3 Effect of community awareness programs on community knowledge of HIV

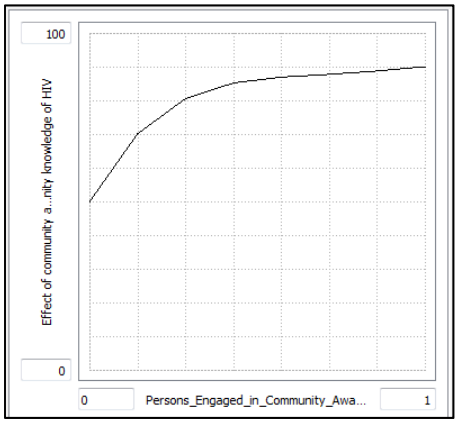

Fig. 9.4 Effect of community awareness programs on medical mistrust

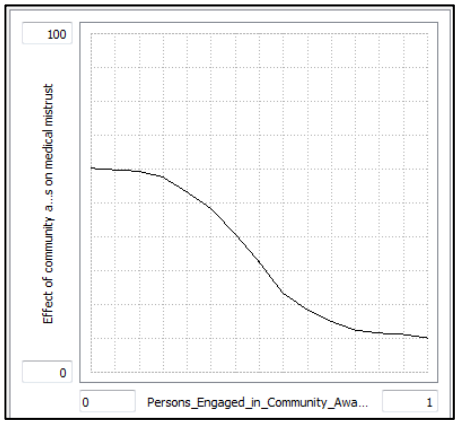

Fig. 9.5 Effect of community awareness programs on HIV stigma

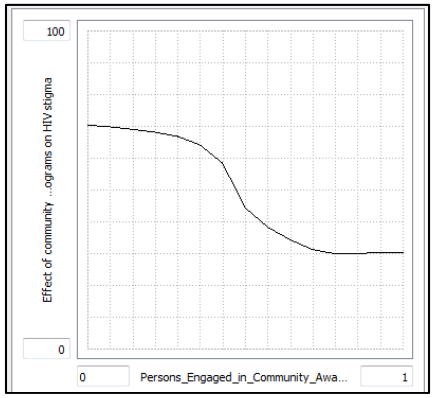

Fig. 9.6 Effect of family support programs on HIV stigma

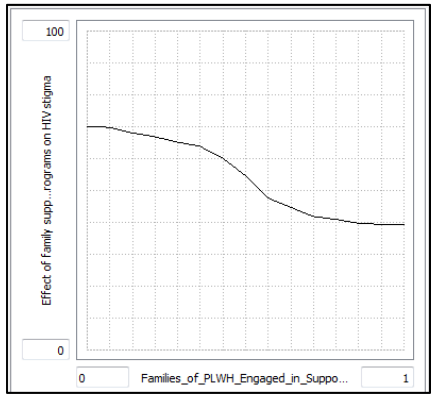

Fig. 9.7 Effect of HR pop engaged on HIV testing rate

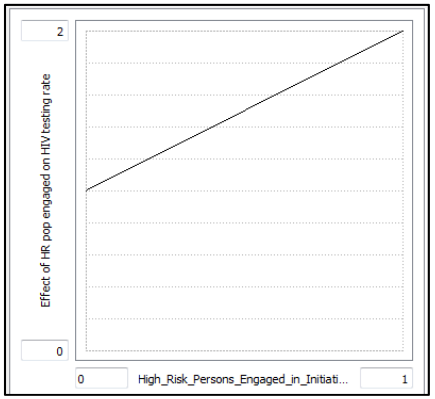

Fig. 9.8 Effect of Community Knowledge of HIV on HIV testing rate

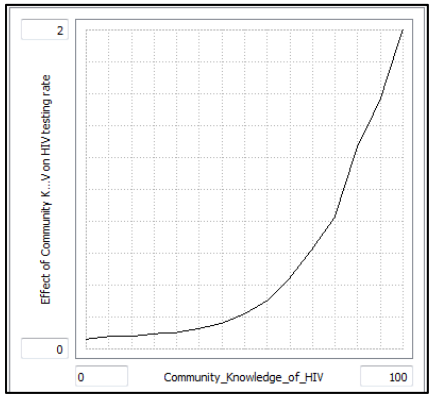

Fig. 9.9 Effect of Medical Mistrust on HIV testing rate

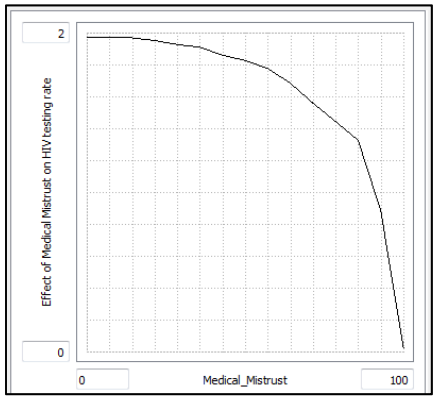

Fig. 9.10 Effect of HIV stigma on HIV testing rate

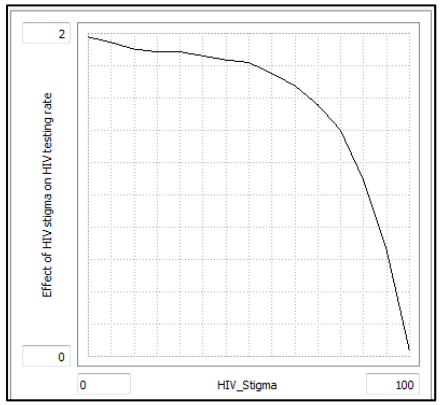

Fig. 9.11 Effect of family support programs on lost to care rate

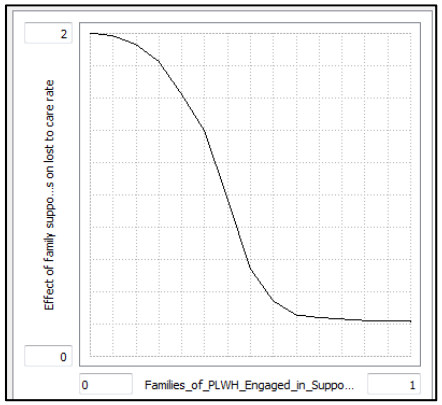

Fig. 9.12 Effect of Community Knowledge of HIV on lost to care rate

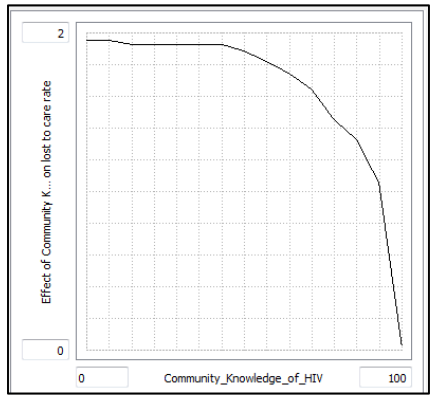

Fig. 9.13 Effect of Medical Mistrust on lost to care rate

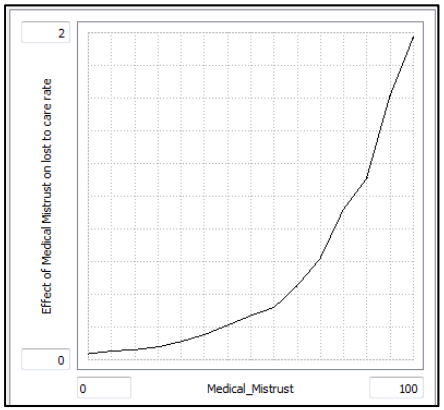

Fig. 9.14 Effect of HIV stigma on lost to care rate