

HIV Care Continuum System Dynamics Model: Variables, Definitions and Calibrations

TABLE 6: PEER OUTREACH TO PROMOTE HIV TESTING

(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 Peer Outreach to Promote HIV Testing Community Action Strategy				
Peer HIV Testing Outreach 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.
HIV testing Peer Outreach by HIV testers 6 month kickoff	auxiliary	dmnl	IF (TIME > 6) THEN Peer HIV Testing Outreach 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).
Peer Outreach to Promote HIV Testing Intervention Process				
HIV test rate	flow	Persons/ Month	HIV TESTING AND PREVENTION SERVICES.Total HIV negative tests per month + HIV TESTING AND PREVENTION SERVICES.Total HIV positive tests per month {UNIFLOW}	Monthly rate of total HIV positive and negative tests in the catchment area. This variable is imported from the “HIV Testing and Prevention Services” module.
Persons who tested for HIV	stock	Persons	Persons who tested for HIV(t - dt) + (HIV test rate - Rate of HIV tested persons not asked to do PO - HIV tested persons being asked to do PO) * dt {NON-NEGATIVE} Initial value = 1	Number of people who recently tested for HIV in the catchment area over time.
Rate of HIV tested persons not asked to do PO	flow	Persons/ Month	Persons who tested for HIV * (1 - Prop of HIV tested persons asked to do PO) {UNIFLOW}	Monthly rate at which people tested for HIV are <u>NOT</u> asked to engage in peer outreach to encourage their network members to get an HIV test as well.
Prop of HIV tested persons asked to do PO	auxiliary	dmnl	.1	Stakeholder-estimated ^a proportion of people who just tested for HIV who might be asked to engage in peer outreach and encourage their network members to get HIV tested as well.
HIV tested persons being asked to do PO	flow	Persons/ Month	Persons who tested for HIV * Prop of HIV tested persons asked to do PO * HIV testing Peer Outreach by HIV testers 6 month kickoff {UNIFLOW}	Monthly rate at which people who just tested for HIV are asked to engage in peer outreach by encouraging their network members to get HIV tested as well.
HIV tested persons who are asked to conduct PO	stock	Persons	HIV tested persons who are asked to conduct PO(t - dt) + (HIV tested persons being asked to do PO - Rate of HIV tested persons starting PO - Rate of PO refusal) * dt {NON-NEGATIVE} Initial value = 0	Number of recently HIV tested persons over time who are being asked by their providers to encourage their network members to get HIV tested as well.
Rate of PO refusal	flow	Persons/ Month	HIV tested persons who are asked to conduct PO * (1 - Prop of HIV tested persons who are asked and agree to do PO) {UNIFLOW}	Monthly rate at which recently tested people who are asked by their providers to do peer outreach for HIV testing refuse to participate in the program.
Prop of HIV tested persons who are asked and agree to do PO	auxiliary	dmnl	.2	Stakeholder-estimated ^a proportion of recently tested persons who agree to engage in peer outreach and encourage their network members to get HIV tested as well.

Variable Name	Variable Type	Unit	Initial Parameter Values and Formulas	Variable Definition/Specification and Sources of Initial Parameters and Stock Values
Rate of HIV tested persons starting PO	flow	Persons/ Month	HIV tested persons who are asked to conduct PO * Prop of HIV tested persons who are asked and agree to do PO {UNIFLOW}	Monthly rate at which persons recently tested for HIV start to engage in peer outreach to encourage their network members to get HIV tested as well.
HIV tested persons conducting PO	stock	Persons	HIV tested persons conducting PO(t - dt) + (Rate of HIV tested persons starting PO - HIV tested persons ending PO) * dt {NON-NEGATIVE} Initial value = 0	Number of people over time who are conducting peer outreach to encourage their network members to get HIV tested as well.
Avg time to end peer outreach	auxiliary	Months	6	Stakeholder-estimated ^a time a person who is conducting peer outreach to increase HIV testing will continue to do so.
HIV tested persons ending PO	flow	Persons/ Month	HIV tested persons conducting PO / Avg time to end peer outreach {UNIFLOW}	Monthly rate at which people who are engaging in peer outreach to promote HIV testing discontinue doing so.
Peer Outreach to Promote HIV Testing Intervention Outcomes				
Prop of Contacts Persuaded to Get Tested	auxiliary	dmnl	.5	Stakeholder-estimated ^a proportion of peer outreach person's contacts who are convinced by the peer to get tested for HIV.
Expected PO contacts per month	auxiliary	Person/ Month/ Person	2	Stakeholder-estimated ^a number of contacts per month by each person doing peer outreach for HIV testing.
HIV tests per month added by PO Program	auxiliary	Persons/ Month	HIV tested persons conducting PO * (Expected PO contacts per month * Prop of Contacts Persuaded to Get Tested)	Total number of additional tests per month generated by successful peer outreach to promote HIV testing among network members. This number is exported to the "HIV Prevention and Testing" module and is added to the total number of HIV tests generated in the model monthly.

^a Stakeholder-estimated 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.

1. CT Department of Public Health. Epidemiological Profile of HIV in Connecticut. 2018.