Program Variables:

Working Variables (Variables used to calculate other Variables) and Output Variables

Variable Name	Use	Comments
OP_Data	Data frame containing all data from the 'OP_Data', excel spread sheet tab.	
data_input	Data frame containing the rest of the data read in from the rest of the excel input sheets.	
NSites	Number of sites read in.	Calculated as row count of Sheet_1 of the input sheet.
Npopulation	Number of population nodes read in.	Calculated as row count of Sheet_2 of the input sheet.
distance	NSites by Nsites matrix, of the distance between each corresponding site.	
rank_distance	NSites by Nsites matrix, of the ranking of the distance between each corresponding site.	
distance_pop	NPopulation by NPopulation matrix, of the distance between each corresponding node.	
pop_rank_distance	NPopulation by NPopulation matrix, of the ranking of the distance between each corresponding node.	
Projection_length	Amount of years, the model will run for.	No issues found with setting up to 5.
NSpeciality	Amount of Speciality's the model is set to use.	All 42 from the original excel spreadsheet are currently in use.
Soc_Growth	A NSpeciality by Projection_length matrix, of the amount of initiatives for each speciality over the length of the projection.	
FU_Saved	A NSpeciality by Projection_length matrix, of the chance of a follow up appointment not being necessary, for each speciality over the length of the projection.	
Diag_saved_1	A NSpeciality by Projection_length matrix, of the growth rate of effect 1 over the length of the projection.	
Diag_saved_2	A NSpeciality by Projection_length matrix, of the growth rate of effect 2 over the length of the projection.	
Diag_saved_3	A NSpeciality by Projection_length matrix, of the growth rate of effect 3 over the length of the projection.	
Cost_Saved	A NSpeciality by Projection_length matrix, of the cost for each initiative over the length of the projection.	
Saved_1	A NSpeciality by Projection_length matrix, of the initial diagnosis saved for each speciality over the length of the projection, for effect 1 of the initiative.	
Saved_2	A NSpeciality by Projection_length matrix, of the initial diagnosis saved for each speciality over the length of the projection, for effect 2 of the initiative.	
Saved_3	A NSpeciality by Projection_length matrix, of the initial diagnosis saved for each speciality over the length of the projection, for effect 3 of the initiative.	
Saved_Tot	A NSpeciality by Projection_length matrix, of the total initial diagnosis, for each speciality, when all 3 effects of all initiatives are negated.	
New_Diag_SP*	A NSpeciality by Projection_length matrix, of the total initial diagnosis count, for each speciality, when all 3	

	effects of all initiatives are negated, and the growth of each initiative is included.	
After_Care	A NSpeciality by Projection_length matrix, of the total follow up appointment count, for each speciality when the growth of each initiative is included.	
New_FU	A NSpeciality by Projection_length matrix, of the new follow up appointment count without social prescription.	
New_Per_k	A NSpeciality Vector, New diagnosis per a 1000 people.	
FU_per_K	A NSpeciality Vector, New follow ups per a 1000 people.	
Tot_Cases	A NSpeciality by Projection_length matrix, of total amount of cases including both New diagnosis and follow up appointments, over the length of the projection.	
Nurse_perc_New	A NSpeciality by Projection_length matrix, of the percentage of new diagnosis treated by nurses.	Can be treated as input variable, but currently fixed.
Nurse_perc_Follow	A NSpeciality by Projection_length matrix, of the percentage of follow ups treated by nurses.	Can be treated as input variable, but currently fixed.
Base_New*	A NSpeciality by Projection_length matrix, of the total amount of new cases without social precription.	
Base_Follow*	A NSpeciality by Projection_length matrix, of the follow up cases without social precription.	
GP_Follow	A NSpeciality by Projection_length matrix, of the follow up cases attended by GP's with social prescription and split by nurse and GP.	
GP_New	A NSpeciality by Projection_length matrix, of the diagnosis cases attended by GP's with social prescription and split by nurse and GP.	
Nurse_Follow	A NSpeciality by Projection_length matrix, of the follow up cases attended by Nurses's with social prescription and split by nurse and GP.	
Nurse_New	A NSpeciality by Projection_length matrix, of the diagnosis cases attended by Nurses's with social prescription and split by nurse and GP.	
GP_Hours_Available	A Projection_length by Nsites matrix, amount of GP working days in a year, set to decrease by 10% for each year of the projection.	10% is completely arbitrary and again could be treated as an input, if so desired.
GP_Day_length	Length of working day for GP's.	
Rooms_Clinic	Amount of rooms for each clinic for each site.	
Lists_Clinc	List per a day for each site.	
GP_Mins_Year	A Projection_length by Nsites matrix, total amount of working minutes available in a year for the GP's.	
Mins_Required	A Projection_length by Nsites matrix, total amount of minutes required at each site over the length of the projection.	
Clinic_Utilisation	A Projection_length by Nsites matrix, total amount of time required to attend to all cases divided by GP_Mins_Year.	
Wage_#	Wage for each type of staff.	Currently fixed, but easily treated as a variable input.
No_#	Number of each staff.	Currently fixed, but easily treated as a variable input.

HR_Cost_Year	A Projection_length by Nsites matrix, of total HR expenditure for each site over the course of the projection.	
Intiative_Cost	A Projection_length by Nsites matrix, of total intiative expenditure for each site over the course of the projection.	