

INSTRUCTIONS FOR

RETURN ON INVESTMENT (ROI) CALCULATOR:

THE BUSINESS CASE AND PERSON-CENTERED CARE

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INTRODUCTION

This return on investment (ROI) calculator is designed to quantitatively assess the business case for person-centered care (PCC) programs that serve older adults with chronic conditions and functional limitations. PCC programs are ones where individuals' values and preferences are elicited and, once expressed, guide all aspects of their health care, supporting their realistic health and life goals. This type of care is achieved through a collaborative relationship and decision-making process between the person, their chosen supports, and their medical and social service providers.

The business case for PCC involves weighing the costs of offering this approach to care against the benefits expressed in dollar terms. Benefits accrue principally in the form of avoided medical utilization, but also potentially in the form of higher revenues.

To access the calculator tool, click [ROI Calculator](#) or go to: <http://www.thescanfoundation.org/business-case-person-centered-care>

USES FOR THE CALCULATOR

The calculator can help with making the business case for host organizations or entities that develop and run PCC programs, or are evaluating the opportunity to initiate a PCC program. Potential users of this calculator include current and potential payers, providers, adopters, and advocates of PCC.

This tool can assist users that are now investing in PCC, or might in the future, to systematically determine the economic return. Users can identify the specific factors that most heavily influence ROI, thereby highlighting the variables that should be improved to achieve even higher returns. Developers of PCC programs can use the calculator to demonstrate the ROI from PCC in efforts to persuade potential adopters, partners, and investors of its economic advantages. The calculator can also be used by organizations that sell PCC services to hospitals and health plans to identify a price that is advantageous from both the buyer and seller perspectives.

While this calculator has many uses as described above, it does not assess the business or intangible benefits or constraints that may accrue to third-parties, including older adults and/or family members involved in PCC programs.

HOW THE CALCULATOR OPERATES

The calculator relies on the user to input specific data from internally-generated or published sources and, in some cases, make best guesses. The calculator supplies none of the data required for the output. Once the user populates all vacant input cells in the model with estimates of these (independent) variables, the calculator runs built-in algorithms to automatically calculate the output, defined as *an ROI*.

For the purposes of this calculator, ROI is expressed as a percentage of the net benefit from operating the program. The net benefit is calculated in the numerator by subtracting the PCC program cost from its gross benefit; the denominator is the cost of the program.

For example, if a program costs \$200,000 and results in gross benefits of \$400,000, the ROI using this rule would be 100%: $(\$400,000 - \$200,000) \div \$200,000 = 100\%$. This result also might be termed the net operating margin.

CALCULATOR FEATURES

The PCC calculator has a number of practical features:

- **Risk Stratification:** The population that is suitable to receive PCC can be segmented into high and moderate risk categories. The ROI will be likely higher (i.e., a higher percentage) for the segment that is at higher risk for medical utilization. The calculator can show how limited the offering must be if a specific return were being sought.
- **Potential Revenue from PCC:** The calculator allows for PCC program offerings to incorporate possible revenue enhancements in addition to the more probable benefits resulting from reducing costs.
- **Slider Bars:** This feature allows the user to compute instantaneous “what-if” calculations by changing values of inputs and immediately viewing these new inputs' influence the ROI.

- **Flexibility in Expressing Variables:** All variables can be entered by the user in terms of their convenience – per person, per month, or per year. Hospital admissions, for example, are generally reported on an annual basis whereas encounters with a social worker or nurse practitioner are often expressed on a monthly basis. The calculator automatically converts rates and volumes, no matter how expressed, into a common per member per month (PMPM) measure.
- **Scenarios:** This feature allows ROI comparisons across different programs as well as varied constellations of input values. For example, the user can create optimistic and pessimistic scenarios and compare the results. Sometimes even the pessimistic scenario can yield an acceptable result for the ROI.
- **Accounting for Uncertainty:** Admittedly, knowledge of some key determinants of the ROI are not known with certainty. Therefore, a “Monte Carlo” simulation that accounts for uncertainty with respect to the magnitudes of key variables is an optional part of the tool. This simulation recognizes this uncertainty and displays accordingly a reasonable range of results for the ROI rather than a single deterministic value. The tool also quantifies the strengths of the separate influences each variable has on the resulting ROI.
- **Other Metric – Payback Period:** In addition to the ROI result, the calculator displays the payback period – defined as the number of months the PCC program would need to operate (assuming a positive operating margin) – for any initial investment to be recouped. This may be a useful metric for programs involving substantial up-front, launch costs.
- **Threshold Analysis:** The tool provides the ability to conduct threshold analysis, whereby the user can query the calculator on questions such as: What is the maximum amount that can be spent on PCC so that the program does not to lose money? Or for a given cost of delivering PCC, how effective must it be in reducing certain events (e.g., hospital re-admissions) in order to generate a required (hurdle) level of ROI?

GUIDE TO THE SHEETS

The user should place their own specific data into the input cells that are distinguished by their light green and dark green color. The other protected cells contain the model's equations and algorithms and cannot be changed by the user. The calculator employs the input data and uses the algorithms to display the results – the ROI and other outputs. We advise that the user input the data sequentially; that is, each sheet should be populated and viewed in order.

The sheets are:

1. **Start:** The initial sheet includes this instruction guide, which provides an overview of the features and benefits of the tool and how it might be used. (The user does not insert any data here.)
2. **Flow:** This is a simple graphic that shows the logic of the model. (The user does not insert any data here.)
3. **Population Data:** The user is required to stipulate the total number of members eligible to receive PCC, together with the percentage of that population that might be restricted to receive the services. Sheet 3 also allows the user to segment the service recipients into two groups: Level 1 – those at high risk for medical utilization, and Level 2 – those at a more moderate level of risk. Alternatively, the user can specify the absolute number of persons to receive the service as opposed to the percentage of the eligible population.
4. **Costs:** The user inserts data on the costs of delivering a PCC program with core elements on Sheet 4. Costs fall into three categories: A) Initial, non-recurring (launch); B) Fixed costs of operating the program; and C) Variable costs – those that vary in direct proportion to the numbers served.
5. **Additional Utilization:** Sheet 5 allows the user to consider and account for the possibility of incremental usage of certain services (e.g., transport to follow-up appointments, behavioral health visits) that may stem from a PCC program. In contrast to the core costs in Sheet 4, costs in Sheet 5 may be considered more peripheral and may not be relevant for certain PCC models.

6. **Medical Utilization:** Sheet 6 asks users to estimate the utilization of medical resources both before (baseline) and after the PCC program is introduced. Utilization incorporates both the incidence of various inpatient and outpatient events and their respective unit costs. The extent of medical cost avoidance, the prime determinant of the ROI, is displayed here.
7. **Revenue Enhancements:** Sheet 7 allows the user to consider possible revenue enhancements that might result from delivering PCC. For example, the program might receive a higher PMPM because of revisions under Medicare's Hierarchical Conditions Categories payment system or a special stipend for conducting care coordination for a health plan's members. The calculator then adds these revenues to the medical cost savings that were calculated in Sheet 6 to arrive at the overall economic benefits of PCC.
- 8a. **Summary:** The outputs that the tool calculates from the entries in the prior sheets are displayed in Sheet 8. The outputs are the ROI (%), the net benefits per month (\$), and the payback period (months).
- 8b. **Scenario Comparison:** Using the scenario tool, the user can select any two saved scenarios and compare summary results. The DELTA section calculates the difference from Scenario B to Scenario A (B-A). Light green backgrounds indicate an increase from A to B. A light red background indicates a decrease from A to B.
9. **Remaining Sheets:** The four remaining sheets beginning with the Monte Carlo analysis (Sheet 9) are optional for the user. These sheets are designed for those wanting to conduct sensitivity analysis. This section permits an investigation into the probable range of estimates for the ROI along with the identification of the variables that are most influential in shaping its magnitude.

SCENARIO TOOL INSTRUCTIONS

A scenario is a unique combination of the input variables and their results. The user has the ability to Save, Load, Edit, Delete, and Overwrite a scenario. Once a collection of scenarios have been saved, the results of any two can be compared in Sheet 8b Scenario Comparisons. The user can build and save up to 100 scenarios for easy recall, analysis, and comparison. Due to the high volume

of output, the Monte Carlo results are not saved with the scenarios but can be regenerated after a scenario is loaded. A baseline scenario can be identified for easy one-button loading. This scenario can be used as the starting point or reference scenario that other scenarios can be built from.

Create and Save Scenarios

To create a scenario, complete or modify sheets 3 thru 7. Verify the results on sheet 8a Summary. To access the Scenario functions, there is a button on the top of each sheet labeled **SCENARIO TOOL**. The form opens with a list of previously generated scenarios.

1. Do not select a scenario from the list. Instead, press the **SAVE AS NEW** button and a textbox appears with the label **ENTER NEW SCENARIO NAME**.
2. Enter a descriptive name representing the scenario. Once you start entering the name, a **SAVE** button, **DATE** textbox, and a **USE NOW FOR DATE** button appear.
3. Once you have entered the name, enter a date and time in the format MM/DD/YY HH:MM:SS AM/PM. If you wish to use the present date and time, hit the **YELLOW USE NOW FOR DATE** button. You can modify the date and time in the textbox if you desire. If no date is entered, the present date and time will be saved with the scenario.
4. Press the **GREEN SAVE** button to save the scenario in to memory.

There are several hundred input and output variables that make up a scenario, so it may take a few moments to save. A message box will appear that confirms that your scenario is saved. Notice that your new scenario is included in the last line of the Scenario List. Close the message box and close the form by pressing the red "X" in the top right corner of the form.

To save another scenario, edit, add, or delete any of the variables in sheets 3 thru 7 and save as a new scenario.

Load a Scenario

To load a scenario, access the **SCENARIO TOOL** by pressing the button. Select the desired scenario from the list of scenarios on the form. The **SAVE AS NEW** button will disappear. Press the **LOAD** button that appears. It will take a few moments to load all the input variables into the model. A message box will confirm that the selected scenario is loaded. Close the form. Notice in sheets 3 thru 8a that the scenario inputs have loaded and that there are results on the Summary sheet.

Delete a Scenario

To delete a scenario, access the **SCENARIO TOOL** by pressing the button. Select the desired scenario to be deleted from the list of scenarios on the form. The **SAVE AS NEW** button will disappear. Press the **DELETE** button that appears. Another form will load that will ask you to confirm the delete operation. Answering **NO** will close both forms without deleting the scenario, Answering **YES** deletes the scenario. It will take a few moments to delete all the input variables and results variables associated with that scenario. A message box will confirm that the selected scenario is deleted. Close the form. Deleting the scenario will not affect the variables currently loaded in the model.

Overwrite a Scenario

When you overwrite a selected scenario, the current data in the model will replace all the data saved in that scenario. It will leave intact the scenario number, name, and date. To overwrite a scenario, complete or modify sheets 3 thru 7. Verify the results on Sheet 8a Summary. Open the **SCENARIO TOOL**. Select the scenario to overwrite and press the **OVERWRITE** button. A message box will appear to confirm the scenario has been overwritten.

Edit Name and Date Only

If the only items you want to modify in a scenario are the name and/or date: open the **SCENARIO TOOL**, select the scenario to edit, and press the **EDIT NAME OR DATE** button. The textboxes for **SCENARIO NAME AND DATE** will appear with the **SAVE** button and the **USE NOW FOR DATE** button. Modify the Scenario name and/or date and save. Confirm that the Name and/or Date has changed in the Scenario List. Close the Scenario Tool form.

Declare a Scenario as the Baseline

Open the **SCENARIO TOOL**, select the scenario you want to use as a baseline and press the **DECLARE SCENARIO AS BASELINE** button. Beneath the scenario list is a label indicating the name of the baseline scenario.

Load a Baseline

Open the **SCENARIO TOOL**, and press the **LOAD BASELINE** button.

Clear all Input Data

To completely remove all input data from the model, press the **CLEAR ALL DATA IN FORMS** button. This will remove all input data on sheets 3 thru 7 in the model. It does not have an effect on stored scenarios or the Monte Carlo inputs. You will see errors throughout the model and Monte Carlo sections as there is insufficient data to perform some calculations. You will not be able to run Monte Carlo analysis until there is sufficient data loaded into the model.

Scenario Comparisons

Results of any two scenarios can be compared using the Scenario Results Comparison functions of the Scenario Tool. You must declare one “A” scenario and one “B” scenario for comparison. Do this by opening the **SCENARIO TOOL, SELECTING A SCENARIO** and pressing either the **SAVE AS SCENARIO A FOR COMPARISON** or the **SAVE AS SCENARIO B FOR COMPARISON**. Pressing the button will place the scenario name under either the Scenario A: section (orange) or the Scenario B: (light blue) section of the lower left portion of the form. Once both scenarios are loaded, press the **COMPARE SCENARIOS** button. The form will close and section 8b Scenario Comparisons will appear and show side-by-side summary sections of both scenarios.

The DELTA section to the right calculates the difference between the selected Scenario B and Scenario A. The light green background indicates that the associated metric has increased from Scenario A to Scenario B. A light red background indicates a decrease.

NAVIGATION AND CONTROL

There are several ways to navigate around the workbook. First you can navigate just like a regular workbook, selecting tabs to go to sheets and selecting cells to navigate within that sheet. There will not be any gridline or headings or formula bar. All input is done in the light or dark green cells. All others are locked.

The best way to ensure all relevant data is input is by following the **NEXT** buttons which can be found at the end of each section. Start with Sheet 3. When complete, press the **NEXT 4a** button in the lower-right corner of the section. This will automatically open Section 4 Costs and view the section 4a Launch Costs. Continue to use the **NEXT** buttons as you complete each section. You may also use the “Navigation” form which has a list of accessible sheets and some control functions.

[Navigate using the Navigation Form](#)

The **NAVIGATION** button is located on the top of each sheet next to the **SCENARIO TOOL** button. Once the form is opened, select a section from the list. The specific sheet and section will be opened and the form will close.

[Show/Hide The Monte Carlo Section](#)

If the Monte Carlo sections are not visible in the model or the Navigation form, check the **SHOW MONTE CARLO SECTIONS** checkbox on the Navigation Form. The four Monte Carlo sections will appear in a list next to the list for model sections 1 thru Report. The four Monte Carlo sheets will also be visible and assessable in the model.

[Control: Show ROI/Payback](#)

To aid in evaluation, the primary metrics of ROI and Payback month can be continuously displayed on each sheet on the Current Metrics form. The form can be relocated by dragging it around the sheet to a desired location. The user can change any input variable and immediately see its effect on these two metrics.

To activate/deactivate the Current Metrics form, open the **NAVIGATION FORM** and check/uncheck the **SHOW ROI/PAYBACK MONTH ON ALL SCREENS**. Resize data sections with each **NEXT** button.

While navigating between sections using the **NEXT** buttons, it will automatically resize the window to create the best viewing frame. If you do not want to automatically resize the windows, open the **NAVIGATION** form and uncheck the box labeled **RESIZE DATA SECTIONS** with each **NEXT** button.

[Turn Off Sheet Instructions](#)

Opening each sheet will automatically open a form that provides instruction specific to the data sections located on that sheet. It is recommended that you read the entire instruction for that sheet before entering data into any section. Once you become familiar with the model you may turn off sheet instructions by opening the **NAVIGATOR** form and unchecking the **TURN OFF SHEET INSTRUCTION** checkbox.

REPORT WRITER

The user may select any collection of sheets to print, just as in any Excel workbook. Also to support report writing and presentations, a Report Writer has been created. It creates pictures of each visible sheet and stacks them on the Report sheet. To generate these pictures, go to the Start sheet and press the **REPORT WRITER** button. A message box will appear that confirms that the report pictures have been generated. It will automatically take you to that sheet. You can cut and paste each individual picture into a Word, PowerPoint, or other document.

The user may also access the **REPORT WRITER** button on the Navigation form.

POP-UP NOTES

More specific instructions and explanations are available through the **GUIDE** buttons located next to input, summary and results areas. Press the **GUIDE** buttons located next to the area and specific explanations will appear on a form.

All guide forms will close when you navigate to another sheet.