

Stretch Activity 9: Cost-benefit analysis of project to move towards value-based purchasing plan

To complete Stretch Activity 9 (SA-9), providers should use a template or web-based tool available online (see below for the [Return on Investment Forecasting Calculator for Quality Initiatives](#) or the [Business Case for Quality in Healthcare ROI template](#)). HHSC recommends that providers use the Return on Investment Forecasting Calculator for Quality Initiatives. Please submit either the excel template if using the Business Case for Quality in Healthcare ROI template, or the summary page if using the Return on Investment Forecasting Calculator for Quality Initiatives (see *Figure 1: Summary page provider will submit if using the ROI Forecasting Calculator for Quality Initiatives at the end of the document*). Providers will upload the template or summary page to the online reporting system during the April or October DY6 reporting period. Additionally, providers must complete and upload a narrative report discussing the following:

1. An APM/VBP model is a payment arrangement where a payer reimburses a provider beyond the traditional fee-for-service reimbursement. Discuss how the results of this cost-benefit analysis (CBA) or return-on-investment (ROI) analysis can contribute to an alternative payment model (APM)/value-based purchasing (VBP) arrangement.
2. Discuss how one or more APM/VBP methodologies may work for the project chosen for the CBA/ROI analysis. Examples of APM/VBP methodologies:
 - a. FFS + Incentive and/or Disincentive Component
 - b. DRG + Incentive and/or Disincentive Component
 - c. Partial Capitation
 - d. Full Capitation
 - e. Bundled Payment
 - f. Episode Payment
 - g. "Non-financial Incentive (i.e. administrative relief, preferential provider status)"
 - h. Supplemental Payments
 - i. Shared Savings/Risk

Purpose

A cost-benefit analysis or return-on-investment analysis can demonstrate to payers (i.e. managed care organizations, community partners, health systems, etc.) that a project is a worthwhile investment and demonstrates potential for a value-based payment arrangement. Value-based payment arrangements move away from volume-based payment models with no connection to quality or value and move towards payment models that link increasing portions of healthcare payments to quality or value. Value-based purchasing has the potential to direct clinical services in the most appropriate manner. Over time, linking healthcare payments to value should result in improved outcomes and greater efficiencies.

Overview

To meet Stretch Activity 9, a provider will perform either a CBA or ROI analysis of a Delivery System Reform Incentive Payment (DSRIP) project and complete a narrative report that demonstrates value-based purchasing planning. A CBA is a method of economic analysis that compares costs with benefits,

both of which are quantified in dollars. CBAs seek to determine the absolute costs and benefits of a strategy, so that organizations can make more informed decisions about using it. This type of analysis can be used to examine one strategy or compare interventions across a diverse array of problems. An ROI analysis, alternatively, is a way to calculate the net financial gains (or losses), taking into account all the resources invested and all the amounts gained through increased revenue, reduced costs, or both. Costs could include, but would not be limited to, costs associated with ongoing overhead needs, staff/labor, supplies, and equipment costs. For purposes of this analysis, providers should utilize the ongoing costs of the intervention, and may or may not include the start-up costs that are assumed to already be covered by DSRIP payments. Savings/benefits could include, but would not be limited to, reduced utilization of healthcare services and improved health outcomes. An ROI analysis can be performed as a forecast or can be performed retrospectively.

General Principles

- Costs, not charges, should be used¹. If costs are not used, a reasonable cost-to-charge ratio must be utilized.
- The more important the cost item is for the analysis, the greater the effort that should be made to estimate it accurately.
- Economic evaluations in healthcare should, where feasible, consider the societal viewpoint. For SA-9, providers should include costs and savings specific to their organization and other medical providers if that information is available (i.e. avoided emergency department utilization). Providers should include the societal viewpoint (i.e. patient time, missed work) if directly tied to your project and it impacts potential payers.

Considerations

- Economic evaluations should use a specified social discount rate² between 3-7%. Note: This is only if the time horizon for the analysis is two years or longer. If the time horizon is less than two years, the analysis may not need to consider issues of inflation, discounting, or depreciation.³
- The most precise way to determine hospital costs is micro-costing⁴ where each component of resource used (e.g. laboratory tests, days of stay in ward, drugs, etc.) is estimated and a unit cost is derived for each, but this may not always be possible. Average per diem (daily cost) may be acceptable (e.g. for inpatient care, may remove all medical care costs to determine the per diem 'hotel' component - then look at medical care costs separately and include the average 'hotel' cost).⁵

¹ The *cost* of a medical procedure is the sum of total of all resources needed to carry it out. The *charge* for a medical procedure is the fee assigned by the provider for the service. Usually charges exceed payments due to negotiated discounts between providers and payers.

² The *social discount rate* is the social rate of time preference (i.e. society's willingness to forgo consumption today in order to have greater consumption tomorrow).

³ [AHRQ Quality Indicators Toolkit](#): "Calculating and Interpreting Return on Investment (ROI)"

⁴ *Micro-costing* multiplies the quantity of resources (e.g. doctor time) by their market price and sums across these values to determine total cost.

⁵ Drummond M, O'Brien B, Stoddart G, et al. *Methods for the economic evaluation of health care programmes*. 3rd ed. New York, NY: Oxford University Press; 2005.

- It may take a longer period of time than the study time to see net benefits achieved. The costs of quality improvement programs are usually incurred at the beginning of the program. If ROI is calculated at the initial stage of the program, the results are likely to be negative. If ROI is calculated in the long-run, the chance of having positive results will increase⁶. Providers may choose to do a forecasted economic evaluation, which would demonstrate potential savings.
- It is important to note that the implementation of improvement actions is likely to have effects on various stakeholders with different points of view (e.g. a hospital's reduction of infection rates could impact costs to insurers by affecting the payments made to the hospital, depending on an insurer's payment policy). It is useful to consider what the effects may be for other stakeholders⁷.

Resources

Resource	Description	Resource Type	Resource Link
HTA 101: Economic Analysis Methods	The National Institutes of Health provides an overview of the main types of economic analysis, specifically for Health Technology Assessments (HTAs).	Economic Analysis - informational only (no template)	https://www.nlm.nih.gov/nichsr/hta101/ta10107.html
Instructions: Return on Investment Estimation	These instructions by the Agency for Healthcare Research and Quality (AHRQ) provide a step-by-step method for calculating the ROI for a new set of actions implemented to improve performance on one or more of the AHRQ Quality Indicators.	ROI - informational only (no template)	https://archive.ahrq.gov/professionals/systems/hospital/qitoolkit/f1-returnoninvestment.pdf
ROI Forecasting Calculator for Quality Initiatives	The ROI Forecasting Calculator for Quality Initiatives was developed by the Center for Health Care Strategies. It is a Web-based tool designed to help state Medicaid agencies, health plans, and other stakeholders assess and demonstrate the cost-savings potential of efforts to improve quality. It provides step-by-step instructions for users to calculate ROI for the proposed quality initiatives. Users enter a variety of assumptions before starting the calculation, including target population characteristics, program costs, and expected changes in healthcare utilization, to estimate potential savings. HHSC recommends using this resource.	Forecasted ROI (web-based tool)	http://www.chcsroi.org/Welcome.aspx Users Guide <i>Please note: must register for site, but this resource is free to use. HHSC suggests printing/saving the summary page if you choose to use this tool for SA-9 (see Figure 1).</i>
Business Case for Quality in	In connection with the Business Case for Quality initiative, researchers at the University of North Carolina at Chapel Hill developed the Return on Investment (ROI)	Retrospective ROI (template available)	http://www.chcs.org/resource/the-medicaid-return-on-

⁶ [AHRQ Quality Indicators Toolkit](#): "Calculating and Interpreting Return on Investment (ROI)"

⁷ [AHRQ Quality Indicators Toolkit](#): "Calculating and Interpreting Return on Investment (ROI)"

<p>Healthcare ROI template</p>	<p>Template. This Microsoft Excel-based tool is designed for use by states and health plans to retrospectively measure the ROI from quality improvement initiatives. Through the Template, users track the financial investment associated with developing and implementing a quality initiative, as well as any savings derived from resulting changes in medical expenditure among the target population. The Template accommodates two analytical approaches: a pre-post analysis of the target population, as well as a control/comparison group analysis.</p>		<p>investment-template/</p> <p>Download Template</p> <p>Download Instructions</p> <p>Download Example</p>
<p>Events Prevented Calculator</p>	<p>Developed by the Institute for Healthcare Improvement, this tool allows users to track the change in rate of any type of adverse event over time. When appropriate data are added, the user also can track the consequent change in unnecessary deaths (“lives saved”), real and additional potential cost savings, and ROI of quality improvement work targeting those adverse events.</p>	<p>ROI forecast or retrospective (template available)</p>	<p>http://www.ihi.org/knowledge/Pages/Tools/AdverseEventsPreventedCalculator.aspx</p> <p><i>Please note: must register for site, but this resource is free to use.</i></p>

ANALYSIS SUMMARY



[ROI Analysis and Sensitivity Analysis](#) | [Per Member Costs & Savings](#) | [Per Member Per Month Details](#) | [Summary](#)

Forecast Name: Test 1

Utilization Change Assumptions Used: No article selected, manual inputs used.

Target Population	
Eligible Population	Adults
Total Membership in Eligible Population	10
Clinical Focus	Other
Target Strata	
Outreach Goal	0.00%
Ramp-up Period	6 months
Total Target Population Members	0
Total Intervention Group Members	0

Utilization Assumptions - Cost Increases/Decreases			
	Year 1	Year 2	Year 3
Inpatient	0.00%	0.00%	0.00%
Emergency Dept	0.00%	0.00%	0.00%
Outpatient	0.00%	0.00%	0.00%
Home-Based Care	0.00%	0.00%	0.00%
Laboratory	0.00%	0.00%	0.00%
Pharmacy	0.00%	0.00%	0.00%
Other	0.00%	0.00%	0.00%

Savings per Intervention Group Member				
	Year 1	Year 2	Year 3	Total
Inpatient	\$0	\$0	\$0	\$0
Emergency Dept	\$0	\$0	\$0	\$0
Outpatient	\$0	\$0	\$0	\$0
Home-Based Care	\$0	\$0	\$0	\$0
Laboratory	\$0	\$0	\$0	\$0
Pharmacy	\$0	\$0	\$0	\$0
Other	\$0	\$0	\$0	\$0
Total per Member	\$0	\$0	\$0	\$0
Organizational Total	\$0	\$0	\$0	\$0

Program Costs					
	Pre-Launch	Year 1	Year 2	Year 3	Total
Program Costs	\$0	\$0	\$0	\$0	\$0

ROI			
	Year 1	Year 2	Year 3
Cumulative ROI	0.00x	0.00x	0.00x
Cumulative ROI Captured Internally	0.00x	0.00x	0.00x
Cumulative ROI if Savings are 5.00% Lower	0.00x	0.00x	0.00x
Cumulative ROI if Savings are 5.00% Higher	0.00x	0.00x	0.00x
Net Present Value	\$0	\$0	\$0

Figure 1: Summary page provider will submit if using the ROI Forecasting Calculator for Quality Initiatives. Please note: providers must include costs and forecasted utilization changes in submission.