Health Economics Resource Center
VA Palo Alto Health Care System
795 Willow Road (152 MPD)
Menlo Park, CA 94025

MEMORANDUM

Date: January 2017

To: QUERI Programs

From: HERC

Subject: Sample Cost Analysis Plan for QUERI Programs

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1. OVERVIEW

This section provides an overview of the study and a summary of the proposed cost analysis plan.

A. Specific Aims

This section details the specific aims of the cost analysis.

B. Hypotheses

This section details the hypotheses of the cost analysis.

2. COST ANALYSIS PLAN

A. Cost Analysis Background

1) Perspective
2) Time Horizon
3) Treatment Alternatives
4) Patient Population
5) Outcome Measure Considerations
6) Sub-group Analyses

B. Cost Inclusions and Exclusions.

This section includes factors to determine cost inclusions and exclusions for the analysis.

1) When an intervention requires significant activities to implement and those activities will not decline when the intervention is implemented in other facilities (e.g., training to physicians and staff), implementation cost should be collected.
2) Intervention cost is always collected as usual.

3) Often, an intervention will lead to better health status and reduce healthcare utilization in the future. However, an intervention often requires more care. Therefore, a comparison of cost in healthcare utilization before and after the intervention is conducted to analyze the consequent healthcare utilization following the intervention. The hypothesis is that the cost increase in health care due to an intervention is balanced by a decline in healthcare utilization following the intervention due to improved health status. The ideal design is to also include a comparison group since there may be external factors that affect the costs of intervention patients during the study period.

C. Cost Identification.

This section identifies the cost categories under the three stages of the implementation. This section also provides the programmer a more detailed data analysis plan to follow and execute.

1) Implementation. Implementation costs are generally measured by the micro-costing method and commonly include the following cost items:

   a. Staff
      - *Project Implementation* – To estimate staff cost, we need to record FTE of persons who are involved in the project implementation, but do not include meeting participants (i.e., physicians, nurses, pharmacist and staff, etc.). If a staff works part time for this project, the macro method is to record the FTE designated to this person, and the micro method is to record the time of this staff spent for each activity. When using micro-costing, the indirect labor cost should be considered, such as the time for general training, administrative activity, vacation and sick leave, etc. When recording staff cost, we also need to know the title of the staff. Since staff salary varies within each employment category, we will use an average salary to estimate staff cost.
      - *Meeting time of participants* – Implementation often requires training of physician, nurse etc. For each meeting, we need to record length of the meeting and number of participants by title of employment that matches VA employment pay category. Again, an average salary in each employment category will be used for cost estimation.

   b. Supplies
      - *Equipment* – Record the equipment needed to implement an intervention. If the equipment is shared by other services, estimate shared time (%) of use by the study project.
      - *Material* - Manual, handbook, instruction, newsletter etc. Usually this type of service is contracted, and expenses can be recorded.
      - *Telephone/email* – The telephone/email cost in this category contains only equipment and utilization cost. We should check actual marginal cost of using the services related to implementation because that can be quite different from the cost of setting up a new line.

2) Intervention. Intervention costs are also measured by the micro-costing method, including costs associated with the intervention. Consider what the primary components of the intervention include.

3) Consequent Cost. Consider the following information regarding the study design and objectives to determine the most appropriate measurement model for the healthcare utilization costs:

   a. Control group – To select a control group, we should try to ensure similarity between patients in the control and those in the intervention groups. We need to assess sample size to ensure we have the power to statistically detect differences.

b. Length of the study period – We need to determine an appropriate period pre-and post the intervention. In many cases, healthcare utilization during the intervention period should also be analyzed because utilization is often increased due to the intervention.

c. Relevant category of healthcare utilization – A study subject often has multiple health conditions and some are not related to the intervention. Therefore, if possible we should separate medical care utilized due to the health condition related to the intervention from the care needed for other conditions, but this may not always be possible.

d. Variation in medical treatment – It has been observed that medical care varies by regions although the variation in VA is smaller than the private sector. We need to look at the regional effects when reporting the cost from a national perspective. We will control the variation effects from two perspectives: the net impact of the intervention and the BIA from national implementation. The purpose of conducting a cost consequent analysis is to measure potential savings in healthcare utilization due to improved health status from the intervention. The cost impact varies by region due to regional variation in practice patterns. We will use the difference-in-difference method to exclude regional variation and obtain the net cost impact of the intervention. We will then compare costs between the intervention and the control groups as well as before and after the intervention. To report the national impact of the intervention on healthcare utilization, we will add the variance in healthcare utilization across regions to the net cost impact on healthcare utilization following intervention.

D. Cost Analysis Methodology

1) Determine activities that should be included in cost analysis (Tables 1 to 2).
2) Choose a cost measurement method for each activity.
3) Determine the necessary factors for consequent cost analysis.
4) Develop a consequent cost analysis method.
5) Complete a cost analysis plan.
6) Data collection
7) Data analysis
8) Report

Table 1. Activity of Implementation Cost

Activity	Description	STAFF			SUPPLIES			OTHER
		Total Staff (FTE)	Length of Staff on Project	Meeting Time of Participants by Employment Category	Equipment	Material	Telephone/ Email time *(project specific to all patients)*	Other

Table 2. Activity of Intervention Cost

Activity	Description	STAFF			SUPPLIES			OTHER
		Total Staff (FTE)	Length of Staff on Project	Meeting Time of Participants by Employment Category	Equipment	Material	Telephone/ Email time *(project specific to all patients)*	Other

Table 3. Downstream Cost Considerations (VA perspective)

	Time periods	
Cost category	**__ months pre intervention**	**__ months post intervention**
*Total Inpatient Costs**		
Medicine		
Mental health & SUD treatment		
Other		
*Total Outpatient Costs***		
Outpatient Medicine		

*Use table 3a to assign inpatient care to a category.

**Use table 3b to assign outpatient care to a category.

All care should be listed as a category.

Table 3a: Examples of Inpatient Categories of Care

Category of Care*	Bedsection / Treating Specialty
Medicine	1-19, 24, 30, 31, 34, 83, 1E, 1F, 1H, 1J
Mental health	25, 26, 28, 29, 33, 38, 39, 70, 71, 75, 76, 77, 79, 89, 91-94, 1K, 1L
SUD Treatment	27, 72, 73, 74, 84, 90, IM
Rehabilitation	20, 35, 41, 82, 1D, IN
Blind Rehabilitation	21, 36
Spinal Cord	22, 23
Surgery	48-63, 65, 78, 97, 1G
Intermediate	32,40
Domiciliary	37, 85, 86, 87, 88
Long Term Care	42-47, 64, 66-69, 80, 81, 95, 96, 1A, 1B, 1C
PRRTP	25-29, 38, 39

*Decide which categories below can be combined into an “Other” category.

Table 3b: Examples of Outpatient categories based on clinic stop

HERC Category of Care Name*	Clinic Stop Number
Outpatient Medicine	101-103, 110, 116, 130, 131, 142-144, 149, 153, 158, 159, 182, 185-188, 231, 301-326, 329-333, 335-342, 345, 348-353, 369-373, 394, 434, 436, 437, 439, 450-485, 511, 674, 683-686, 690-692, 694, 695, 706, 709, 710, 712
Mental health	156, 157, 501, 502, 504-506, 509, 510, 512, 515, 516, 520-522, 524-540, 542, 546, 550-554, 557-559, 561-584, 589-592, 731
SUD Treatment	507, 508, 513, 514, 517-519, 523, 543-545, 547, 548, 555, 556, 560, 588, 593-599, 707
Pharmacy	180, 181
Dialysis	602-604, 606-608, 611
Ancillary Services	111, 117, 120, 122-125, 147, 160, 161, 163-169, 708, 711, 714, 999
Rehabilitation	195-199, 201-211, 213, 214, 216-225, 228-230, 240, 250, 438, 715
Diagnostics Services	104-109, 115, 126-128, 145, 146, 148, 150-152, 154, 212, 334, 701-705, 717, 718
Prosthetics	417, 418, 423, 425, 449
Surgery	327, 328, 401-416, 419-422, 424, 426-433, 435, 716
Adult Daycare	190, 191
Home Care	118, 119, 121, 170-179, 215, 503, 670, 680-682, 725-730
Extended Care	650-652, 654, 656
Other Contract Care	610, 640-643, 653, 655, 658
Unassigned	801, 802, 900, 998

*Decide which categories below can be combined into an “Other” category.