National Technical Assistance Center

CRE

Contracting & Reimbursement Expansion with Medicaid & Marketplace Insurance Plans

COST ANALYSIS BASICS

A RESOURCE DEVELOPED FOR

Ryan White HIV/AIDS Program Core Medical Providers

A Project of CAI

A RESOURCE DEVELOPED BY

*CRE and informed by Positives Outcomes Inc. and Determining the Unit Cost of Services: A Guide for Estimating the Cost of Services.**

*Health Resources and Services Administration. Moreau, M., Hager, C. Determining the Unit Cost of Services: A Guide for Estimating the Cost of Services. 1 Oct. 1992. Web 19 Jan. 2016. <https://careacttarget.org/sites/default/files/file-upload/resources/DeterminingUnitCost.pdf>

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I. INTRODUCTION

OVERVIEW

Since the introduction of the Patient Protection and Affordable Care Act (ACA), clients served by providers who receive Ryan White HIV/AIDS Program (RWHAP) funding are increasingly gaining access to health insurance coverage. To promote continuity of care, and ensure scarce federal funds are targeted toward caring for uninsured and underinsured clients, RWHAP-funded providers (RWHAP providers) have been working hard to establish or expand contracts with health insurance plans. Expanded contracting offers RWHAP providers opportunities to bill and be reimbursed for providing vital healthcare services to the clients they serve.

Revenue generated from billing can contribute to the long-term sustainability of RWHAP-funded healthcare services but only if the amount of the revenue for delivering services covers the actual costs to provide those services. Therefore, it is advised that RWHAP providers have a strong understanding of what it costs to deliver its services. In order to determine the cost for services, RWHAP administrators or program managers should conduct a cost analysis regularly, ideally on an annual basis.

A **cost analysis** is a systematic approach to understand the cost of providing different services in your organization. RWHAP providers should know the costs of the services they provide to prepare for contract negotiations with health insurance plans. Conducting a cost analysis will allow RWHAP providers to calculate the difference between plan reimbursement and service costs. In situations when the health insurance plan reimbursement is less than cost of services RWHAP providers may wish to negotiate higher reimbursement rates.

Cost analysis data can be used to identify high cost services, examine what contributes to these high costs, and consider opportunities to reduce costs. Furthermore, a cost analysis will allow you to compare your costs to the existing fee schedule (list of organization charges for medical visits and services) or use the analysis to provide direction in setting fees.

WHO SHOULD USE THIS RESOURCE?

This resource is designed for staff that administer or manage the delivery of RWHAP-funded core medical services to help ensure their organization is able to adequately bill and be reimbursed for providing vital health care services to their clients.

You don't have to be the expert. Instead, every RWHAP administrator or manager should have basic knowledge of what a cost analysis is, why it is important, and how to collect the information necessary to conduct a cost analysis.

CRE experts are here to help.

Whatever your situation, you can use the information provided in this resource to improve your understanding of the concept of cost analysis and the strategies for conducting the analysis, and begin to consider how you can utilize cost analysis results to develop a plan to ensure your program remains fiscally sustainable.

To request individualized technical assistance on conducting a cost analysis, contact CRE at **CRE.TA@caiglobal.org.**

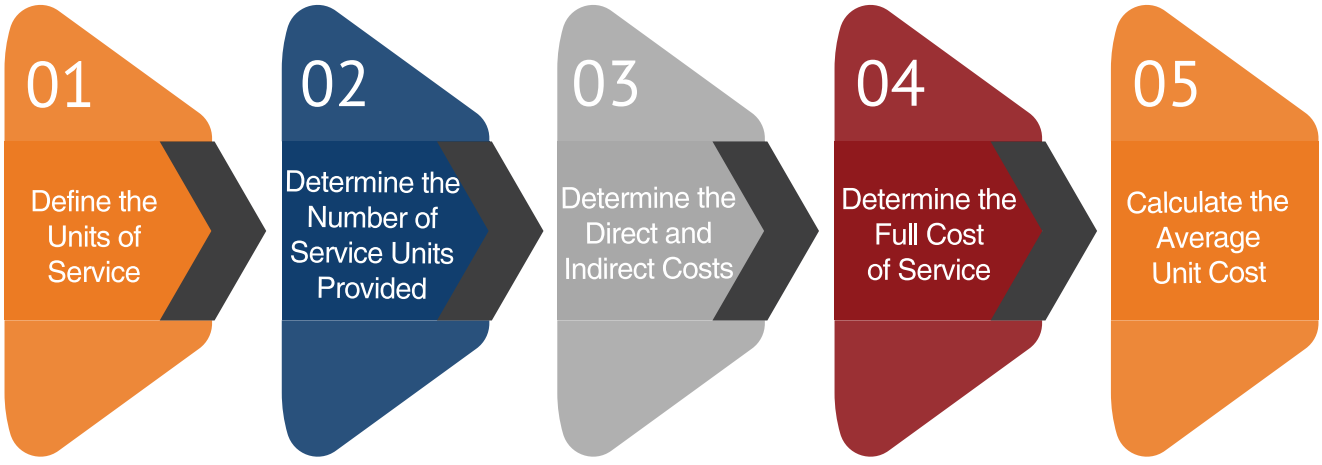
II. OVERVIEW OF THE STEPS FOR CONDUCTING A COST ANALYSIS

A cost analysis is the process of determining the unit cost, or the average cost of providing specific services over a defined period of time. It begins with defining the unit of service you wish to analyze, followed by determining the number of service units provided in a given timeframe.

Next, you determine the direct and indirect costs associated with providing each service and add those costs together. The final step to calculating the average unit cost is to divide the total cost by the number of times the service was delivered.

This guide explores each of the following steps to conducting a cost analysis and provides a case study to demonstrate a real-world example.

The Five Steps to a Cost Analysis



III. IMPLEMENTATION CONSIDERATIONS

Before you begin conducting a cost analysis, it is important to consider the following:

WHERE SHOULD I BEGIN?

If a cost analysis has been conducted: If your organization is part of a larger institution (e.g. hospital, university-based clinic, Federally Qualified Health Center, local or state public health department), it is likely that this larger organization has the capability to conduct a cost analysis and may already have conducted this analysis. If a cost analysis has been conducted, it is not recommended that you conduct a new analysis on your own. Instead, work with the larger organization to identify and reach out to the appropriate department or individual to determine the following:

- Has a cost analysis been conducted for your program(s)?
- When was the last cost analysis conducted?
- How was the unit of service defined? Which industry code sets were used, if any?
- If recently completed, has the amount reimbursed from health insurance plans been compared against your program costs?

If a cost analysis has not been conducted: If no cost analysis has been completed for your program, garner the larger organization's support in working with your program to conduct a cost analysis.

If you are not part of a larger organization, have no resources to draw upon or your organization has never conducted a cost analysis, you will need to start from the beginning.

WHO IS INVOLVED IN CONDUCTING A COST ANALYSIS?

Conducting a cost analysis is rarely a one-person job. You will need to identify key staff who can help you access the necessary information. For example, access to accounting, payroll, information technologies, and other data collection systems is needed.

OVER WHAT TIME PERIOD SHOULD UNIT COST BE ANALYZED?

It is critical to select a time frame for the analysis. Best practice suggests that a cost analysis is completed for a specific year. This can be a calendar or fiscal year, whichever is best to ease the burden of data collection. Moving forward, the analysis should be repeated for the same time period (e.g. 12 months) to take into account cost changes, such as salary increases, and allow for identification of trends through review of year-to-year data.

IV. **STEP 1:** DEFINE THE UNITS OF SERVICE

The first step in conducting a cost analysis is to define the **unit of service.** Many RWHAP providers may have several different programs at their organization and different services associated with each program, such as an outpatient medical program and a dental program. It is common to define units of service based on definitions established as industry standard code sets. Examples and descriptions of these code sets used to define units of service include:

- **Current Procedural Terminology (CPT)** codes are maintained by the American Medical Association (AMA) to define medical, surgical, and diagnostic services in submitting claims to insurers. CPT 99211, for example, is assigned to an office or other outpatient visit for evaluation and management of an established patient that may not require the presence of a physician. This procedure is assigned when the presenting problem is minimal and requires a five minute visit.

- **Healthcare Common Procedure Coding System (HCPCS)** codes are used by the Medicare Program. HCPCS are assigned to each task and service that may be provided to a patient. HCPCS T1016, for example, is assigned for every 15 minute increment of a case management appointment.

- **Current Dental Terminology (CDT)** codes are maintained by the American Dental Association. CDT D0120, for example, is assigned to a periodic oral evaluation.

It is important to note that the service definitions used in these code sets are much more granular components of the broad service definitions used by the RWHAP.

If your program does not collect data by code sets or does not have reliable data, review the code descriptions to identify the services most commonly provided at your clinic. Your program may also have an automated information system based on client records that identifies the types of services provided. If this information is not available, you may have to examine how you typically categorize a service and compare that against CPT codes.

V. **STEP 2:** DETERMINE THE NUMBER OF SERVICE UNITS PROVIDED

Once you have defined the unit of service, the next step is to determine how many times each service has been provided in the time frame of the cost analysis (e.g. 12 months). This can be done by reviewing client utilization data that calculates the frequency in which the service is provided. Such data should be available through your electronic health records (EHR) or other data management systems.

When possible it is helpful to identify services with high and low patient volume. Trend analysis (review of historical data to predict future outcomes) for at least a three-year period is helpful to ensure that utilization projections are stable and not impacted by staff turnover or other factors driving changes in service use.

VI. **STEP 3:** DETERMINE THE DIRECT AND INDIRECT COSTS

With the unit of service defined and utilization of that service calculated, the next step is to determine the direct and indirect costs associated with the provision of the service or services being examined.

Direct costs are the expenses which you can easily attribute to providing a certain service. Examples of direct costs include the salaries and benefits of employees who directly provide the service, and the cost of materials, equipment and supplies to produce the service. Your organization's operating budget often includes this information.

Indirect costs include all the expenses that are shared by more than one program (e.g. outpatient ambulatory medical care and dental) at the organization. Common indirect costs include facility expenses (e.g. utilities, furniture, internet and phone, etc.), organization administrative salaries (e.g. director, accountant, IT, etc.), and fundraising expenses.

All of these costs support the entire organization, not just one program or service. Total indirect costs should be equitably allocated among the different service units. Allocation amounts can be determined by square footage of the facility, gross salaries within each program, the sources of revenue, or the percentage of each program's direct costs to the total direct costs. In some cases, an organization may use a predetermined indirect cost rate (e.g. 25%), which is applied evenly to the total direct cost for each service.

The example below provides a snapshot of how direct and indirect costs are allocated to case management and outpatient ambulatory medical care programs.

In this example, indirect costs are allocated based on the percentage of each service's direct costs compared to the total direct costs. The total direct cost of providing both case management and OAMC is $346,200 (i.e. $140,000 + $206,200). Of that, total case management represents 40% (i.e. $140,000 ÷ $346,200) and OAMC represents 60% of the overall total cost (i.e. $206,200 ÷ $346,200). To calculate the indirect costs for each program, the proportion of the direct cost will be applied to the total indirect costs. For example, case management is allocated 40% of the total direct cost, $68,800 (i.e. $68,000 x 40% = $27,520) and OAMC is allocated 60% (i.e. $68,800 x 60% = $41,280).

PROGRAM BUDGET BY TYPE OF SERVICE AND COST CATEGORY

	DIRECT COST		INDIRECT COST
Cost	Case Management	OAMC	Management/General
Salaries	$100,000	$150,000	$40,000
Benefits and Taxes	$20,000	$30,000	$10,000
Rent	$10,000	$15,000	$3,000
Utilities	$2,000	$3,000	$500
Building Maintenance	$1,000	$1,200	$500
Equipment Maintenance	$500	$700	$500
Telephone, Mail, Copies	$3,500	$4,100	$1,000
Other supplies	$2,000	$2,200	$1,000
Accounting			$4,000
Insurance			$4,000
Other	$1000		$1,000
			$3,300
Total	$140,000	$206,200	$68,800
Direct costs as percent of total direct costs	40%	60%	
Allocation of indirect costs	$27,520	$41,280	

Based on "Determining the Unit Cost of Services: A Guide for Estimating the Cost of Services funded by the Ryan White Care Act of 1990. (1992). Retrieved January 19, 2016, from https://careacttarget.org/sites/default/files/file-upload/resources/DeterminingUnitCost.pdf"

VII. **STEP 4:** DETERMINE THE FULL COST OF SERVICE

Full costs include all the expenses that are directly and indirectly required to provide a service. For each service, use this simple equation:

Direct Costs to Provide Service + Indirect Costs to Provide Service = Full Cost of Service

If we revisit the example from Step 3, we see that full cost is adding the direct and indirect costs together.

PROGRAM BUDGET BY TYPE OF SERVICE AND COST CATEGORY				
	DIRECT COST		INDIRECT COST	
Cost	Case Management	OAMC	Management/General	Total
Salaries	$100,000	$150,000	$40,000	$290,000
Benefits and Taxes	$20,000	$30,000	$10,000	$60,000
Rent	$10,000	$15,000	$3,000	$28,000
Utilities	$2,000	$3,000	$500	$5,500
Building Maintenance	$1,000	$1,200	$500	$2,700
Equipment Maintenance	$500	$700	$500	$1,700
Telephone, Mail, Copies	$3,500	$4,100	$1,000	$8,600
Other supplies	$2,000	$2,200	$1,000	$5,200
Accounting			$4,000	$4,000
Insurance			$4,000	$4,000
Other	$1,000		$1,000	$2,000
			$3,300	$3,300
Total	$140,000	$206,200	$68,800	$483,000
Direct costs as percent of total direct costs	40%	60%		100%
Allocation of indirect costs	$27,520	$41,280		
Total direct and indirect costs by program	$167,520	$247,480		

VIII. **STEP 5:** CALCULATE THE AVERAGE UNIT COST

The final step of the cost analysis is to determine the average unit cost. Unit cost is equal to the full cost of providing services (Step 4) divided by the total number of service units provided (Step 2). You can use the simple equation:

$$\text{Unit Cost} = \frac{\text{Full Cost for Each Service}}{\text{Total Number of Service Units}}$$

	# of Units (A)	Full Cost (B)	Unit Cost (B/A)
Case Management	3,600	$167,520	$46.53
OAMC	4,500	$247,480	$55.00

Some agencies may calculate unit cost by using Relative Value Units (RVUs). For each service code, there is a set of RVUs that relate how much one procedure is worth in relation to another procedure on a common scale. RVUs are conversion factors, not dollar amounts, which take into account the differing resource associated with physician work, practice expenses and professional liability insurance.

Calculating unit cost using this methodology follows the same five steps outlined in this resource but requires the assistance of accounting or finance staff that has advanced knowledge of MS Excel or other spreadsheet software to complete Step 5. A cost analysis using RVUs should be considered based on the requirements of insurers you contract with and the insurers' payment structures. When possible, seek professional assistance for calculating unit costs using RVUs.

Contact CRE at CRE.TA@caiglobal.org to determine if an RVU analysis is right for your organization.

IX. USE COST ANALYSIS DATA IN YOUR ORGANIZATION

Once you have completed the cost analysis for your program, you can use this information to:

- **Prepare for contract negotiations with health insurance plans** – In situations when the health insurance plan reimbursement is less than the service costs, you may wish to negotiate higher reimbursement rates.

- **Examine opportunities to reduce costs** – Identify high cost services, examine what contributes to these high costs, and consider opportunities to reduce costs.

- **Break-even analysis** – Data can be used to determine the point at which revenue received equals the costs associated with providing core medical services, commonly referred to as the "breakeven point."

- **Setting fees** – If your program is part of a larger organization, fees may already be established. This is an opportunity for your program to compare costs to the existing fee schedule. Fees should reflect the cost of your operation, be competitive in the local market, and cover the reasonable cost of providing services. A cost analysis provides direction for setting fees, but is not the only determining factor. The cost analysis tells you what it cost to provide each service last year, as the expenses and the utilization represent last year's activity. You will need to add a cost of living adjustment to last year's costs to account for increases in cost of personnel, supplies, and other costs in the coming year.

X. GLOSSARY

Current Procedural Terminology (CPT) Codes

Current Procedural Terminology (CPT) of the American Medical Association is a listing of descriptive terms with five-digit numeric identifying codes and modifiers for reporting medical services. The organization should first determine which CPT codes are relevant to the services provided by the program. CPT codes are provided with each procedure, 1) for reference, 2) as a basis for documentation of diagnostic procedures performed, and 3) to facilitate financial and patient record keeping. These also are used for billing third party payers.

Direct Costs

Direct costs can be identified specifically with particular cost objectives such as a grant, contract, project, function or activity. And generally include:

- Salaries and wages (including vacations, holidays, sick leave, and other excused absences of employees working specifically on objectives of a grant or contract – i.e., direct labor costs)
- Other employee fringe benefits allowable on direct labor employees
- Consultant services contracted to accomplish specific grant/contract objectives
- Travel of (direct labor) employees
- Materials, supplies and equipment purchased directly for use on a specific grant or contract
- Communication costs, such as long distance telephone calls, identifiable with a specific award or activity

Healthcare Common Procedure Coding System (HCPCS)[1]

HCPCS was established in 1978 to provide a standardized coding system for describing the specific items and services provided in the delivery of health care. Such coding is necessary for Medicare, Medicaid, and other health insurance programs to ensure that insurance claims are processed in an orderly and consistent manner. Initially, use of the codes was voluntary, but with the implementation of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) use of the HCPCS for ransactions involving health care information became mandatory.

[1] https://www.cms.gov/Medicare/Coding/MedHCPCSGenInfo/downloads/HCPCSReform.pdf

Indirect Costs

Indirect costs represent the expenses of doing business that are not readily identified with a particular service or program, but are necessary for the general operation of the organization. Common indirect costs include facility expenses (utilities, furniture, internet, and phone) and fundraising expenses. Indirect costs can also include executive office staff salaries and other organization operation costs, such as the cost of financial audits and hiring new employees. Cost allocation plans, or indirect cost rates, are often used to distribute those costs to different programs or services.

Relative Value Unit (RVU)

A relative value unit is a conversion that allows for the comparison of services based on resources associated with its provision.

This number captures three components of patient care: 1) the physician's work, 2) the expenses of the physician's practice, and 3) professional liability insurance. A service is weighted more heavily to reflect the higher skill, effort, and associated stress of providing that service.

A relative value relates one service to all other services based on the amount of time, materials, and level of skill of the personnel who are involved in a particular service. If procedure A's relative value is 10.0 and procedure B's is 5.0, procedure A is worth two times as much as B. Relative value units (RVU) are not expressed in dollar amounts.

Unit Cost

The cost to produce or deliver one unit or service. Estimates of unit cost are based on actual direct and indirect expenses incurred to provide a service. The unit cost of a product or service is information that administrators and managers can use to improve the quality of client service, to save money, and to increase revenue.

XI. APPENDIX: CASE STUDY

The following example presents how to calculate unit cost for providing services. In this example ABC Clinic, a community-based HIV clinic, is used to illustrate a service-based cost analysis. Our hypothetical clinic operates one day per week in a rural community. It is staffed by a part-time MD, RN and medical assistant.

A full-time receptionist handles front and back office functions. To calculate the number of service units provided, the total number of visits by CPT code per year was determined using the clinic's practice management software. The total costs for each type of visit (by CPT code) was calculated based on the clinic's labor, miscellaneous supplies, and overhead. The unit cost (average cost per visit) was then estimated based on the annual full cost for providing each service divided by the number of visits per year.

Clinic staff obtained the Medicaid payment data from their State Medicaid program's fee schedule, which is posted online. Clinic staff then compared the total amount of Medicaid fee-for-service revenue anticipated for 2015 and compared those estimates with their calculated costs. They considered variance between cost and payment for each procedure and then summed their losses. In this example, the clinic found that they lost money for three of the four procedures, with particular losses for new patient visits. Based on this, the clinic would experience a short-fall in Medicaid payments of over $63,000 this year.

1 Define the Unit of Service

ABC Clinic investigated the cost of four common Outpatient Ambulatory Care Clinic services they provide, for example CPT 99211 – the evaluation and management of an established patient that may not require a physician's presence. This procedure is assigned when the presenting problem is minimal and requires a five minute visit.

2 Determine Number of Service Units Provided

ABC Clinic used their practice management software to review how often common Evaluation and Management CPT codes were used over the course of 12 months. For example, 99211 Continuing Patient – Brief was delivered 500 times during the study period.

CPT Code	Description	Total Visits Per Year
99202	New Patient - Limited Exam	100
99203	New Patient - Inter Exam	400
99211	Continuing Patient - Brief	500
99213	Continuing Patient - Inter Exam	1,000

3 Determine the Direct and Indirect Costs

ABC Clinic identified their cost inputs. Their staff analyzed payroll records to compute each employee's wages and associated fringe benefits. ABC Clinic assessed the cost of a consulting billing service (clearinghouse) who charges $1 per submitted claim.

They also analyzed their medical supplies expenses for their OAMC program and estimated that they spent about $4 per procedure. Indirect costs for the program were determined to be 25% of total labor costs.

OAMC CPT Code Example	99202	99203	99211	99213
Time and Cost Inputs	New Patient - Limited Exam (20 min)	New Patient - Inter Exam (30 min)	Continuing - Patient - Brief (5 min)	Continuing - Patient - Inter Exam (15 min)
Labor + Fringe	$6,608	$39,648	$8,260	$49,560
Clearinghouse	$100	$400	$500	$1,000
Medical Supplies	$400	$1,600	$2,000	$4,000
Indirect Cost (25% of Total Labor & Fringe)	$1,652	$9,912	$2,065	$12,390

Direct Costs

Indirect Costs

4 Determine the Full Cost of Service

ABC Clinic added the direct and indirect costs to determine the full cost of providing each of the services every year.

OAMC CPT Code Example	99202	99203	99211	99213
Time and Cost Inputs	New Patient - Limited Exam (20 min)	New Patient - Inter Exam (30 min)	Continuing - Patient - Brief (5 min)	Continuing - Patient - Inter Exam (15 min)
Labor + Fringe	$6,608	$39,648	$8,260	$49,560
Clearinghouse	$100	$400	$500	$1,000
Medical Supplies	$400	$1,600	$2,000	$4,000
Indirect Cost (25% of Total Labor & Fringe)	$1,652	$9,912	$2,065	$12,390
Total Per Procedure	$8,760	$51,560	$12,825	$66,950

5 Calculate the Average Unit Cost

To calculate the unit cost for each of the services provided, ABC Clinic must take the annual full cost for providing each service and divide each by the number of times that service was provided in the same year.

OAMC CPT Code Example	99202	99203	99211	99213
Time and Cost Inputs	New Patient - Limited Exam (20 min)	New Patient - Inter Exam (30 min)	Continuing - Patient - Brief (5 min)	Continuing - Patient - Inter Exam (15 min)
Total Direct	$11,195	$39,170	$10,244	$51,462
Indirect Cost (25% of Total Labor & Fringe)	$2,065	$12,390	$2,581	$15,488
Total Per Procedure	$8,760	$51,560	$2,000	$4,000
Total Visits Per Year	100	400	500	1,000
Average Service Unit Cost	$87.60	$128.90	$25.65	$66.95

NEXT STEPS:

Analysis of Unit Cost Data – Comparing Cost to Payment

With the unit costs for their OAMC visits determined, ABC Clinic compared the cost to the payment received from Medicaid to determine whether payment was covering their costs.

ABC Clinic staff obtained the Medicaid fees paid for each procedure. The data were found in their State Medicaid program's fee schedule, which is posted in the Medicaid provider website. The Clinic staff compared the total amount of Medicaid fee-for-service revenue anticipated for the year and compared those estimates with their calculated costs. They computed the Medicaid payment expected for each procedure based on their estimated total visits per year and summed across the procedures.

For the four procedures shown below, the clinic's total estimated cost is $140,095 and their expected Medicaid payments total is $76,500. ABC Clinic determined they would lose about $63,595. Faced with this shortfall, ABC Clinic staff must now consider how to decrease their costs or increase their revenue.

CPT Code	Description	Total Visits Per Year		Cost Per Visit		Total Cost Per Year	Medicaid FFS $ Per Visit	Medicaid FFS $ Total Payment	Difference Cost Versus Payment
99202	New Patient - Limited Exam	100	X	$87.60	=	$8,760	$35	$3,500	**($5,260)**
99203	New Patient - Inter Exam	400	X	$128.90	=	$51,560	$45	$18,000	**($33,560)**
99211	Continuing Patient - Brief	500	X	$25.65	=	$12,825	$30	$15,000	**$2,175**
99213	Continuing Patient - Inter Exam	1,000	X	$66.95	=	$66,950	$40	$40,000	**($26,950)**
Total		2,000				$140,095		$76,500	**($63,595)**

For more information visit: www.careacttarget.org/cre

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Disclaimer: RWHAP grantees and sub-recipients cannot steer clients into specific plans. While RWHAP grantees and sub-recipients can provide information on plans that might best meet the needs of the client and plans that have been determined to be cost-effective for the RWHAP, they cannot recommend or require clients to sign-up for specific plans. RWHAP grantees and sub-recipients may not direct clients toward certain plans that these entities may favor, direct clients away from plans that appear to meet all of an individual client's needs, or act in their own self-interest or in the interest of a health insurance company.