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THESIS

**AN ACTIVITY-BASED COSTING ANALYSIS OF THE
SUBSTANCE ABUSE COUNSELING CENTER, MARINE
CORPS BASE HAWAII**

by

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March 2003

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**AN ACTIVITY-BASED COST ANALYSIS OF THE SUBSTANCE ABUSE
COUNSELING CENTER, MARINE CORPS BASE HAWAII**

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ABSTRACT

Activity-based costing (ABC) has been widely adopted by the Marine Corps to organize cost management information. The primary focus of ABC is to provide accurate information on the cost of providing a good or service. This thesis presents the application of the ABC methodology to the operations of the Substance Abuse Counseling Center (SACC) aboard Marine Corps Base Hawaii (MCBH). Activities have been examined for a three-year period from fiscal years 2000-2002. The ABC analysis identifies average total resource consumption over the three-year period of \$747,099. Detailed information is provided for determining the cost to counsel a Marine, which is \$85.84 for a clinical evaluation, \$60.57 to provide substance abuse prevention, and \$495.35 for a professional consultation. Additional information is provided on SACC value-added and non-value-added activities and how these activities ranked in terms of resource consumption. Finally, the core competencies of the SACC are discussed and a comparison of counseling costs to outside vendors was used to determine if outsourcing of certain SACC processes or activities is an option.

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I. INTRODUCTION

A. OVERVIEW

The United States Marine Corps (USMC) Revolution in Business Affairs (RBA) was announced in April 1998 in a Commandant Marine Corps (CMC) White Letter to all commanders. The intent of the revolution is to identify “best business practices” from both public and private sector that will help the USMC improve the delivery of goods and services to the operating forces while reducing cost. An important qualification to success in business reform is the implementation of two “best business practices”: Activity Based Costing (ABC) and Activity Based Management (ABM). Like other worthwhile reform initiatives, ABC and ABM, or ABC/M to refer to both, requires top leadership’s attention to the issue of operational sustainment.

The objective of the USMC ABC/M and Performance Services initiative is to improve business operations and reduce operating costs at its bases and air stations as part of the Corps Installation Reform Business Plan. Accordingly, the Marine Corps will require the use of ABC/M in order to improve business operations and reduce costs at its 16 bases, air stations or installations worldwide. As a result of this initiative, the USMC will achieve improved business operations as well as cost savings, while at the same time increasing productivity and customer satisfaction.

Activity-based costing is a tool being used by all branches of the military as they strive to find a more efficient way to meet the demand of fiscal mandates while maintaining their readiness to fight and win battles. Since the CMC White Letter was issued there has been a reduction in the total Marine Corps budget. To combat these cuts the Marine Corps has been given the opportunity to find real dollar savings through the implementation of ABC/M throughout all 16 Marine Corps bases and installations.

To demonstrate the applicability of the ABC/M management techniques to improvements in cost and productivity in the USMC, the Substance Abuse Counseling Center was selected as an appropriate organizational unit located within the typical marine base or installation. Every major base or installation in the Marine Corps has a

Substance Abuse Counseling Center (SACC). The SACC counsels thousands of Marines on alcohol abuse, drug abuse, domestic violence, and prevention every year.

The SACC aboard Marine Corps Base Hawaii (MCBH) was selected as the research site for this thesis. The SACC has a FY02 budget of \$526,001. This dollar figure represents only a very small percentage of the USMC FY 2002 total budget of \$16,454,000 for each of its 16 bases and installations. The SACC provides their services to an average active duty population of 8,000. The budget the SACC receives is small compared to other bases such as Camp Pendleton, which has an average population of 55,000. Given this significant investment it is critical that top-level decision makers have accurate and relevant cost information to assist them in the initiation of cost management efforts and improvements in efficiency.

The objective of this thesis is to present a case study of the development and implementation of an ABC/M model at the SACC aboard MCBH. Identifying and quantifying the cost structure of the SACC provides a model of how an ABC analysis can be applied to military activities as well as civilian support activities at the base and installation level. Using ABC/M cost structure refers how each dollar or resource is consumed without regard to fixed or variable costs. The goal is to provide a model that can be applied to any activity aboard any base or installation in order to provide cost structure data and other information for decision-making.

Marine Corps Order (MCO) P1700.24B requires substance abuse intervention and treatment to be conducted at all bases, stations, or depots by qualified personnel (e.g., substance abuse counselors, physicians, and psychologists, with requisite skills and training). This order additionally requires that treatment be provided, under the supervision of a Licensed Independent Practitioner (LIP) (physician or clinical psychologist). By this order each base and installation is required to have a substance abuse counseling center and each SACC must have similar operations staffed with competent personnel.

This study presents analyses of operations at the SACC aboard MCBH using the ABC methodology to determine the full cost structure. The purpose is to find the cost of ALL resources consumed by activities performed in the process of providing substance

abuse services to the base. The model will also provide all relevant costs that pertain to performing a particular task. Additional analysis has also identified full capacity of the SACC, top-level core competencies, and a determination of value-added processes provided.

This thesis contains four major discussions: a description of the SACC operations, a presentation of the data collected, an analysis of the data in the ABC model framework, and a study to determine if outsourcing is a viable option. The conclusion highlights the findings and recommendation of this analysis.

B. BACKGROUND

Activity Based Costing is a management tool that allows an organization to determine the cost associated with each product and service produced by the organization. In order to achieve the major goals of business process improvement, process simplification and efficiency improvement, managers need to fully understand the cost, time, and quality of activities performed by employees or machines throughout an entire organization. ABC methods enable managers to identify the cost of activities in order to simplify business processes leading to process improvement.

Marine Corps Base Hawaii began the 21-week base-wide ABC model implementation in the year 2000. Initially the contractors from Grant Thornton LLP, ABC Technologies, and the MCBH ABC Team were assigned with gathering the relevant information that was needed to build the first model. I was assigned to head-up the MCBH ABC team halfway through the initial implementation. My responsibility was to ensure the continuation of the project throughout the next couple of years once the contractors left. The contractors taught Paul Fujiyama and myself how to build and maintain a model. We were responsible for collecting resource and activity data from the entire base, educating functional managers on the use of ABC, and conducting ABM sessions with MCBH and other outside organizations. We were also tasked with maintaining a model that was to be updated every 12 months. During this time the model went through numerous refinements to make the model more accurate for ABM. Because of these continual updates the model became the work of the MCBH ABC Team.

The Marine Corps has currently been developing ABC models over the last three years at all 16 bases and installations around the world. The Marine Corps has begun to realize the benefits of this three-year implementation by using cost information that has never been available before. Military commanders, civilian managers, and other key personnel are able to make real cost effective decisions that affect everyday budget decisions.

This thesis will.

- Show how activity-based costing can be applied to installation operations at the micro level.
- Provide a relevant examination of the cost structure including resource costs, activity costs and the cost to provide counseling services.
- Provide information on capacity, value added and non-value added activities of the SACC.
- Determine if outsourcing is a viable option.

C. RESEARCH QUESTIONS

1. Primary Research Question

a. What is the Cost to Counsel a Marine on Substance Abuse Aboard Marine Corps Base Hawaii

In order to answer this question all resources consumed, activities performed and services provided need to be defined. First, resources consumed during the operation of the SACC need to be identified. This includes identifying all composite rates for military and civilian pay, and the cost of contracts, materials, and supplies. Then all core activities are defined. Core activities are those activities that directly consume resources in the process of providing counseling services. Once defined, the resources can be allocated to the appropriate core activities using measures that reflect the resources consumed by each activity. Finally, the cost objects or outputs of the SACC will be defined and the activities are allocated to the counseling services the SACC provides to the base. The complete ABC analysis shows the full cost of each activity performed and the resources they consume to be identified.

2. Secondary Research Questions

a. What are the Core Competencies of the SACC Aboard MCBH

In answering this question one must consider if the SACC is a program that can only be accomplished by the Marine Corps. If so, what are the characteristics or factors that prevent performance by an outside vendor? In other words, are there certain core competencies in the SACC that are not found in outside providers. If the SACC is not a unique organization and can be duplicated then outsourcing needs to be considered in cost savings are identified.

In examining these core competencies a detailed look at each function of the SACC was accomplished. This analysis identified those areas where the Marine Corps had a competitive advantage due to experience, resources, personnel, or capabilities that are unique and cannot be duplicated or effectively provided by another agency.

b. What are the SACC Value Added and Non-Value Added Processes

The primary mission of MCBH is to enhance and sustain the combat readiness of assigned operating forces and other tenant organizations. The substance abuse counseling center has a clearly defined organizational structure to support this mission. Because substance abuse is detrimental to the mission of the base as well to the Marine most of the activities within the SACC would be considered value-added. Identification of the specific functions that add value to readiness can be identified with the use of ABC. Wherever possible, non-value added activities must be identified and eliminated. This is the ABM contribution to cost improvement.

D. SCOPE, LIMITATIONS AND ASSUMPTIONS

This research has been limited to the Substance Abuse Counseling Center and not Marine Corps Base Hawaii as a whole. This limitation is necessary due to the large amount of additional information that would have to be gathered and the time constraints involved. Also, this additional information would detract from the accuracy of this thesis because every organization has a different structure and mission to accomplish.

Archival data for the fiscal years 2000, 2001, and 2002 will be utilized, instead of several years, due to the fact that additional years would not add value to the research.

Using only one year may skew the data and may not provide accurate information. Costs considered by this study are limited to those, which are derived from the SACC. An extrapolation of the data will be considered to estimate the cost to counsel a Marine throughout the entire Marine Corps.

Finally, the efficiency and the content of the counseling are assumed to be in accordance with proper counseling procedures. The employees involved within the SACC are highly trained with years of experience. The specific counseling is better left to the experts with the proper education.

E. METHODOLOGY

The research methodology includes the following.

1. Literature Review

A review of relevant articles relating to activity-based costing, value chain analysis, and core competencies was conducted to ensure the most current methods have been applied. Organizational structure and mission statements for substance abuse counseling center have been reviewed. This review will help understand the daily operations of the SACC.

2. Data Collection

Historical data has been obtained from several sources at Marine Corps Base Hawaii, including the base Comptroller, ABC team, and the SACC. Military composite standard pay and reimbursement rates were obtained from the DOD Military Composite Standard Pay and Reimbursement Tables.

3. Analysis

Data obtained for this thesis has been examined in order to identify the relevant costs for resources, activities and services performed. Costs for services provided from outside vendors were identified and compared to the cost data created by the ABC model. Also value-added and non-value added activities of the SACC operations were recognized and additional analysis identified top-level core competencies as they relate to the counseling mission.

II. ORGANIZATIONAL OVERVIEW

A. SYSTEM DESCRIPTION

The Marine Corps objective is to improve the capability of commanders and their Marines to prevent drug/alcohol abuse related problems that detract from unit performance and readiness. Every attempt will be made to prevent drug and alcohol abuse through proactive and reactive measures. The most effective and long-term program is one that promotes an attitude of overall responsibility on the part of the individual Marine.

This effort requires a total leadership commitment of all officers, staff noncommissioned officers, and noncommissioned officers. Leaders must set the example and ensure that all Marines are aware of the Marine Corps commitment to prevent drug and alcohol abuse. In short, Marine Corps leaders must reinforce the policy that drug or alcohol abuse is not tolerated and that Marines who abuse these substances will be held accountable for their actions.

In response to concerns about the harmful and damaging effects of alcohol and drug abuse, the Marine Corps has established counseling centers at all major commands across the United States and abroad. These centers provide assistance by conducting screening interviews and then making appropriate recommendations based on the needs of individuals and their commands. Treatment and counseling services are also an important component of these standards.

Counseling processes are designed to assist individuals and families with the most updated techniques and then return the Marine to his or her occupational specialty with the least amount of inconvenience. This is accomplished through the use of individual, group, educational, and referral services that personalize care while at the same time provide a broad spectrum of information on substance abuse and addiction. The service-wide formula for controlling substance abuse is prevention through the use of early identification, referral to the most appropriate level of care, and outreach education.

1. Mission

The mission statement of the SACC is to provide screening and referral services, counseling, education, and general assistance to personnel experiencing alcohol or drug related difficulties. In addition, other services on related issues to all commands and family members.

2. Organization

The SACC has undergone personnel restructuring over the last couple of years. The current organization includes both civilian and military personnel, show in Figure 2.1. The director of the SACC is a GS-12, who is tasked with overseeing the entire counseling process. The director is involved with all operations of the SACC, but spends most of his time in organizational sustaining activities. These organizational sustaining activities include administrative activities, financial support, human resource activities, and military duties. These activities are considered overhead costs, also known as indirect costs that cannot be traced directly to the SACC. These costs are allocated by percentage of time an employee spends on an activity.

Directly below the director are the five civilian counselors, who represent part of the clinical team. During FY 2002 four counselors have a pay grade of GS-9 and one is a GS-11. Since the counselors are not involved with the overall management of the office, their time is spent mostly on core activities. These core activities are directly related to the counseling service provided by the SACC. For example, substance abuse treatment, substance abuse prevention, and consultation are considered core activities.

Also included in the clinical team during FY 2002 are five permanent enlisted personnel whose responsibilities are divided between core and sustaining activities of the SACC. Their rank and grade changes from year to year and at the time of this study there were two E-6's and two E-7's and an E-3. The E-6s and E-7s have counseling responsibilities and the E-3 does not. The younger Marines assigned to this organization are used for support and have no counseling responsibilities.

The final position that needs mentioning is the office automation clerk, which has the pay grade of GS-4. The GS-4's entire responsibility is concentrated in the

organizational sustaining activities since this position does not have any counseling responsibilities.

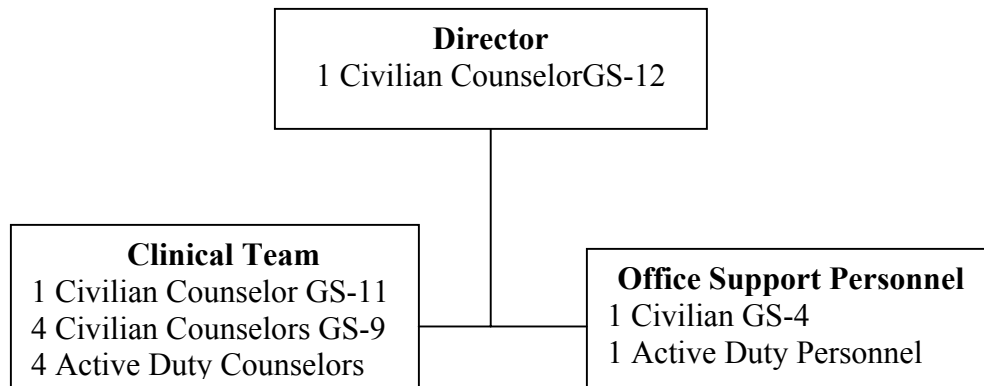


Figure 1. Fiscal Year 2002 Organizational Structures.

B. PROBLEM DEFINITION

MCBH has many organizational units on board that are similar to those found in any business organization. Both are organized with a hierarchical structure and have an objective or clearly defined mission. However, military installations such as MCBH, and its business units, such as the SACC, have historically been more inclined to focus on effectiveness vice efficiency. The reason for this is simple; the military is not looking to make a profit and is only evaluated on whether the job gets done.

Some of the primary differences between corporate and government accounting is their source of financing, availability of funds, and reporting of financial data. Corporations prepare budgets but there are no prescribed guidelines from one corporation to the next. Public companies have much more leeway in their use of funds. They have a lot of flexibility in which markets they choose to do business in and how much to spend. Corporations can issue stock or bonds to raise cash in the marketplace for business ventures. Corporations also follow Generally Accepted Accounting Principles (GAAP) when creating financial information for public disclosure. Standardized financial reporting is mandated for corporations through documents such as income statements, balance sheets, and cash flow statements. Internally, financial data is normally an integral part of decision-making and management control process for business.

The Marine Corps prepares budgets in a very specific way. The DoD budget process is divided into three interrelated phases: planning, programming, and budgeting. The process commonly is known as the planning, programming, and budgeting system (PBSS). After the requirements have been submitted up the chain of command and congress approves the budget, there is limited opportunity to change them. Annual budgets for the Marine Corps must be executed in the manner in which it was approved. Overspending is violation of the law and can lead to prosecution.

These commands may have the opportunity to provide valuable insight on the ideal funding levels. However, this is difficult since the SACC has its budget passed down from higher commands through several sources of funding. Output levels and missions that will be undertaken are decided upon at command levels above MCBH and the SACC.

Finally, the use and application of cost information have a much different role in the military. Historically the DoD has primarily been concerned with property accountability, inventory, and the full expenditure of all-available funding. During the past three years DoD has begun to focus on the usefulness of cost accounting and the management of this information for decision-making.

Marine Corps installations and their business units are in dire need of relevant managerial and financial information. Since there has been increased effort to improve the DoD financial management data, the importance of more accurate financial information to assist senior leadership in their decision-making process will always be needed. Historically, military commanders, directors and civilian managers have only received information that pertains to their budgets. The budgets do not provide managers a full visibility of their costs or sources of funding, such as salaries for civilian and military personnel, training or maintenance. In today's operating environment commanders and managers need access to information that is more detailed to determine their true cost of services provided. Additionally, they will also need to understand what activities consume their resources.

The SACC is one of many other business units and support functions on the installation. Each unit performs a task which can be quantified and measured using ABC.

If the information provided by managers is accurate, they will be able to create an ABC model that can capture financial data of the SACC in a useful format.

C. ACTIVITY-BASED COSTING APPROACH

ABC is a costing method that is designed to provide managers with cost information for strategic decisions and process improvements. ABC management is more than a system; it is a management process. Managers at an organization must understand that the ABC information will enable them to manage activities and business processes by providing a cross-functional, integrated view of the organization.

Traditional costing systems use a two-stage procedure to assign indirect and overhead expenses to outputs. Overhead expenses are assigned first to cost pools and allocated to the outputs of the production process using a predetermined overhead rate. Figure 2 shows a simple two-stage costing system. These two-stage assignment procedures may distort costs. These traditional systems provide inaccurate measures of the costs for support activities used by individual outputs. Traditional cost systems emphasize the allocation of past expenses to products, mainly for financial reporting and inventory valuation.



Figure 2. The Traditional Two-Stage Approach.

ABC systems are different than traditional systems because they measure directly the costs of resources used to perform organizational activities and then link the activity cost to the outputs (Figure 3). These outputs can include products, services, customers, or projects. ABC measures more accurately the cost of activities performed to the outputs produced. The initial estimates of an ABC model use expenses from the general ledger system. More advance systems will use future oriented data such as budgeted expenses or targeted costs. The Marine Corps is looking into using ABC for budgeting in the near future, this process is called activity-based budgeting (ABB).

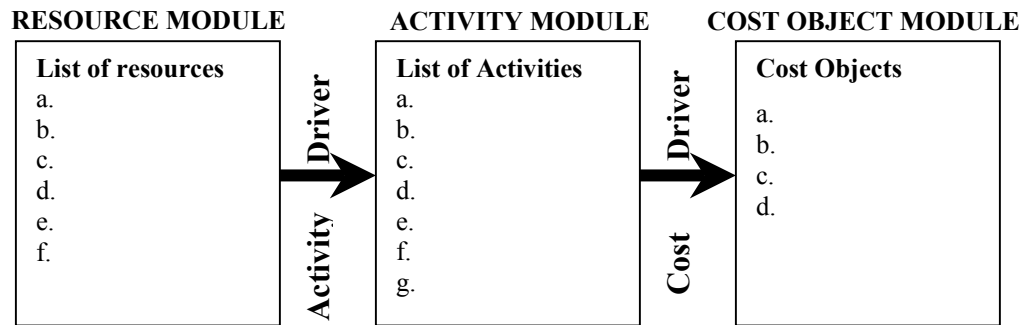


Figure 3. Generic Activity-Based Costing Model.

In developing an ABC model, the project team must first identify the activities performed by the organization's resources and then estimate the costs of performing the activities. The following list shows the general steps needed to accomplish an ABC model.

- Identify the activities performed to produce outputs.
- Map the organizational resources to these activities.
- Identify the outputs produced.
- Link the activity costs to the outputs using cost drivers.

1. Identifying Activities

In reality a very large number of activities can be identified to produce products or services. Any process can be decomposed into numerous micro-activities, but such a detailed process description is rarely useful to calculate a more accurate output or activity costs. If too many activities are identified, the cost of measurement for the ABC model becomes disproportionately high.

There are a couple of reasons why the increase in the number of activities drives the cost higher. First, the ABC model architect must specify the resources required to perform each activity and the number of times the activity is performed for each output. If these numbers are too high data collection can become an onerous undertaking. For example, a system with 100 activities and 10,000 outputs could require that one million activity-output relationships be specified. Second, as the number of activities gets larger, the activity-output relationships become more difficult and costly to measure. For this reason the managers at the SACC were able to limit their core activities to 11.

2. Assigning Resource Costs to Activities

After activities have been identified, resource costs must be mapped to the activities. Resources include indirect labor, materials and supplies, utilities, capital, equipment and buildings. These resources can be collected from the standard accounting and reporting system, the general ledger for the Marine Corps. For labor a composite rate was used from the DoD comptroller web site.

The costs of resources can be allocated to activities in three ways: direct charging, estimation, and arbitrary allocation. For direct charging the actual usage of resources by activities is measured. If a machine's electricity is metered it can be charged directly to the machine's operation. Direct charging is accurate but is expensive because it requires measurement of actual usage.

Usually direct measurement is too costly or difficult. A designer of an ABC model may estimate the cost of resources used by each activity through surveys and interviews. Managers and supervisors are asked to estimate a percentage of time or effort on each activity. Interviews are relatively easy to perform taking anywhere from 30 minutes to 2 hours. Surveys and activity dictionaries are given to all employees of an organization and are asked to fill out their percentage of time spent on each activity. All employees of the SACC used this method, and although not precisely accurate, it provides a very good estimation of which activities consume the most resources.

If there is no meaningful way to estimate resources used by an activity, arbitrary allocations might be necessary. For example, the SACC was unable to allocate materials and supplies to specific activities. To solve this problem materials and supplies were allocated across all activities equally. Arbitrary allocations should be minimized whenever possible because they do not improve the understanding of the costs of activities.

3. Identify Outputs

Outputs are the cost objects for which activities are performed. Outputs for a typical cost system can include, products, services, customers, projects, or business units. For example, the SACC performs clinical evaluations, substance abuse prevention and

professional consultation. These services are provided to military personnel and their families and occasionally the civilian workforce.

ABC model builders must try and identify all the outputs produced by the resources whose costs are being assigned. It would create a problem if one or more of the output categories were to be omitted. This would leave the remaining outputs with too many costs assignments. For example, if the SACC failed to define military family members as a customer, the cost system will disproportionately assign costs to other outputs.

4. Link Activity Costs to Outputs

Activities can be allocated to outputs in the same manner as resources were driven to activities: direct charge, estimation, or arbitrary allocation. Because of the large number of outputs in almost all organizations, direct charging is difficult. Although in some service organizations, such as the SACC, where they provide a particular service to a customer, direct charging is quite feasible. On the other hand, arbitrary allocation uses costs drivers that have little relationship to the demands of their activities. Therefore, modelers usually estimate the link between activity costs and outputs. Estimation is cheaper and more meaningful than arbitrary allocation.

ABC designers can use several types of activity cost drivers. For the SACC transaction drivers capture the number of times an activity is performed. Transaction drivers can be used when all outputs have the same demands on the activity. For example, the SACC uses the number of cases and number of sessions to drive activities to cost objects.

5. Value Ranking

This ABC model identifies the most relevant activities performed to produce and deliver an output. However, that does not guarantee that all the activities are relevant or performed efficiently. For this research the activities were ranked according to their degree of value added or non-value added.

The definition of what constitutes a value-added activity is difficult to determine because most managers handling different projects have their own opinion. A common definition for a value-added activity is that it adds value in the eyes of the customer. For

example, the SACC provides substance abuse counseling to prevent further substance abuse. This has a direct effect on the mission of the base. In the eyes of the base commander substance abuse counseling does in fact add value to base operations. Non-value added and value-added activities can be broken down into one of these four categories:

- If an activity is required to produce the product or improve the process. The activity cannot, on a cost justification basis, be improved, or simplified.
- If an activity is required to produce the product or improve the process. The activity can be cost justifiably improved, or simplified.
- If an activity is not required to produce the product or improve the process. The activity can be eliminated eventually by changing a process or a company procedure.
- If an activity that is not required to produce the product or improve the process. The activity can be eliminated in the short run by changing a process or a company procedure.

Managers can use these categories to focus their cost reduction programs. Finding activities that fit these categories highlights opportunities for process improvements. Reducing resources that are devoted to non value-added activities will improve the functionality and services performed by the organization.

6. ABC Software

The ABC model that was developed for MCBH has over 1,200 activities. Managing these activities would be very difficult without a computer program to crunch the numbers. Since ABC developments are relatively recent, most firms have not redesigned their existing financial accounting systems to support ABC. To solve this problem the majority of ABC systems are implemented using specially designed stand-alone systems that run on a personal computer. For this thesis the OROS ABC software from ABC Technologies Inc. will be used.

OROS accepts financial information from a firm's budgets or general ledger. Then by loading the resource drivers, converts resource expense data into activity costs. This information can be downloaded into the model from data calls that are sent out using Excel spreadsheet. The OROS software will also allow activity driver quantities to be entered by hand or downloaded from Excel. Once the data is entered into the Excel

spreadsheet and downloaded into OROS the software performs the time consuming calculations required to determine activity and output costs. Once the activity and output costs are computed the software will allow the output to be shown in either a generic format or with certain graphics packages produce reports with graphics. The Marine Corps has recently linked their accounting database to the ABC model to create a more accurate ABC model. Most reports include:

- Output costs, built from activity costs or by activity drivers.
- Activity costs associated with individual drivers.
- Resource costs of any activity, output, or driver.
- Driver costs, built from activities.
- Output profitability.

Once the four steps have been completed, data can be entered into the costing system that calculates the cost of activities, activity drivers, and outputs. These costs are then validated, and analyzed. At this point in time the model development is complete. How managers use the information will determine the success of the project. ABC is a management tool and will accomplish very little without complete support from higher management.

D. ABC/M ACCOMPLISHMENTS

Since this study is an effort to show how an ABC model can be applied to other business units, it is important to show improvements already underway at MCBH.

1. ABC/M Implementation

As stated in Chapter I, the Marine Corps is currently implementing ABC/M across all bases and installations. In early 2000, Marine Corps Base Hawaii held a conference for the ABC project. After the storyboarding sessions the model was continually refined and developed into a usable format. The Marine Corps Base Hawaii ABC model included over 1200 activities and outputs of over 60 departments and business units. At the beginning of 2001 the ABC efforts shifted toward the Activity-Based Management Phase.

Using ABC to improve a business is called Activity-Based Management (ABM). ABM is a management analysis that brings the full benefits of ABC to an organization.

ABM leads management efforts towards business strategies that better enable management to deal with competitive pressures and improve business operations.

ABM tries to accomplish two goals. The first goal is the act of improving the value of a product or service received by a customer. The second is to improve operational efficiency while achieving the first goal. These goals are achieved by focusing on the management of activities.

Building a model of this size in an organization that does not easily accept change is challenging. Hundreds of man-hours and millions of dollars in resources have gone into building these models throughout the Marine Corps. With the size of this investment the top-level officers in the Marine Corps need to see some return on investment. Although the acceptance of the ABC/M project was not totally adopted by commanders and managers, there were a couple success stories throughout the base.

2. Disbursing Office Improvement of Travel Claim Turnaround Time

The disbursing office used the cost information from the ABC model to determine that the turnaround time for travel claims was un-satisfactory. This slow turnaround time held money due to Marines for a longer than needed time period. In response to this, management change the way travel claims were processed. By allowing Marines to fill out a travel claim in the travel office with the expertise of the travel clerks, time to payment of claims was reduced. In addition to the faster turnaround time less error was made on filling out travel claims. This new process improved customer service efficiency and productivity.

3. Family Housing Check Out Process Improvement

Using ABC, Family housing was able to reduce the costs of “checking out” of base housing. Prior to ABC, family housing had a hard time calculating costs. In doing so residents were over charged for cleaning services. For example, a resident was required to clean a house before checking out. Family housing cleaned the house again after painting and other repairs were made. By allowing residents to pay for professional cleaners in advance, only one cleaning was necessary once housing was finished with the maintenance. As a result of this new process, housing inspectors and the maintenance crews were better able to utilize their time.

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III. DATA PRESENTATION

The representative data below includes empirical and historical data grouped into three categories: resource data, counseling data, and data concerning core activities carried out by the SACC. Resource data pertains to the total amount of resources consumed by the depot operations. Resource data includes personnel costs from military pay, appropriated funding (APF) direct labor civilian pay and other expenses related to contracts, supplies, materials, and travel expenses. The resource data will also include civilian and military personal turnover since this causes an additional burden to the resources of the SACC. Counseling data includes the total number of Marines counseled throughout the year in all categories of counseling from screening to outpatient services. These are the activities that make it possible for the SACC to function in accordance with Marine Corps Order P5600.31.

A. RESOURCE DATA

The first step toward an understanding of an ABC analysis is the collection and presentation of resource costs. The primary source for cost information in the Marine Corps is standard accounting and reporting system, identified as the general ledger. The key is to assign the costs in the general ledger accounts to activities in a way that reflects how the resources are used to perform the work. The significance of that amount depends upon the ABC analysis, and this is the only way to answer the question on whether the amount is appropriate.

The ABC team chose to collect 3 years of data in order to capture the underlying cost-activity relationship. Actual civilian labor expenses for the three years were compared to the composite rates for civilian personnel. Total actual labor costs for FY 00 through FY 02 is listed in Table 1.

To begin the process of assigning costs to activities, the team defined four categories for review: (1) labor costs, (2) supplies and materials, (3) contracts, and (4) travel expenses. Significant portions of the total resources consumed were labor related. These costs were allocated to activities based on percentage of time, based on the data collected from surveys. The travel expense was a very minor expense and covered

primarily course fees and other expenses to attend a conference or seminar. Contract costs were for various special counseling projects.

1. Labor Cost

The Substance Abuse Counseling Center has a funding source that is broken down into four categories: Civilian and military labor, contracts, supplies and materials, and travel. Each appropriation has a specific purpose, restrictions, and limitations for use. This strict use of funds creates an environment in which it is difficult to determine the total amount of resources consumed.

Table 1 includes the actual breakdown of each funding requirement for the SACC during the three most recent fiscal years. It is important to note that the labor figures in this table do not reflect the actual cost of an employee. The labor costs in Table 1 do not include fringe benefits and therefore underestimate the true cost of an employee. The composite rate in Table 4 includes basic salary plus fringe benefits, retirement, and medical benefits. This table is used to capture the full labor costs of employees.

Table 1. Actual Annual Budget for Substance Abuse Counseling Center.

FY2000-2002 Budget	FY 2000	FY 2001	FY 2002	Average
Budgeted Civilian Total	\$190,857.69 3 FTEs	\$263,210.93 5 FTEs	\$351,409.08 7 FTEs	\$268,492.57
APF Direct Expenses	-----	-----	-----	-----
Contracts	\$0.00	\$29,939.17	\$200.00	\$10,046.39
Supply & Materials	\$26,532.15	\$110,517.32	\$58,460.53	\$65,170.00
Travel	\$0.00	\$556.78	\$0.00	\$185.59
APF Reimbursable Expenses	-----	-----	-----	-----
Supply & Materials	\$1,000.00	\$1,000.00	\$722.48	\$907.49
Resource Total	\$218,389.84	\$405,224.20	\$410,792.09	\$344,802.04

2. Military Personnel Salaries

Money spent to field the military personnel assigned to the SACC represents a large portion of the resources consumed. The cost for military personnel is not found in the actual budget of the SACC. Instead the cost for military personnel can only be found in the Marine Corps budget. The SACC would have a significantly smaller cost structure if these costs were not included. Since an ABC analysis takes these costs into account the true costs structure of the SACC can be identified. Table 2 shows the military staffing levels for FY 2000 through FY 2002.

Table 2. The SACC Military Personnel Staff Levels.

Rank	FY 2000	FY 2001	FY 2002
E-7	2.50	2.00	2.00
E-6	4.00	3.00	2.00
E-4	0.50	-	-
E-3	1.00	2.00	1.00
Total	8.00	7.00	5.00

MCBH has a population of over 8,000 Marines and Sailors. Military representation in the SACC is a necessity and should continue to add a significant cost. Actual funding levels for military pay vary from base to base due to a cost of living allowance, basic allowance for housing, and other salary adjustments. Hawaii has one of the highest cost of living adjustments in the United States. The composite rates in Table 3 do not include this salary adjustment for living in Hawaii. Determining the exact percentage increase to the composite rates was difficult and would not be material to this analysis. The rates used to prepare the data in Table 3 were derived from the Military Composite Standard Pay and Reimbursement Rates chart from the Department of Defense web site.

Table 3. Military Composite Standard Pay Rates U.S. Marine Corps.

Rank	FY 2000	FY 2001	FY 2002
E-9	\$76,150.00	\$81,505.00	\$89,781.00
E-8	\$63,850.00	\$68,701.00	\$75,001.00
E-7	\$55,250.00	\$59,150.00	\$65,243.00
E-6	\$47,400.00	\$50,797.00	\$55,513.00
E-5	\$38,725.00	\$42,390.00	\$45,656.00
E-4	\$32,600.00	\$35,925.00	\$38,358.00
E-3	\$28,275.00	\$30,921.00	\$32,874.00
E-2	\$25,950.00	\$28,219.00	\$29,890.00
E-1	\$23,000.00	\$25,209.00	\$26,579.00

3. Civilian Personnel Salaries

Money spent for civilian salaries in support of the SACC represents a high percentage of total resources. The actual budget numbers presented in Table 1 show how much budget the SACC receives to pay its employees. This cost does not include hidden costs such as pension, health benefits, and fringe benefits. Fringe benefits are estimated according to the Federal Accounting Standards for Liabilities-Exposure and vary from year. These percentages take into consideration full or part time employment, cost of retirement, cost of accruing health benefits and the cost of the Thrift Savings Plan. For this reason a composite rate was used in the ABC model to show the full cost of a civilian employee. This cost can be found in Table 4.

Table 4. Civilian Composite Standard Pay Rates.

Grade	FY 2000	FY 2001	FY 2002
Fringe	26.9%	28.9%	28.10%
GS-12	\$89,686	\$94,741	\$96,715
GS-11	\$74,839	\$79,015	\$80,703
GS-9	\$61,863	\$65,352	\$66,740
GS-8	\$55,994	\$59,165	\$60,463
GS-7	\$50,569	\$53,364	\$49,062
GS-6	\$45,493	\$43,181	\$44,066
GS-5	\$40,830	\$43,181	\$44,066
GS-4	\$36,483	\$38,541	\$39,326
GS-3	\$32,518	\$34,287	\$35,099
GS-2	\$28,838	\$30,420	\$31,128
GS-1	\$26,490	\$27,971	\$28,566

As reported in Table 5, over the past three years the total number of civilian employees has increased. This is because the total amount of military personnel has decreased. This follows the current policy of the Marine Corps to place military personnel back into their primary Military Occupational Specialty (MOS). Although this may be a negative for the overall visibility of the SACC for young Marines, there does not seem to be any immediate impact on the quality of counseling. Civilian employees currently outnumber military personnel and will cause the actual budget for the SACC to increase, as well as the overall cost structure since civilians have higher labor costs.

Table 5. Civilian Personnel Staffing Levels.

Grade	FY 2000	FY 2001	FY 2002
GS-12	1.00	1.00	1.00
GS-11	-	1.00	1.00
GS-9	1.00	2.00	4.00
GS-4	1.00	1.00	1.00
Total	3.00	5.00	7.00

4. Other Expenses

Money spent for contracts, supplies & materials, and travel represents an expense that is appropriated to the SACC. Occasionally the SACC will require the services of a specially trained counselor for special projects. Since this position is not considered permanent, a contract is used to employ this counselor on an “as needed” basis. Supplies and Materials include such items that are needed to run an office from day to day. The reimbursable column in Table 1 includes those costs, which do not come directly from the SACC budget but are expenses that are reimbursed by MCBH. The SACC is also given money to spend on travel to send counselors to training. This training may take place outside the state, but since SACC has a limited budget for travel most training is completed on the island.

5. Resource Drivers

Resource drivers are the links between the resources and the activities. Resource drivers trace a cost from the general ledger to the activities. Labor costs for the SACC ABC model use the resource driver “percentage of time.” Activity collection forms were circulated to department heads that used them to assign employee time among the different activities identified in the interviews. Other expenses, which were difficult to allocate to one activity, were spread “evenly” to all core activities. Spreading resource costs evenly to all core activities is not the preferred method but due to time and cost constraints it was the only viable option. As the ABC model becomes more mature and easier to manage through experience these costs can be allocated in a more meaningful way. Table 6 lists the resources and their associated drivers.

Table 6. Resource Drivers used in the SACC ABC Model.

Resource	Resource Driver
Military Pay	Percentage of Time
Civilian Pay	Percentage of Time
Contracts	Evenly Assigned
Supply and Materials	Evenly Assigned
Travel	Evenly Assigned

B. ACTIVITY DATA

Activities represent units of work. They are part of the real organization of the company and not abstractions of an accounting system. Activities include performing screening of an incoming service member or providing unit education on substance abuse. Activities are the centerpiece of an ABC and must be identified before the assignment of cost. These activities were initially collected from the SACC through storyboarding sessions directed by the MCBH ABC Team, Grant Thornton LLP, and ABC Technologies. The MCBH ABC Team developed the maintenance and refinement of these activities for FY 2001 and FY 2002.

As mentioned in Chapter II, activities represent the action taken to provide a service or product. In practice, one can identify a very large number of activities

performed to produce outputs. If too many activities are defined, the cost to sustain an ABC model grows too high. For this reason the SACC limited themselves to 11 core activities that accurately describe their everyday operations. These 11 activities are grouped into three categories to create a better understanding of the SACC organizational structure. Substance abuse treatment includes 5 core activities that directly relate to the mission of treating substance abuse patients. Substance abuse prevention and education includes 5 core activities that directly relate to the mission of reducing substance abuse incidents by educating Marines and Sailors aboard MCBH. Professional consultation and advice includes only one core activity that adequately explains the function of this department.

How you describe activities determines the effectiveness of the system and the information it provides. A clear description enhances the ability to communicate the work that each activity represents. A consistent definition of activities makes it easy to find activities of the same type or process. The SACC management with the guidance of the ABC Team created these descriptions. Below is a list and description of each activity.

1. Core Activities

a. Substance Abuse Treatment

(1) Perform Screening. The activity of performing screening includes scheduling appointments, performing data entry, off-site visits to the brigade, reviewing blotters for drug, alcohol, or domestic infractions, verbal interviewing, reviewing records, completing general forms, charting, and writing command letters.

(2) Perform Assessments. The activity of performing assessments includes scheduling appointments, interviewing, testing, measurements, determining diagnosis, charting, interdependency referrals, scheduling mental health evaluations, scheduling “level of care” data entry, writing command letters, and coordinating with command representatives.

(3) Plan Treatment. The activity of planning treatment includes interviewing, identifying problems, goal setting for patients, establishing objectives, assigning tasks, determine interdependency resources, scheduling appointments with

groups, clinical charting, liaison with command, writing command letters, clinical research, and data entry.

(4) Provide Treatment. The activity of providing treatment includes scheduling for individual and group sessions, couples and family therapy for alcohol abuse and dependency, reviewing and modifying treatment plans, providing psychological social education, writing command letters, and data entry.

(5) Provide Case Management. The activity of providing case management includes coordinating with unit reps, mental health providers, medical facilities, civilian/VA, community resources; quality assurance, case reviews, MDT reviews, clinical consultation and supervision, peer review, external visits, and data entry.

b. Substance Abuse Prevention Education

(1) Provide Unit Education. The activity of providing unit education includes identifying emerging issues, researching current information, obtaining materials, designing presentations, and conducting training and soliciting evaluations.

(2) Provide Substance Abuse Management Course. The activity of providing substance abuse management courses includes scheduling, constructing and coordinating a detailed syllabus, requesting special medical emergencies, assigning staff, collating, preparing and presenting modules, researching and obtaining hand-out materials, and conducting course critiques.

(3) Provide IMPACT. The activity of providing the IMPACT alcohol education course includes scheduling and coordinating courses, constructing a syllabus, requesting special medical emergencies, assigning staff to required duties, collating preparing and presenting modules, researching and obtaining hand-out materials, conducting course critiques, and completing off-site activities, meetings, and data entry.

(4) Provide Drug Prevention Education. The activity of providing drug prevention education includes course scheduling and coordination, constructing syllabus, assigning staff to required courses, researching and obtaining handouts, materials, and conducting course critiques.

(5) Provide Out Reach Programs. The activity of providing out reach programs includes the creation of the program, coordinating with command representatives, building a syllabus, assigning staff to facilitate the program, preparing and presenting modules, researching and obtaining hand-out materials, and setting up displays.

c. Professional Consultation and Advice

(1) Provide Consultation. The activity of providing consultation includes advising commands and representatives, coordinating with legal and other treatment centers, such as Headquarters Marine Corps, tenant organizations, community organizations, families, and the public affairs officer.

2. Limitations to ABC

There are certain limits that prevent ABC from reporting accurate product costs. This is because there are always some activities not directly related with products or customers. Activities that sustain a base, for example, are very difficult to assign to specific products. Such activities include participating in union related activities, and performing military duties.

It is fairly easy to assign the costs to these sustaining activities. The problem is you cannot assign these costs directly to a product or service, because they are by definition indirect costs. For example, you cannot “landscape” a product or customer. It is also impossible to obtain information about the landscaping cost of each product.

There are two possible solutions to this problem. First is not to assign these costs of sustaining activities to products. This recognizes the difficulty of assigning these costs to products in any meaningful way. Although this is a viable option it does not recognize the full cost of performing an activity.

The second solution, and the one in which was chosen by this ABC analysis, is to assign the cost of sustaining activities using non-matching or evenly assigned activity drivers. For example, the cost of performing military duties can be distributed evenly to each product. This ensures that the cost reaches the products. The result of assigning indirect costs evenly to activities provides a fully loaded and complete cost of doing business, which is the main idea behind ABC/M.

These costs are shared by MCBH as a whole and are reassigned evenly to the core activities. These activities were needed for a base-wide comparison. Some units or commands have higher overhead costs and these costs are usually targeted for the first costs savings. Top-level management, the MCBH ABC Team, Grant Thornton and ABC technology consultants created the activities and their definitions. These activities are as follows:

3. Organizational Sustaining Activities

a. Administrative Activities

(1) Provide General Support. The activity to provide general support includes providing clerical support, screening incoming administrative email, screening documents, and participating in general staff meetings.

(2) Provide Supply and Equipment. The activity of providing supply and equipment includes ordering, receiving, storing, issuing supplies and equipment, completing an inventory of supplies and equipment, and maintaining hand receipts.

(3) Provide Automation Support. The activity of providing automation support includes identifying requirements for preparation and request for hardware and software installation, trouble shooting of problems and requesting maintenance of equipment when beyond user capabilities. This includes the operation of the automation system.

(4) Contract Maintenance. The activity of providing contract maintenance includes all activities required to develop, award, inspect, modify, and review submittals and process payments.

(5) Manage Directorate. The activity of managing the directorate includes determining direction and operating under set guidance, developing strategic plans and evaluating organizational performance.

(6) Respond to External Demands and Special Events. The activity of responding to external demands and special events includes responding to organizations outside MCBH, supporting special missions and events, performing customer relations, and advising commanders and staff.

(7) Maintain Compound. The activity of maintaining the compound includes general housekeeping duties, grass cutting, raking, police call, field day, and etc.

b. Financial Support

(1) Request and Justify Funds. Request and justify funds includes analyzing funding needs and preparing appropriate schedules, reports, and documentation to submit to various agencies to justify funding requests.

(2) Administer and Account for Funds. Administer and account for funds includes controlling funds provided to the department so that these funds are spent for their intended purpose.

(3) Prepare Financial Status Reports. Preparing financial status reports includes analyzing financial conditions and preparing financial reports.

(4) Provide ABC Support. Providing ABC support includes attending ABC training, completing data calls and responding to inquiries.

b. Human Resource Activities

(1) Acquire People. Acquiring people includes taking recruitment actions to ensure qualified people are hired.

(2) Receive Training. Receive training includes identifying training opportunities, locating training sources, scheduling, preparing required paperwork, and attending training. Also includes preparation of training plans and required clerical work.

(3) Conduct Morale and Safety Activities. Conduct moral and safety activities include conducting positive morale and safety activities. Also includes exchanging information, open discussions, event parties, lunches, picnics and performance of safety awareness actions.

(4) Participate in Union Related Activities. Participate in union related activities includes all activities related to conducting and responding to Union concerns.

(5) Counsel and Evaluate Personnel. Counsel and evaluate personnel includes counseling and evaluating the performance or conduct of people.

c. Military and Collateral Duties

(1) Other Collateral Duties. Other collateral duties are activities that must be performed but are not related to the primary function of the directorate. For example, participating in court martial boards.

(2) Perform Military Duties. Perform military duties includes activities that are required to maintain military proficiency but not related to the primary function of the directorate. For example, weapons qualifications and physical training.

Table 7. Number Of Activities Performed For FY 2000 Through FY 2002.

Activity	Activity Driver	FY2000	FY2001	FY2002	Average
Perform Screening	# of screenings	612	602	597	603
Perform Assessments	# of assessments	501	483	480	488
Plan Treatment	# of treatment plans	478	452	460	463
Provide Treatment	# of sessions	2,004	2,082	2,103	2,063
Provide Case Management	# of cases	616	602	612	610
Provide Unit Education	# of attendees	4,056	4,002	4,098	4,052
Provide Substance Abuse Management Course	# of classes	71	64	70	68
Provide IMPACT	# of classes	213	204	200	205
Provide Drug Prevention Education	# of events	76	74	78	76
Provide Out Reach Programs	# of events	76	68	66	70
Provide Consultation	# of contacts	91	87	94	90

4. Activity Drivers

Once the list of major activities has been finalized, the ABC project team went through a second phase of interviews. These interviews were used to identify the activity drivers that would link activity expenses to products or services. Cost drivers reflect that underlying use of activities by each service provided or cost object. Examples of activity cost drivers are number of screenings, number of events, or number of contracts. These represent the quantity of work performed by each activity.

During the course of the year the SACC will undertake a number of activities. These activities are counted and are kept track of by activity drivers for use in the ABC model. In any given year the total amount of times an activity is performed can vary. In order to create information that is useful the average of the three fiscal years is used for an ABC analysis. Table 7 shows the total amount each activity was performed during the year.

5. Value Ranking Activities

The MCBH ABC Team, Grant Thornton LLP, and the SACC management developed a value analysis for activities to identify process improvement and cost reduction opportunities. The activities were ranked according to their importance for the SACC's objectives and missions. Although there was much debate the following definitions were produced.

- Low: The activity represents errors or mistakes that ideally should not occur
- Low to Medium: Little to no value to the customer but currently is necessary to the process.
- Medium: Supports the objective of the mission but does not directly relate to the final service.
- High: Directly supports a service produced for the base.

The SACC management then assigned a value ranking to each activity. This process was lengthy because everyone had a different idea of which activities were important. Below is a list of activity values. Note that none of the core activities ranked lower than Medium. It is usually difficult for an organization to rank any activities as Low since it would make the organization less important. Table 8 shows the activities and their value ranking.

Table 8. Value Ranking of Activities.

Activities	Value
Perform Screening	Medium
Perform Assessments	Medium
Plan Treatment	Medium
Provide Treatment	High
Provide Case Management	High
Provide Unit Education	Medium
Provide Substance Abuse Management Course	Medium
Provide IMPACT	Medium
Provide Drug Prevention Education	High
Provide Out Reach Programs	Medium
Provide Consultation	High

C. COST OBJECT MODULE

Products and services delivered by an organization are referred to as cost objects. Cost objects can be defined as any customer, product, service or other work unit for which a separate cost measurement is desired. True product or service cost is the summation of all resources consumed in creating a service or delivering a product to a customer. This module is the starting point from which the work required by the company is defined.

Table 9. Cost Object Service Driver Quantities.

Activity Driver	Actual Driver Qty		Service
# of screening	603		Perform Clinical Evaluations
# of assessments	488		
# of treatment plans	463		
# of sessions	2063		
# of cases	610		
# of Unit trainings	4052		Substance Abuse Prevention
# of classes	68		
# of classes	205		
# of events	76		
# of events	70		
# of contacts	90		Professional Consultation

Tracing costs to cost objects provides several important items of information. It helps define how valuable cost objects are to the organization that provides them. Cost objects measure the value received by the customers. These insights come from information about the cost of each activity used by a cost object. In Table 9 the three services provided and their quantities are given. These services are performing clinical evaluations: substance abuse prevention and professional consultation.

Once the costs are determined for the services provided by the SACC these costs are allocated to the customers that receive these services. Table 10 shows the number and type of customers that received a service. With this information a cost to counsel an active duty service member can be determined.

Table 10. Cost Object Customer Driver Quantities.

Service	Service Driver	Customer	Actual Driver Quantity
Perform Clinical Evaluations	# of Cases	Total Driver Quantity	4221
		Active Duty Service Personnel	3879
		Military Families/Singles	339
		APF Civilian Work Force	3
Substance Abuse Prevention	# of Sessions	Total Driver Quantity	4412
		Active Duty Service Personnel	3798
		Military Families/Singles	268
		Local Community	346
Professional Consultation	# of Sessions	Total Driver Quantity	87
		Active Duty Service Personnel	84
		Military Families/Singles	3

D. MODEL DESIGN

Once all the relevant information has been gathered the next step is designing an ABC model. This is a critical stage of the implementation process and is where the analysis begins. The objective of designing an ABC model is to limit the amount of complexity and minimize cost. At the same time the system should provide the right kind of information at the right level of detail.

The model should be simple but not too simple that it will report inaccurate costs. In contrast, if a model is too complex it will become too costly to maintain over a long period of time. It will also burden users with unnecessary detail and reduce acceptance of the ABC initiative. The idea is to find the right balance. Chapter IV will provide a detailed analysis of the SACC cost structure using the ABC methodology.

IV. DATA ANALYSIS

A. RESOURCE MODULE ANALYSIS

Before an activity analysis can be performed the costs from the resource module need to be converted into a more useful format. The FY2000-FY2002 composite rates for labor and other expenses presented in Chapter III need to be converted into constant year (CY) dollars. This is necessary in order to provide inflation-adjusted data from which a three-year mean can be developed. Gross Product Deflators are used to adjust FY2000 and FY2001 into CY2002 dollars, as shown in Table 11.

Table 11. Inflation Adjusted Funding Sources.

Inflation Adjusted to Constant Year 2002 Dollars

FY 00-02 Composite	FY 2000	FTEs	FY 2001	FTEs	FY 2002	FTEs	Average
GDP Deflator	1.0404		1.02		1.00		
GS-12	\$93,309.91	1.00	\$96,636.33	1.00	\$96,715.50	1.00	\$95,553.91
GS-11		---	\$80,596.01	1.00	\$80,703.00	1.00	\$53,766.34
GS-9	\$64,363.05	1.00	\$133,318.69	2.00	\$266,960.40	4.00	\$154,880.71
GS-4	\$37,957.69	1.00	\$39,311.92	1.00	\$39,326.70	1.00	\$38,865.44
Civilian Total	\$195,630.65		\$349,862.96		\$483,705.60		\$343,066.40
E-7	\$138,125.00	2.50	\$118,300.00	2.00	\$130,486.00	2.00	\$128,970.33
E-6	\$189,600.00	4.00	\$152,391.00	3.00	\$111,026.00	2.00	\$151,005.67
E-4	\$16,300.00	0.50		---		---	\$5,433.33
E-3	\$28,275.00	1.00	\$61,842.00	2.00	\$32,874.00	1.00	\$40,997.00
Military Total	\$372,300.00		\$332,533.00		\$274,386.00		\$326,406.33
APF Direct Expenses	-----		-----		-----		-----
Contracts			\$30,537.95		\$200.00		\$10,245.98
Supply & Materials	\$27,604.05		\$112,727.67		\$58,460.53		\$66,264.08
Travel			\$567.92				\$189.31
APF Reimbursable Expenses	-----		-----		-----		-----
Supply & Materials	\$1,040.40		\$1,020.00		\$722.48		\$927.63
Resource Total	\$596,575.10		\$827,249.49		\$817,474.61		\$747,099.73

The three-year adjusted mean will serve as the cost basis for the resource module. This conversion is essential to the analysis because significant fluctuations exist from FY2000-FY2002. For example, military pay and civilian pay have a large variance from FY2000-FY2002. This three-year mean will present the best representation of what

operational costs were for an average year during the period observed. The resource module is presented in Table 12. Military and civilian pay figures in the resource module are similar in dollar amount because of the declining military representation and the increasing civilian representation in the SACC. Using the three-year average for the other expenses such as contracts, supplies, materials, and travel will provide a better representation of the actual costs for any given year.

Table 12. Resource Module Summary.

Funding Source	Three Year Average CY2002
GS-12	\$95,553.91
GS-11	\$53,766.34
GS-9	\$154,880.71
GS-4	\$38,865.44
Civilian Total	\$343,066.40
E-7	\$128,970.33
E-6	\$151,005.67
E-4	\$5,433.33
E-3	\$40,997.00
Military Total	\$326,406.33
APF Direct Expenses	
Contracts	\$10,245.98
Supply & Materials	\$66,264.08
Travel	\$189.31
APF Reimbursable Expenses	
Supply & Materials	\$927.63
Resource Total	\$747,099.73

1. Resource Drivers

Resource drivers are the links between the resources and the activities. They take the cost from labor, contracts, materials, supplies, and travel and assign it to activities. For this ABC model employees were asked to estimate the percentage of time they spent on an activity. For example, in Table 13 a GS-9 civilian employee spent 25 percent of his or her time throughout the year on providing treatment.

Table 13. Allocation of Labor to Activities Based on Percentage of Time.

	Civilian Pay				Military Pay			
Core Activities	GS-12	GS-11	GS-9	GS-4	E-7	E-6	E-4	E-3
Perform Screening			10%		5%	10%		
Perform Assessments			20%		2%	10%		
Plan Treatment			10%		5%	7%		
Provide Treatment			25%		5%	10%		
Provide Case Management	5%	15%	15%		10%	8%		
Provide Unit Education						3%		
Provide Substance Abuse Management Course	5%	5%	5%		2%	3%		
Provide IMPACT	5%	10%	10%		26%	13%		
Provide Drug Prevention Education			5%					
Provide Out Reach Programs	5%	10%						
Provide Consultation	5%	20%						
Sustaining Activities								
Provide General Support	20%	20%		10%	10%	7%	30%	40%
Provide Supply and Equipment				10%	5%	3%	30%	
Provide Automation Support	2%			40%				
Contract Maintenance		10%						
Manage Directorate								
Respond To External Demands and Special Events	25%	10%		40%	7%	5%		
Maintain Compound					5%	3%	20%	40%
Request and Justify Funds	10%							
Administer and Account for Funds								
Prepare Financial Status Reports	10%							
Provide ABC Support	3%							
Acquire People	2%							
Receive Training								
Conduct Morale/Safety Activities								
Participate in Union-Related Activities								
Counsel/Evaluate Personnel	3%							
Other Collateral Duties								
Perform Military Duties					18%	18%	20%	20%
Total	100%	100%	100%	100%	100%	100%	100%	100%

This analysis shows that a significant portion of military personnel time is devoted to non-core activities. These expenses are included in the overall cost structure of the SACC without the benefit of accomplishing the mission. The military personnel with a rank of E-6 and E-7 spend 36 and 46 percent of their time on sustaining activities

respectively. Functional managers should take this into serious consideration when determining what resources should be re-allocated. It would benefit the SACC financially to replace all the E-6s or E-7s with civilian employees with the grade of GS-9. One civilian employee would replace approximately two military counselors since the time devoted to core activities is higher for civilian employees.

B. ACTIVITY ANALYSIS OVERVIEW

Activity analysis looks at the most important activities of an organization to create a clear and concise basis for describing business operations and for determining their cost and performance. Activity analysis creates an understanding of how an organization operates in order to improve their performance. Specifically, activity analysis is used to:

- Determine the cost and performance of significant activities.
- Determine a basis for providing alternative activities in order to lower cost or improve performance or both.
- Create a method to determine if a current activity can be streamlined.
- Identify value and non-value added activities.

Activity analysis is used to break down a complex organization into smaller processes or activities to make the system more understandable and manageable. Activity analysis is very helpful when an entire system is too large to manage, but its individual parts are not.

An activity analysis is an examination of the way an organization currently does business. This analysis will lead to activity planning, where the resources required to support a certain level of activity service are calculated.

1. Activity Module

Recall from Chapter II, that activities are what organizations do. To make changes to an organization, one must change the actions taken by the people of an organization. Therefore, changes must be made to activities. In examining the activities of the SACC the goal is to identify those activities that provide the final output or services provided to the base. In doing so, the SACC can show how much is being spent on an activity.

Table 14. Cost Per Activity Using Average Employee Composite Rate.

Core Activities	GS-12	GS-11	GS-9	GS-4	E-7	E-6	E-4	E-3	Total
Perform Screening			\$15,488		\$6,449	\$15,101			\$37,038
Perform Assessments			\$30,976		\$2,579	\$15,101			\$48,656
Plan Treatment			\$15,488		\$6,449	\$10,067			\$32,003
Provide Treatment			\$38,720		\$6,449	\$15,101			\$60,269
Provide Case Management	\$4,778	\$8,065	\$23,232		\$12,897	\$10,067			\$59,039
Provide Unit Education						\$5,034			\$5,033
Provide Substance Abuse Management Course	\$4,778	\$2,688	\$7,744		\$3,224	\$5,034			\$23,467
Provide IMPACT	\$4,778	\$5,377	\$15,488		\$32,887	\$20,134			\$78,663
Provide Drug Prevention Education			\$7,744						\$7,744
Provide Out Reach Programs	\$4,778	\$5,377							\$10,154
Provide Consultation	\$4,778	\$10,753							\$15,530
Sustaining Activities									
Provide General Support	\$19,111	\$10,753		\$3,887	\$12,897	\$10,067	\$1,630	\$16,399	\$74,743
Provide Supply and Equipment				\$3,887	\$6,449	\$5,034	\$1,630		\$16,999
Provide Automation Support	\$1,911			\$15,546					\$17,457
Contract Maintenance		\$5,377							\$5,376
Manage Directorate									
Respond To External Demands and Special Events	\$23,888	\$5,377		\$15,546	\$9,673	\$7,550			\$62,034
Maintain Compound					\$6,449	\$5,034	\$1,087	\$16,399	\$28,967
Request and Justify Funds	\$9,555								\$9,555
Administer and Account for Funds									
Prepare Financial Status Reports	\$9,555								\$9,555
Provide ABC Support	\$2,867								\$2,867
Acquire People	\$1,911								\$1,911
Receive Training									
Conduct Morale/Safety Activities									
Participate in Union-Related Activities									
Counsel/Evaluate Personnel	\$2,867								\$2,867
Other Collateral Duties									
Perform Military Duties					\$22,570	\$27,684	\$1,087	\$8,199	\$59,540

The calculation of an activity cost is derived by multiplying the time spend on an activity in Table 13, by the average composite rate for that employee from Table 11. Table 14 identifies which activities and employees are consuming the most resources. For example, performing military duties that are not directly related to the mission of the SACC consume a significant portion of the military personnel. The data generated in Table 14 gives management and the ABC team a quick look at the activities that cost the most to perform. With this information a starting point can be determined as to which high cost activities need a step-by-step process examination.

Once the labor costs have been linked to the activities, other expenses such as travel, supplies, materials and contracts must be driven back to the core activities. As mentioned previously, these costs were assigned evenly to all activities because it is difficult to determine exactly how much each core activity consumed.

This may or may not dramatically impact the overall results depending on the amount of time spent on sustaining activities. In this case the SACC labor costs represent 56 percent of the labor resources assigned to core activities. The other 44 percent of the labor resource was assigned to sustaining activities. This is a significant portion of an organizations resource and should be investigated further.

The last resource to be assigned is the labor costs for sustaining activities. Once all these costs have been assigned to the core activities a total cost for each activity can be calculated as shown in Table 15.

By reviewing the activity cost in Table 15 we can determine that 15 percent total resources are being consumed by providing the IMPACT course. Every civilian and military counselor employed by the SACC has some responsibility for the IMPACT course. This indicates that there is an overlap of duties between all counselors involved with this activity. The management of the SACC needs to review this activity for possible re-allocation of resources and responsibility.

Table 15. Total Cost Per Activity Summary.

Activities	Labor Cost	Organizational Sustaining	Supply & Materials	Contracts	Travel	Total Cost
Perform Screening	\$37,037.15	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$70,628.08
Perform Assessments	\$48,656.12	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$82,247.04
Plan Treatment	\$32,003.63	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$65,594.55
Provide Treatment	\$60,269.26	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$93,860.18
Provide Case Management	\$59,038.83	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$92,629.75
Provide Unit Education	\$5,033.52	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$38,624.44
Provide Substance Abuse Management Course	\$23,467.83	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$57,058.75
Provide IMPACT	\$78,663.92	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$112,254.85
Provide Drug Prevention Education	\$7,744.04	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$41,334.96
Provide Out Reach Programs	\$10,154.33	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$43,745.25
Provide Consultation	\$15,530.96	\$26,533.92	\$6,108.34	\$931.45	\$17.21	\$49,121.89
Total	\$377,599.60	\$291,873.14	\$67,191.71	\$10,245.98	\$189.31	\$747,099.74

2. Business Process Analysis

Figure 4 shows the percentage of resource consumption of each business process ranked from highest to lowest. In most cases during the development of an ABC analysis it is not unusual to see the highest valued activities fall somewhere in the middle.

As for the SACC, the IMPACT course, a 3-day course on alcohol education, requires the most resources. This makes sense since most of the resources are labor related and the time devoted to the IMPACT course is substantial. The IMPACT course is valued medium as compared to the activity of provide drug prevention education, which is ranked high in value. This may indicate a disconnect between the SACC and its customers. Provide treatment and provide case management represent 2 of the 4 highly ranked activities that fall near the top. A reallocation of resources to meet the needs of the high value added activities needs to be considered.

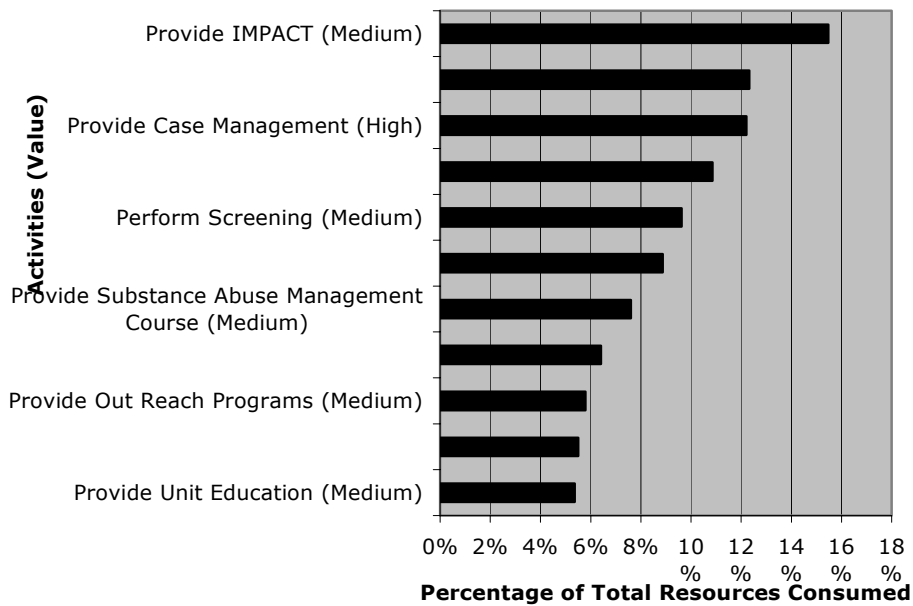


Figure 4. Business Process Resource Consumption.

3. Value Added Analysis

As with all organizations some activities add value and other do not. Determining which activities add or do not add value will always evoke considerable discussion. For the purpose of this analysis the SACC was able to determine which activities add value to the final service provided, and which ones do not.

The management of the SACC has determined that, in order to provide a service to the base, the core activities must be accomplished. There are, however, only a four activities that are critical to the final mission of the SACC. These activities are ranked high in value and their definitions are listed in Chapter III.

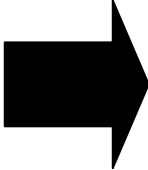
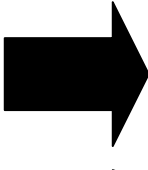
Organizational sustaining activities are considered non-value added to the overall mission of the SACC. A significant portion of the labor expenses is devoted to non-value added activities. This raises some serious questions as to whether there is too much overlapping responsibility. For example, every employee except the GS-9 pay grade has some percentage of time going to providing general support. The E-3 and E-4 billets only provide support to the SACC and have no counseling responsibilities. In fact, most of their time is spent on military duties or maintaining the compound shown in Table 14.

The question needs to be raised as to whether a Marine who has a primary MOS not related to SACC needs to spend between 20 and 40 percent of their time maintaining the compound. This is an expensive resource that could be better utilized somewhere else.

C. COST OBJECT MODULE

Cost objects, as previously defined in Chapter II, can be any customer, product or service delivered by the SACC. The SACC has determined that: perform clinical evaluations, provide substance abuse prevention, and perform professional consultation are the three major services that they provide to Marine Corps Base Hawaii, shown in Table 16.

Table 16. Cost Object Module.

Activity	Activity Driver		Service Provided to Base
Perform Screening	#of screening		Perform Clinical Evaluations
Perform Assessments	#of assessments		
Plan Treatment	#of treatment plans		
Provide Treatment	#of sessions		
Provide Case Management	#of cases		
Provide Unit Education	#of Unit trainings		Substance Abuse Prevention
Provide Substance Abuse Management Course	#of classes		
Provide IMPACT	#of classes		
Provide Drug Prevention Education	#of events		
Provide Out Reach Programs	#of events		
Provide Consultation	#of contacts		Professional Consultation

1. Cost Object Services

The actual cost to perform a service is calculated by dividing in the total activity cost by the driver quantity for the service. For example, the SACC performed an average of 483 assessments at a total average annual cost of \$82,247.04 over FY2000 to FY2002. Using simple division the cost to perform one assessment equates to \$168.54 as shown in Table 17.

In comparing the services provided by the SACC to the cost an outside vendor will charge, you can see a significant difference. Table 17 shows a cost comparison of a similar activity by an outside vendor. In providing the 3-day alcohol education IMPACT course the SACC's cost using ABC is \$547.58. Attending the same type of course from an outside vendor would cost approximately \$300.00. For this analysis it was identified that the SACC has a significantly higher cost structure than an outside vendor.

Table 17. Cost Object Module for Services Provided.

Activity	Total Cost Per Activity	Activity Driver	Actual Driver Quantity	Cost Per	Outside Cost Per Hour
Perform Screening	\$70,628.08	# of screenings	603	\$117.13	\$60.00
Perform Assessments	\$82,247.04	# of assessments	488	\$168.54	\$60.00
Plan Treatment	\$65,594.55	# of treatment plans	463	\$141.67	\$80.00
Provide Treatment	\$93,860.18	# of sessions	2,063	\$45.50	\$80.00
Provide Case Management	\$92,629.75	# of cases	610	\$151.85	\$45.00
Provide Unit Education	\$38,624.44	# of attendees	4,052	\$9.53	N/A
Provide Substance Abuse Management Course	\$57,058.75	# of classes	68	\$839.10	N/A
Provide IMPACT	\$112,254.85	# of classes	205	\$547.58	\$300.00
Provide Drug Prevention Education	\$41,334.96	# of events	76	\$543.88	\$40.00
Provide Out Reach Programs	\$43,745.25	# of events	70	\$624.93	N/A
Provide Consultation	\$49,121.89	# of contacts	90	\$545.80	\$80.00

The activities that provide these services must be re-examined in order to find a better and more cost effective way to do business. Labor resources may be allocated differently to these activities. For example, the cost of using military personnel leads to higher cost than using their civilian counterpart. The military pay grade of E-7 and E-6 spend approximately 60 percent of their time on core activities (Table 13). The other 40 percent of their time is spent on sustaining activities, which do not directly support the mission. In comparison the GS-9 civilian pay grade employees spend their entire time on core activities.

Because military personnel cost more than comparable civilian personnel it would be cost effective to replace all military personnel with the appropriate civilian counterpart. This will not only increase efficiency on core activities but reduce total resource costs as well.

2. Cost Object Customers

The SACC has also developed their cost object module to determine their customer base. Table 18 shows their customers as active duty military personnel, military families, civilian work force, and the local community who all reside or work on MCBH.

To determine the cost to counsel a Marine the closest approximation using ABC is to determine the cost to provide a service to a Marine. Using Table 18 the cost to counsel a Marine has three answers. First, if a Marine receives a clinical evaluation the cost is \$85.84. Second, the cost for a Marine to receive substance abuse prevention service is \$60.57. Finally, a Marine receiving professional consultation costs \$495.35 per consultation.

Table 18. Cost to Counsel an Active Duty Service Member.

Customers	Customers Served	Cost to Service Customer	Cost to Counsel a Marine
Active Duty Service Personnel	3879	\$372,148.38	→ \$95.94
Military Families/Singles	339	\$32,523.41	
APF Civilian Work Force	3	\$287.82	
	4221		
Active Duty Service Personnel	3798	\$252,240.10	→ \$66.41
Military Families/Singles	268	\$17,798.93	
Local Community	346	\$22,979.22	
	4412		
Active Duty Service Personnel	84	\$47,428.03	→ \$564.62
Military Families/Singles	3	\$1,693.86	
	87		

D. CORE COMPETENCIES

By definition core competencies of an organization are those processes in which a competitive advantage can be obtained. In other words what does an organization do better than anyone else? Core competency or capability is resources and capabilities that are valuable, unique and difficult to imitate. These intangible qualities can be achieved in numerous areas of an organization. For example, does a company have superior financial strength compared to its peers? Does an organization such as the SACC have superior

management, or possess a skill base and experience not easily duplicated by an outside vendor. In examining the activities that occur at the SACC, the question asked was “What is it that occurs at the SACC that they do better than anyone else, or that only the SACC can do and not be duplicated?”

Core competencies cannot be managed directly. Activity-based management provides information that can be used to strengthen core competencies by identifying those activities that are critical to the organization. Upon careful consideration, one core competency has been identified

1. Well-trained, Motivated, Loyal Employees

The SACC has a responsibility to MCBH and the Marine Corps to provide professional, innovative, quality care that meets all the needs of the individual Marine. This vision, well ingrained in minds of the SACC management and counselors, motivates them to work at a higher standard that cannot be duplicated anywhere off base.

The SACC has created an environment in which they have a better knowledge of what a service member needs. This knowledge and experience is very difficult to imitate and may justify the significant cost difference between the SACC and an outside vendor. SACC counselors are well trained to service the specific needs of a military service member. This focus on one type of customer gives them a competitive advantage over an outside vendor who counsels mostly the civilian population. SACC counselors understand to a better degree what service members actually experience in their work environment, and at home.

For a government employee, job security is a very high priority. This security leads to loyal employees who can focus on the mission of the organization. This level of job security cannot be found in the private sector and is unique to the SACC.

2. Location

Since the SACC is located aboard MCBH this gives them an advantage over any counseling center outside the base. Marines are able to take minimal time away from work and walk to the clinic. Although this may not seem like a significant advantage, note that the majority of younger Active Duty military personnel do not own vehicles.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

Activity-based costing provides a useful framework that captures an organization's costs. These costs are then converted into a format that gives management meaningful data. Historically the O&M budget was the standard when measuring performance of military organizations. By creating an ABC model for the Substance Abuse Counseling Center, Marine Corps Base Hawaii, an average 3-year resource consumption rate was \$747,099 was identified. This amount is more than double the actual budget. This information shows that only a small portion of the total resources consumed by the SACC can be identified using traditional methods. Only by identifying the total resources consumed can management make relevant decisions on how to allocate those resources.

The biggest challenge that will occur at every discussion about resource consumption is sorting through the multiple funding sources for monies provided to government organizations. It will always be difficult to calculate all the resources coming into an organization. Since managers and commanders have very little control over resources and where those resources are directed, this creates little incentive for cost improvements. There is always room for efficiency improvements at all levels of an organization but without the support of high-level leadership there is little chance that these initiatives will take place.

B. RECOMMENDATIONS

1. ABC Model Development

The ABC model created for this research is a detailed look into the cost structure of the SACC. This model shows in detail which activities consume the most resources and how they relate to the services performed. Although the ABC/M methodology has been implemented throughout all 16 bases and installations, it is important to look for opportunities to leverage the information obtained from these new management tools. Managers and commanders must take the initiative to promote the ABC methodology in order to get "buy in" from all levels of an organization. The reason for this is that an ABC model does not in and of itself produce results. The real benefits are received from

how the information is used. It is recommended that the SACC management review this research for potential information that is not in their current management models, which could benefit the overall organizations ABC/M efforts.

2. Resource Allocation Recommendations

The development of the resource module identified that the use of military counselors should be reconsidered. These military counselors spend between 36 and 43 percent of their time in sustaining activities that do not directly relate to the mission of the SACC. Although these counselors can better identify with the individual Marine, it is difficult for the SACC to justify the cost. It is recommended that these military counselors be replaced with civilian counterparts in order to increase the efficiency of a counselor's time and decrease the overall cost to run the SACC.

It is recommended that the GS-11 civilian counselor focus their entire responsibility on the core activities and let the GS-12 Director focus on the sustaining activities. This would give the GS-11 counselor a better opportunity to use their time more effectively in accomplishing the mission.

The GS-4 office clerk's position should be re-evaluated with the objective of reducing the amount of time that is spent on external demands and special events. This is not an activity that should consume 40 percent of a lower level employees time. This activity should be the responsibility of the Director and to a lesser degree the active duty members.

3. Process Improvement Recommendation

The SACC management determined that certain activities added more value to the mission than others. In Chapter III a ranking of the activities from Low to High is shown. It is recommended that the SACC re-allocate more resources to the High value activities and reduce the overlap of responsibilities to the Medium activities. This overlap of responsibilities causes higher costs. It is recommended that the activity provide impact course become the responsibility of just 1 or 2 counselors in order to reduce the overlap of responsibilities between civilian and military counselors.

Further process improvements can be made to the sustaining activities. It seems that providing general support and responding to external demands involves everyone in

the organization. This may occur for the simple reason that it is a catchall and everyone assumes they partake in this activity when they actually may not. Management must look into this activity to see if any improvements exist.

C. ANSWERS TO RESEARCH QUESTIONS

1. Cost to Counsel a Marine

The activity-based costing model of Chapter IV shows the cost to counsel a Marine for the three services that the SACC provides. During the FY2000 through FY2002 that cost is \$95.94 to perform clinical evaluations, \$66.41 to provide substance abuse prevention, and \$564.62 to provide professional consultation.

a. Total Resource Consumption

Average annual resource consumption for the SACC during the FY2000 through FY2002 is \$747,099 as shown in Tables 11 and 12.

2. Core Competencies

Two core competencies were identified in Chapter IV.

Well trained and motivates employees

Location

3. Is Outsourcing a Viable Option

Although the costs incurred by the Marine Corps to counsel a Marine are significantly higher than an outside vendor it is my opinion that the same level of service cannot be easily duplicated. There may also be unavoidable costs incurred by MCBH regardless if this service was outsourced. If this is true then all the costs associated with the SACC may not be deferrable. Given this the SACC should look into process improvement using the ABC model as a guide to bring costs down to a more competitive level.

D. AREAS FOR FURTHER RESEARCH

1. Marine Corps Wide Substance Abuse Counseling Center Comparison

Since the Marine Corps has developed ABC for all bases and installations it may be necessary to examine and research the difference between each SACC. This would identify which organizations have the lowest cost structure. Once these organizations are identified they could reorganize their operations to reflect the best business practices of the most efficient organization.

2. Capacity Analysis

A capacity analysis may be necessary to determine the theoretical, practical and actual capacity of the SACC. This information will provide relevant information on the optimum resource levels to maintain the given level of output.

3. Labor Resource Allocation Analysis

A further study into the allocation of labor resources to activities may be necessary in order to create better and more accurate data. The percentage of time method is good when time and money are in short supply but may lack accuracy when employees of an organization may not fully appreciate the information they completing. Observation, time sheets, logs, and check sheets can all be used to validate the accuracy of the information being provided. All these techniques are more time consuming and expensive but in a mature ABC model these costs may be justified.

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