



CARES Progress Report

May 7-8, 2001

BOOZ·ALLEN & HAMILTON

Purpose

- ▼ Describe the scope of activities and processes for option development and evaluation
- ▼ Explain the methodology for CARES metrics, models and strategic evaluations
- ▼ Illustrate the depth of expertise focused on all elements of the study

Underlying Principles and Key Considerations

- ▼ The objective is to improve access and quality of care – the focus is on the veteran
- ▼ The work has been driven by data provided by VA staff (national and VISN) and the VA's consultant actuaries
- ▼ This is not a "BRAC" program
- ▼ Special disability programs and extended care programs are maintained at legislated capacity or greater
- ▼ The VISN 12 project is the Phase I pilot which refines the method, and develops "Lessons Learned" for Phase II

Topics

Subject Matter Experts will review the process for each of the following:

- ▼ 2010 Demand Projections
- ▼ Planning Benchmarks
- ▼ Markets
- ▼ Facilities
- ▼ Community Resources
- ▼ Evaluation Criteria
- ▼ Veterans Preference/Survey
- ▼ Sensitivity Analysis
- ▼ Optimizing Use of Resources

2010 Demand Projections

Service	Projection Source	Modified by BA&H ⁽²⁾	Nature of Modifications
Inpatient Acute Hospital Services <ul style="list-style-type: none"> • Med/Surg • Psychiatric & substance abuse 	M&R ⁽¹⁾	No Yes	Psychiatric/Substance Abuse degree of management assumptions were modified
Residential Rehabilitation	Booz·Allen	N/A	Aging model
Long-Term Care	VHA	Yes	BA&H added Long-Term Psychiatry projection
Ambulatory Care	M&R	Yes	BA&H translated M&R categories into clinic stops for space and facility planning
Special Disability Programs	Booz·Allen	N/A	Used capacity report – legislated requirements

(1) Milliman & Robertson, “CARES Utilization and Expenditure Projection Model, Phase I, VISN12, Fiscal Years 2001 through 2010”

(2) Described on the pages which follow

2010 Demand Projections (continued)

Inpatient Acute Hospital Utilization (M&R)

- ▼ 2001 and 2010 Projected Demand for:
 - ◆ Medicine, Surgery (including all sub-specialties)
 - ◆ Psychiatry, Substance Abuse

- ▼ Modified Psychiatric and Substance Abuse:
 - ◆ Actual to Expected adjusted to reflect current ratio between Psychiatry and Substance Abuse utilization
 - ◆ Degree of Management midway between current level and loosely managed community standard (Degree of Management is a feature of the M&R model involving utilization, admissions and lengths of stay)

- ▼ BA&H adjusted Acute Psychiatry and Substance Abuse in order to distinguish Residential Rehabilitation Program demand (see page 6)

2010 Demand Projections (continued)

Residential Rehabilitation (BA&H)

- ▼ Many patients in the residential programs are in special disability categories (Substance Abuse, SMI, Homeless) and some may be cared for in domiciliary units as well
- ▼ Booz·Allen separated SA/PRRTP, based on FY00 patterns and in discussion with the VISN for projections to 2010
- ▼ Residential Rehab demand was calculated separately, using the M&R population and aging model
- ▼ The results show significantly less decline (-12%) in demand for these services compared to Acute Psychiatry and Substance Abuse (-22%)

2010 Demand Projections (continued)

Long-Term Care Demand (VHA and BA&H)

- ▼ VHA Long-Term Care Model used to project 2010 demand for Nursing Home and Domiciliary Care (M&R modeled Priority Level 1a only)
- ▼ BA&H examined BDOCs associated with Long-Term Psychiatric patients and used the same percentage decline projected by M&R for Acute Psychiatry and Substance Abuse (after consultation with VA and Non-VA Mental Health experts)
- ▼ Long-Term Care bed levels planned to meet Millennium Bill requirements

2010 Demand Projections (continued)

Ambulatory Care

- ▼ The Ambulatory Care model is based on M&R's private sector model
 - ◆ Includes 25 categories of Ambulatory Care based on CPT codes.
 - ◆ Incorporates age/gender, morbidity, reliance and degree of healthcare management

- ▼ BA&H requested adjustments to the outpatient psychiatry assumptions as follows:
 - ◆ Changed Priority Levels 1-6 Reliance Factor to 85%
 - ◆ Maintained the degree of healthcare management at current level

- ▼ For space and facility planning purposes, the M&R CPT codes and clinical categories were translated into Clinic Stops consistent with the way the VA measures encounters

2010 Demand Projections (continued)

The Ambulatory Translator*

Inputs

- FY00 actual clinic stops
- FY00 actual CPTs per clinic stop
- M&R CPT grouper
- FY10 M&R expected use rates per ambulatory category

Process

- Create cross tabulation of FY00 actual CPTs by clinic stop (rows) and M&R ambulatory category (columns)
- Calculate percentage distribution for each M&R category in this cross tabulation
- Spread the expected number of CPTs in each M&R category by the percentage distribution created above
- Multiply expected total CPTs per clinic stop by FY00 actual clinic stop to CPT ratio for each stop

Output

- FY10 Expected Clinic Stops

2010 Demand Projections (continued)

Special Disability Programs

- ▼ Based on VHA Special Disability Capacity Report(1)
- ▼ Legislated levels of capacity; not demand based
- ▼ Booz·Allen measured current (FY00) utilization of services provided to patients in the SDP Registry
 - ◆ Compared current number of patients and services against 1996 through 1999 figures
 - ◆ Chose the highest level (measured by number of patients)
- ▼ Using an aging model, Booz·Allen projected 2010 demand for BDOCs and relevant ambulatory clinic stops (defined in Capacity Report) in order to gauge appropriate capacity. In the case of SCI, the number of patients were kept constant as required by law.

(1) Report to the Committee on Veterans Affairs, “Maintaining Capacity to Provide for the Specialized Treatment and Rehabilitation Needs of Disabled Veterans”, October 2000.

Benchmarks: Access

Establish time/distance access standards for inpatient and ambulatory specialty care.

INPUTS

▼ Research

- ◆ Extensive literature review
- ◆ Extensive conversations with approximately 30 healthcare agencies, organizations, departments of health, and academic centers

▼ Data Sources (partial list)

- ◆ State of Illinois (e.g., radiation therapy, dialysis: 90% within 45 min.)
- ◆ National Rural Health Association (e.g., primary care: 30 min travel time from patient's residence)
- ◆ Center for Health Services Research & Policy (e.g., primary care: Wisconsin 20 miles)
- ◆ TRICARE (e.g., Community hospital: 40 mile radius)
- ◆ Department of Veterans Affairs
 - National Healthcare Plan 1992
 - Patient Care Services Feedback to CARES Criteria 2000
 - VISN 12 Defining Programs Draft 12/99 (e.g., Regional/specialty: 90% within 2 hours)
- ◆ Bureau of Primary Care—time/distance conversions
- ◆ Chicago Area Transportation Department
- ◆ Patient Survey Data
- ◆ VISN 12 Site Visits

Benchmarks: Access (continued)

PROCESS

- ▼ Assembled and categorized standards for primary care, specialty ambulatory care, and inpatient care
- ▼ Classified by rural vs. urban/suburban
- ▼ Discussed with experts (e.g., Uwe Reinhard and Julian Wolpert, Princeton University; BA&H Core Clinical Committee)
- ▼ Validated with NCPT (March 15, 2001)

OUTPUTS

Drive Time

	Urban	Suburban	Rural
Emergency Care:	Closest	Closest	Closest
Ambulatory Care:			
Primary Care	30 Min/6 Mi	30 Min/20 Mi	30 Min/20 Mi
Specialty Care	60 Min/12 Mi	60 min/40 Mi	90 Min/60 Mi
Community Hospital:	60 Min/12 Mi	60 min/40 Mi	90 Min/60 Mi
Extended Care:	60 Min/12 Mi	60 min/40 Mi	90 Min/60 Mi
Tertiary Hospital:	3-4 Hours/VISN	3-4 Hours/VISN	Within the VISN

Benchmarks: Hospital Service Volume

Population drives demand; demand drives service volume

INPUTS

- ▼ M&R Projections
- ▼ Private Sector Benchmarks

PROCESS

- ▼ Identify divergence of VA population from the private sector health plans
- ▼ Utilize M&R demand projections to calculate use rates (400 enrollees/med surg bed)

OUTPUT

- ▼ Metric: 75 med surg beds/30,000 enrollees

Markets

GOAL: Develop a veteran demand-based market structure that promotes access

INPUTS

- ▼ GIS Mapping Tools
- ▼ KLF utilization data
- ▼ M&R projected enrollee data
- ▼ Chicago Area Transportation Study
- ▼ Southeastern Wisconsin Regional Planning Commission

PROCESS

- ▼ Identification of 2010 veteran population by 5-digit zip codes
- ▼ Creation of Markets and Submarkets

OUTPUTS

- ▼ Veteran enrollee population maps
- ▼ Boundary maps of three markets (South, Central, Northern) and 14 submarkets

Markets (continued)

- ▼ Identification of 2010 veteran population by 5-digit zip codes
 - ◆ Determined that 5-digit zip code boundaries were the most specific and accurate form of boundaries
 - ◆ Arrayed and converted 3-digit 2010 projected data to 5-digit zip codes
 - ◆ Created a dot-density map which showed the projected dispersion of veterans in VISN 12
 - ◆ Grouped veteran population in 40, 60, and 90 mile radii

- ▼ Creation of Markets and Integrated Submarkets using these rules:
 1. **Proximity to nearest VAMC**—Identified and determined time/distance of more than 300 individual zip code points to VAMCs
 2. **Natural Features**—Identified natural boundaries such as bodies of water that may increase travel times at a particular VAMC
 3. **Parochial Migration**—Analyzed more than 300 individual zip code points to track historical migration. When zip codes are equidistant between two or more VAMCs, used historical migration patterns in each 5-digit zip to determine which market/submarket each zip was placed in
 4. **Transportation System**—Consulted state transportation experts to determine how mass transit and highway systems affect travel time (For instance, 30 minutes equals 6 miles in the City of Chicago)

Benchmarks: Ambulatory Care Provider Workload



The benchmarks and sources for ambulatory provider productivity are used for the development of defining characteristics for space planning.

INPUTS

- ▼ Bristol database of civilian healthcare organizations (community hospitals—academic medical centers)
- ▼ Medical Group Management Association, Physician Production and Compensation Survey
- ▼ Bristol Resource Planning Model Based on Military Healthcare Optimization Standards
- ▼ VA Benchmarks for ambulatory care panel size (primary care—1,000 to 1,200)

PROCESS

- ▼ Arraying of data reviewed
- ▼ Consultation with VA and non-VA expert physicians, including: Drs. Stanton, Schmidt, Cohen, Flanigan, Krahn, Xenakis, Albala, Weintrub, Sharma, Panullo, Peters, Sadaniatz

OUTPUTS

- ▼ Benchmark for identifying the number of providers required to determine space requirements

Benchmarks: Ambulatory Care Provider Workload



Visits Per Provider Annually

SERVICE	BENCHMARKS	BA&H TARGET FOR SPACE PLANNING ¹	PLANNING RANGE
	Medians		
Primary Care	3,275	3,300 ⁴	3,000-3,600
Medical Specialties	2,580 ²	2,145 ⁵	1,930-2,360
Surgery Specialties	3,359 ²	2,950 ⁵	2,655-3,245
Mental Health	1,750 ³	1,750	1,575-1,925

- 1) The target was developed in consideration of the VA's patient acuity in comparison to private sector and the training activities conducted at many VA medical centers.
- 2) Adjusted for projected volume distribution among specialties.
- 3) Planning target consistent with VISN strategic plan as expressed by Dr. Krahn.
- 4) Midpoint between calculated workload for panel size of 1,000 and 1,200.
- 5) Midpoint between adjusted median and adjusted 25th percentile.

Facilities

GOAL: Evaluate the impact of the service delivery options on the existing VISN 12 facility portfolio, generating Capital Asset Realignment Plans

INPUTS

▼ Data:

- ◆ VA Space and Functional Assessment Database - Office of Facilities Management
- ◆ VA Facility Condition Assessment Database - Office of Facilities Management
- ◆ VISN 12 Medical Center site and building floor plans
- ◆ FY 2000-2001 Non-recurring maintenance and minor capital plans

▼ Facility Assessment

- ◆ Tour all VISN 12 Medical Center campuses
- ◆ Review existing space utilization
- ◆ Assess functional layout of medical care and support facilities
- ◆ Assess facility and infrastructure condition
- ◆ Review current and proposed construction projects
- ◆ Identify facility constraints and opportunities

Facilities (continued)

PROCESS

▼ Facility Scenarios

- ◆ Using code/facility requirements, assess Service Delivery Options for facility impact
 - Apply Health Care Analysis; Service Delivery Options
 - Develop Program for Design (PDF) for Service Delivery Options
 - Apply Guidelines for Hospital and Health Care Facilities
 - Apply VA Handbook 7610
 - Apply ADA Accessibility Guidelines
- ◆ Develop and explore (test to fit) alternatives that address planning issues of the VISN, the Facility, and Departments

OUTPUTS

▼ Capital Asset Realignment Plans:

- ◆ Identify impact on facility footprint / real property portfolio
- ◆ Analyze impact on facility space and utilization
- ◆ Identify impact and opportunities on VA / non-VHA collocated tenants
- ◆ Identify Enhanced Use / DoD Sharing impact and opportunities
- ◆ Develop realignment implementation project plan
- ◆ Develop Rough Order of Magnitude (ROM) capital investment requirements for implementation

Community Resources

Community Health Care Resources are defined in the SOW as an important input into the CARES Process

INPUTS

- ▼ 2000 AHA Guide
 - ◆ Number of hospitals in VISN 12 geographical area
 - ◆ Staffed beds
 - ◆ Occupancy rates
- ▼ AHA Hospital Statistics 2001 aggregated by state and Metropolitan Statistical Area (MSA)
- ▼ Telephonic survey of 72 hospitals representing all markets (Northern, Central, Southern) and submarkets
 - ◆ Medical/surgical beds
 - ◆ Acute psychiatry beds
 - ◆ Skilled Nursing Home beds
- ▼ Telephonic survey of private nursing homes in Northern Market

Community Resources (continued)

PROCESS

- ▼ Analysis of data inputs
 - ◆ By bed type
 - Med surgical
 - Acute psychiatry
 - Skilled nursing home beds
 - ◆ By location type
 - Urban
 - Suburban
 - Rural
 - ◆ By Metropolitan Statistical Area
 - MSA
 - Non-MSA

OUTPUT

- ▼ Report on community capacity and vacancy levels
 - ◆ Medsurg
 - ◆ Acute Psychiatry
 - ◆ Long-term Care

CARES Evaluation Criteria

INPUTS

- ▼ VHA developed CARES Evaluation Criteria
- ▼ Data
 - ◆ Actuary
 - ◆ Facility
 - ◆ VHA LTC and Special Disability Programs
 - ◆ Cost
 - ◆ BA&H
 - ◆ AHA
 - ◆ Patient Satisfaction and Community Supply Surveys

PROCESSES

- ▼ Analyze criteria requirements; identify data requirements; develop preliminary data shells to quantify the criteria, and assist in evaluating and ranking the options
- ▼ Consult with VA and VHA staff and NCPT members as data shells and models were developed
- ▼ Solicit input from various VA, VHA staff and NCPT members on draft data shells models
- ▼ Conduct research on benchmarks for access, panel size, and volume
- ▼ Contact VHA program and private sector experts for input
- ▼ Refine and finalize criteria data shells, models and narrative formats for criteria
- ▼ Collect/format data for completing criteria

CARES Evaluation Criteria (continued)

OUTPUTS

- ▼ CARES Absolute Criteria Scoring Tool
 - ◆ Healthcare Needs and Requirements
 - ◆ Quality Continuum of Care
 - ◆ Safety and Suitable Environment

- ▼ CARES Discriminating Criteria Scoring Tool
 - ◆ Access
 - ◆ Patient Satisfaction
 - ◆ Staffing and Community Impact
 - ◆ Other VA Missions
 - ◆ Resources

Veterans Preferences/Surveys

**Veterans preferences data is required in scoring the patient satisfaction
Discriminating Criteria**

INPUT

- ▼ Existing VA data on patient satisfaction
- ▼ Survey included:
 - ◆ Enrolled veterans—not using
 - ◆ Patients
 - Ambulatory
 - Inpatient
 - Mental Health
 - Extended Care
 - PTSD
 - TBI
 - Substance Abuse
 - Blind Rehab
 - SCI/D
 - Amputees
 - Homeless
- ▼ Face-to-face interviews with TBI, Homeless and Extended Care (Milwaukee and Hines)
- ▼ Focus groups at each medical facility (pending)

Veterans Preferences/Surveys (continued)

PROCESS

- ▼ Determine the elements of patient preference
- ▼ Wrote survey document to probe these
- ▼ Received OMB clearance for survey
- ▼ Made over 1200 calls; interviewed 277 people across all disability groups and locations

OUTPUT

- ▼ Telephone surveys provided information for use in developing the options
- ▼ Scoring data on Veterans Preference for the Discriminating Criteria

Sensitivity Analysis

PURPOSE: The purpose of the sensitivity analysis is to identify and describe factors that will impact future veteran use of VA health care facilities from 2010 to 2020

PROCESS

- ▼ Identify factors through literature and discussions with VA staff, military personnel, economists, and health planners
- ▼ Conduct an analysis for each of the seven factor's impact on demand
- ▼ Compare projected demand to planned capacity

OUTCOME

- ▼ A comparison of projected demand and planned capacity, when possible. If not possible, it will be a narrative discussion of the relevant issues that VA should consider in evaluating the service delivery options
 - ◆ Impact of sensitivity factors on demand projections – derived from "what if" scenarios
 - ◆ Evaluation of service delivery options

Sensitivity Analysis (continued)

Sensitivity Factor	Inputs	Process	Outputs
1. 2020 Projected Demand	<ul style="list-style-type: none"> M&R actuarial projections 	<ul style="list-style-type: none"> Conversion to BDOCs and ambulatory visits 	<ul style="list-style-type: none"> VISN 12 2020 projections <ul style="list-style-type: none"> Veteran Enrollees BDOC Ambulatory Visits
2. Unmet Demand	<ul style="list-style-type: none"> M&R actuarial projections 	<ul style="list-style-type: none"> Conversion to BDOCs and ambulatory visits 	<ul style="list-style-type: none"> VISN 12 Unmet Demand projections <ul style="list-style-type: none"> BDOC Ambulatory Visits
3. VA-DoD Resource Sharing	<ul style="list-style-type: none"> Great Lakes Naval Hospital capacity and workload data VISN12 veteran and retiree data (from VHA) Millennium Act VA/DoD Health Resource Sharing and Emergency Operations Act National Defense Authorization Act Input from VA's Emergency Management Strategic Healthcare Group Transition Commission Recommendations 	<ul style="list-style-type: none"> Policy analysis Impact assessment Capacity and workload analysis 	<ul style="list-style-type: none"> Assessment of VISN 12's ability to absorb the Great Lakes Naval Hospital's workload Assessment of TRICARE for Life benefits package on VISN 12 Narrative discussing policy issues related to VA-DoD sharing in VISN 12
4. Economy	<ul style="list-style-type: none"> 1971-1995 Unemployment Rates 1971-1995 Number of Patients Treated by the VA 	<ul style="list-style-type: none"> Correlation analysis Impact assessment 	<ul style="list-style-type: none"> Impact of unemployment on demand for VISN12 services
5. Military Conflicts	<ul style="list-style-type: none"> Input from VA's Emergency Management Strategic Healthcare Group VISN 12's reported capacity VA/DoD Health Resource Sharing and Emergency Operations Act VA-DoD National Emergency MOU, 1982 VHA Handbook Contingency Hospital System Plan Integrated CONUS Medical Operations Plan (guidance) Persian Gulf War casualties 	<ul style="list-style-type: none"> Policy analysis Impact assessment 	<ul style="list-style-type: none"> Assessment of VISN 12's ability to absorb military casualties after the legal commitment to service-connected veterans
6. Changes in Medicare Policy	<ul style="list-style-type: none"> M&R query on VISN 12 pharmacy users Over 65 veterans in VISN 12 (from VHA) DoD Medicare Subvention 	<ul style="list-style-type: none"> Policy analysis Impact assessment 	<ul style="list-style-type: none"> Narrative discussing issues related to changes in Medicare policy, and their potential impact on VISN 12 <ul style="list-style-type: none"> Medicare Subvention Pharmacy Benefits
7. Changes in Medical Practice and Technology	<ul style="list-style-type: none"> Literature on new technologies, medical advances, and the changing health care environment 	<ul style="list-style-type: none"> Literature review Consultation with experts 	<ul style="list-style-type: none"> Narrative discussing potential impact of medical practices and technology

Optimizing Use of Resources (Costing)

GOAL: Estimate life cycle costs of baseline and SDOs over 20 year planning horizon, using the CARES Resource Analysis Model

INPUT

- ▼ 2000 Cost Distribution Report (CDR) - Allocation Resource Center
- ▼ VISN 12 Capitalized Equipment and Building Expenditures - VISN 12 CFO's Office
- ▼ Health Care Demand - Milliman & Robertson, Inc.
- ▼ Cost of Care Outside VA - Management Science Group, CDR National Averages
- ▼ Non-Recurring Costs - BA&H Facilities Team

Optimizing Use of Resources (continued)

PROCESS

- ▼ **Calculate Baseline (Status Quo) Costs** using VA's 2000 Cost Distribution Report (CDR) data, i.e., actual expenditures
 - ◆ **Recurring** costs reflect current operations, i.e., assume existing processes are retained
 - “**Variable**” costs vary with changes in workload over time (as provided by M&R)
 - » Direct medical
 - » Medical administration
 - “**Fixed**” costs remain constant over time
 - » Facilities Operations and Maintenance
 - » VA—Unique Operating Costs
 - ◆ **Non-recurring** costs (i.e., Non-Recurring Acquisition) reflect the resources needed to sustain existing facilities, but incremented to meet then-year standards (e.g., renovations for safety compliance)
- ▼ **Calculate SDO Costs**
 - ◆ **Recurring costs** reflect current operations, plus increments/decrements based on SDO specific inputs (e.g., workload realignment, outsourcing, FTE changes, etc.) that are time-phased to vary with changes in workload over time
 - ◆ **Non-recurring costs** reflect the resources needed to sustain existing facilities at then-year standards, plus the cost or revenue associated with the acquisition, renovation or disposal of facilities as specified in the SDO (e.g., facilities construction/sales revenues, concurrent operations, moving expenses, equipment sales/purchases, etc.)

Optimizing Use of Resources (continued)

OUTPUT

- ▼ **CARES Resource Analysis Model** provides cost estimates to score each SDO on the “Optimizing Use of Resources” Criteria, as measured relative to each other
 - ◆ Life Cycle Cost
 - ◆ Unit Cost(s)
 - ◆ Savings from Integration
 - ◆ Marketing Excess Capacity
 - ◆ Enhanced Use and Sale of Assets

- ▼ **CARES Resource Analysis Model** can be used to support Sensitivity Analysis