Office of Analytics and Business Intelligence
Stephan Fihn, MD MPH
Director
Supporting Secretary Shinseki’s Priority to be Data Driven

- Enhancing analytic capacity
- Standardizing approaches to data capture, analysis and reporting
- Improving efficiency
  - Consolidated numerous programs and offices
- Working to improve data quality

Our Goal: The Right Information to the Right Person at the Right Time
OIA Structure

Office of Informatics and Analytics

- Health Information Governance
- Analytics and Business Intelligence
- Health Informatics
# Our Services

## ADUSH For Health Informatics and Analytics

<table>
<thead>
<tr>
<th>Analytics &amp; Business Intelligence</th>
<th>Health Informatics</th>
<th>Health Information Governance</th>
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<tbody>
<tr>
<td>Performance Measurement</td>
<td>Applied Informatics Service</td>
<td>Health Information Management</td>
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<td>Operational Metrics</td>
<td>Bar Code Resource Office</td>
<td>Data Quality Program</td>
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<td>VHA Support Service Center</td>
<td>Health Informatics Initiative</td>
<td>Health Care Security Requirements</td>
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<td>Human Factors</td>
<td>National Data Systems</td>
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<td>Web Solutions/CDW Governance /Mobile Apps</td>
<td>Informatics Patient Safety</td>
<td>Information Access &amp; Privacy</td>
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<td>Clinical Assessment Reporting &amp; Tracking</td>
<td>integrated Electronic Health Record</td>
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<td>Knowledge Based Systems</td>
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<tr>
<td><strong>Training and Education</strong></td>
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</table>
OABI Organizational Structure

Director
Stephan D. Filin, MD

Operational Analytics & Reporting
Director, Peter Almenoff, MD

Clinical Analytics & Reporting
Director, Joe Francis, MD

Clinical Data Integration

Business Analytics
Elkeen Maraun

Business Reporting
Scott Dingeman

Operations and Management Support
Jill Powers

VSAC Product Line

OPES Efficiency
OPS Physician Productivity
Staffing
Medical Center (MCC)

Finance
HR/Org Health Management Reporting
Physician Staffing
Safety

Infrastructure
Workload
Geo Spatial mapping

Customer Integration & Ops
Operational Metrics Reporting
Revenue Redesign
Business Apps Data Collection
VA/DOD Outreach

Clinical Program Support
Becky Lancaster

Clinical Metrics
Ron Freyberg

Performance Evaluation
Steve Wright, PhD

Primary Care and PACT Initiative

Specialty Care
Mental Health and Homeless Initiative Nursing

IPEC
Metric Development
Clinical Implementation

Performance Measurement
SNIP, ERIP

Performance Reporting

Web Solutions
Kathy Finlay

CART
John Rosefield, MD

Predictive Analytics
Chris Nixson, MD

Analytic Support

Mobile Applications
Web Solutions
CDW Governance

PACT Technology Evaluation

VETERANS HEALTH ADMINISTRATION
Current and Proposed Products

For Management:

• Context based, relevant information
• Process improvement support
• Analytics training
• Innovative collaboration tools

For Clinicians

• Context based decision support
• Population management
• Real-time data collection

VETERANS HEALTH ADMINISTRATION
Products (cont.)

For VHA leadership
  • Detailed analysis of programs and issues

For Patients
  • Web-based and mobile applications

For Research
  • Validated, relevant data
  • Analytic tools
Products (cont.)

For other health care partners
  • Benchmarking
  • Leading measures

For public/consumers
  • Recognition as leader in public reporting
Homeless Veteran Products

VETERANS HEALTH ADMINISTRATION
Homeless Services Cube

- Consolidates VHA workload, VBA claim, Homeless and at risk legacy system, HOMES application to identify and track homeless and at risk Veterans
- Includes over 400 metrics related to homeless and at risk Veterans, homeless/housed indications, services, outcomes, benefits
- Provides patient level detail; in User Acceptance testing on VSSC website
- For homeless and at risk coordinators, management & leadership
- Developed and supported by Butch Fort and Betsy Lancaster
Homeless Veteran Profile

• Profiles homeless and at risk Veterans including Mental Health, VBA Claim, Primary Care and Homeless service history

• Provides demographics address, PC & homeless provider and diagnostic hx

• Will include Veteran VIC Image

• Provides patient level detail; in User Acceptance Testing on VSSC website

• For homeless and at risk coordinators, management & leadership

• Developed and supported by Butch Fort and Betsy Lancaster

VETERANS HEALTH ADMINISTRATION
Homeless Operations, management and Evaluation System (HOMES) allows for the recording of intakes assessment forms and the tracking of intake forms.

- Integrated several stand-alone homeless program legacy processes and applications.
- Feeds data daily into Homeless Registry.
- Provides patient level detail.
- For homeless and at risk coordinators, management & leadership.
- Developed and supported by Sp Thakur, Tom Bricker and Jeanne Weishar.
Homeless
Other Projects and Efforts

- VIC Images - incorporation of Veteran Identification Card images into homeless reporting for homeless coordinators
- HUD/HMIS Data Sharing – as the homeless client served in the community are sometimes the same veterans served in VA, the goal of this project is to exchange data between the VA Homeless Registry and HMIS in a controlled, secure environment.
- VBA Claims and Benefits - expansion of the VBA claim and benefits data into the Homeless Registry beyond those Veterans with a VBA Homeless Flash applied.
- Homeless Service Monthly Dashboard – automation of a monthly dashboard of homeless programs, uniques and outcomes - currently in excel
- HOMES Application version 1.6 – expansion of HOMES application to coordinate the care of homeless and at risk Veterans
Mental Health Products

VETERANS HEALTH ADMINISTRATION
Mental Health
Mental Health Summary Report

• Consolidated and detail view of Mental Health performance measures & monitors
• Includes MHICM, SUD, OEF/OEF Psychotherapy, MDD, 14 Day Follow-up, 7 Day Follow-up After Inpatient Stay and High Risk Suicide Follow-up
• Provides patient level detail
• Accessible through VSSC website
• For MH providers, management & leadership
• Developed and supported by June Oliver
Mental Health
Mental Health Uniform Services Handbook Survey

- Combines repeated USH Survey with MH workload and other clinical data to track compliance with MH directives
- Includes metric domains: General, Emergency Services, Seriously Mentally Ill, SUD, PCMHI, Geriatric Programs, Homeless, Integration, PTSD, OEF/IF, MST, Telehealth
- Accessible through VSSC website
- For MH providers, management & leadership
- Developed and supported by June Oliver
Mental Health Information System

- Consolidates MH Evaluation Center (NPECEC, SMITREC and PERC) and performance measure and monitor data and compares to targets

- Domains include Uniform MH Services Survey Scores, T21-Business Results and Global Domain Scores

- Accessible through User Acceptance testing on VSSC website

- For MH providers, management & leadership

- Developed and supported by June Oliver
Primary Care
Primary Care Almanac

Almanac combines Primary Care panel assignments (PCMM) w/ clinical data including lab, pharmacy, clinical cohorts, pt. demographics, care coordination program enrollment

- Provides detail clinical support for diabetes & htn
- Provides pt & provider level detail
- Accessible through VSSC website & CPRS tools menu
- For primary care providers, team members & mgmt
- Developed by Fred Kirkland
Primary Care Care Assessment Need (CAN) Report

- CAN provides estimated probability of death/hospital admission within specified time frame (90d or 1 yr).
- Score expressed as a percentile 0-99; higher score indicates follow-up assessment.
- Provides patient level detail.
- Accessible through VSSC website & CPRS tools menu.
- For primary care providers, and/or nurse care manager.
- Model developed in collaboration with PCS.
- Report developed by Freddy Kirkland.
Primary Care Patient Aligned Care Team (PACT) Compass

- PACT Compass enables management & field to track compliance to PACT operational directives & goals
- Metric Domains include Panel Management, Access, Continuity, Coordination or Care, Medical Home Builder Survey, AES
- Perf. measures & monitors
- Provides provider and some patient level detail
- Accessible through VSSC website & CPRS tools menu
- Developed by Teresa Stevens
- Supported by Fred Kirkland
Primary Care Provider Panel Cube

- PCP Panel cube provides a weekly snapshot of PCMM panels, patients, providers, teams, capacity, FTE, patient demographics, workload, rooms & staffing, Medical Home Builder Survey
- Provides patient and provider level detail
- Accessible through VSSC website
- For primary care providers, management & leadership
- Developed and supported by Betsy Lancaster
Primary Care Staffing and Room Application & Reporting

- Entry of room and staff data for use in the modeled capacity calculations and staffing ratio monitor
- Provides division and above level
- Accessible through VSSC website; application access limited to selected visn staff
- For primary care management & leadership
- Developed and supported by SP Thakur, Teresa Stevens and Fred Kirkland
Primary Care
Dual Assignment Application & Reporting

• Entry and reporting of primary care dual assignment approvals across facilities

• Provides patient level detail

• Accessible in User Acceptance Testing through VSSC website; application access limited to selected visn staff

• For primary care management module (PCMM) coordinators and providers

• Developed and supported by SP Thakur, Steve Krysiak and Fred Kirkland
Primary Care/Mental Health
Primary Care Mental Health Integration Dashboard

- PCMHI program is integrated care for Veteran physical and mental health conditions
- Shared program of the Office of Mental Health Services and the National Primary Care Program.
- Dashboard includes
  - Service Utilization, including patients served and encounters
  - Operations, including program components and staffing
  - Performance measures
- Developed by Teresa Stevens
- Supported by June Oliver
Patient Aligned Care Team (PACT) Compass
Primary Care
Other Projects and Efforts

• PCMM Rehost – effort to rewrite Vista PCMM application to decrease complexity and increase functionality. HP has been engaged as contractors

• Primary Care Panel and Model Capacity Update – detailed analysis to update primary care panel size and modeled capacity guidelines as driven by direct care and support staff FTE, visit intensity, available rooms and other factors

• PACT Team Certification – analysis of PACT teams and providers in an effort to identify best practices and compliance to PACT Concepts and directives

• PACT Metric Study – in-depth, statistical analysis of foundation metrics such as PACT continuity and same-day access
### Data from Issue Brief on left:

<table>
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<tr>
<th>Issue Brief Information</th>
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<td>Primary Issue Category</td>
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<td>Date of Incident</td>
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<tr>
<td>Date of Report</td>
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<tr>
<td>Title</td>
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<tr>
<td>Secondary Category</td>
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### Data from IOC on right:

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<td>Date Current Through</td>
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<td>Data Definitions</td>
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<td>VSSC Help Desk</td>
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### Table:

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<th>Category</th>
<th>Priority</th>
<th>Comment</th>
<th>Location/Setting of Incident</th>
<th>Victim Status (Patient, Veteran/OFFICER, Employee)</th>
<th>Victim Age</th>
<th>Victim Gender</th>
<th>Suspect Status (Patient, Veteran/OFFICER, Employee)</th>
<th>Suspect Age</th>
<th>Suspect Gender</th>
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</thead>
</table>
Geriatrics
Community Living Center QMGI Cube

- CLC QMGI cube tracks required assessments of patients in Community Living Centers
- Includes 34 indicators across 11 domains
- Provides patient and provider level detail
- Accessible through VSSC website
- For primary care providers, management & leadership
- Developed and supported by Betsy Lancaster
Other Products

Enrollment, Eligibility, Revenue, and Non-VA Care (EERN) Data Cube

Consults Cube
Products — Issue Brief Database

- Provides improved access to issue briefs plus aggregation and trending
Products

Capital Asset Inventory

EEO/Alternative Dispute Resolution Dashboard
Products

Rehabilitation Services Dashboard

Secure Messaging Reports
Other Recent OABI Products

- Palliative Care Bereavement Survey
- Women Veterans Profile
- Nursing Dashboard
- Patient Aligned Care Team (PACT) Compass
- Executive Career Field Plan/ T21 2011 Measure Report
- Non-VA Care Top 100 Vendors & Non-VA Care Interest Payments
- Mental Health Uniform Survey Handbook Survey
- Appointment Cancellation and Reschedule Rates
Clinical and Operational Metrics
Office of Productivity, Efficiency and Staffing

Announcements

The Physician Productivity cube was updated on Sep 13, 2011 and is current through July 30, 2011 (pay period 13).

ACSC Hospitalization FY11 Q3 Data has been posted
Podiatry Workforce Report: FY 08 – 10 has been posted

Featured Sites

Productivity
- Physician Productivity, Benchmarks & Study Data
- Cube Authorized Users by VISN
- Physician Productivity Cube & Reports

Efficiency
- Stochastic Frontier Analysis Efficiency
- Efficiency Opportunity Grid
- ACSC
- Emergency Department ED Model
- Fee Care Model
- Pharmacy Model
- Operating Room (OR) Efficiency
- Specialty Care Visit Model
- Specialty Care Med/Surg Encounter Model

Staffing
- Specialty Physician Workforce
- Mental Health Workforce
- Podiatry Workforce
- Dialysis
- GR Staffing
- Administrative Staffing Model

Other Products
- Analytics Academy
- Facility Complexity Levels
- Primary Care Intensity Score

Directives & Guidance
- Related VHA Directives

Resource Links
- CMS Physician Fee Schedule RVU Files
- NPI Registry
- Primary Care Panel Management (PCPM)
- Improvement Evaluation Factor (IEF)
- OPRG Org Chart
New and Improved Reporting Tools for Accountability and Improvement
New Operational Reports Being Developed

- Comp and Pen – Prior reports provided only visit counts. Collaborating with Chief Business Office to provide Social Security Number level appointment data. Timeframe: 2-3 months

- Non VA Care - Derived from Field-Based Analytics Program, reports linking Fee Basis Claims to authorizations for treatment, payment, and ordering service. Plan to extract of ALL Fee Basis Claims System data → detailed national reports

- EDIS – Detailed reports of key Emergency Department (ED) metrics, e.g., mean/median time through ED, time to triage, times to admit decision and in bed, patients leaving against medical advice, etc. Timeframe: 2-3 months

- Integrated Billing/Revenue Operations - Detailed reports on Reason Not Billed and 3rd party revenue by stop code (derived from manual reports created for ED at Madison as part of Field Analytics Program). In development

VETERANS HEALTH ADMINISTRATION
### CDW-Based Enterprise Applications

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<th>Healthcare Applications</th>
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<td>PACT Compass</td>
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<tr>
<td>Homeless Services Cube</td>
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<td>Homeless Veteran Profile</td>
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<td>MH Summary Report</td>
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<tr>
<td>MH Uniform Services Handbook Dashboard</td>
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<td>PC Mental Health Integration Dashboard</td>
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<td>Virtual Care Modality Dashboard</td>
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<td>Telehealth Cube</td>
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<td>Amputation Cube</td>
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<td>MOVE Outcomes Report</td>
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<td>Palliative Care</td>
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<td>Consult Cube</td>
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<td>Outpatient Encounter Timeliness</td>
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<td>Outpatient Encounters</td>
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<tr>
<td>Integrated Billing/Revenue Operations</td>
</tr>
<tr>
<td>Emergency Dept. Info. System</td>
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</table>
## Patient Care Assessment System

### Risk Characteristics
- **Patient Name**: <Smith>, Last 4 SSN: 1234 DOB:xx/xx/xxxx
- **Clinical Priority**: (Select)
- **Statistical High Risk**: (Select)
- **High Intensity Medical Management**: (Select)
- **Suicide Risk**: (Select)
- **Homeless**: (Select)
- **Frequent ER User**: (Select)
- **Polypharmacy**: (Select)
- **Frequent PCP Visits**: (Select)
- **Frequent Admissions**: (Select)
- **Medication Non-Adherence (MUET)**: (Select)
- **OID/OIF/OND High Risk**: (Select)

### Patient Information
- **Risk Characteristics**
- **Patient Demographics**

### Select CAN Timeframe
- **CAN Risk Level (1-99)**

### Key Clinical Information
- **Number of Employees**: (Select)
- **Number of Admit**: (Select)
- **DSS Costs**: (Select)
- **National IMO**: (Select)
- **Beneficiary**: (Select)
- **Fee Costs**: (Select)

### Pain Scale
- **High Risk for Medication Problems**: (Select)
- **VERA Classification Last Fiscal Year**: (Select)
- **VERA Classification Current Fiscal Year**: (Select)

### VETERANS MEDICATION NONADHERENCE (MUET)
- **OID/OIF/OND High Risk**
Products - RAMP – Enterprise Wide Portal
Performance Measurement
External Peer Review Program
Clinical Metrics, e.g., HEDIS and ORYX

Performance Measurement Reporting

Performance
- Measure Master
- Productivity Briefing Book
- Run Charts
- HEDIS
- Facility Summary
- Community Living Center Substation
- CBOC Report

Composite
- Composite Executive Summary
- Composite Detail
- Composite Detail (Exportable)

Exit Summary
- Exit Summary
- Projected Composite Executive Summary
- Projected Composite Report
- Gender Report

For questions relating to Performance Measurement, click here to establish an OQP Helpdesk ticket.
# Survey of Health Experiences of Patients (SHEP)

Patient satisfaction and health status for a representative sample of 600,000 Veterans

## Inpatient Care: Overall Rating of This Hospital Stay - National

<table>
<thead>
<tr>
<th>Number Answering Attribute Question (Weighted)</th>
<th>% of Total Responding Attribute Question</th>
<th>Overall Rating of Hospital</th>
<th>% Satisfied with Attribute</th>
<th>Composite Component*</th>
<th>Loss Potential</th>
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<td>79.0%</td>
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*Composite Component:
- Q17 Side Effects
- Q14 Call Button
- Q13 Pain Control
- Q3 Nurse Respect
- Q2 Call Button
- Q5 Nurse Care About You
- Q24 Nurse Respekt
- Q11 Bathroom Help
- Q2 Nurse Listen
- Q27 Dr Care About You
- Q14 Help Pain
- Q47b Privacy
- Q26 Dr Respect
- Q47a Know Who to Ask
- Q6 Dr Listen
- Q7 Dr Explain
- Q8 Cleanliness
- Q47a Cleanliness
- Q8 Cleanliness
- Q1 Nurse Courtesy Respect

**Loss Potential**

<table>
<thead>
<tr>
<th>Q17 Side Effects</th>
<th>Q14 Call Button</th>
<th>Q13 Pain Control</th>
<th>Q3 Nurse Respect</th>
<th>Q2 Call Button</th>
<th>Q5 Nurse Care About You</th>
<th>Q24 Nurse Respekt</th>
<th>Q11 Bathroom Help</th>
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<th>Q27 Dr Care About You</th>
<th>Q14 Help Pain</th>
<th>Q47b Privacy</th>
<th>Q26 Dr Respect</th>
<th>Q47a Know Who to Ask</th>
<th>Q6 Dr Listen</th>
<th>Q7 Dr Explain</th>
<th>Q8 Cleanliness</th>
<th>Q47a Cleanliness</th>
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<th>Q1 Nurse Courtesy Respect</th>
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</table>
Updated Public Reporting Site

- New website incorporates the content of ASPIRE in a user-friendly, 508-compliant format.
- Format and content tested with a panel of Veterans representing different eras and service and many levels of internet sophistication.
- Content oversight board includes VHA Offices of Communication, Quality, Safety and Value, Policy and Services, Patient Centered Care, and Operations.
High Level Predictive Analytics

• Care Assessment Need (CAN) Score
  – Complex predictive equation (~150 data elements extracted from numerous domains in CDW)
    • Est. likelihood of admission or death w/in 90 d or 1 yr
    • Computed weekly for ~5 million primary care pts
  – Integration into new web application: Patient Care Assessment System (PCAS)

• Other Predictive models in development: acute kidney injury, methicillin-resistant Staphylococcus aureus (MRSA) on admission, *C. difficile*,
### Care Assessment Need (CAN) Report

#### CARE ASSESSMENT NEED SCORE

For:

Score As Of: 2012  
Almanac Data as of: 2011

<table>
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<tr>
<th>CAN Score</th>
<th>Patient Name</th>
<th>Probability of Event</th>
<th>Encounter Count</th>
<th>выраженное CARE</th>
<th>Last PC Visit</th>
<th>Last HBPC Visit</th>
<th>2nd HBPC Visit Count</th>
<th>2nd HBPC Count</th>
<th>Last Death Count</th>
<th>Last Death Date</th>
<th>Last PC Visit</th>
<th>Last PC Visit Location</th>
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<td>Last, First</td>
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<td>2</td>
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VETERANS HEALTH ADMINISTRATION
Clinical Assessment, Reporting and Tracking System–Cardiac Catheterization Labs

- Performance benchmarking
- National peer review program
- Device safety surveillance in partnership with FDA
- Asset management with real-time locator system (RTLS)
- Partnership with DoD
Use of High Level Analytic Data for Population Management and Resource Planning

1-yr likelihood of admission or death
- 2.37% - 9.03%
- 9.04% - 10.01%
- 10.02% - 10.96%
- 10.97% - 12.18%
- 12.19% - 19.34%

1-yr likelihood of admission
- 1.86% - 5.93%
- 5.94% - 7.00%
- 7.01% - 7.97%
- 7.98% - 9.21%
- 9.22% - 16.99%

Dynamic Geospatial Mapping

VETERANS HEALTH ADMINISTRATION
Field Analytics Training

Field Analytics Training

Learning Analytics

Analysis insight action

Invest in analytics, make better decisions

Lead

Experience has shown that data and analytics capability is important when Center Management needs to understand what a transaction or wave, or a data source is driving. The goal is to make the National Veterans Audit and analytics teams accountable. The team of data analysts will meet their performance in their department and analytics training. Recent research shows that both and performing organizations need the development of a much greater interest in data analytics. That’s why the National VHA Data team is helping to develop a comprehensive training and resource that leadership processes can serve as a model for other organizations.

Educate

Learn how to access data from national databases, such as a national audit and data warehouse. Become familiar with data techniques and tools. Analyze data in various ways and understand how to use data analysis to create meaningful data visualizations.

Consult

Receive hands-on consultation from trained experts in the data analytics pipeline.

More Info

Systems Redesign

Learn how to pull information from across the organization; usability, clarify data and reduce efforts.

More Info
Clinical and Operational Metrics — Inpatient Evaluation Center (IPEC)

- Risk adjusted outcomes and metrics, e.g., mortality, hospital-associated infections (including MRSA), length of stay
Analytics — National Evaluation of PACT / Demonstration Labs

PACT Demonstration Lab Initiative
Progress Report – FY 2012, Quarter 1
Mobile Applications for Patients
Summary

• Many other products not described
• In process of integration to achieve greater efficiencies
• Collaboration throughout VHA and Veterans Benefits Administration
• Moving from retrospective to real-time reporting and prediction
• Enhancing analytic capacity within VHA