Veterans Health Administration Occupational Safety Risk Identification, Triage, Mitigation and Sustainment (RiTMS) Process

Risk Assessment Tool:

Pilot Results / Structure and Function/ Future Direction

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Overview

- RiTMS Process What it is and What it is Not
- ▶ Walkthrough of VHA RiTMS Program Assessment Methodologies
- ▶ RiTMS Model Development Process
- Pilot Visit Results:
 - Hunter Holmes McGuire VA Medical Center (Richmond, VA)
 - VA Pittsburgh Healthcare System (Pittsburgh, PA)
 - VA Maryland Health Care System (Baltimore, Perry Point, Loch Raven)
- ▶ RiTMS Documents and Tools Developed to Date
- ▶ RiTMS How Does the Scoring Work
- ▶ Bottom and Top Quartile Results for all VHA Facilities (n=140)
- ▶ RiTMS (Post Pilot) Facility Targeting Strategy and Roll-Out Schedule for year one deployment.
- Future Direction of This Tool



Purpose and Scope of RiTMS

Purpose:

- Develop a model capable of targeting facilities in need of assistance or who are at risk of having untoward events in the areas of Employee Safety
- Develop a model that can be easily adapted to model risk in other business lines throughout VHA.
- Use the model as a tool to develop an administration wide risk profiles for facilities that can be used to better deploy resources and support, in advance of serious situations

Scope:

Year 1 of the Safety RiTMS Task Order will encompass (we are currently in year 3):

- 1. Safety RiTMS process design and development
- 2. Pilot testing at a representative sample of Level 1 3 VAMCs
- 3. Process refinement and lessons learned
- 4. Initial implementation at approximately 32 VAMCs throughout the system

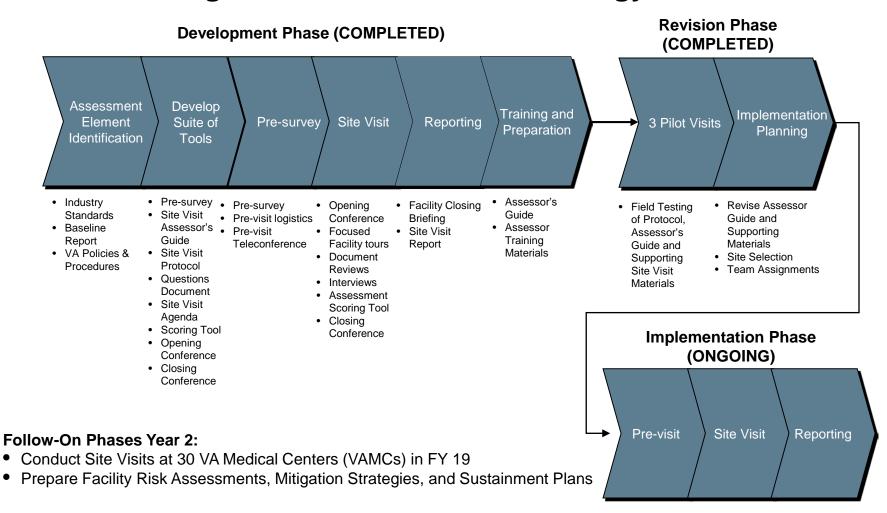


How the Model is Used

- What does it do
 - Assigns a risk score (1-100) based on the evaluation of over 9 different data sets coupled with a site visit that evaluates 53 different KPI's (Key Performance Indicators). In ONE specific business line (For this project it is employee safety)
 - The higher the score the lower the risk and vice versa. (The scores are used to target at risk facilities)
 - Is robust enough to produce accurate results without a complete data set. (model is modular)
- What mathematical part of the model does not do
 - Tell you when or what will go wrong at a facility in the area being modeled.
 - Tell you how to fix a facility at risk.
 - Tell you what type of resources to deploy or how to deploy them.
- ▶ How do you use this information: Use the data to focus your efforts and send your site visit teams out to the facilities with the lowest scores this is the purpose of the site visits



The RiTMS Program Assessment Methodology



Note: Conducting Site Visits will require a detailed schedule that is coordinated between 10NA8, the VISNs, and Contractor



Risk-based Model Development Approach

Key Tasks and Activities

Project Kick-off and Initiation	Develop Algorithm	Characterize Algorithm Outputs	Design Model	Pilot & Test Tool	Full Implementation	Deployment and Integration
 Refine Goals and Timelines Identify Safety stakeholders and SMEs Iteratively Develop Work Plan 	attributes • Conduct	 Determine required outcome reporting Identify output formats and filters 	 Refine modeling approach Design key algorithm components 	 Develop pilot tool Analyze pilot model outputs Conduct 3 Pilot Site Visits 	 Modify tool based on Lessons Learned Develop System-Wide Ranking Develop full implementation strategy: Targeting and 	 Deploy tool to assessment teams Assess facilities per implementation plan Develop mitigation strategies
Algorithm Development Approach					Roll-out Schedule	 Support integration of tool into current
Research Attributes	Conduct Expert Interviews	Compile Risk Attributes for Review	Elicit Risk Functions and Weights	Socialize and Refine Final Risk Hierarchy		business processes
Research documentation for indicators of safety and health risk	Conduct expert interviews to identify currently used attributes	Define, aggregate, and validate risk attributes from interview notes	Conduct survey to finalize risk functions and attribute weights	Distribute attribute hierarchy to VHA experts for review		Completed
						Active

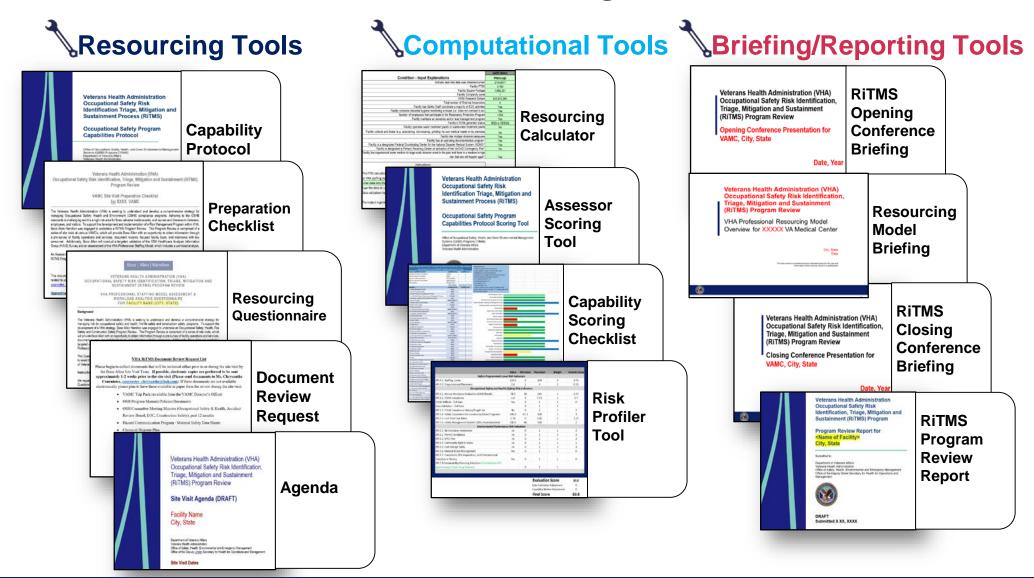


Summary Pilot Effort of Richmond, Pittsburgh, and Baltimore

Facility	Pre/Post Score	Major Observations	Exceeds Standards and Requirements	Needs Attention	Special Consideration
Hunter Holmes McGuire VAMC (Richmond)	84/92	 Low Risk Documentation of Safety Training Lockout/Tagout Improvements 	 Committees PPE Ion/Non-Ion RPP TB FLS Construction 	Hazardous energy control	 24-Hour manning Safety reports to Engineer-perfect fit
VA Pittsburgh Healthcare System (Pittsburgh)	84/87	85% of Program capabilities met or exceeded requirements	CommitteesIon/Non-Ion	 Storage Areas/Loading Docks 	 EOC Dashboard- objectives/ performance
VA Maryland Health Care System (Baltimore/ Perry Point)	61/68	85% of program capabilities met or exceeded requirements	Hot WorkInterim Life Safety Measures	 Environmental Permitting Aging POL Storage (Proximity to River) 	 No EtO in use for RME sterilization Storage control in equipment spaces



RiTMS Site Visit Documents and Scoring Tools Built





How Does the Scoring Work

Overview

- Step 1 Determine the data sets
- Step 2 Define how data sets will be scored (Typical performance metrics)
- Step 3 Determine interim value calculations and model weighting (Some data sets will be more important than others)
- Step 4 Link all Weighted data sets to gather to calculate the initial risk score



Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (1 of 8)

	DATA SOURCE
	Safety Programmatic Level Risk Indicators
KPI.P.1 Staffing Levels	2016 HAIG Survey: FTEE Reported Vs Vacancies
KPI.P.2 Organizational Placement	On-Site: Organizational Chart/Direct Interview
C	Occupational Safety and Health (Safety) Risk Indicators
	SAFE Databse All VISN: 1Jan2014-30Dec2016;
KPI.S.1 Annual Workplace Evaluation (AWE) Results	Average time to close finding
KPI.S.2 OSHA Complaints	HAIG Survey: Q7 Safety Sr Mgt Report (2016) or equiv
OSHA Willfulls - Toll Gate	HAiG Survey: Q8 Safety Sr Mgt Report (2016) or equiv
Data Validation - Toll Gate	On-Site: Validate HAIG Survey summary-with actual
KPI.S.3 OSHA Compliance History/Target List	OSHA Establishment Search
KPI.S.4 Safety Inspections for Community Based Programs	HAIG Survey: Q5 Safety Facility Report (2016) or equiv
	WC-OSH/MIS Data pull, 11 Jan 2017: FY2014-2016
KPI.S.5 Lost Time Case Rates	(Adjudication satus codes D2,D3,D4,D5 Excluded)
	HAIG Survey: Q11 Safety Facility Report (2016)
KPI.S.6 Safety Management System (SMS) Implementation	Percent based on five SMS areas listed in report only.
	Environmental Performance Risk Indicators
KPI.E.1 Air Emissions Inventories	CPTrack and Triennial Audit Reports
KPI.E.2 Permit Compliance	CPTrack and Triennial Audit Reports + ECOH
KPI.E.3 SPCC Plan	CPTrack and Triennial Audit Reports
KPI.E.4 Community Right to Know	CPTrack and Triennial Audit and TRI Reports
KPI.E.5 Fuel Storage Tanks	CPTrack and Triennial Audit Reports
KPI.E.6 Medical Waste Management	CPTrack and Triennial Audit Reports
KPI.E.7 Complaints, EPA Inspections, and Environmental	
Compliance History	CPTrack and ECOH Database
KPI.E.8 Sustainability/Greening Initiatives (Potential new KPI)	Currently not used

- Table details the Key Performance Indicators (KPI) as well as their data source
- Yellow flags are post pilot recommended changes to data collection (detailed later) AWE score = Ave.time to close+Ave. time to close post planned+Ave. RAC
- Red flag is for major change to KPI, Data Manipulation, and KPI Weighting (detailed later) these were combined into one aggregate variable





Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (2 of 8)

▶ Table details the Key Performance Indicators (KPI) and an explanation of scoring

	Value	Explanation
	Safety Pi	rogrammatic Level Risk Indicators
KPI.P.1 Staffing Levels	100.0	Safety Office Staffing Levels, Percent Staffed
KPI.P.2 Organizational Placement	2.0	Operational levels separated from AD: 1Layer=1 and low risk, e.g works for A/D. 2layer=2 and modest risk, e.g. works for Assistant director. 4 is highest risk

^{*} Note: A staffing model was previously developed by our office and was used to determine individual facility staffing levels for this model







Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (3 of 8)

- ▶ Table details the Key Performance Indicators (KPI) and an explanation of scoring
- ▶ Note KPI.S.1 AWE results see updated data definition on sidebar comment slide 9

	Value	Explanation					
Occupational Safety and Health (Safety) Risk Indicators							
KPI.S.1 Annual Workplace Evaluation (AWE) Results	78.0	Average days for this facility normalized by the range of average days across all facilities ((Avg-Min Reported)/(Max Reported-Min Reported))					
KPI.S.2 OSHA Complaints	1.0	Complaints for this facility normalized by the range of average complaints across all facilities ((Avg-Min Reported))					
OSHA Willfulls - Toll Gate	Yes	If Yes, score a ZERO if NO Score a ONE					
Data Validation - Toll Gate		If Yes, score a ONE if NO Score a ZERO					
KPI.S.3 OSHA Compliance History/Target List	No	If Yes, score a ZERO if NO Score a ONE					
KPI.S.4 Safety Inspections for Community Based Programs	100.0	Completion rate for this facility normalized by the range of completion rates across all facilities ((Avg-Min Reported))					
KPI.S.5 Lost Time Case Rates	1.14	WC-OSH/MIS LTCR for this facility normalized by the range of LTCRs reported across all facilities ((Avg-Min Reported))/(Max Reported-Min Reported))					
KPI.S.6 Safety Management System (SMS) Implementation	100.0	% Implemented for this facility normalized by the range of implementation reported across all facilities ((Avg-Min Reported)/(Max Reported-Min Reported))					





Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (4 of 8)

- ▶ Table details the Key Performance Indicators (KPI) and an explanation of scoring
- ▶ Note KPI.E.1-7 were combined to produce one score weighted equally with OSHA findings.

	Value	Explanation
	Environmen	tal Performance Risk Indicators
KPI.E.1 Air Emissions Inventories	no	
KPI.E.2 Permit Compliance	no	
KPI.E.3 SPCC Plan	no	
KPI.E.4 Community Right to Know	no	If Yes, score a ZERO if NO Score a ONE
KPI.E.5 Fuel Storage Tanks	no	II Tes, score a ZENO II NO Score a ONE
KPI.E.6 Medical Waste Management	Yes	
KPI.E.7 Complaints, EPA Inspections, and Environmental		
Compliance History	Yes	
KPI.E.8 Sustainability/Greening Initiatives (Potential new KPI)		







Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (5 of 8)

▶ Table details the Key Performance Indicators (KPI) and an Interim Value Calculation

	_			
	Value	Weight	Interim Value	Explanation
Safety Programmatic Le	vel Risk Ind	icators		
				Percent staffed times
KPI.P.1 Staffing Levels	100.0	3	3	weight = interim value
				Assigned layer is
				normalized across range of
				1-4. This is subracted from
KPI.P.2 Organizational Placement				one and multiplied by
				weight.
				Possible values: 1, 0.67,
	4.0	1	1	0.33, and 0







Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (6 of 8)

▶ Table details the Key Performance Indicators (KPI) and an Interim Value Calculation

	Value	Weight	Interim Value	Explanation		
Occupational Safety and Health (Safety) Risk Indicators						
				Normalized value is		
KPI.S.1 Annual Workplace				subtracted from one and		
Evaluation (AWE) Results	78.0	3	2.57	multipled by weight		
				Normalized value is		
				subtracted from one and		
KPI.S.2 OSHA Complaints	1.0	2	1.7	multipled by weight		
OSHA Willfulls - Toll Gate	Yes	1	0	0 or 1 is multipled by weight		
Data Validation - Toll Gate		1		0 or 1 is multipled by weight		
KPI.S.3 OSHA Compliance	No	2	2	0 or 1 is multipled by weight		
				Normalized value is		
KPI.S.4 Safety Inspections for				subtracted from one and		
Community Based Programs	100.0	3	3	multipled by weight		
				Normalized value is		
				subtracted from one and		
KPI.S.5 Lost Time Case Rates	1.14	2	1.25	multipled by weight		
				Normalized value is		
KPI.S.6 Safety Management				subtracted from one and		
System (SMS) Implementation	100.0	2	2	multipled by weight		







Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (7 of 8)

▶ Table details the Key Performance Indicators (KPI) and an Interim Value Calculation

	Value	Weight	Interim Value	Explanation
Environmental Performa	nce Risk India	cators		
KPI.E.1 Air Emissions Inventories	no	2	2	
KPI.E.2 Permit Compliance	no	3	3	
KPI.E.3 SPCC Plan	no	2	2	
KPI.E.4 Community Right to Know	no	1	1	0 or 1 is multipled by weight
KPI.E.5 Fuel Storage Tanks	no	3	3	O OI 1 is multipled by weight
Management	Yes	1	0	
KPI.E.7 Complaints, EPA				
Inspections, and Environmental	Yes	2	0	
KPI.E.8 Sustainability/Greening		1		







Demo of Tool Functionality Pilot Risk Profiler Tool – Expanded (8 of 8)

		Weight		Interim Value	ENTERED	Entered Risk	
Safety Programma	tic Level Risk II						
KPI.P.1 Staffing Levels		3		3	1	3	
KPI.P.2 Organizational Placement		1		1	1	1	
Occupational Safety and H	lealth (Safety)) Risk Indicators					
KPI.S.1 Annual Workplace							
Evaluation (AWE) Results		3		2.57	1	3	
KPI.S.2 OSHA Complaints		2		1.7	1	2	
OSHA Willfulls - Toll Gate		1		0	1	1	
Data Validation - Toll Gate		1			0	0	
KPI.S.3 OSHA Compliance							
History/Target List		2		2	1	2	
KPI.S.4 Safety Inspections for							
Community Based Programs		3		3	1	3	
KPI.S.5 Lost Time Case Rates		2		1.25	1	2	
KPI.S.6 Safety Management							
System (SMS) Implementation		2		2	1	2	
Environmental Perfo	ormance Risk I	ndicators					
KPI.E.1 Air Emissions Inventories		2		2	1	2	
KPI.E.2 Permit Compliance		3		3	1	3	
KPI.E.3 SPCC Plan		2		2	1	2	
KPI.E.4 Community Right to Know	,	1		1	1	1	
KPI.E.5 Fuel Storage Tanks		3		3	1	3	
Management		1		0	1	1	
KPI.E.7 Complaints, EPA							
Inspections, and Environmental		2		0	1	2	
KPI.E.8 Sustainability/Greening							
Initiatives (Potential new KPI)		1			0	0	
	Evaluatio	n Score	Partial Risk	83.5	0		
			Partial KISK	83.3	U		
	Max Risk	35					
l	Partial Risk	33					
	Data Validation Adjustment			0			
	Capability Review Adjustment			0			
	Final Sco	re	83.5				

- Table details the calculation for the overall facility score
 - The Profiler overall score accommodates 'missing' scores and does not include the missing value in the facility overall score (This is done through the weights which are zeroed for missing)
 - The highest possible score is 100 regardless of how many KPIs are entered
- ▶ The final score is calculated as: The sum of the interim values divided by the risk scores of KPIs scored ("partial risk") times 100.







Contribution by Model Variable

2018 Sens	2018 Sensitivity Analysis:						
KPI	Relative Contribution (%)	KPI Δ Effect on Median Score (%)					
Staffing	16	7					
Organization	5	2					
AWE	16	7					
OSHA Complaints	10.5	3					
Data Validation	5	0					
Community Inspections	16	0					
LTCR	10.5	5					
SMS	10.5	9					
Internal/ Environmental	10.5	4					



Risk Profiler: VHA-Wide Application: Risk Scores Calculated

- Scores calculated for all VAMCs
- Updated model parameters used
- Unable to determine organizational placement (KPI.P.2) for all locations
- ▶ 64 Facilities Below Median Score

Statistic	Value
Mean	75
Median	77
Standard Deviation	10
Min	35
Max	98
Count	140

Risk Profiler - Key Performance Indicators and Weight		
Safety Programmatic Level Risk Indicators	Weight	
KPI.P.1 Staffing Levels	3	
KPI.P.2 Organizational Placement	1	
Occupational Safety and Health (Safety) Risk Indicators	Weight	
KPI.S.1 Annual Workplace Evaluation (AWE) Results	3	
KPI.S.2 OSHA Complaints	2	
OSHA Willfulls - Toll Gate	1	
Data Validation - Toll Gate	1	
KPI.S.3 OSHA Compliance History/Target List	2	
KPI.S.4 Safety Inspections for Community Based Programs	3	
KPI.S.5 Lost Time Case Rates	2	
KPI.S.6 Safety Management System (SMS)		
Implementation	2	
Environmental Performance Risk Indicators	Weight	
KPI.E.1 Internal Environmental Conformance	2	
KPI.E.2 External Environmental Compliance	3	
KPI.E.3 Sustainability/Greening Initiatives	1	



VHA RiTMS Facility Targeting Strategy and Roll-Out Schedule

- Site Selection Year 1:
 - 32 Sites: 11 top/middle quartile, 11 middle/lower quartile, 10 lowest quartile
 - Mix enables: Risk mitigation strategies developed, Tools continuously improved, Best practices identified and shared
 - Mitigates perception of visiting only the worst
 - Table outlines next 10 proposed site visits
 - Include representative "Blind Audit" Assessments
- Process
 - Implement Risk Profiling model changes, as necessary
 - Request updated introduction letter to be sent to all facilities (DRAFT)
 - VHA Oversight: VISN participation, Report Review and Routing, Other

Facility	Week
VAMC 1	17 Apr
VAMC 2	17 Apr
VAMC 3	24 Apr
VAMC 4	24 Apr
VAMC 5	1 May
VAMC 6	1 May
Etc	



Future Direction of This Tool

- ▶ RiTMS scores have been added into the Admin Sail Metrics
- ▶ We will continue to conduct site visits until we have visited all of the 3rd and 4th quartile facilities
- We are targeting support (funds, consulting both internal and external to at need facilities)
- We have been conducting in-depth briefings with individual VISN DND's and Facility Level AD's
- ▶ All relevant data has been packaged in Tableau for visualization and Monitoring purposes
- ▶ To date this has been well received by Senior Leadership in VHA, The VISN's and the Field Facilities
- ▶ Data is updated annually



Tableau Interface

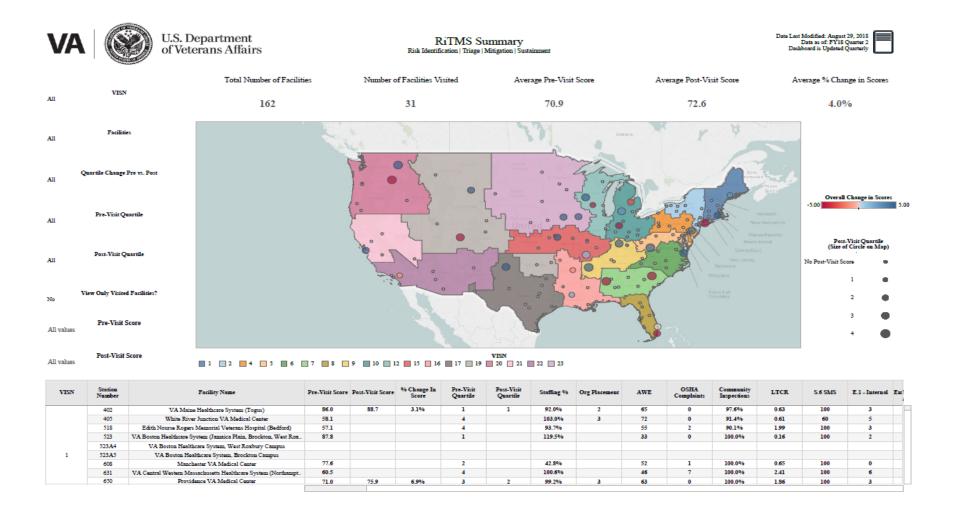




Tableau Interface

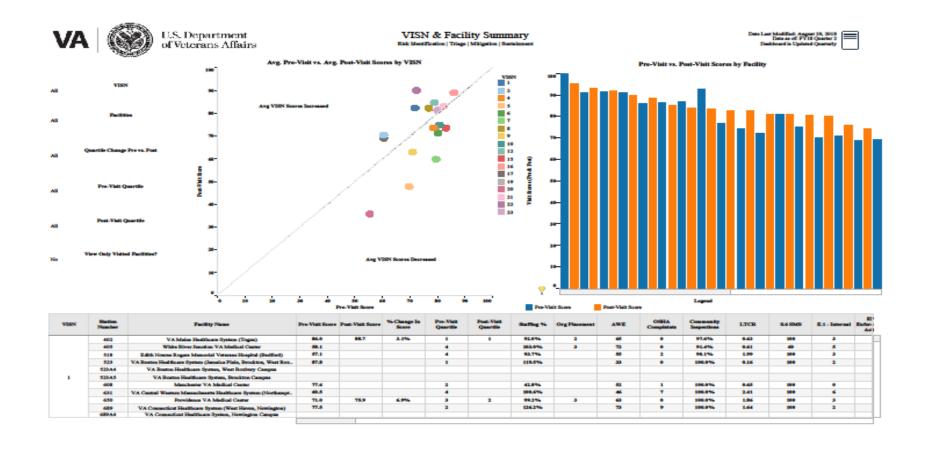
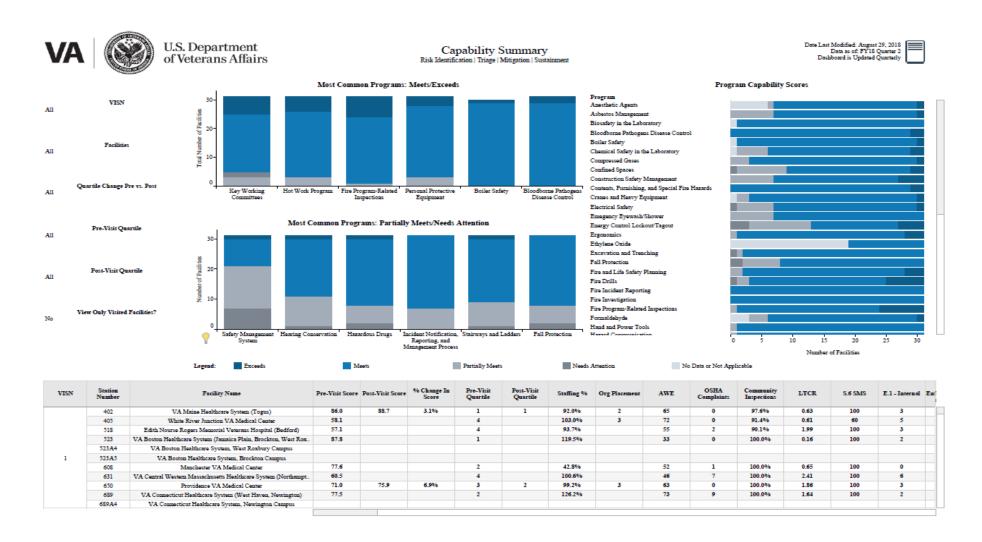




Tableau Interface





Thank you!







Resourcing Tools Click icon to view tool





Preparation Checklist



Resourcing Questionnaire



Document Review Request



Agenda

Reporting Tools

<u>Click icon to view tool</u>







Computational Tools Click icon to view tool

