VHA Engineering Resourcing and Staffing Study

Sponsor Presentation for National Academies Committee
Engineering Administration – Workshop 3

VHA Office of Capital Asset Management Engineering and Support

March 5, 2019

VA HEALTH CARE | Defining EXCELLENCE in the 21st Century

Engineering Administration – Questions asked by NAS

VA received a request from the National Academy Sciences (NAS) to address questions about variations in the CAPRES Data – This presentation hopes to address a subset of those questions:

1. It would be important to hear why one sees so much variation in the maintenance and upkeep of VHA building across the nation.
2. What steps have been taken to address these variations?
3. Do you feel the admin data is relevant and being captured effectively?
4. Do you feel there are gaps or weaknesses in the admin data?
5. What recommendations would you have to the admin data collection and usage if there are gaps?

Engineering Administration – Questions asked by NAS (Continued)

6. Do you see a correlation in CAPRES between the facility staffs and the FCA cost to correct (can he get the FCA cost to correct down to the facility or hospital level?

Engineering Administration

1. Before we start, lets explore why VA has CAPRES, how it is used and who uses it:
   a) Currently Engineering facilities budgets and FTEE levels are decentralized and are set by VA Medical Centers, not by VHACO. Although, it is likely that VHACO may set minimum standards after this NAS Study. CAPRES is a tool to help assist in assessment of facility engineer services. Although, VACO Financial Policy does set the use of certain Cost Centers and Budget Object Codes (BOC), this makes comparisons easier.
   b) CAPRES was meant to be used by Chief Engineers as a tool to help them assess their facilities engineering service. Chief Engineers are by far the largest user of the data, although VISNs and VHACO do use the data periodically.
   c) In some cases the CAPRES data is not complete for every site or every section of CAPRES. When you drill down into the data, some of it maybe missing or some maybe erroneous. In years past we have tried to get facilities to complete the data and to verify suspect data. This has had some limited success and we found that sometimes what we thought was erroneous data, the facility verified as correct. We have not done this verification for the last couple of years.
   d) Although in many cases we believe when you throw out the outlier data, we believe the data is most likely a good representation of what exists.

Engineering Administration – Variation in Maintenance and Upkeep of VHA Buildings

Question 1 - It would be important to hear why one sees so much variation in the maintenance and upkeep of VHA buildings across the nation.

- VA Response:
  - Wide Variations in Age of Facilities
  - Wide Variations in Facility Condition Assessment (FCA) Backlog
  - Differing Complexity Levels of Medical Centers
  - Differing Medical Center Campus layouts – Patient Tower Building with Few Other Admin Buildings vs. many Patient and Admin buildings (Campus Style)
  - Various Staffing Levels and Staff Turn-Over Rates
  - Various Staff Competency Levels
  - Differing Infrastructure Funding Levels (FCA)
  - Chief Engineers Ability/Inability to Execute Construction Projects
  - Chief Engineers Ability to get Buy-in from Medical Center Director
  - Wide Variations in Preventive Maintenance Program

Engineering Administration – Addressing Variations

Question 2 - What steps have been taken to address these variations?

1. Staffing and funding levels have been mostly driven/established by the facility. VHACO has not tried to mandate certain levels, but provides data to consider for appropriate levels.
2. The current contract with NAS will hopefully begin to address variations in staffing and funding levels by setting minimal levels or acceptable ranges. VHA sees this as one of the few critical first steps at helping provide the right level of resources to effectively manage VHA facilities.
3. VHACO is constantly seeking additional funding levels for Major, Minor and NRM/CSI construction projects to address the FCA backlog. One critical change recently has been raising the maximum funding level from $10,000,000 to $20,000,000 for Minor Construction Projects.
4. VHA has developed performance metrics and plans to continue to refine these metrics based upon know variations.
5. VHA Engineering has experienced staffing shortages in certain areas due to inconsistent salary/grade issues. This past year VHACO Engineering has developed a plan and hopes to implement in the near future to address these variations. This action should help in the areas of recruitment, retention and provide the needed consistent staffing levels for management and technical support at the facility level.

Engineering Administration – Addressing Variations (Continued)

Question 2 - What steps have been taken to address these variations?

7. VA is also addressing the recent “Mission Act” as passed by congress to address competency in Engineering for Operations, Maintenance and Construction.
8. It is expected that many of these actions will improve Engineering Operations and Construction at the Medical Centers. Also, these actions will give the Chief Engineers/Facility Managers more influence and buy-in from Medical Center Directors.
9. VHACO Engineering is reorganizing and hopefully gaining additional staffing in the engineering area to better manage and provide a consistent approach to VHA Engineering.

Engineering Administration – CAPRES Data

1. Below is an excerpt of the CAPRES Instruction on where the data should come from – Cost Centers and Budget Object Codes:

18. Lease Rental: This view provides FYTD obligations in lease rental BOCS 2329, 2328 ~~2330, 2331, 2332,~~ 2333 and 2334 (Deleted/Added).

19. Maintenance Labor: This view provides FYTD obligations and FTEE for cost in cost centers 7541 and 8541 Recurring Maintenance & Repair: and 7551 and 8551 Operating Equipment M&R, in BOCS 1001, 1002 and 1008.

20. Maintenance Materials: This view provides FYTD obligations and FTEE 7541 and 8541 Recurring Maintenance & Repair; and 7551 and 8551 Operating Equipment M&R, in BOCS 2341, 2520, 2543, 2548, 2580, 2589, 2620, 2650, 2655, 2666, 2657, 2658, 2659, 2660, 2666 and 2670.

21. Major Projects: This view provides FYTD obligations in the Major Construction Fund Code 0110 Series.

22. Medical Center Expenditures: Total fiscal year to date expenditures

23. Minor Projects: This view provides FYTD and monthly obligations in the Minor Construction Fund Code 0111 Series.

Engineering Administration – Data is Relevant and Captured Effectively

Question 3 - Do you feel the admin data is relevant and being captured effectively?

1. The CAPRES Professional Advisory Group (PAG) has reviewed the CAPRES Data Survey against other National Health Care Engineering Benchmarks (ASHE/IFMA/etc.) and many of the benchmark questions are either the same or similar. Therefore, we believe the CAPRES admin data is relevant.
    a) In some areas CAPRES data shows large differences as compared to other benchmarks due to variations is business practices for VHA engineering. The FCA backlog and the approach to this issue seems to be a large deviation from private sector which translates into large variations in FTEE levels (larger FTEE levels for VA). Also, some or our business rules in the area of purchasing affects staffing level (VA requires significantly more effort/time in many purchasing scenarios).
2. Much of the CAPRES Facility data – FTEE, Square footage, Material, Contracts, Service are automatically pulled from other VHA databases and many are certified annually. Many databases with large data inputs will have bad data, however we believe when you look at the overall averages/trends (after taking out a few outliers) that it accurately reflects what is actually happening in the system. The data collection and verification could be improved and should be field verified (at least spot checked) in order to improve the data. We do realize some of the data is inaccurate and is not being captured correctly.

Engineering Administration – Data is Relevant and Captured Effectively

Question 3 - Do you feel the admin data is relevant and being captured effectively?

3. If CAPRES changes from a benchmarking tool to an assessment based on some preset levels or ranges of staffing FTEE and budget levels, then CAPRES will need to be verified at least semi-annually.

Engineering Administration – Gaps or Weaknesses in Admin Data

Question 4 - Do you feel there are gaps or weaknesses in the admin data?

a) Yes, there are a few gaps in the data, but again overall we believe the data still depicts the correct averages/trends after throwing out some outlier data. CAPRES is used to look at the large system trends.

b) If there is a weakness in the data, it is probably that we do not have reports to correlate the various pieces of data into more useful information, so that VHACO management could take definitive actions based on the data/information.

c) CAPRES has been a tool mostly used by Chief Engineers. If this tool is going to be used to benchmark for VHA and results used, then more emphasis on data verification and data entry will need to be addressed.

Engineering Administration – Recommendations for Admin Data Collection and Usage Gaps

Question 5 - What recommendations would you have to the admin data collection and usage if there are gaps?

1. If CAPRES is going to become more of a VHACO based performance metrics report, it may be helpful to have a VHA Directive on the completion of CAPRES and put more emphasis on accurate reporting of data. Currently CAPRES is not mandated by VHA Directive.
2. If minimum FTEE levels and Budget levels are set, then the monitoring of this data may should be increase to at least semi-annually.
3. Additional training on Cost Centers, Budget object codes with appropriate personnel.
4. There should be some type of spot check verification of the data between the CAPRES PAG and the facility at least annually.

Engineering Administration – Correlations Between Facility Staffs and the FCA Cost

Question 6 - Do you see a correlation in CAPRES between the facility staffs and the FCA cost to correct (can he get the FCA cost to correct down to the facility or hospital level)?

1. See the following slides.

Engineering Administration – Correlations Between Facility Staffs and the FCA Cost

FCA Deficiency Correction $ Versus FTEE (Snap Shot of Data)

Engr FTEE	Total_FCA_Deficiency_Costs	Total_Owned_GSF	Complexity	VISN
51.17	$60,808,512	1,003,543	3	7
52.13	$13,495,128	686,857	2	4
53.28	$72,512,532	770,390	2	7
53.31	$29,131,940	1,046,159	1b	4
54.01	$53,296,815	541,032	1a	7
54.33	$43,541,588	1,329,559	2	23
55.88	$44,181,605	570,213	1b	9
59.70	$35,953,742	659,857	1c	23
60.14	$38,576,412	916,349	1b	10
61.14	$80,217,647	1,007,384	1c	6
61.34	$60,698,932	917,805	3	2
61.47	$61,776,999	1,104,813	1a	19
61.55	$22,417,267	1,231,600	1c	10
61.70	$42,370,574	773,799	1c	1
62.63	$47,276,813	1,048,590	1b	22
63.01	$87,365,172	1,043,885	1b	12
63.10	$35,110,778	1,180,084	1a	9
63.53	$45,366,236	541,243	1c	1
64.01	$56,126,080	858,463	1a	6
64.47	$87,474,313	859,152	1c	2

Engr FTEE	Total_FCA_Deficiency_Costs	Total_Owned_GSF	Complexity
145.82	$91,574,125	2,313,843	1a
117.41	$92,150,384	1,624,063	1a
86.09	$93,444,092	2,345,926	1a
109.73	$95,057,007	1,450,540	1a
77.15	$101,782,747	799,385	1a
120.32	$111,411,248	1,046,995	1a
109.86	$114,468,539	999,039	1a
128.69	$117,995,750	1,685,650	1a
94.06	$120,460,957	1,091,575	1a
112.21	$137,192,740	1,268,421	1a
80.19	$138,573,978	1,732,479	1a
141.27	$139,934,147	1,695,829	1a
163.37	$146,565,522	1,660,959	1a
172.05	$160,865,524	2,546,036	1a
117.79	$168,093,754	1,890,755	1a
183.27	$179,625,918	2,761,168	1a

Engineering Administration – Correlations Between Facility Staffs and the FCA Cost

Question 6 - FCA cost to correct (can he get the FCA cost to correct down to the facility or hospital level)? VHA has provided NAS with a spreadsheet of the FCA costs – Excerpt below:

VISN	Station Number	Station Name	FCA System	FCA Correction Costs CY
1	402	Togus	Access	$4,685,642
1	402	Togus	Architectural	$40,007,882
1	402	Togus	Electrical	$10,323,035
1	402	Togus	Energy	$3,783,553
1	402	Togus	Hazmat	$6,209,696
1	402	Togus	Historic	$0
1	402	Togus	Information Technology	$363,693
1	402	Togus	Mechanical	$25,709,968
1	402	Togus	Plumbing	$2,501,369
1	402	Togus	Sanitary	$365,639
1	402	Togus	Steam Gen.	$226,795
1	402	Togus	Storm Water	$4,045,960
1	402	Togus	Structural	$3,580,392
1	402	Togus	Transport	$2,178,605
1	402	Togus	Water	$2,071,427
1	**402 Total**			**$106,053,656**

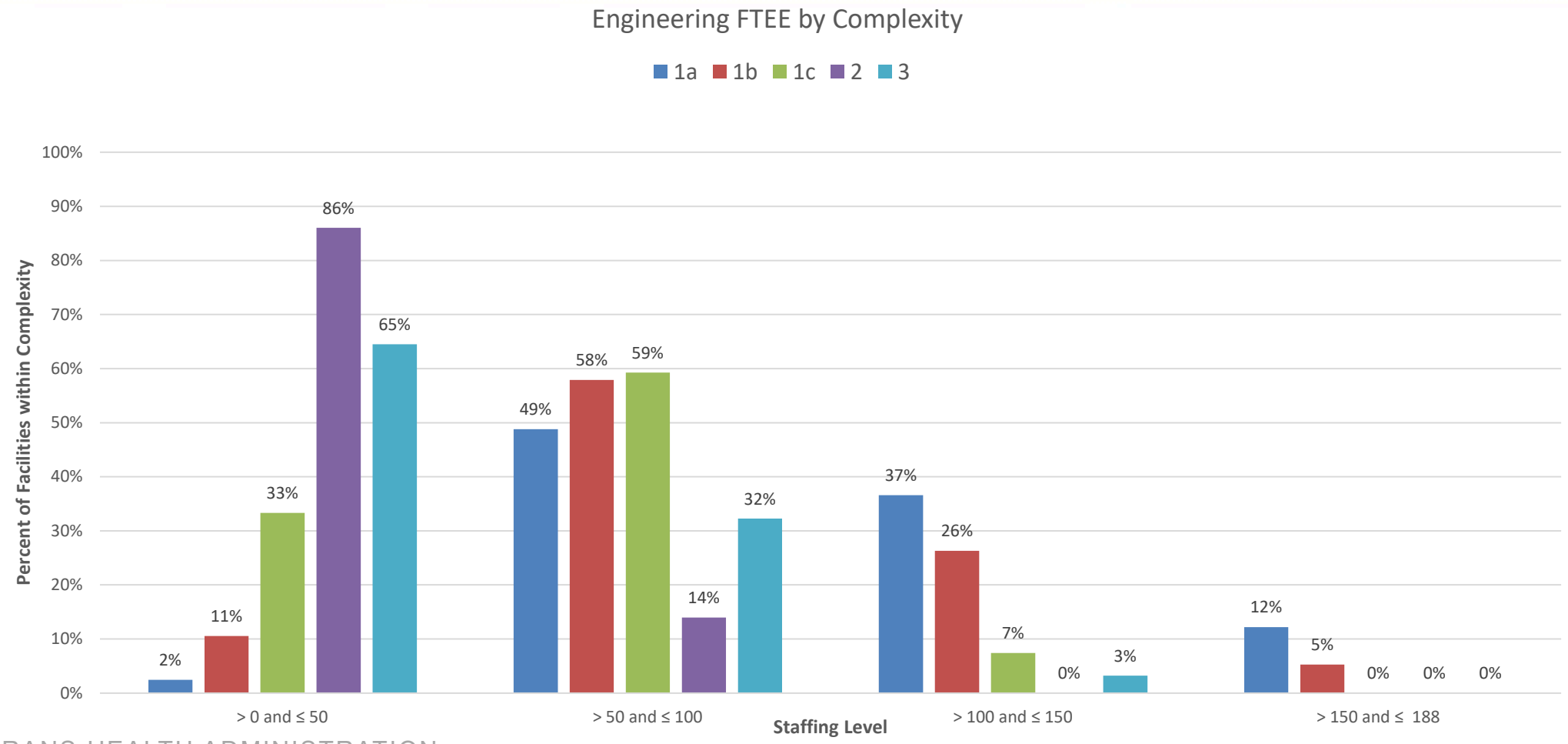
Facility Condition Cost (Correction $)

Total FCA Cost---D and F only (mechanical, electrical, water, transport, plumbing, sanitary, and steam)						
COMPLEXITY:	All Facilities	1a	1b	1c	2	3
Average	$ 64,663,041.86	93,554,566.92	52,024,141.35	46,640,744.81	33,387,716.71	33,654,074.55
Meidan	$ 46,441,981.00	80,680,925.00	41,684,043.00	37,787,810.00	24,669,876.50	31,472,148.00
Minimum	$ -	22,945,742.00	6,429,474.00	-	9,242,370.00	1,943,055.00
Maximum	$ 300,000,000.00	300,000,000.00	150,226,273.00	97,750,875.00	143,829,497.00	156,840,935.00

Engineering Administration – Correlations Between Facility Staffs and the FCA Cost

Engineering FTEE by Complexity (INCLUDES: Chief, Maintenance and Repair, Grounds, Transportation, Plant Operations, Project, and Energy)												
COMPLEXITY:	**All Facilities**		**1a**		**1b***		**1c**		**2**		**3**	
Range	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
> 0 and ≤ 50	69	43%	1	2%	2	11%	9	33%	37	86%	20	65%
> 50 and ≤ 100	63	39%	20	49%	11	58%	16	59%	6	14%	10	32%
> 100 and ≤ 150	23	14%	15	37%	5	26%	2	7%	0	0%	1	3%
> 150 and ≤ 188	6	4%	5	12%	1	5%	0	0%	0	0%	0	0%
TOTALS	***161***	***100%***	***41***	***100%***	***19***	***100%***	***27***	***100%***	***43***	***100%***	***31***	***100%***
Median	***66***		***100***		***72***		***64***		***42***		***40***	
Mean	***74***		***107***		***87***		***68***		***46***		***46***	

Engineering Administration – Correlations Between Facility Staffs and the FCA Cost



CAPRES Presentation

- Thank You!