VA can improve older enrollees' outcomes by directing private sector care to high performance hospitals

William B Weeks, MD, MBA [1-4]
Alan N West, PhD [1, 4]
Richard Lee, MS [1, 4]
Amy E Wallace, MD, MPH [1,2]

[1] VA Outcomes Group REAP, White River Junction, VT, VAMC
[2] Department of Psychiatry, Dartmouth Medical School, Hanover, NH
[3] Dartmouth's Center for the Evaluative Clinical Sciences, Hanover, NH
[4] Field Office, VA's National Center for Patient Safety, White River Junction, VT, VAMC

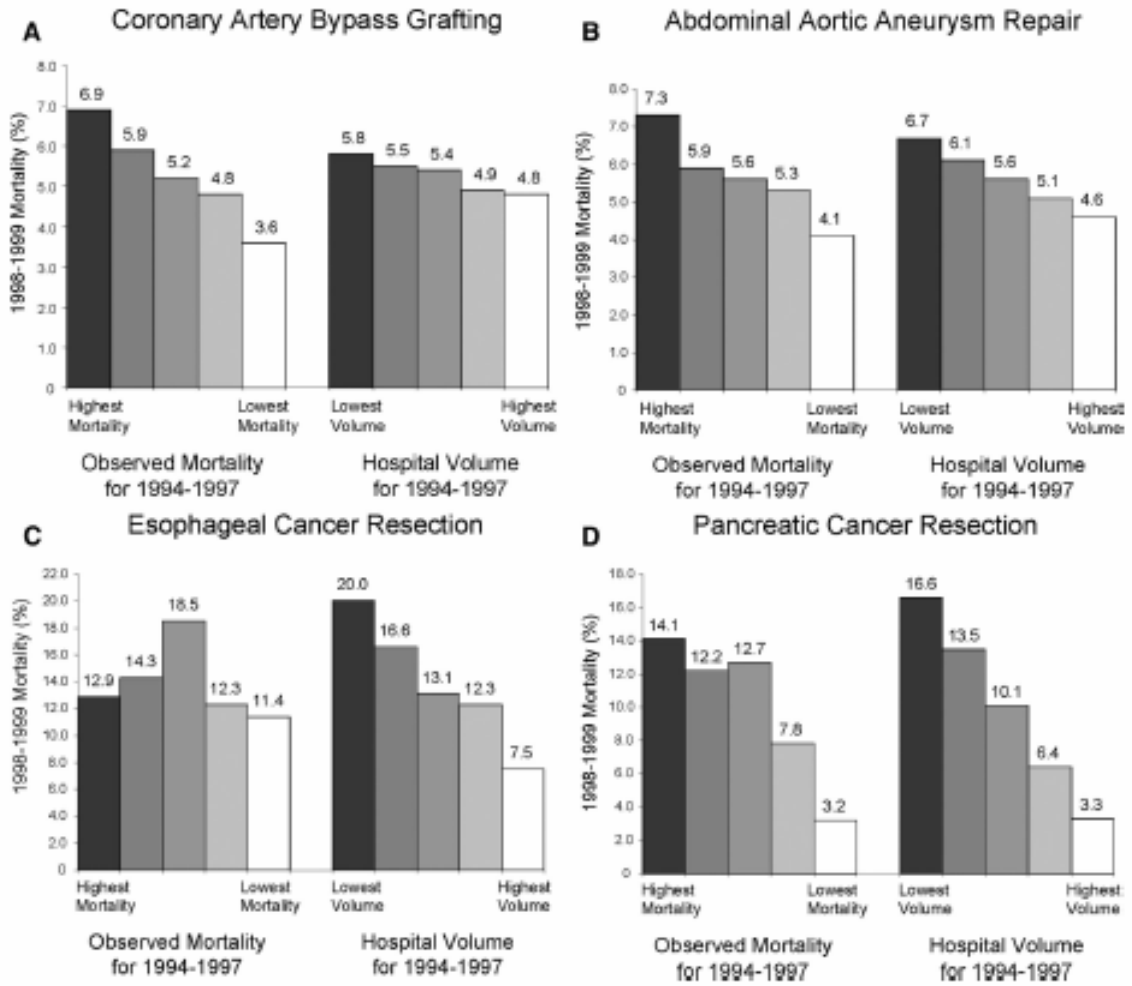
Veterans Administration

- National integrated health care system
  - 162 hospitals
  - 850 clinics
- Annual budget ~$33 Billion
- Serves about 6 million eligible veterans each year
- Went through transformation in late 1990s
  - Focus on quality
  - Use of performance measurement system
  - Largely effective

Veterans enrolled in the VA

- Tend to be older, sicker, poorer than general population
- Frequently obtain care outside of the VA system
  - ~95% of VA enrollees aged 65 and older are concurrently enrolled in Medicare
  - Surveys suggest that younger VA enrollees also rely on care obtained outside the VA

Outside of VA, operative mortality and procedure volumes predict subsequent hospital performance



Birkmeyer JD, Dimick JB, Staiger DO. Operative mortality and procedure volume as predictors of subsequent hospital performance. Ann Surg 2006; 243: 411-417.

Objectives

- To quantify older VA enrollee's non-VA utilization for 14 surgical procedures that demonstrate variation in outcomes
- To assess the potential impact of VA adopting a new role: directing such care to high performance hospitals

Methods

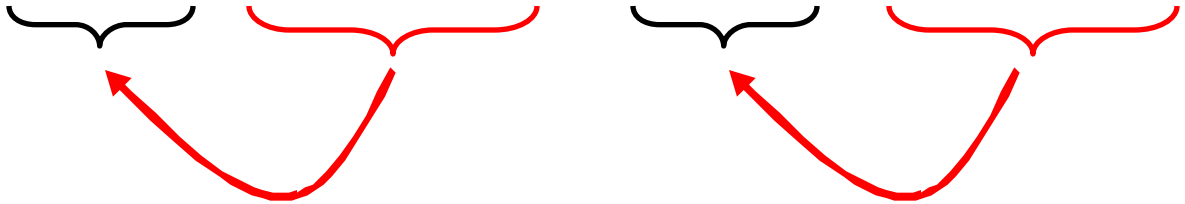
- Use a combined VA/Medicare dataset for 2000-2001
- Used ICD-9-CM codes to identify where older VA enrollees obtain care for six cardiovascular surgeries and eight cancer resections
- Determine whether non-VA care occurs in high or low performance hospitals (based on predictions from two years in advance of the service year)
- Model the mortality and travel burden effect of directing care to high performance hospitals

Where older veterans get care

	Defining ICD-9-CM procedure codes	Specifications	Number of procedures and location of care			
			Medicare-funded private sector			
			All	Matched to ranked hospitals	VA	Older veterans' reliance on VA
Cardiovascular procedures			**101,300**	**98,193**	**15,205**	**13.1%**
CABG surgery	36.10 – 36.19	Exclude concomitant valve repair (35.11 - 35.14, 35.21-35.25, 35.28)	45,536	43,548	5,354	11%
Carotid endarterectomy	38.12	none	25,814	25,397	4,603	15%
Lower extremity bypass	39.29	Exclude upper extremity arteries (444.21) and ESRD (585 or 586)	12,645	12,440	2,529	17%
Aortic valve replacement	35.23 or 35.24	none	8,147	7,868	1,165	13%
Elective AAA repair	38.44 or 39.25 without 38.45	Include only AAA w/o rupture (441.4, 441.7, 441.9) but not other 441's	6,902	6,808	1,298	16%
Mitral valve replacement	35.21 or 35.22	none	2,256	2,132	256	10%
Cancer resections		Include only with concomitant:	**17,945**	**17,488**	**4,867**	**21.3%**
Colectomy	45.73 – 45.76	Colon cancer (153 - 153.9, 154.0)	8,895	8,795	2,547	22%
Lobectomy	32.4	Lung cancer (162 - 165.9)	3,399	3,339	864	20%
Nephrectomy	55.51 or 55.52	Kidney or urinary cancer (189 - 189.9)	2,624	2,566	585	18%
Gastrectomy	43.5 – 43.99	Stomach cancer (151 – 151.9)	1,166	1,106	268	19%
Cystectomy	57.7 – 57.79	Bladder, kidney or urinary cancer (188 - 189.9)	658	616	243	27%
Pancreatic resection	52.51, 52.53, 52.7	Duodenal, biliary, or pancreatic cancer (152 - 152.9, 156 - 157.9)	461	407	102	18%
Pneumonectomy	32.5	Lung cancer (162 - 165.9)	401	367	130	24%
Esophagectomy	42.40-42.42, 43.99	Esophageal cancer (150 - 150.9)	341	292	128	27%
Total procedures obtained during 2000-2001			**119,245**	**115,681**	**20,072**	**14.4%**

Veterans equally likely to use high and low performance hospitals

		Performance based on historical volumes					Performance based on historical risk-adjusted mortality rates				
Cardiovascular procedures	Analyzed	1 (best)	2	3	4	5 (worst)	1 (best)	2	3	4	5 (worst)
CABG surgery	43,548	20%	20%	21%	20%	19%	21%	20%	21%	19%	20%
Carotid endarterectomy	25,397	21%	21%	21%	19%	19%	21%	19%	20%	20%	20%
Lower extremity bypass	12,440	20%	20%	20%	20%	19%	20%	20%	19%	21%	20%
Aortic valve replacement	7,868	20%	20%	20%	20%	20%	20%	19%	21%	20%	20%
Elective AAA repair	6,808	20%	20%	21%	19%	20%	21%	20%	20%	21%	19%
Mitral valve replacement	2,132	21%	19%	19%	20%	21%	21%	19%	20%	21%	19%
Cancer resections											
Colectomy	8,795	19%	20%	21%	19%	21%	20%	20%	20%	19%	20%
Lobectomy	3,339	20%	19%	20%	21%	20%	20%	20%	20%	21%	19%
Nephrectomy	2,566	20%	20%	19%	20%	21%	21%	18%	20%	21%	20%
Gastrectomy	1,106	19%	20%	19%	18%	24%	20%	20%	18%	21%	21%
Cystectomy	616	16%	20%	21%	19%	24%	19%	22%	21%	20%	19%
Pancreatectomy	407	19%	23%	20%	18%	20%	19%	25%	16%	20%	20%
Pneumonectomy	367	22%	19%	18%	18%	24%	23%	18%	21%	17%	21%
Esophagectomy	292	18%	18%	19%	11%	33%	22%	21%	19%	15%	23%



Effects of directing care

Performance based on historical volumes

Cardiovascular procedures	Expected RAMR*		Potential lives saved		Travel time (minutes)		
	Actual	With direction	N	% of total	Actual	With direction	Additional travel burden
CABG surgery	5.0%	4.7%	124	33.1%	38.9	100.2	61.3
Carotid endarterectomy	1.5%	1.5%	17	4.6%	32.9	57.4	24.5
Lower extremity bypass	5.3%	5.0%	28	7.5%	30.5	54.1	23.6
Aortic valve replacement	8.5%	7.7%	64	17.1%	46.9	101.0	54.1
Elective AAA repair	5.9%	5.4%	35	9.4%	38.8	68.1	29.3
Mitral valve replacement	13.9%	13.4%	10	2.7%	46.7	102.8	56.1
Cancer resections							
Colectomy	6.4%	6.1%	34	9.1%	23.1	44.9	21.8
Lobectomy	5.3%	4.9%	14	3.7%	39.2	72.1	32.9
Nephrectomy	3.0%	2.7%	6	1.5%	34.0	60.9	27.0
Gastrectomy	10.9%	9.7%	13	3.5%	35.6	69.7	34.1
Cystectomy	5.1%	4.2%	5	1.4%	45.7	88.0	42.3
Pancreatic resection	9.4%	5.8%	15	3.9%	51.9	116.8	64.9
Pneumonectomy	15.6%	15.3%	1	0.3%	53.2	107.2	54.0
Esophagectomy	12.6%	9.6%	9	2.3%	62.5	147.4	84.9
Total	**4.76%**	**4.44%**	**376**				

74%

Performance based on historical mortality

Cardiovascular procedures	Expected RAMR*		Potential lives saved		Travel time (minutes)		
	Actual	With direction	N	% of total	Actual	With direction	Additional travel burden
CABG surgery	5.2%	4.7%	229	39.2%	38.9	58.8	19.9
Carotid endarterectomy	1.6%	1.5%	24	4.1%	32.9	37.2	4.3
Lower extremity bypass	5.4%	5.0%	39	6.8%	30.5	34.7	4.2
Aortic valve replacement	8.8%	7.7%	89	15.2%	46.9	62.3	15.4
Elective AAA repair	6.0%	5.4%	41	7.0%	38.8	46.8	8.0
Mitral valve replacement	14.7%	13.4%	26	4.5%	46.7	65.2	18.5
Cancer resections							
Colectomy	6.5%	6.1%	40	6.8%	23.1	28.4	5.3
Lobectomy	5.4%	4.9%	18	3.0%	39.2	49.2	10.0
Nephrectomy	3.0%	2.8%	7	1.2%	34.0	41.1	7.1
Gastrectomy	11.5%	9.7%	20	3.4%	35.6	46.1	10.5
Cystectomy	5.4%	4.1%	8	1.4%	45.7	65.0	19.3
Pancreatic resection	10.6%	5.4%	21	3.6%	51.9	86.5	34.6
Pneumonectomy	17.0%	15.5%	6	1.0%	53.2	83.8	30.7
Esophagectomy	14.7%	9.2%	16	2.8%	62.5	88.1	25.5
Total	**4.93%**	**4.43%**	**584**				

78%

Potential application to VA care

	Application of volume standards		Application of mortality rates (crude, 30-day)		
	Minimum annual volume *	Number of VA's meeting standard	Actual	With direction	VA
Cardiovascular procedures					
CABG surgery	279	0	5.2%	4.7%	5.5%
Carotid endarterectomy	71	2	1.6%	1.4%	1.4%
Lower extremity bypass	35	4	5.3%	5.0%	6.6%
Aortic valve replacement	52	0	8.8%	7.7%	11.3%
Elective AAA repair	26	2	6.0%	5.4%	7.3%
Mitral valve replacement	23	0	14.7%	13.6%	16.4%
Cancer resections					
Colectomy	26	5	6.5%	5.9%	7.5%
Lobectomy	13	3	5.4%	4.8%	8.6%
Nephrectomy	7	5	3.0%	2.7%	3.7%
Gastrectomy	4	4	11.5%	9.4%	18.2%
Cystectomy	4	2	5.4%	4.0%	9.1%
Pancreatic resection	3	0	10.6%	5.0%	16.7%
Pneumonectomy	2	10	17.1%	15.3%	22.3%
Esophagectomy	2	11	15.4%	9.3%	19.5%

*Derived from private-sector Medicare data

Conclusions

- Directing VA enrollees' non-VA care to high performance hospitals can save lives
- Focus on cardiac procedures and use of historic mortality results in best outcomes & minimizes travel burden
- Unlikely to achieve same levels of performance if care is directed to VA

Limitations

- Only 2 years, 14 procedures
- Administrative data
- Assumes patient compliance

New role for VA

- VA should consider providing a new service: helping veterans who choose not to use the VA to pick high performance hospitals
- Might partner with Medicare – currently the payer for many of these services
- VA might provide incentives to veterans to choose high performance hospitals
  - Pick up Medicare copayment
  - Offset through delayed benefits payments by VBA, less VHA care