Supplemental Table 1. Other Quality Indicators Pre-I vs. Post-I

	Intervention sites		Control sites		
	Pre- Post-	OR (95% CI); p-value	Pre- Post-	OR (95% CI); p-value	Ratio of ORs
Other quality outcomes					
tPA	4 (50.0) 8 (80.0)	4.00 (0.50-31.98); 0.1912	4 (44.4) 4 (44.4)	1.00 (0.16-6.42); 1.0000	4.00; p=0.3300
NIHSS	210 (45.7) 233 (50.2)	1.20 (0.92-1.56); 0.1714	141 (39.7) 215 (46.8)	1.34 (1.01-1.78); 0.0442	0.90; p=0.5843
AC by HD2	360 (87.4) 379 (88.3)	1.09 (0.72-1.66); 0.6711	277 (87.7) 373 (91.0)	1.42 (0.88-2.28); 0.1480	0.77; p=0.4213
Considered for rehab	402 (91.6) 395 (89.6)	0.79 (0.50-1.25); 0.3118	300 (87.0) 382 (87.4)	1.04 (0.68-1.60); 0.8518	0.76; p=0.3875
AC at DC	403 (97.6) 420 (97.7)	1.04 (0.43-2.53); 0.9271	314 (96.9) 404 (98.8)	2.57 (0.87-7.59); 0.0869	0.40; p=0.2052
Cholesterol med	312 (91.5) 335 (93.3)	1.30 (0.74-2.28); 0.3654	263 (93.3) 312 (91.8)	0.81 (0.44-1.48); 0.4840	1.60; p=0.2590
AC for AF	28 (70.0) 42 (82.4)	2.00 (0.75-5.36); 0.1685	42 (79.3) 49 (77.8)	0.92 (0.38-2.23); 0.8478	2.17; p=0.2495
Stroke education	118 (41.3) 160 (50.6)	1.24 (0.96-1.60); 0.1011	34 (17.8) 52 (19.9)	1.14 (0.71-1.84); 0.5815	1.09; p=0.4044
Smoking cessation counseling	166 (91.2) 172 (95.0)	1.84 (0.79-4.27); 0.1548	107 (85.6) 150 (90.9)	1.68 (0.81-3.50); 0.1641	1.10; p=0.8734

Supplemental Table 2. Models of Composite quality and defect-free care scores

Active-I vs. Pre-I				
	Overall composite score (linear model)		**Defect-free care score** (logistic model)	
	β (SE)	p	OR (95% CI)	p
Time (Active-I vs. pre-I)	**0.0165 (.014)**	**<0.001**	1.41 (0.86-2.29)	0.17
Intervention group	0.0010 (.012)	0.06	0.69 (0.34-1.40)	0.30
Age	-0.0003 (.000)	0.53	1.00(0.98-1.02)	0.78
Race (non-white)	0.0059 (.010)	0.53	0.77 (0.49-1.22)	0.27
NIHSS	-0.0009 (.001)	0.28	1.03 (0.99-1.06)	0.16
Data collection program	-0.0400 (.023)	0.08	0.23 (0.02-2.84)	0.25
Indicator at baseline*	**0.0978 (.012)**	**<0.001**	**6.57 (2.36-18.30)**	**<0.001**
Time-group interaction	0.0354 (.019)	0.06	1.75(0.51-3.56)	0.55
Post-I vs. Pre-I				
	Overall composite score (linear model)		**Defect-free care score** (logistic model)	
	β (SE)	p	OR (95% CI)	p
Time (post-I vs. pre-I)	**0.044 (.012)**	**<0.001**	**1.90 (1.32-2.73)**	**<0.001**
Intervention group	0.007 (.018)	0.70	1.26 (0.80-1.99)	0.31
Age	-0.000 (.000)	0.39	1.00 (0.99-1.02)	0.87
Race (non-white)	0.007 (.009)	0.39	0.83 (0.59-1.18)	30
NIHSS	-0.001 (.001)	0.22	1.02 (0.99-1.04)	0.18
Data collection program	0.005 (.037)	0.90	**2.48 (1.08-5.68)**	**0.03**
Indicator at baseline*	**0.069 (.021)**	**<0.001**	**1.67 (1.22-2.29)**	**0.01**
Time-group interaction	-0.001 (.016)	0.95	0.75 (0.36-1.55)	0.44

*10% increment

Supplemental Table 3: INSPIRE study Template for Intervention Description and Replication (TIDieR)[1] Checklist

Brief name of the intervention	Operational systems engineering training in a collaborative format plus monthly performance feedback
Why	Quality improvement training that incorporates operational systems engineering/LEAN methods and collaborative-style interventions have been used widely by the VHA in its Systems Redesign organizational office, and have been shown to be effective in improving processes of care.
What	Quality improvement training included: 1. Introduction to collaboratives and Systems Redesign 2. Engaging Leadership 3. Building effective LEAN healthcare teams 4. Voice of the Customer Analysis 5. Review of stroke quality indicators 6. Review of each facilities baseline data (FY 2007 OQP Stroke Special Study) 7. Setting a project charter 8. Process mapping and measurement 9. LEAN Hands-on Exercise 10. Breakout session 1: Create specific process flow maps for DVT and Dysphagia indicators 11. LEAN tools to design the future state 12. 5S, visual controls, setup reduction 13. Future state process mapping 14. Breakout session 2: Create specific future state maps for DVT and Dysphagia indicators 15. Using tools in the electronic health record to improve practice: Clinical Applications Coordinator Experience 16. Breakout session 3: Brainstorm solutions, create impact/effort matrix, develop initial PDSA cycles
Who provided	VHA industrial engineers engaged in Systems Redesign activities system-wide and implementation researchers from the VHA Stroke Quality Enhancement Research Initiative group. Each site in the intervention was assigned two "coaches," one engineer and one implementation researcher. Calls and site visits were conducted jointly by these two coaches.
How	• Two Pre-Collaborative Sessions by Webinar (covering training items 1-7) • In-person collaborative (training items 8-16) • Monthly post-collaborative telephone calls with each site individually for 6 months • One on-site visit for each site 1-2 months post-collaborative • Additional telephone calls and one additional on-site visit as needed during the 6 month post-collaborative period • Monthly written performance indicator feedback of site

	specific data for 18 months • Quarterly blinded data reports on performance for all sites for 18 months
Where	The collaborative was held at a hotel in a central location (Indianapolis, IN) On-site visits occurred at each intervention hospital
When and How Much	• 90 minute Pre-Collaborative Webinars • 2 ½ day In-person Collaborative • Approximately 30 minute monthly phone calls • 1-day on-site visit for each site
Tailoring	Each site tailored the specific PDSA cycles to their individually generated process maps and chosen solutions. Each site monitored and modified their PDSA cycles throughout the 6 months post-collaborative. Sites shared solutions with other sites during the two quarterly post-collaborative telephone calls, and the engineer/implementation coaches also could suggest solutions during telephone calls and on-site visits.
Modifications	The overall plan of the intervention was not modified. The timing for sending back performance reports varied somewhat from the designed monthly intervals due to occasional delays in sites sending the administrative data reports identifying stroke admissions from the prior month.
How well—Planned	Site participation in the post-collaborative calls was monitored, and the number of calls and emails made by sites to the coaches was tracked. The number and completion of PDSA cycles was tracked at all sites.
How well--Actual	Completion of post-collaborative calls by the coaches was tracked. All sites received at least one post-collaborative site visit and at least six coaching calls. Debriefs of the coaches regarding site visits and calls were held as part of weekly team meetings.

[1]Hoffmann TC, Glasziou PP, Boutron I, Milne R, Perera R, Moher D et al. Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. BMJ 2014;348:g1687 doi:10/1136.