Why Registries Matter: Impact of a Comprehensive Telestroke Registry on Clinical Quality Improvement

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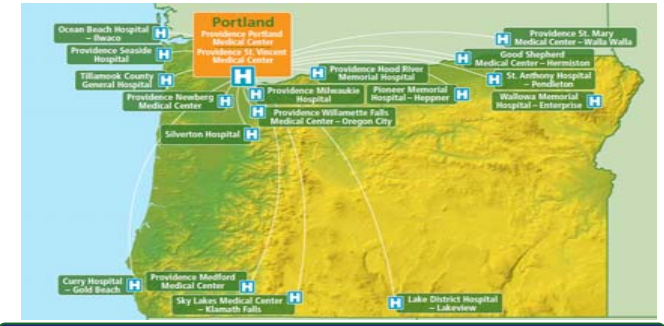
Providence Telestroke Partner Sites



Introduction

Evaluating patient care within a telestroke (TS) network is challenging due to lack of appropriate data. The AHA/ASA's Target Stroke helps address QI programming in larger hospitals, typically PSCs, but may not be appropriate for smaller facilities that lack specialty knowledge and data collection tools. Telestroke has only heightened this need for smaller facilities to measure and track performance to ensure quality care. **Goal:** In an effort to narrow this disparity and incorporate similar data-driven QI projects in our partner sites and therefore network as a whole, the Providence Telestroke Network (PTN) sought to develop a novel comprehensive registry. Clinical performance measures, such as IV tPA treatment rates, door to CT and door to needle times, were collected to inform our quality improvement processes and measure clinical impact.

Methods

The PTN consists of two PSC hubs and 17 partner sites. Network participants utilized the American Stroke Association's Get With The Guidelines (GWTG) data collection tool to capture stroke quality metrics. Data from pre-TS initiation and Post-TS and QI processes were included. Once entered, data from all sites were consolidated into a single cloud-based registry. Aggregate data from acute ischemic stroke (AIS) patient information was then summarized and areas of opportunity for clinical improvement identified for QI initiatives. Quality initiatives included education, quality reviews and summit and targeted improvement projects. Complete data for 9 sites were available, with 1 to 2 years of pre-data and 6 months to 2 years of post-data from 2009 to 2012. Clinical performance measures from Pre TS and post TS and quality initiative implementation were compared for these sites.

PROVIDENCE Brain and Spine Institute

- The authors have nothing to disclose

Results

The registry included information on 217 AIS patients before implementation of TS and QI initiatives. We identified several sites that did not treat with IV tPA and the remainder had treatment times in excess of 60 minutes and door to CT times in excess of the recommended goal of 25 minutes (Table 1). Targeted quality improvement processes and ED staff education from our hub PSCs were provided to partner facilities to improve door to CT and door to needle times as well as overall IV tPA treatment rates. Post-TS and QI implementation data included 403 AIS patients (Table 2). Results show door to CT times decreased in 78% (n=7) of sites. Decreases ranged from 8.0% to 53.2%. The majority of door to needle times decreased and improvement ranged from 12.6% to 31.3%. Treatment rates increased in 8 out of 9 sites. Increases ranged from .9% to 52.6%.

Table 1. Pre Telestroke and Quality Initiatives

Site	# of AIS	Door to CT (Minutes)	# Treated	% Treated	Door to Needle (Minutes)
ALL Sites	217	40.0	13	6.0	87.0
Site 1	45	43.0	4	8.9	87.5
Site 2	42	39.0	0	0.0	N/A
Site 3	26	24.5	1	3.8	82.0
Site 4	39	62.0	6	15.4	108.5
Site 5	5	42.0	0	0.0	N/A
Site 6	21	30.0	0	0.0	N/A
Site 7	14	25.0	1	7.1	74.0
Site 8	9	45.0	0	0.0	N/A
Site 9	16	27.0	0	0.0	N/A

Education:
- RN Staff
- Physician Staff
- Technology Education
- Robot Utilization
- Data/Quality Metrics

Data Abstraction/ Quality Review:
- Abstraction Training & Support
- Physician Led Quality Reviews
- Annual TS Summit

QI Projects:
- Develop a rapid flow process from door to scanner
- Implement consistent workflow with pharmacy mixing tPA
- Created tPA kits and involved stroke experts on tPA mixing

Table 2. Post Telestroke and Quality Initiatives With Change in Metrics

						Pre Compared to Post		
Site	# of AIS	Door to CT (Minutes)	# Treated	% Treated	Door to Needle (Minutes)	Door to CT Change	Door to Needle Change	Change % AIS Treated
All Sites	403	31.0	90	22.3	76.0	**-22.5%**	**-12.6%**	**16.3%**
Site 1	51	50.0	5	9.8	72.0	16.3%	**-17.7%**	**0.9%**
Site 2	122	39.0	33	27.0	79.0	0.0%	N/A	**27.0%**
Site 3	43	18.0	9	20.9	71.0	**-26.5%**	**-13.4%**	**17.1%**
Site 4	24	29.0	2	8.3	74.5	**-53.2%**	**-31.3%**	-7.1%
Site 5	28	27.0	8	28.6	59.5	**-35.7%**	N/A	**28.6%**
Site 6	19	15.5	10	52.6	89.0	**-48.3%**	N/A	**52.6%**
Site 7	37	23.0	6	16.2	78.5	**-8.0%**	6%	**9.1%**
Site 8	50	30.0	7	14.0	96.0	**-33.3%**	N/A	**14.0%**
Site 9	29	24.0	10	34.5	71.0	**-11.1%**	N/A	**34.5%**

Summary of Conclusions

- Our comprehensive registry enabled us to identify quality improvement opportunities at partner hospitals and implement appropriate QI processes.
- Clinical performance measures post TS and QI initiatives:
  - ➢7 out of 9 sites had reduced door to CT times which were reduced up to 53.2%.
  - ➢IV tPA treatment rates increased in 8 out 9 sites, rate increases ranged from 0.9% to 52.6%.
  - ➢Of the 5 sites that treated patients pre-TS and QI initiation, 4 had reduced door to needle times which were reduced up to 31.3%.
- After QI processes were put into place, the registry also enabled us to measure the efficacy of those processes and show significant improvement in acute stroke care metrics in our partner facilities.