

Taking a Look Internationally

GWTG-Stroke and SITS-ISTR

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DISCLOSURES

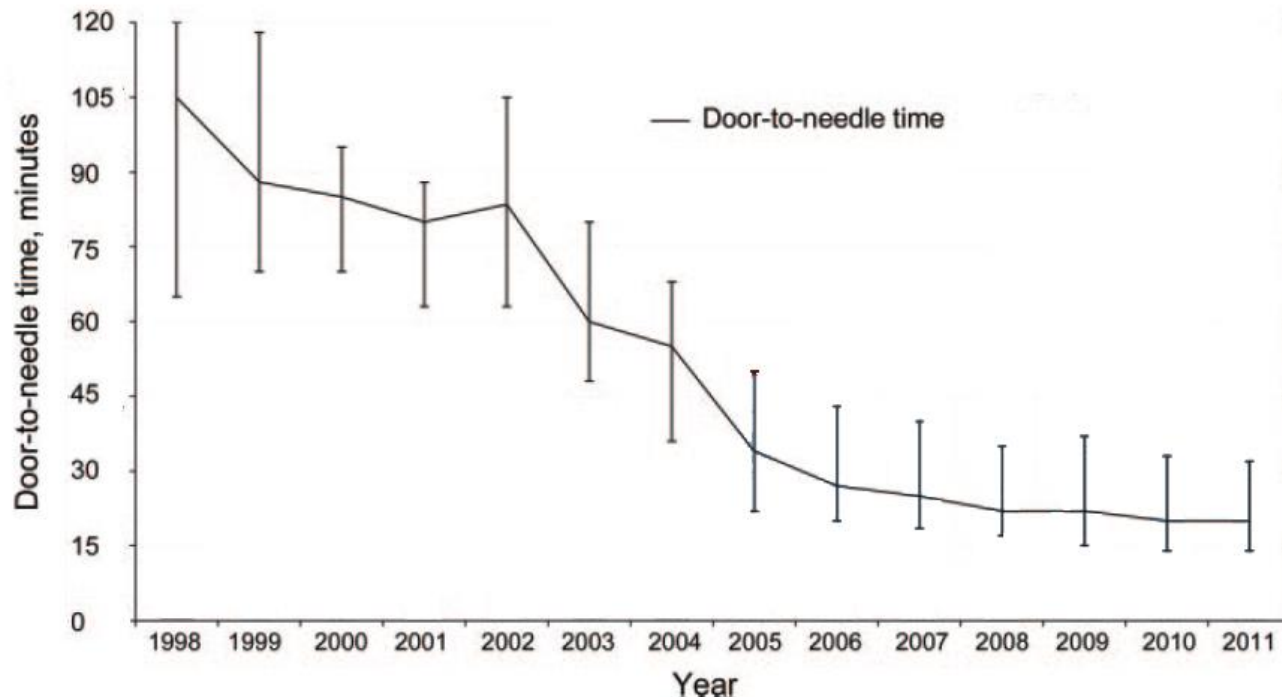
- Grant funding from NINDS, Heart and Stroke Foundation of Canada, Canadian Stroke Network, Alberta Innovates-Health Solutions, Alzheimer Society of Canada.
- Co-Investigator (no salary) of ESCAPE trial, co-funded by Covidien. DSMB for MR Witness Study (Mass General Hospital).
- Volunteer member of American Heart Association Get With The Guidelines and Target:Stroke Executive Committees.
- Co-chair of Canadian Best Practice Recommendations for Stroke.

Local and International Programs to Improve DTN Times

- QUICR
- AHA Target:Stroke Program.
- SITS-Watch

Reducing in-hospital delay to 20 minutes in stroke thrombolysis

Figure 1 Number of annually treated patients and median door-to-needle times



Meretoja A, Strbian D, Mustanoja S, Tatlisumak T, Lindsberg PJ, Kaste M. Reducing in-hospital delay to 20 minutes in stroke thrombolysis. *Neurology* 2012;79:306-313

COMMENTARY

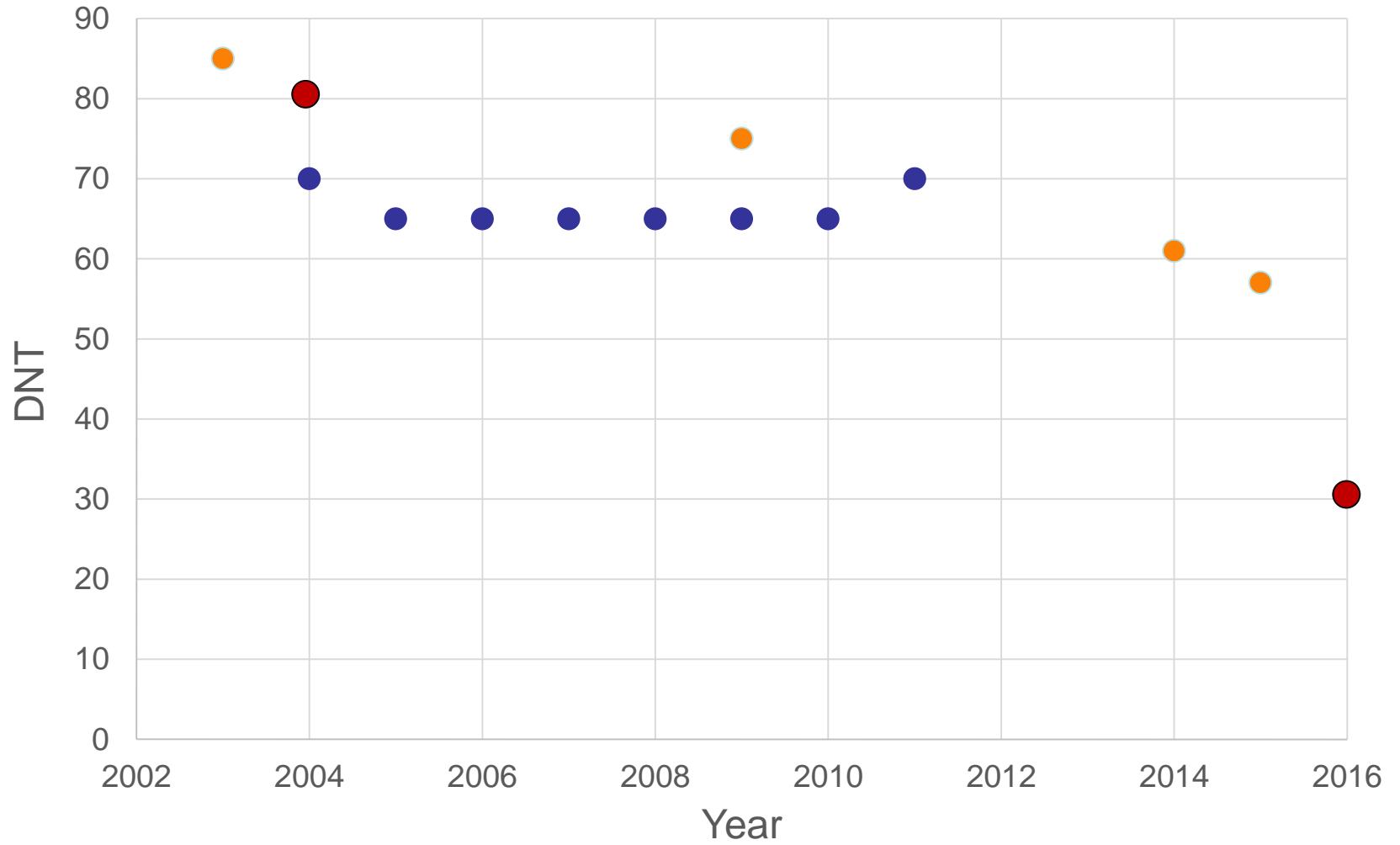
Good is not Good Enough: The Benchmark Stroke Door-to-Needle Time Should be 30 Minutes

Noreen Kamal, Oscar Benavente, Karl Boyle, Brian Buck, Ken Butcher, Leanne K. Casaubon, Robert Côté, Andrew M Demchuk, Yan Deschaintre, Dar Dowlathshahi, Gordon J Gubitz, Gary Hunter, Tom Jeerakathil, Albert Jin, Eddy Lang, Sylvain Lanthier, Patrice Lindsay, Nancy Newcommon, Jennifer Mandzia, Colleen M. Norris, Wes Oczkowski, Céline Odier, Stephen Phillips, Alexandre Y Poppe, Gustavo Saposnik, Daniel Selchen, Ashfaq Shuaib, Frank Silver, Eric E Smith, Grant Stotts, Michael Suddes, Richard H. Swartz, Philip Teal, Tim Watson, Michael D. Hill

doi:10.1017/cjn.2014.41

Can J Neurol Sci. 2014; 41: 694-696

Median DNT



● GWTG-Stroke ● SITS

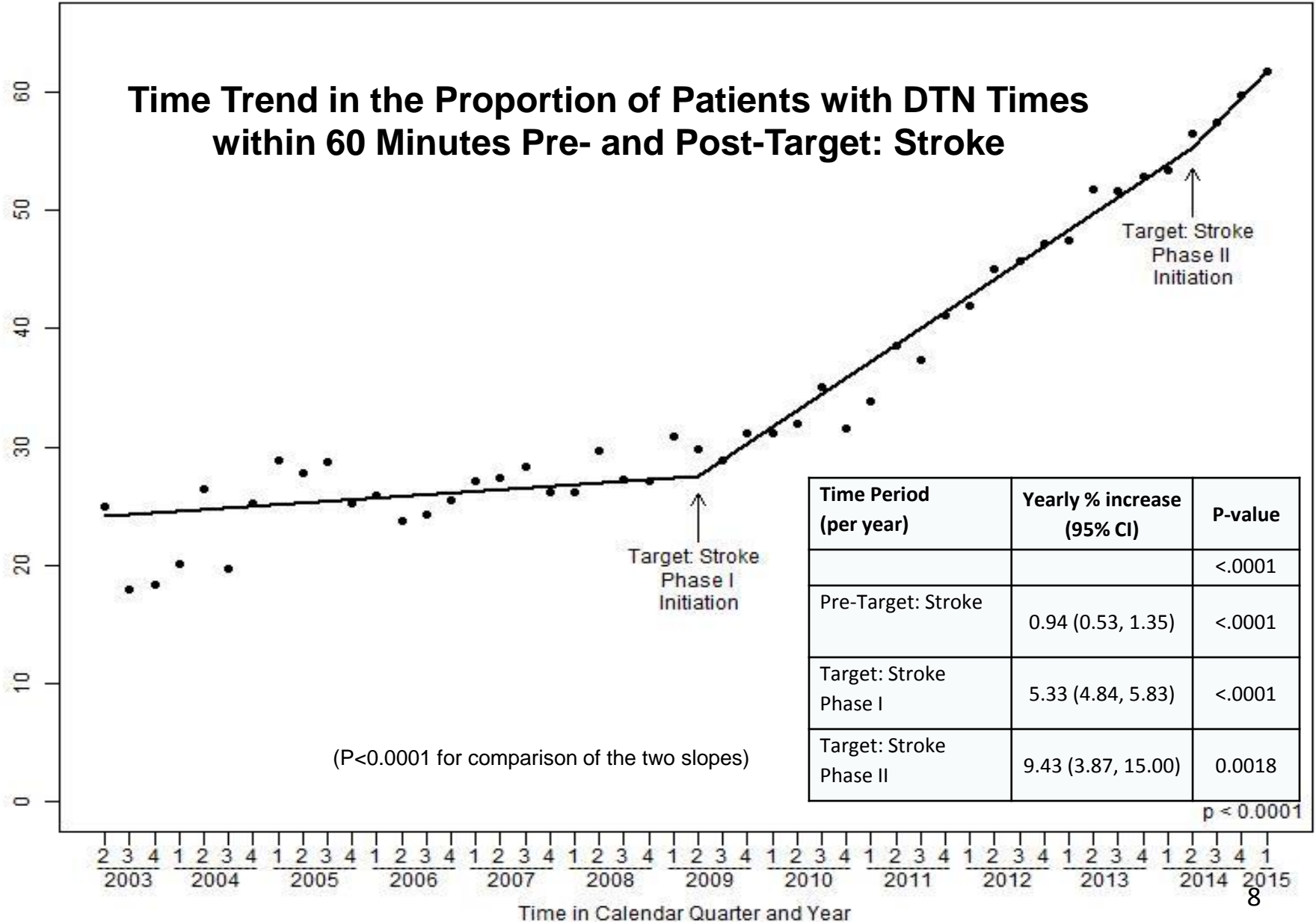
AHA Target:Stroke

- Launched 2010.
- Interventions: disseminated best practices, decision support tools, award recognition.
- Phase I (2010-2013): DTN <60 minutes in $\geq 50\%$.
- Phase II (2010-2013):DTN times ≤ 60 in $\geq 75\%$ and DTN ≤ 45 in $\geq 50\%$)

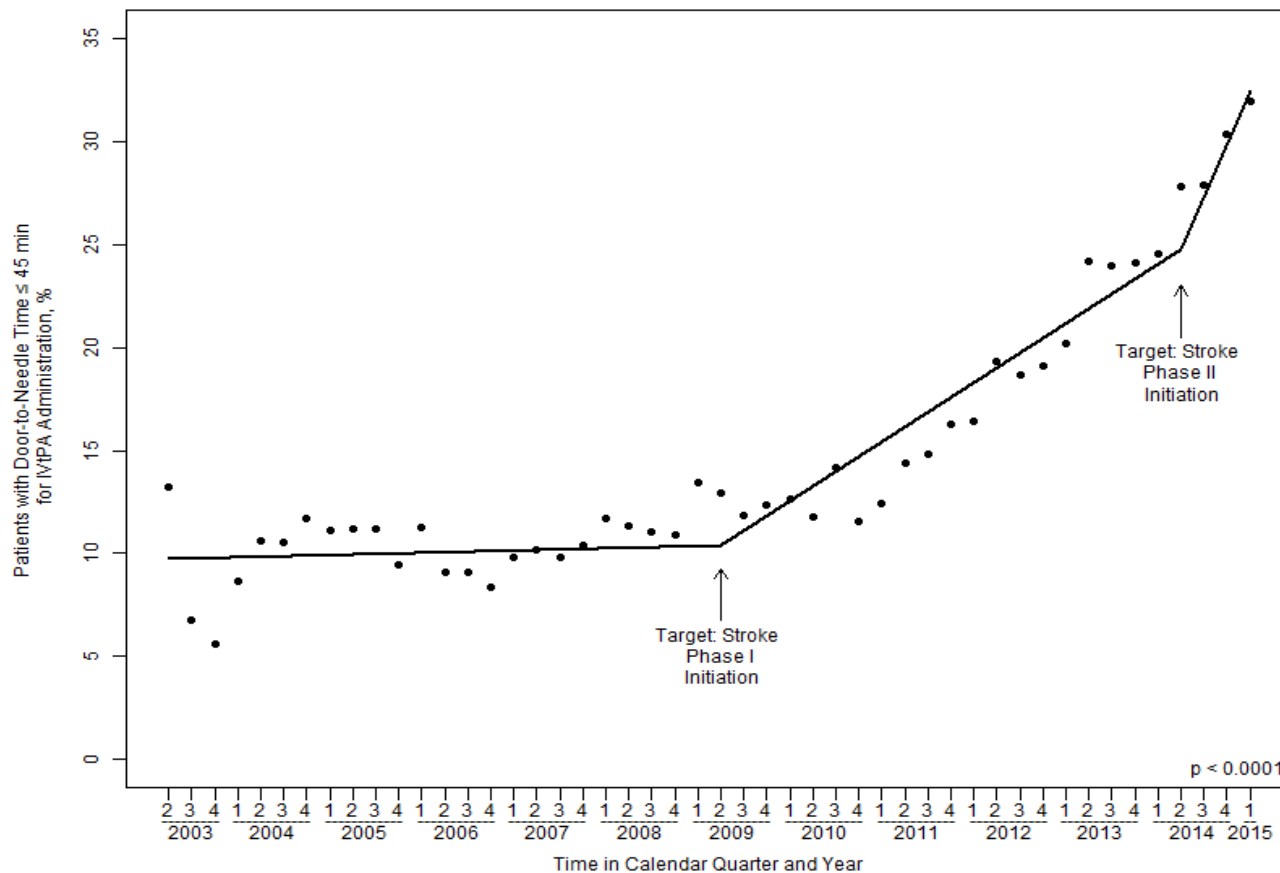
Target: Stroke Phase

Time Trend in the Proportion of Patients with DTN Times within 60 Minutes Pre- and Post-Target: Stroke

Patients with Door-to-Needle Time ≤ 60 min for IVtPA Administration, %



Time Trend in the Proportion of Patients with DTN Times within 45 Minutes Pre-Target: Stroke and During Target: Stroke Phase I and II



Time Period (per year)	Estimate (95% CI)	P-value
		<.0001
Pre-Target: Stroke	0.12 (-0.20, 0.43)	0.4741
Target: Stroke Phase I	2.87 (2.49, 3.25)	<.0001
Target: Stroke Phase II	10.20 (5.92, 14.48)	0.0018

TARGET: STROKE Program: Results

Original Investigation

Door-to-Needle Times for Tissue Plasminogen Activator Administration and Clinical Outcomes in Acute Ischemic Stroke Before and After a Quality Improvement Initiative

Gregg C. Fonarow, MD; Xin Zhao, MS; Eric E. Smith, MD, MPH; Jeffrey L. Saver, MD; Mathew J. Reeves, PhD; Deepak L. Bhatt, MD, MPH; Ying Xian, MD, PhD; Adrian F. Hernandez, MD, MHS; Eric D. Peterson, MD, MPH; Lee H. Schwamm, MD

JAMA April 23/30, 2014 Volume 311, Number 16 1633

- Temporal trends in door to needle (DTN) times before/after initiation in Jan 2010.
- Change in clinical outcomes—including in-hospital mortality, discharge destination, ambulatory status, symptomatic intracranial hemorrhage \leq 36 hours after tPA, and overall tPA complications—before/after initiation in Jan 2010.

Outcomes Pre- and Post-Target: Stroke

Outcome	Unadjusted Odds Ratios (95% CI)	P Value	Adjusted Odds Ratios (95% CI)*	P Value*
In-Hospital Mortality	0.81 (0.77-0.86)	<0.0001	0.89 (0.83-0.94)	0.0002
Discharge Home	1.23 (1.18-1.27)	<0.0001	1.14 (1.09-1.19)	<0.0001
Ambulatory Status Independent	1.14 (1.09-1.20)	<0.0001	1.03 (0.97-1.10)	0.3091
Symptomatic ICH	0.81 (0.75-0.88)	<0.0001	0.83 (0.76-0.91)	<0.0001
Any tPA Complications	0.80 (0.75-0.87)	<0.0001	0.83 (0.77-0.90)	<0.0001

*Adjusted for patient characteristics including age, sex, race, medical history of atrial fibrillation, prosthetic heart valve, previous stroke/transient ischemic attack, coronary heart disease or prior myocardial infarction, carotid stenosis, peripheral vascular disease, hypertension, dyslipidemia, and current smoking, stroke severity (NIHSS), arrival time during regular work hours, arrival mode, onset-to-arrival time; hospital characteristics of 11 hospital size, region, teaching status, certified primary stroke center, annual volume of tPA, and annual stroke discharge.

Results: Impact on DTN Median Times by Age Group

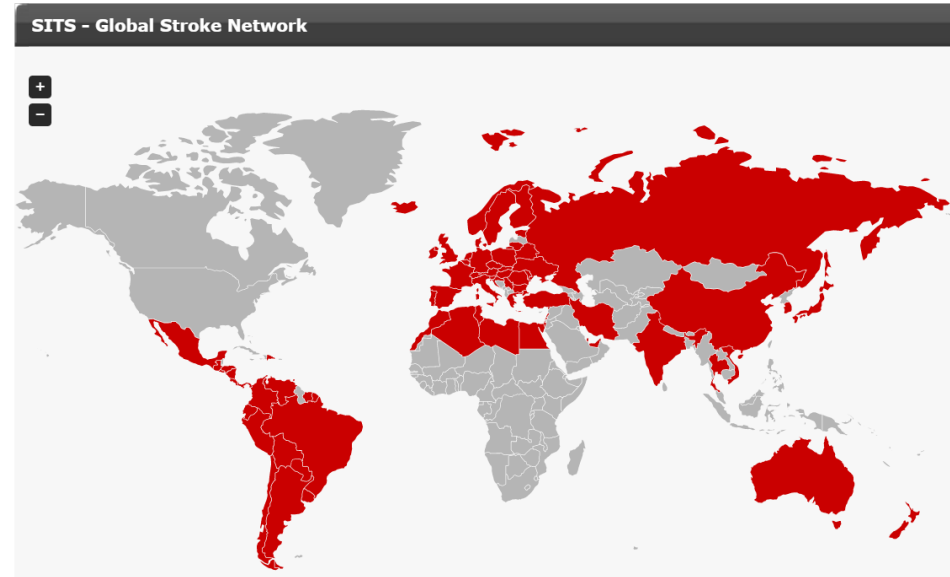
Age Group	Pre-Target: Stroke		Post-Target: Stroke		Difference Post- vs. Pre-Target: Stroke
	DTN median 2005	DTN median 2009	DTN median 2010	DTN median 2013	DTN median 2013 vs 2009
Total	80	75	73	60	- 15 minutes
<60	75	75	72	60	- 15 minutes
60-69	79	74	72	59	- 15 minutes
70-79	82	75	72	60	- 15 minutes
≥80	80	76	76	61	- 15 minutes

Results: Impact on DTN Median Times by Sex and Race/Ethnicity

Subgroup	Pre-Target: Stroke		Post-Target: Stroke		Difference Post- vs. Pre Target: Stroke
	DTN median 2005	DTN median 2009	DTN median 2010	DTN median 2013	DTN median 2013 vs 2009
Total	80	75	73	60	- 15 minutes
Women	83	76	75	61	- 15 minutes
Men	77	74	72	59	- 15 minutes
White	80	75	73	60	- 15 minutes
Black	82	78	75	60	- 18 minutes
Hispanic	82	78	72	60	-18 minutes

Safe Implementation of Treatment in Stroke International Stroke Thrombolysis Registry (SITS-ISTR)

- Academic, non-profit, based in Karolinska Institute, Sweden.
- Global.
- >40,000 tPA treated
- >130,000 total from >1400 sites
- Data include imaging variables, 90-day telephone follow-up.

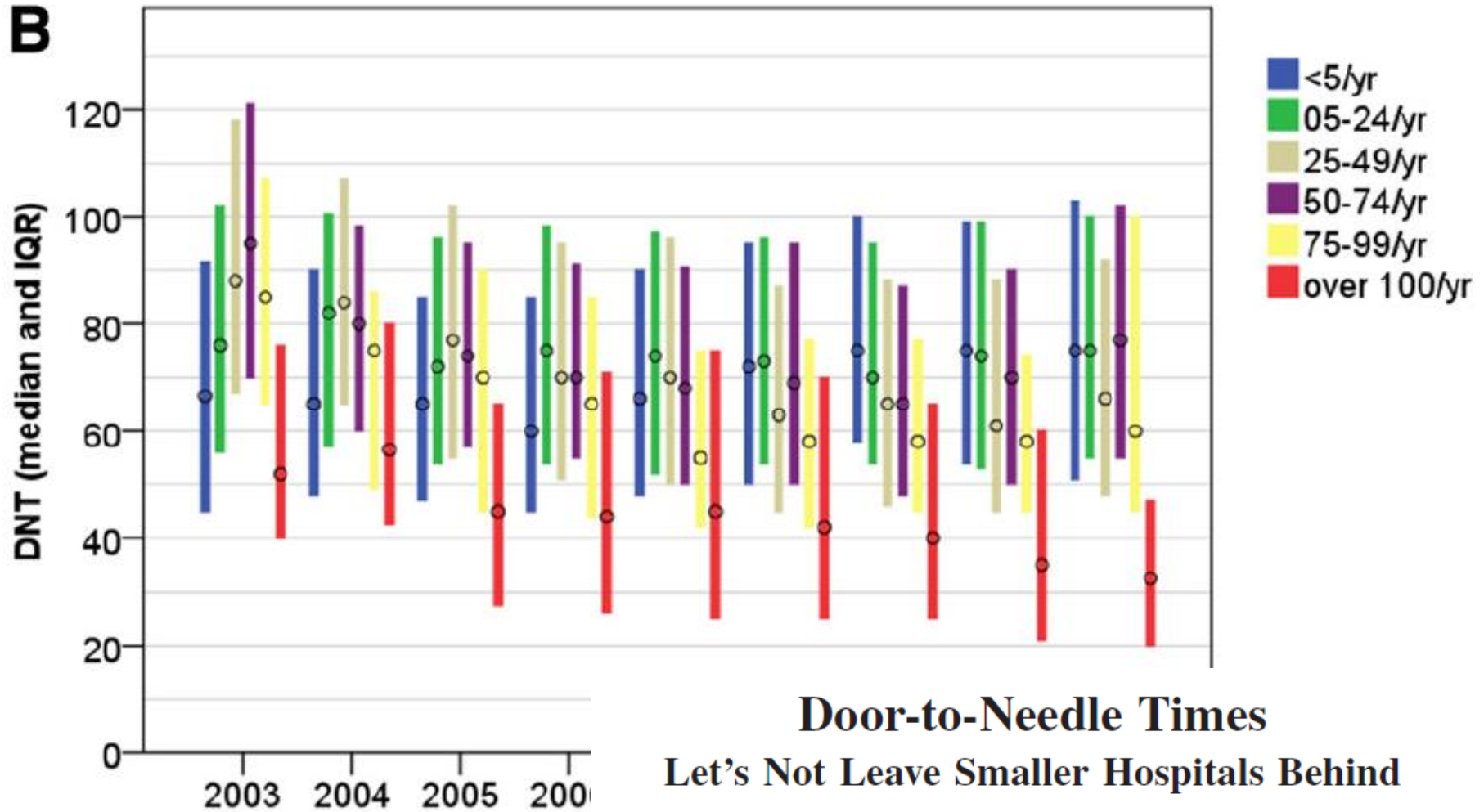


<https://sitsinternational.org/>

SITS-WATCH

- Launched January 2013.
- Goal: reduce DNT by ≥ 20 minutes.
- Intervention: 15 item list of suggested interventions.
- Estimated results: May 2016.

SITS: Improvement Only in Larger Hospitals



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Reflections on QUICR DNT Project

- Faster.
- Population-based.
- Equitable.
- Systems.
- Champions.

Thank you



EDITORIAL

Door-to-needle times in acute ischemic stroke

How low can we go?