

# **SUPPLEMENTAL MATERIAL**

## **Data S1.**

### **Supplemental Methods**

#### *Intervention Development*

We developed and adapted our community stroke preparedness intervention based on the theory of planned behavior,<sup>8</sup> Bandura's theoretical self-efficacy model as a framework to promote decision-making capacity in stroke bystanders, and Kolb's experiential learning theory as the framework that guided the interactive stroke promoter training program.<sup>28,29</sup> We thereby combined 2 prototypes we had previously developed into a prototype intervention for CEERIAS: (1) the PSC Mini-Internship Program (MIP), which was piloted at five Chicago PSCs in 2011–2012, and (2) the Pact to Act FAST program, which was developed in 2011 for rural Illinois communities.

The MIP used a hands-on experiential training approach including hospital emergency room tours and direct interactions with patients and health care professionals, we educated and trained community stroke promoters on the barriers to and benefits of early action after stroke symptom onset. This program not only emphasized the benefits of calling 9-1-1 but also visually demonstrated the resources and treatments available at the PSC. At the conclusion of the MIP program, participants received stroke information packet of educational materials, services, and community events. The Pact to Act FAST program sought to increase self-efficacy in two ways: (1) by developing an action plan before witnessing a stroke and (2) by developing a social contract ("Pact") that required a pledge or pact from individuals in a community to act on the behalf of loved ones, neighbors, and coworkers if they witness a possible stroke. This program developed materials for schools, churches, and community events, which we included in the final prototype of the CEERIAS intervention.

#### *Stroke Promoter Recruitment, Selection, and Retention*

We identified and recruited lay persons and trusted community members to serve as "stroke promoters." The CEERIAS study maintained a broad range of community partnerships with large multi-ethnic outreach potential and drew upon five core community groups: (1) faith-based organizations, (2) hospitals and clinics, (3) public and private schools, (4) local businesses, and (5) advocacy groups. These groups were present in all targeted areas of the intervention and had prior experience in community health initiatives. Stroke promoters were identified by partner community organizations, the Community Principal Investigator, subsequent stroke promoter referrals, and interested participants who contacted research team members at community events. Stroke promoters were required to be adults older than 18 years who had strong connections in the target areas of Chicago's South Side based on the review of their roles, prior activities, and organizational contacts. Based on interest and community outreach potential, the research team and CAB members selected final candidates for training. We recruited stroke promoters concurrently in a total of 21 sessions for training and remunerated them for their time (\$732 total per promoter). We explicitly asked stroke promoters to incorporate stroke preparedness discussions in their regularly planned community activities over a period 6 months from the date of their training.

#### *Promoter Training*

We trained the recruited stroke promoters on the adapted MIP-Pact program and provided them tools to be used for tracking activity in the community, event planning, and logging of obtained Pacts (Figure S1). We held the MIP-Pact training program at the 2 intervention hospitals; each session lasted approximately 4 hours and was facilitated by study team members and the local stroke coordinator. We provided stroke promoters with (1) training regarding the benefits of early recognition and EMS use for stroke (e.g., stroke centers, tPA), (2) culturally-adapted solutions to current barriers (e.g., misperceptions about vulnerability, severity, mistrust, costs), and (3) cues to aid in stroke recognition and immediate action. Stroke promoters engaged in interactive discussions with community leaders and health care professionals regarding strategies to enhance patient and bystander self-efficacy and increase public knowledge about stroke warning signs, treatments, and expected outcomes.

The training program included lectures, a mix of didactic material on stroke statistics relevant to South Side communities, hospital-based tours of the “stroke patient journey,” case examples, multi-media aids, role playing activities, and storytelling of shared experiences and feelings to enhance the learning process. We distributed training manuals and presented slides on stroke demographics, disparities, and local data from the hospitals on EMS use, arrival times, treatment rates, and outcomes. Following the didactic portion, we conducted the hospital-based tours at the 2 planned intervention hospitals on Chicago’s South Side with assistance from the local stroke program coordinator to minimize disruption in the clinical setting. We encouraged stroke promoters to ask questions throughout the training regarding patient throughput, physician-patient discussions on risks and benefits of administering tPA, and required tests in the emergency department. Following the tour, we discussed barriers to early arrival and EMS use and solicited and provided solutions using role-playing and small group workshops. The groups also discussed approaches incorporating their experiences and techniques learned during the training for use in their interactions with their constituents in the home, school, and workplace. At the completion of training, we provided every stroke promoter website login and instructions, and distribution materials including magnets, bookmarks, Pact to Act FAST cards, and suggested community educational activities (Figure S2).

### *Intervention Implementation*

We tasked each trained stroke promoter with disseminating the educational materials to their constituents (e.g., parishioners, school-aged children, and customers) over a 6-month period. We asked them to present the program at least twice monthly for 6 months as part of their interactions in the community and document activities using the CEERIAS website ([www.ceerias.com](http://www.ceerias.com)). We required stroke promoters to obtain Pacts in person, with ZIP code verification of the individual making the pledge, and log the Pacts into website. We defined the number of Pacts collected as the objective measure of total individuals whose behavioral intent to call 9-1-1 for stroke could be verified. If Pacts were collected on paper, we required these be either later entered online or faxed to our central coordinating office at Northwestern University for manual entry on the website.

Concurrent comparison settings performed stroke education activities in a non-prescribed way and provided, therefore, contemporaneous comparisons to the intervention community. These approaches included ongoing community education led by regional hospitals and their staff members in the form of health fairs, distribution of materials to patients and families in the

hospitals and clinics, and local news media interviews and stories about stroke occurred at both intervention and non-intervention settings. None of the North Side Chicago and St. Louis comparison hospitals or their regional partners participated in a stroke promoter training or similar community health worker programs to improve stroke recognition and early EMS activation after stroke onset.

#### *Monitoring and Evaluating Intervention Implementation*

We evaluated the intervention using the RE-AIM framework. We assessed reach based on the collected number of Pacts as the objective measure of total individuals whose behavioral intent to call 911 for a stroke could be verified. We used hospital and prehospital data to evaluate the effectiveness of the intervention in an interrupted time-series design. We assessed adoption by trained stroke promoters through surveys and direct contact by our Community Navigator and Community Principal Investigator. We assessed the fidelity of implementation in the community setting through weekly webinars and phone conferences with stroke promoters and attendance at stroke promoter events. We facilitated maintenance through regular contact by Community Navigator and Principal Investigator with stroke promoters during the 6-month post-training period.

In partnership with EdgeOne Medical (Chicago, Illinois), we created online forms using the ceerias.com website for stroke promoters to log their activities, document Pacts recorded, and communicate with fellow stroke promoters using chat rooms and forums. Figure S3 shows representative online calendars, forms, and chat forums. EdgeOne Medical staff pilot tested the website's functionality among five stroke promoters from the first training session, deployed it to subsequent stroke promoters, and maintained the website throughout the study period.

Immediately following the training, stroke promoters completed surveys on the content, speakers, hospital-based tour, and distribution materials. In addition, the Community Principal Investigator and Community Navigator contacted each stroke promoter to monitor activity, reinforce performance goals, provide post-training advice on high-yield activities and events, give successful tips and strategies for overcoming resistance, and continue follow-up on a regular basis to ensure ongoing community engagement and intervention implementation. In addition to forums created on the website to generate conversations among stroke promoters, we held webinars and phone conferences with stroke promoters to evaluate adoption of the tools and strategies discussed in training. Members of the research team attended some stroke promoter events to ensure that high-fidelity adoption of the intended intervention was taking place. For example, we assessed whether stroke promoters were utilizing materials as instructed, engaging in face-to-face discussions with a goal of overcoming resistance and barriers, and obtaining Pacts from attendees. We also boosted and maintained the intervention through ongoing presentations by research team members at community fairs and events, local radio interviews, and community newsletters in the South Side of Chicago. Other than tallying the number of Pacts signed, we did not systematically track the delivery of stroke prevention/treatment knowledge in the target community.

#### *Intervention Monitoring and Maintenance*

Post-training, we conducted 1 webinar to demonstrate the use of the website and 12 conference calls for stroke promoters to provide feedback, describe successes, and discuss ongoing

community challenges post-training. We assessed promoters' experiences including successes and challenges in their outreach activities; interventions conducted at health fairs and church events were the most positively received and had the highest number of attendees.

Using Google Analytics from the ceerias.com website, we observed a total of 6,256 login sessions onto the website by stroke promoters, of which more than 1,710 sessions were on activity logging, calendar, and chat forum pages. Stroke promoters distributed more than 110,000 educational materials including FAST cards and magnets and participated in at least 167 large-scale community events. To boost the intervention, CEERIAS team members participated in three Chicago local radio interviews during the implementation phase, describing the study purpose and answering public questions related to stroke. In addition, the CEERIAS team distributed 18 newsletters to members of partner organizations for wider distribution.

**Figure S1. Intervention development and implementation from pilot projects (orange), the adapted MIP-Pact program and training of stroke promoters (red), and promoter activities (blue)**

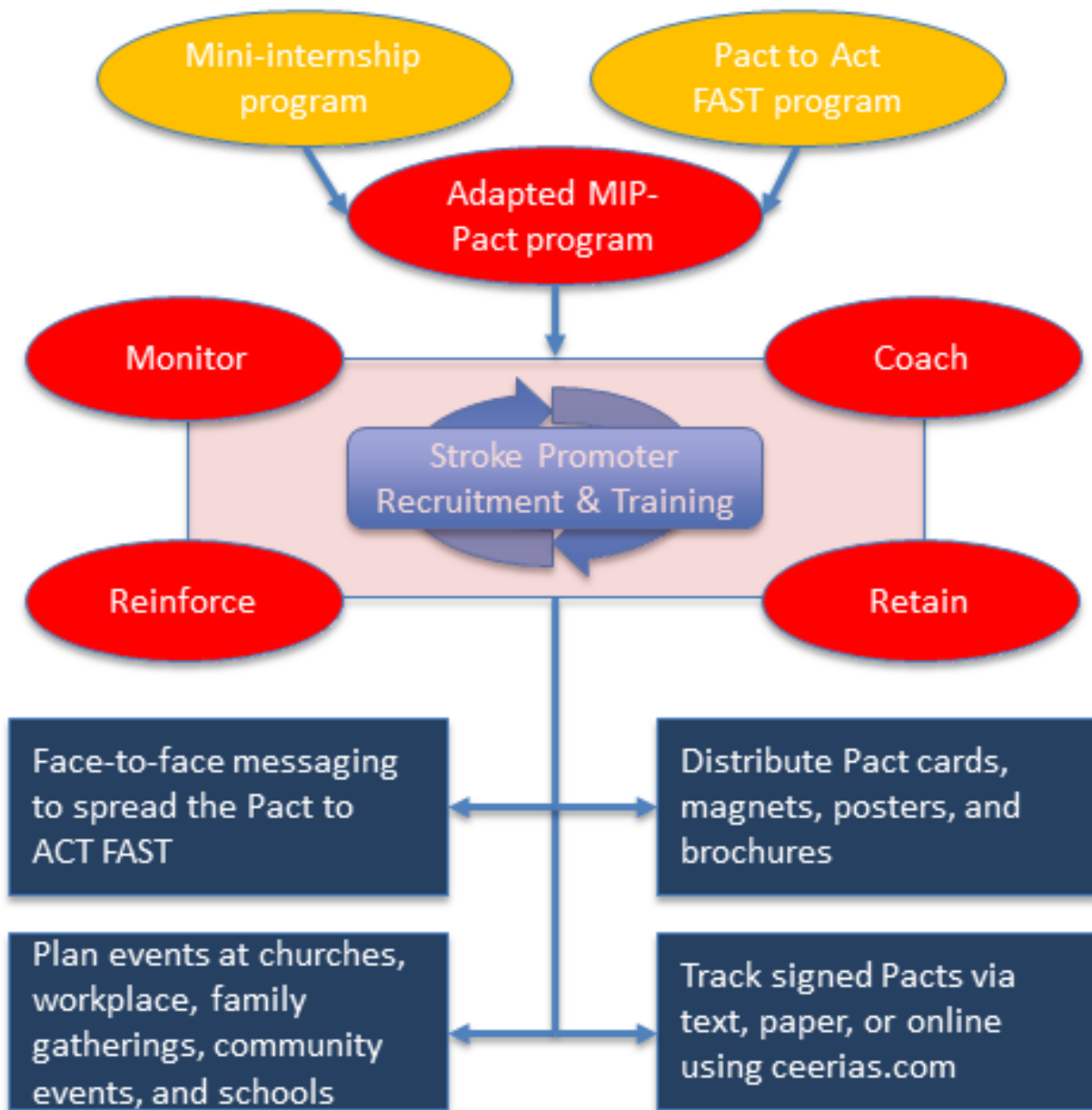


Figure S2. Examples of FAST pledge cards and magnets used by CEERIAS promoters.



**Plan with your family:**

Agree today to call 911 when stroke signs occur even if the patient objects at the time: Make a Pact to Act FAST



**STROKE IS AN EMERGENCY**

**ACT FAST CALL 911**

**Any one of these signs could mean a stroke:**

			
<b>F</b> ACE	<b>A</b> RM	<b>S</b> PEECH	<b>T</b> IME
Look for an uneven smile	Check if one arm is weak	Listen for slurred speech	Call 911 right away

Visit [StrokeCall911.com](http://StrokeCall911.com) to learn more

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**Figure S3. Examples of online tools used by CEERIAS promoters.**

## Community Promoters

Forum	Topics	Posts	Views
Frequently Asked Questions (FAQ) Answers to common questions Last Post: What happens if I am at an event and pass Pact cards out, but do not capture all the Pacts? by [deleted] 2 years, 2 months, 26 days, and 46 minutes ago	2	4	62
Ask Your Fellow Promoter Get answers from your fellow promoters Last Post: Process by Felicia Stubblefield 1 year, 9 months, 13 days, 22 hours, and 47 minutes ago	1	1	19
Events Information and help for promoter events Last Post: Tips on hosting a small group event by Ben Maher 2 years, 7 months, 23 days, 2 hours, and 30 minutes ago	1	1	27
Event Assistance Requests Ask for assistance with events and activities from your fellow promoters Last Post: None	0	0	10
Success Stories Share your experiences of impacting stroke awareness Last Post: Share information about Stroke and acting F.A.S.T. with everyone you meet by Angela Hall-Witherspoon 2 years, 3 months, 8 days, 2 hours, and 34 minutes ago	1	1	16

## February 2016

today < >

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31 7a Trinity UCC 7am service 11a Morning Worship	1 8a Social Media and Facebo 9:30a Promoter Conference 2:30p NMC Food Pantry	2	3	4 12p Stroke in Chicago 6:30p POTH REHEARSAL	5	6 9:30a Funeral
7 11a Educational Booth 4p SUPERBOWL 50 PARTY	8 8a Social Media and Facebo	9	10 9:30a I place 50 cards in UIC	11 3p phone promoting	12 12a promoting 7a promoting 7:30a promoting 9a promoting 9a promoting 9:30a promoting 9:30a promoting 11a Take the PACT to ACT-0 11:30a promoting 12:30p promoting 1p LaVetrice's Beauty Shop 2p Instagram Networking 5:30p phone promoting spd	13 10p 51 Business Associator
14 11a Education Booth	15 8a Stroke Promoter Training 8a Social Media and Facebo 9:30a Promoter Conference	16	17 3p Peer Group Meeting at C	18	19	20 1p Girl Scout Meeting
21 7a Trinity UCC 7am and beg 11a Educational Booth 12p Chains Are Broken Mini	22 8a Social Media and Facebo	23 9a Work PACT	24	25 3p Facebook Networking 6:30p Restart 4 Health	26	27
28 7a Trinity UCC 7am service 11a Educational Booth 4p African-American History	29 8a Social Media and Facebo	1 1p KLEO FOOD PANTRY	2	3	4 9a Department Meeting @C	5
6 9:30a Educational Booth	7 8a Social Media & Facebooc 9:30a Promoter Conference	8 8a PROMOTER TRAINING - 1	9	10	11	12 9:30a 61ST STREET FARMER



## Pact to Act FAST Results

### Leaderboard



- Angela Hall-Witherspoon (#142)
- Tina Caston (#116)
- Healthy WashingtonHeights (#80)
- Marlene Snipes (#148)
- Hazel Colar (#60)
- Sandra Franklin (#134)
- Tramaine Poindexter (#65)
- Caroline Furdge (#147)
- Tonya Roberson (#26)
- Rodney Johnson (#81)

▲ 1/5 ▼

Rank	Name	Pacts	% of Pacts
<b>Total</b>		<b>39795</b>	<b>100%</b>
1	Angela Hall-Witherspoon (#142)	1845	4.6%
2	Tina Caston (#116)	1770	4.4%
3	Healthy WashingtonHeights (#80)	1706	4.3%
4	Marlene Snipes (#148)	1701	4.3%
5	Hazel Colar (#60)	1500	3.8%

### Pacts to Act FAST by Zip Code



- 60628
- 60619
- 60617
- 60620
- 60649
- 60637
- 60653
- 60621
- 60629
- 60636

▲ 1/5 ▼

Rank	Zip Code	Pacts	% of Pacts
<b>Total</b>		<b>39795</b>	<b>100%</b>
1	60628	3286	8.3%
2	60619	3012	7.6%
3	60617	2974	7.5%
4	60620	2575	6.5%
5	60649	2038	5.1%

## Sign the Pact to Act FAST

I agree to Act Fast when I see someone with the sudden signs of stroke.

As a bystander, I will call 911 immediately even if the stroke victim objects because I know

***Time lost is Brain lost.***

\* Zip code (required)

This pact will be registered to the following Community Promoter:

Shyam Prabhakaran  
Promoter number: 750