



# Celebrating 10 Years of the Wisconsin Coverdell Stroke Program

The Centers for Disease Control and Prevention’s Paul Coverdell National Acute Stroke Program (PCNASP) is named after the Georgia U.S. Senator, Paul Coverdell, who suffered and died of a stroke while serving in Congress in 2000. Since 2001, PCNASP has funded state health departments to improve stroke systems of care (SSoC) processes.

The Wisconsin Division of Public Health has received PCNASP grants since 2012. In 2021, the Wisconsin Division of Public Health was awarded another three years of funding to support the Wisconsin Coverdell Stroke Program (WCSP). This latest grant supports implementation of best practices, and improvement across the stroke care continuum for individuals at highest risk of experiencing stroke.

WCSP is now in its tenth year and has experienced tremendous growth thanks to strong and essential partnerships with WCSP-participating hospitals, Wisconsin Emergency Medical Service (EMS) services, the American Heart Association, MetaStar, Rural Wisconsin Health Cooperative, Wisconsin Office of Rural Health, Wisconsin Hospital Association, and others.

“Wisconsin’s stroke care improved considerably in the last 10 years in timeliness of process measures and outcomes for stroke patients. WCSP’s support for our hospitals, EMS providers, and communities was instrumental in making positive changes for stroke patients.”

**Janet Wagner**  
Rural Wisconsin  
Health Cooperative

“Over the past decade, there was tremendous optimization of teams working together to improve stroke systems of care. This work improved IV thrombolytic drug delivery times, which decreases death and disability in stroke patients.”

**Sue Abelt**  
American Heart  
Association

## Wisconsin Coverdell Stroke Program’s Care Continuum

Pre-hospital ..... In-hospital ..... Post-hospital



Community

Emergency  
medical services

Emergency  
department

In-patient

Discharge  
coordination

Community

- Promote public prevention messages
- Improve EMS care and transitions

Improve hospital care and transitions

- Improve post-discharge care
- Educate and facilitate home support systems

Coordinate partnerships,  
recruitment, and engagement

Integrate, analyze,  
and use data

Sustain improvements

## Successes Over the Last Decade

### Pre-Hospital: Community

WCSP recognizes that successful stroke care begins with community awareness. In 2017, with the assistance of partnering hospitals, WCSP created the *BE FAST Bella* stroke awareness campaign. The *BE FAST Bella* campaign established consistent messaging for stroke warning signs across Wisconsin. Bella, shown on the right, was designed to acknowledge disparities in stroke outcomes, and awareness for women.

Campaign materials are currently available in English, Spanish, and Hmong. Materials are available in the form of flyers, magnets, bookmarks, and coloring pages. [BE FAST Bella campaign materials](#) are available for download or print request. Since the campaign's launch, WCSP has provided more than 150,000 *BE FAST Bella* materials to partnering EMS services and hospitals at no cost.

### Pre-Hospital: Emergency Medical Services

EMS providers are often the first contact stroke patients have within the stroke care continuum. Initial EMS assessments and actions have significant impact on a patient's subsequent care and stroke outcomes. WCSP dedicated significant resources over the last decade to assist 77 Wisconsin EMS services, including:

- Coordinating quarterly meetings with EMS partners to support quality improvement efforts.
- Distributing quarterly report cards detailing performance across quality of care metrics. Report cards benchmark groups for comparison and established goals for each measure to identify improvement opportunities and gauge progress.
- Developing and disseminating stroke-related trainings.

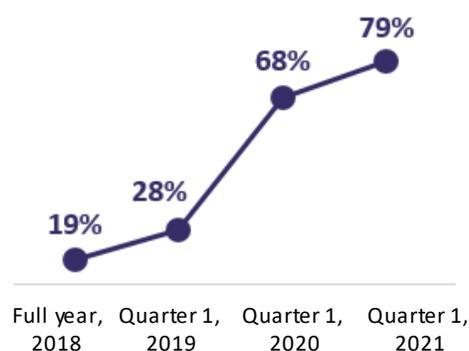
EMS providers identify the date and time at which a patient was last known to be without the signs and symptoms of the current stroke or at their baseline health. This time is known as "last-known well" (LKW). Hospitals use LKW times to determine eligibility for time-sensitive treatments. For stroke patients, this includes acute ischemic stroke thrombolytic treatments. In 2018, only 19% of stroke runs transported by WCSP EMS documented LKW times. Over the last three years, WCSP and EMS partners used data sharing and quarterly meetings to improve LKW documentation. WCSP's latest data show that 79% of stroke runs had documented LKW.



"WCSP's work greatly increased stroke awareness for EMS. Through protocol updates, decreased on-scene time, and increased community awareness, stroke patients have benefited from WCSP. It's been great having regular meetings to stay up-to-date on stroke care changes."

**Josh Kowalke**, Director  
Reedsburg Area  
Ambulance Service

Percent of stroke runs with documented last-known well times by WCSP EMS services, 2018–2021



From the Wisconsin Ambulance Run Data System (WARDS) Elite, based on NEMSIS v.3.

### Pre-Hospital to In-Hospital Transitions

WCSP currently partners with 71 hospitals across the state. In all, partner hospitals see 80% of all annual stroke admissions in Wisconsin.

WCSP facilitates quarterly Coverdell Learning Collaborative (CLC) meetings for stroke coordinators at participating hospitals to provide opportunities for peer networking, asking questions of other hospital staff, and sharing best practices. WCSP supports participating hospitals by analyzing aggregated hospital stroke data entered into the American Heart Association’s *Get With The Guidelines*® registry. In 2016, WCSP began creating quarterly report cards highlighting stroke process measures from this registry. Report card findings are shared at Coverdell Learning Collaborative meetings. Stroke coordinators and hospital staff then utilize report cards to focus their quality improvement efforts and gauge progress.

In addition to supporting in-hospital stroke care, WCSP focuses many resources on enhancing the transition of care between EMS and hospitals. For example, WCSP helped EMS services and hospitals focus explicitly on improving pre-notification of a suspected stroke. EMS pre-notification of a suspected acute stroke patient assists the receiving hospital in assembling the appropriate personnel and resources before the patient arrives for needed care, which includes, among other processes, initiation of computed tomography (CT) of the head. Because treatments for acute stroke patients are time-sensitive, these elements of care coordination greatly influence patient outcomes.

Between 2013 and 2015, the percent of stroke patients arriving at WCSP-participating hospitals with a pre-notification was improving. In 2017, however, WCSP staff and their partners noticed a consistent decline during their quarterly meetings, and decided to take action. With focused quality improvement efforts, WCSP’s 2019 and 2020 data show that over 80% of stroke patients who arrive at a WCSP-participating hospital had pre-notification by EMS, including a rate above 80% in each of the individual past 5 quarters.

“Stroke care in Wisconsin shifted to a full team approach over the past 10 years. WCSP included EMS in their efforts to streamline effective and standardized stroke patient care. Because of this, hospitals across Wisconsin have begun to incorporate EMS in their protocols, and have focused on ensuring adequate education is available.”

**Angela Gullicksrud**  
*Mayo Clinic Health System-Eau Claire*

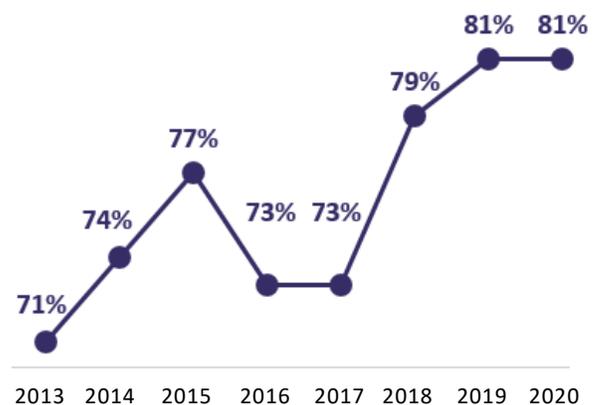
“The Wisconsin Hospital Association engaged Wisconsin hospitals in networking activities and best practice sharing across the state.”

**Nadine Allen and Jill Lindwall**  
*Wisconsin Hospital Association, Inc.*

“10 years with WCSP moved Meriter’s stroke program forward. We improved communication across Wisconsin, and fast-tracked everything from EMS connections, transfers, guidelines, and education.”

**Anne Remley Haines**  
*Unity Point Health-Meriter*

**Percent of stroke patients with hospital pre-notification by EMS providers, 2013–2020.**



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## In-Hospital

Over the past 8 years, WCSP has used quarterly CLC meetings to help hospitals focus on reducing the amount of time between a stroke patient's arrival and initiation of CT.

In 2013, WCSP-participating hospitals' collective median time from a stroke patient's arrival to CT initiation was 22 minutes. WCSP staff analyzes data quarterly, and utilizes the CLC meetings to provide updates. Participating hospital staff and stroke coordinators planned quality improvement efforts informed by their most recent data and used quarterly meetings to discuss best practices. Hospitals that had the fastest median time each quarter were also given recognition at meetings. By 2020, WCSP-participating hospitals' collective median time from a stroke patient's arrival to CT initiation decreased by 10 minutes.

## WCSP's Future

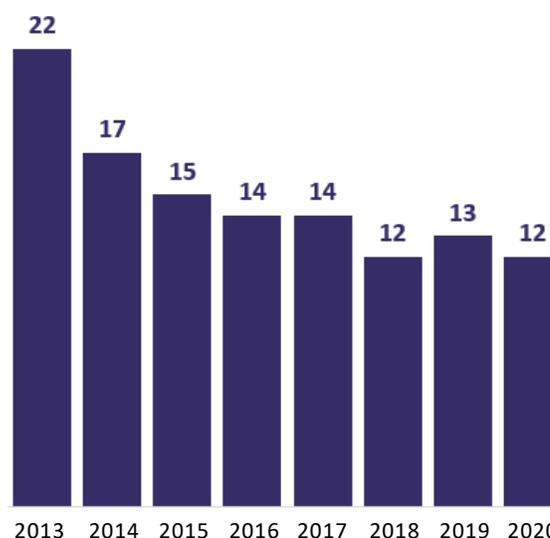
### Community-Clinical Linkages for Those at Highest-Risk

With thanks to our amazing partners, significant improvements in the quality of stroke care in Wisconsin have occurred, but our work is not done.

WCSP's efforts over the next three years will focus heavily on linking community resources and clinical services to implement a state team-based approach that supports those at highest risk for stroke events and experience disparities in stroke outcomes, in addition to ongoing statewide efforts.

WCSP is excited to continue working with dedicated hospitals, EMS providers, community organizations and those in industry across Wisconsin. To those who have participated over the last decade: thank you! This work would not be possible without your engagement and support. It has led to significant improvements in stroke care coordination and patient outcomes with more to come!

Median number of minutes from arrival to CT initiation for stroke patients seen at WCSP-participating hospitals, 2013–2020.



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“Working with WCSP gave us the opportunity to partner with local hospitals for post-stroke follow-up for our community’s impacted populations. Work with WCSP gave us a better understanding of unmet needs for those we serve, and helped us improve our outreach and education.”

**Captain Gregory Miller,**  
Community Paramedic  
Program Coordinator  
Milwaukee Fire Department

