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# Time is brain: Stroke assessment in less time with low dose.

University of Utah Hospital  
Excellence in Neuro Imaging

Centers of  
Excellence  
Series

Answers for life.



## Key Benefits



### Clinical:

Improved image quality including angiographic studies combined with dose-reduction features designed to help protect patients from unnecessary dose.



### Workflow:

Comfortable 78-cm gantry allows for fast patient positioning and comfortable imaging even for the most challenging patients.



### Financial:

Peace of mind that comes with an investment in a CT that will serve the whole population, including obese patients.



### Customer Satisfaction:

Confidence in system uptime with proactive service including remote monitoring.

With a referral area encompassing more than 10 percent of the continental U.S., University of Utah Health Care has a lot of ground to cover. It is the Intermountain West's only academic healthcare system. Approximately 90 percent of its patient population lives within contiguous coverage, while the remaining 10 percent live in remote communities. It's these residents, in particular, that the University of Utah Health Care system intends to serve with its TeleStroke program.

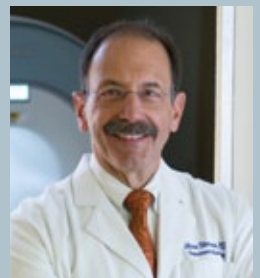


“Having these programs in place has enabled us to recruit people from other parts of the country. When you have a program that works well, others just want to be a part of it.”

Steve Stevens, MD, Professor and Chairman of Radiology

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Chairman of Radiology

## TeleStroke: Diagnose Stroke Remotely

With stroke neurologists on call 24/7, the TeleStroke program uses real-time videoconferencing and teleradiology of radiological CT images to diagnose and treat stroke patients at six rural hospitals. The limited number of stroke specialists, Utah's geographic and transport barriers, and the narrow therapeutic window for stroke make the TeleStroke program essential to providing excellence in patient care. Stroke specialists consult from the University of Utah Stroke Center and from their own homes to hospitals more than 400 miles away.

“Elaine Skalabrin, MD, stroke neurologist, deserves the credit for getting our program up and running,” says Steve Stevens, MD, professor and chairman of Radiology at the University of Utah Hospital. “With this program, we are able to perform eye-to-eye examinations of patients at other facilities, look at their CT scans, and determine whether or not to initiate thrombolytic therapy or, perhaps, send an air ambulance to get the patient and bring him into our system.”

## Tissue Clock: Calculate Stroke Impact

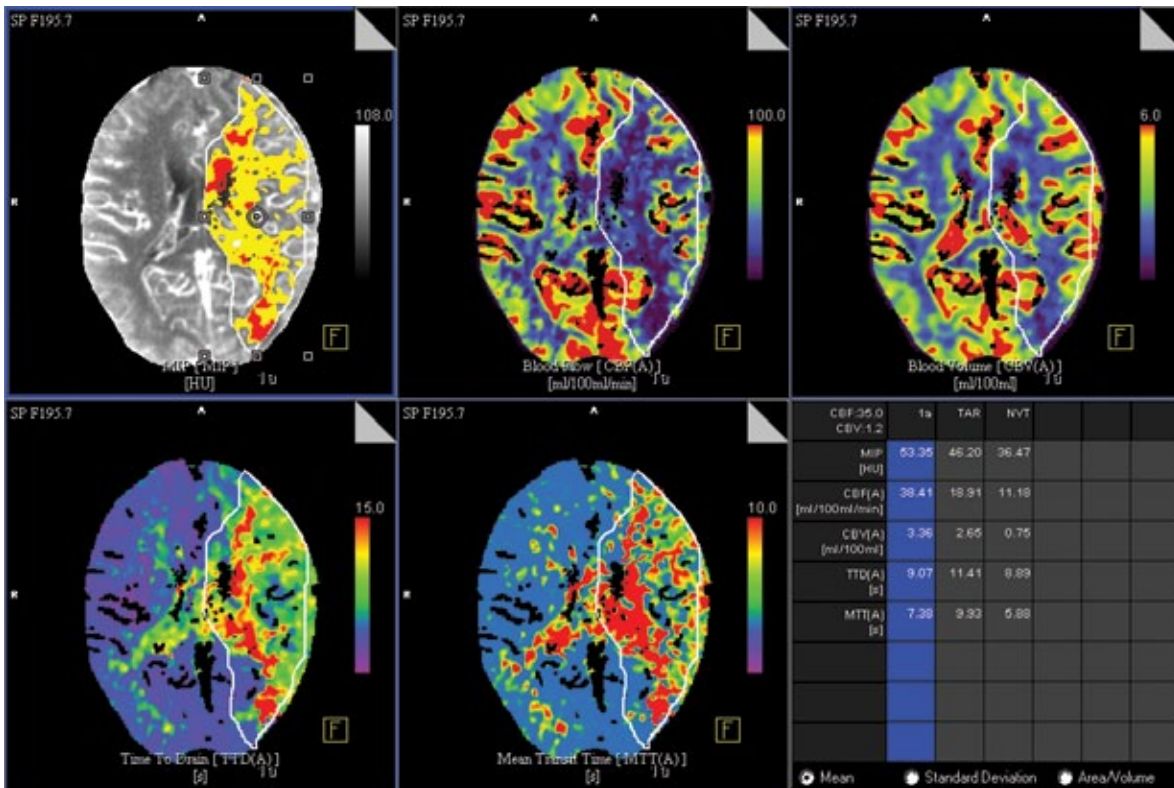
Time is tissue in stroke treatment. It's this awareness of the tissue clock that prompts the hospital to obtain all the information it needs as fast as possible at the lowest possible risk to the patient. For patients who present with stroke or stroke-like symptoms at the University of Utah site, a brain attack protocol is immediately initiated. In-house stroke neurologists, residents, or fellows from the department of Neurology quickly assess the patient and immediately proceed with a CT study to determine the nature of the stroke: ischemic or hemorrhage.

"In stroke, there are both survival and quality of life determinations. Those initial few minutes make a tremendous difference in outcomes," says Dr. Stevens. "That's why we were interested in the SOMATOM® CT scanners. The Adaptive 4D Spiral on the SOMATOM Definition AS, in particular, has made a significant difference in terms of what we can do for patients. Before, I think we didn't always get all the information we needed."



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## The Importance of Early Stroke Identification

Case: 26-year-old woman  
 Diagnosis: Basilar artery embolism

One of the key foundations of the stroke program at the University of Utah Hospital is EMS training. Once a patient is identified as possible stroke, the brain attack protocol team can be called in immediately, often assessing information while the patient is in transit.

On the night before her wedding, a 26-year-old woman was found on the floor of a restroom during her rehearsal dinner. Friends and family members thought she was intoxicated, however, one family member insisted on calling an ambulance.

EMS arrived and identified the woman as a possible stroke victim. University of Utah Hospital's brain attack protocol team was alerted and the woman was immediately transported.

She arrived within an hour-and-a-half of the ictus. After CT perfusion imaging, diagnosis was basilar artery embolism. The patient received intravenous tPA and resolved rapidly.

The next day, she had her wedding in the hospital's chapel.



## What can the SOMATOM Definition CT provide to help my stroke patients?

The most comprehensive range of CT scanners with extended volume perfusion coverage.

- You can tailor the imaging based on your patient needs with extended perfusion coverage from 8 cm to full brain coverage of 15 cm.
- You can limit the perfusion coverage to help eliminate unnecessary exposure of the eyes and decrease the dose while achieving complete coverage of the supratentorial brain.
- You and your staff can learn perfusion imaging as easily as native head imaging, thanks to the Adaptive 4D Spiral technology, making effective 24/7 stroke imaging a reality.

## CT Perfusion: Determine the Extent of Infarction

SOMATOM Definition AS and its Adaptive 4D Spiral enable clinicians to move beyond fixed detector limitations to provide whole-organ coverage in 4D for stroke or tumor perfusion. With it, 3D-guided CT interventions are possible with full control in any plane, which overcomes the limitations of conventional 2D guidance. After a non-contrast head CT rules out hemorrhage, the SOMATOM Definition can quickly perform perfusion imaging of the entire brain to determine the extent of infarction and, thus, whether the patient should be treated with thrombolytic drugs.

“We’re really looking for brain at risk and what we can save,” says Dr. Stevens. “Then, we can determine what the potential benefits of intravenous or intra-arterial therapy might be for the patient. CT perfusion plays a tremendous role in helping to assess what tissue is at risk, which is why performing the study quickly is so important.”

Admittedly, a complete stroke program that includes telestroke and on-site stroke protocols requires investment—in staff and/or technology—on the part of the hospital. “We’ve invested significant money into the infrastructure to make this program work. It enables us to offer better care to our community’s stroke patients,” says Dr. Stevens. “And having these programs in place has enabled us to recruit people from other parts of the country. When you have a program that works well, others just want to be a part of it.”



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