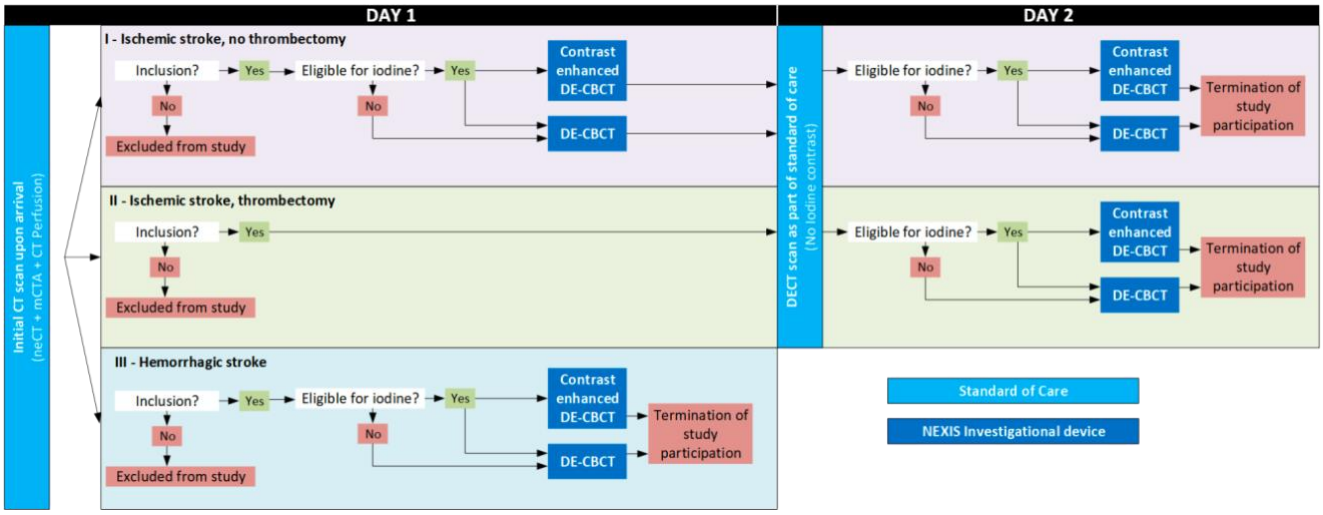
Eligibility criteria



Inclusion criteria

1. The patient has signed and dated the Informed Consent Form (ICF)
2. Age ≥ 50 years old
3. Clinical and radiological signs consistent with acute stroke
    - I. Patient diagnosed with ischemic stroke of the anterior circulation and not eligible for thrombectomy.
    - II. Patient diagnosed with ischemic stroke of the anterior circulation and subjected to thrombectomy.
    - III. Patient diagnosed with hemorrhagic stroke.

Exclusion criteria

1. Pregnant or breastfeeding women.
2. Previous stroke or parenchymal damage/defects in anterior circulation territories (only applicable for subjects included by criterion 3.I or 3.II).
3. Subject participates in a potentially confounding drug or device trial during the course of the study.
4. Participation in the study exposes the subject to risk, as assessed at the discretion of the treating physician.
5. All subjects who meet an exclusion criteria according to national law.
6. Subject or subject family member is a known Philips employee.

Notes related to inclusion groups 3.I – 3.III

3.I patients (imaged twice with DL-CBCTA) were originally intended to be part of a subgroup to evaluate the diagnostic accuracy to localize the arterial occlusion. Due to the scarcity of included subjects (n=3), this subgroup analysis was not performed. The results from the two DL-CBCTA scans were averaged for each patient, as described in the Results section. One patient only underwent the first day scan and was subsequently transferred to another hospital.
3.II patients (n=22) were imaged with DL-CBCTA on day 2 to reduce risks related to iodine contrast media administration following CTA, CT perfusion and thrombectomy on day 1.
3.III patients (n=3) were imaged with DL-CBCTA on day 1 since they were likely to be transferred to another hospital the same day as diagnosis.

Likert scales

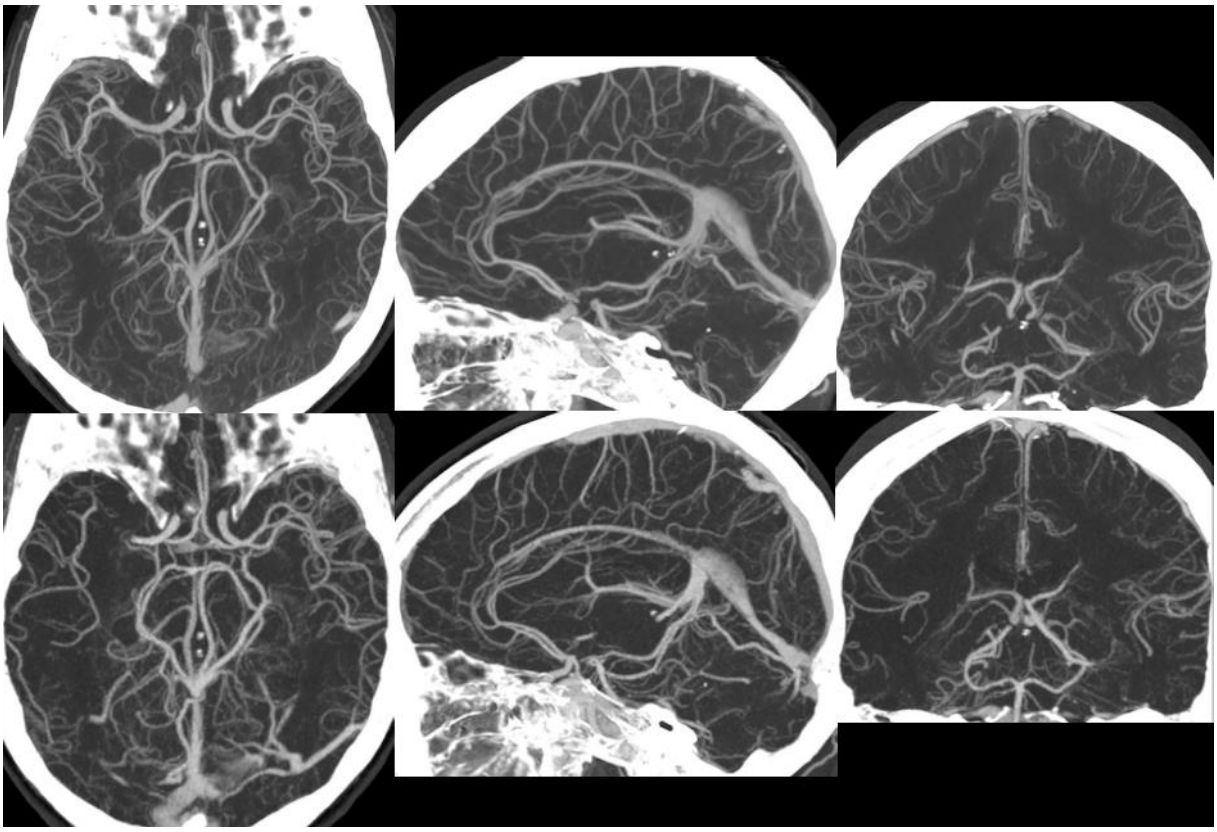
Vessel conspicuity

1. Vessel not visible
2. Poor vessel conspicuity, blurring of the vessel contours
3. Fair vessel conspicuity, likely suboptimal for confident diagnosis
4. Good vessel conspicuity, likely adequate for confident diagnosis
5. Excellent vessel conspicuity

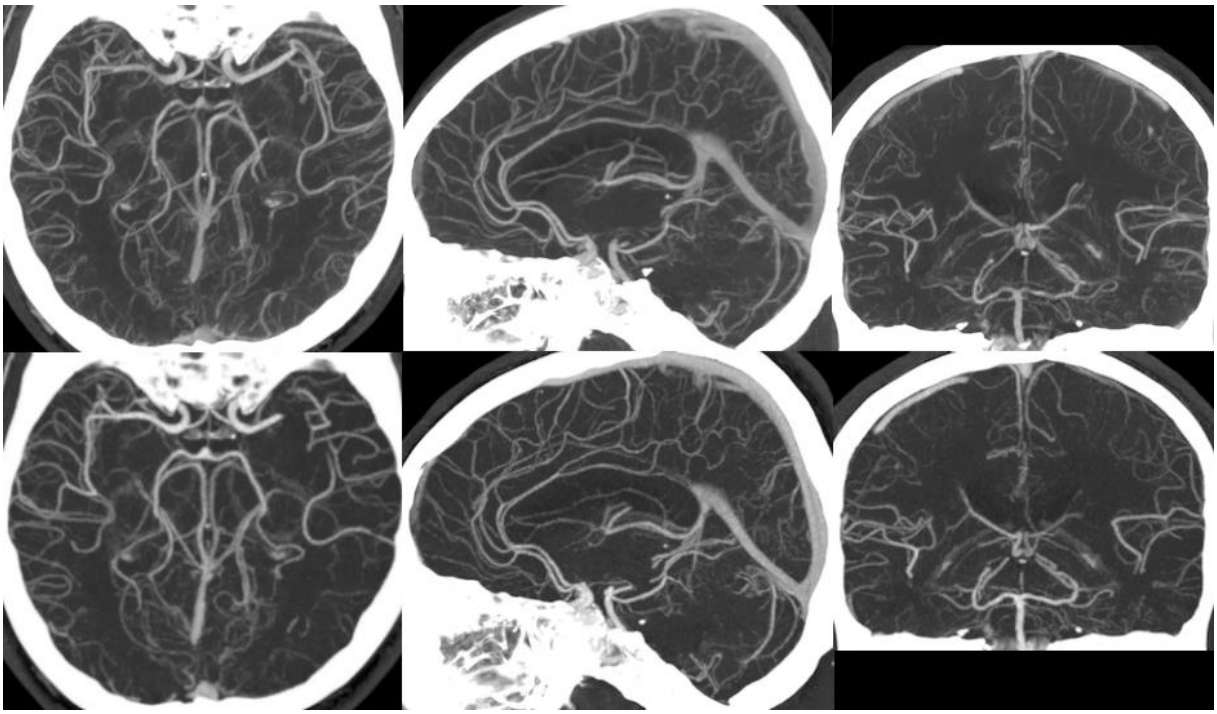
Artifacts

1. Extensive artifacts, diagnostic evaluation impossible
2. Moderate artifacts, diagnostic evaluation impaired
3. Slight artifacts, may impair diagnostic evaluation
4. Faint artifacts, likely does not impair diagnostic evaluation
5. No artifacts

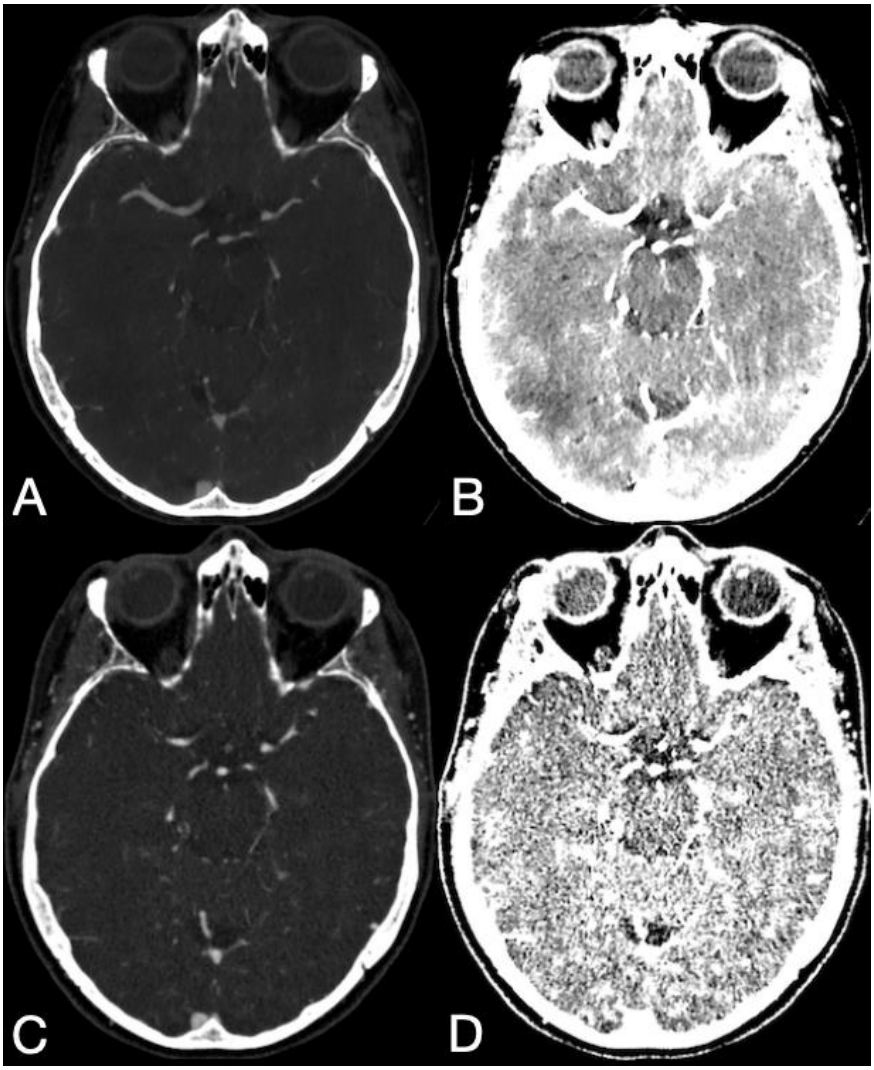
Images below are 35 mm MIP showing DL-CBCTA top row and CTA bottom row



Case with no disagreement among readers. The left hemisphere is evaluated due to right-sided thrombus. DL-CBCTA vessel conspicuity is rated non-inferior to CTA in all segments evaluated.



Case with considerable variability among readers. The right hemisphere is evaluated due to left-sided thrombus. Reader majority that M1-segment conspicuity is inferior in DL-CBCTA compared to CTA. For ICA, M2, M3 and P1-segments readers have mixed results. The quality of the DL-CBCTA image acquisition was rated as acceptable since it had slight motion artifacts.



Images of thin axial slices of DL-CBCTA 70 keV images (top row, 0.66 mm) and CTA (bottom row, 0.50 mm). A and C show thin axial slices with windowing for vessel visualization 900/350 (W/L). B and D show windowing 75/25 (W/L), for visualization of soft tissue and extravascular regions. DL-CBCTA = Dual-layer cone-beam CT angiography; CTA = CT angiography

Supplemental table 1

Vessel Visibility	**Powered dataset** 21 patients 231 segments rated	**Powered subset** 12 patients 132 segments rated	**Thrombectomy dataset** 21 patients 231 segments rated	**Thrombectomy subset** 12 patients 132 segments rated
Majority	0.77 (0.70) **CMH p=0.0006**	0.98 (0.93)* **CMH p=0.0009**	0.77 (0.71) **CMH p=0.0342**	0.98 (0.93)* **CMH p=0.0009**
Reader 1	0.65 (0.58) **CMH p<0.0001**	0.88 (0.80)* **CMH p=0.0088**	0.67 (0.60) **CMH p=0.2276**	0.91 (0.84)* **CMH p=0.7093**
Reader 2	0.90 (0.84)* **CMH p=0.0149**	0.98 (0.93)* **CMH p=0.0880**	0.89 (0.83)* **CMH p=0.0682**	0.98 (0.93)* **CMH p=0.0880**
Reader 3	0.60 (0.53) **CMH p=0.0048**	0.78 (0.69) **CMH p=0.0014**	0.68 (0.61) **CMH p=0.1094**	0.88 (0.80)* **CMH p=0.1036**

Note: Proportion of DL-CBCTA arterial segment visibility rated equal or superior to CTA. Dataset (21 patients) include all scans, subset (12 patients) exclude inferior scans. 98.75% CI of the one-sided lower performance boundary within brackets (lower boundary defined as 80% rated equal or superior). * indicates statistically significant result.

CMH: Cochran-Mantel-Haenszel test result, green indicating no significant within-subject correlation of arterial segments, red indicating significant within-subject correlation, defined as $p<0.05$.

Supplemental table 2

21 patients (whole dataset), proportion rated non-inferior to CT angiography.
Vessel conspicuity (top) and artifacts (bottom),
98.75% CI of the one-sided lower performance boundary within brackets.
Green: Best, Red: Worst

Vessel conspicuity Segment	Majority 21 ratings	Reader 1 21 ratings	Reader 2 21 ratings	Reader 3 21 ratings
ICA	0.71 (0.45)	0.62 (0.36)	0.81 (0.55)	0.52 (0.27)
M1	0.57 (0.31)	0.62 (0.36)	0.76 (0.49)	0.52 (0.27)
M2	0.76 (0.50)	0.62 (0.36)	0.95 (0.73)	0.71 (0.45)
M3	0.86 (0.61)	0.62 (0.36)	0.95 (0.73)	0.76 (0.49)
M4	0.90 (0.67)	0.90 (0.67)	0.95 (0.73)	0.81 (0.55)
A1	0.71 (0.45)	0.62 (0.36)	0.86 (0.61)	0.62 (0.36)
A2	0.81 (0.55)	0.76 (0.50)	0.95 (0.73)	0.76 (0.49)
Lenticulostriate	1.00 (0.81)	1.00 (0.81)	1.00 (0.81)	0.38 (0.16)
Vertebral	0.86 (0.61)	0.62 (0.36)	0.90 (0.67)	0.76 (0.50)
Basilar	0.76 (0.50)	0.67 (0.40)	0.86 (0.61)	0.62 (0.36)
AICA	0.86 (0.61)	0.76 (0.50)	0.90 (0.67)	0.81 (0.55)
PICA	0.76 (0.50)	0.62 (0.36)	0.76 (0.49)	0.81 (0.55)
SCA	0.76 (0.50)	0.57 (0.31)	0.95 (0.73)	0.76 (0.49)
Basilar perforating	0.90 (0.67)	0.90 (0.67)	1.00 (0.81)	0.38 (0.16)
P1	0.81 (0.55)	0.71 (0.45)	0.90 (0.67)	0.71 (0.45)
P2	0.76 (0.50)	0.62 (0.36)	0.86 (0.61)	0.71 (0.45)

Artifacts Segment	Majority 21 ratings	Reader 1 21 ratings	Reader 2 21 ratings	Reader 3 21 ratings
ICA	0.24 (0.07)	0.38 (0.16)	0.29 (0.10)	0.38 (0.16)
M1	0.43 (0.20)	0.38 (0.16)	0.57 (0.31)	0.38 (0.16)
M2	0.62 (0.36)	0.57 (0.31)	0.81 (0.55)	0.43 (0.20)
M3	0.67 (0.40)	0.57 (0.31)	0.81 (0.55)	0.57 (0.31)
M4	0.62 (0.36)	0.52 (0.27)	0.81 (0.55)	0.57 (0.31)
A1	0.62 (0.36)	0.57 (0.31)	0.67 (0.40)	0.71 (0.45)
A2	0.76 (0.50)	0.67 (0.40)	0.86 (0.61)	0.71 (0.45)
Lenticulostriate	0.48 (0.23)	0.48 (0.23)	0.62 (0.36)	0.33 (0.13)
Vertebral	0.33 (0.13)	0.52 (0.27)	0.33 (0.13)	0.33 (0.13)
Basilar	0.52 (0.27)	0.57 (0.31)	0.57 (0.31)	0.38 (0.16)
AICA	0.14 (0.02)	0.19 (0.04)	0.52 (0.27)	0.10 (0.01)
PICA	0.24 (0.07)	0.33 (0.13)	0.52 (0.27)	0.33 (0.13)
SCA	0.48 (0.23)	0.52 (0.27)	0.67 (0.40)	0.48 (0.23)
Basilar perforating	0.10 (0.01)	0.05 (0.00)	0.57 (0.31)	0.14 (0.02)
P1	0.62 (0.36)	0.52 (0.27)	0.67 (0.40)	0.52 (0.27)
P2	0.67 (0.40)	0.62 (0.36)	0.81 (0.55)	0.67 (0.40)

Supplemental table 3

12 patients (subset of acceptable scans), proportion rated non-inferior to CT angiography.
Vessel conspicuity (top) and artifacts (bottom),
98.75% CI of the one-sided lower performance boundary within brackets.
Green: Best, Red: Worst

Vessel conspicuity Segment	Majority 12 ratings	Reader 1 12 ratings	Reader 2 12 ratings	Reader 3 12 ratings
ICA	1.00 (0.69)	0.92 (0.57)	1.00 (0.69)	0.75 (0.39)
M1	0.75 (0.39)	0.83 (0.47)	0.83 (0.47)	0.75 (0.39)
M2	1.00 (0.69)	0.83 (0.47)	1.00 (0.69)	0.92 (0.57)
M3	1.00 (0.69)	0.83 (0.47)	1.00 (0.69)	1.00 (0.69)
M4	1.00 (0.69)	0.92 (0.57)	1.00 (0.69)	1.00 (0.69)
A1	1.00 (0.69)	0.83 (0.47)	1.00 (0.69)	0.83 (0.47)
A2	1.00 (0.69)	1.00 (0.69)	1.00 (0.69)	1.00 (0.69)
Lenticulostriate	1.00 (0.69)	1.00 (0.69)	1.00 (0.69)	0.42 (0.13)
Vertebral	1.00 (0.69)	0.92 (0.57)	1.00 (0.69)	0.83 (0.47)
Basilar	1.00 (0.69)	0.92 (0.57)	0.92 (0.57)	0.83 (0.47)
AICA	1.00 (0.69)	0.92 (0.57)	1.00 (0.69)	1.00 (0.69)
PICA	1.00 (0.69)	0.75 (0.39)	1.00 (0.69)	1.00 (0.69)
SCA	1.00 (0.69)	0.75 (0.39)	1.00 (0.69)	1.00 (0.69)
Basilar perforating	1.00 (0.69)	1.00 (0.69)	1.00 (0.69)	0.42 (0.13)
P1	1.00 (0.69)	1.00 (0.69)	1.00 (0.69)	0.75 (0.39)
P2	1.00 (0.69)	1.00 (0.69)	1.00 (0.69)	1.00 (0.69)

Artifacts Segment	Majority 12 ratings	Reader 1 12 ratings	Reader 2 12 ratings	Reader 3 12 ratings
ICA	0.42 (0.13)	0.67 (0.31)	0.42 (0.13)	0.42 (0.13)
M1	0.67 (0.31)	0.58 (0.24)	0.58 (0.24)	0.67 (0.31)
M2	0.83 (0.47)	0.83 (0.47)	0.92 (0.57)	0.67 (0.31)
M3	1.00 (0.69)	0.92 (0.57)	0.92 (0.57)	0.92 (0.57)
M4	1.00 (0.69)	0.92 (0.57)	0.92 (0.57)	0.92 (0.57)
A1	1.00 (0.69)	0.92 (0.57)	0.83 (0.47)	1.00 (0.69)
A2	1.00 (0.69)	1.00 (0.69)	0.92 (0.57)	0.92 (0.57)
Lenticulostriate	0.67 (0.31)	0.75 (0.39)	0.67 (0.31)	0.50 (0.18)
Vertebral	0.50 (0.18)	0.83 (0.47)	0.42 (0.13)	0.42 (0.13)
Basilar	0.67 (0.31)	0.83 (0.47)	0.58 (0.24)	0.50 (0.18)
AICA	0.25 (0.04)	0.33 (0.08)	0.58 (0.24)	0.17 (0.01)
PICA	0.42 (0.13)	0.50 (0.18)	0.58 (0.24)	0.42 (0.13)
SCA	0.83 (0.47)	0.92 (0.57)	0.75 (0.39)	0.75 (0.39)
Basilar perforating	0.17 (0.01)	0.08 (0.00)	0.58 (0.24)	0.25 (0.04)
P1	0.83 (0.47)	0.83 (0.47)	0.75 (0.39)	0.58 (0.24)
P2	1.00 (0.69)	1.00 (0.69)	0.92 (0.57)	1.00 (0.69)