

Supplemental table 1. Search syntax.

Database	Search
PubMed	<p>1) CT perfusion and synonyms: "Perfusion CT"[Title/Abstract] OR "CT Perfusion"[Title/Abstract] OR "perfusion computed tomography"[Title/Abstract] OR "computed tomography perfusion" [Title/Abstract] OR "dynamic CT"[Title/Abstract] OR "dynamic computed tomography"[Title/Abstract] OR "perfusion imaging"[Title/Abstract] OR "perfusion parameter"[Title/Abstract] OR "perfusion parameters"[Title/Abstract] OR "cerebrovascular hemodynamics"[Title/Abstract] OR (CT[Title/Abstract] AND "quantitative assessment"[Title/Abstract]) OR (CT[Title/Abstract] AND "mean transit time"[Title/Abstract]) OR (CT[Title/Abstract] AND "time to peak"[Title/Abstract]) OR (CT[Title/Abstract] AND "cerebral blood volume"[Title/Abstract]) OR (CT[Title/Abstract] AND "cerebral blood flow"[Title/Abstract])) AND</p> <p>2) ischemic stroke and synonyms: "stroke" [Title/Abstract] OR "cerebral ischaemia"[Title/Abstract] OR "cerebral ischemia" [Title/Abstract] OR "brain ischaemia" [Title/Abstract] OR "brain ischemia"[Title/Abstract] OR "cerebral infarction"[Title/Abstract] OR "brain infarction" [Title/Abstract] OR "brain hypoxia"[Title/Abstract] OR "cerebral hypoxia"[Title/Abstract] OR "cerebrovascular disease"[Title/Abstract]</p> <p>3) 1 AND 2</p>
Embase	<p>1) CT perfusion and synonyms "Perfusion CT":ab:ti OR "CT perfusion":ab:ti OR "perfusion computed tomography":ab:ti OR "computed tomography perfusion":ab:ti OR "dynamic CT":ab:ti OR "dynamic computed tomography":ab:ti OR "perfusion imaging":ab:ti OR "perfusion parameter":ab:ti OR "perfusion parameters":ab:ti OR "cerebrovascular hemodynamics":ab:ti OR (CT:ab:ti AND "quantitative assessment":ab:ti) OR (CT:ab:ti AND "mean transit time":ab:ti) OR (CT:ab:ti AND "time to peak":ab:ti) OR (CT:ab:ti AND "cerebral blood volume":ab:ti) OR (CT:ab:ti AND "cerebral blood flow":ab:ti)</p> <p>2) Ischemic stroke and synonyms "stroke":ab:ti OR "cerebral ischaemia":ab:ti OR "cerebral ischemia":ab:ti OR "brain ischaemia":ab:ti OR "brain ischemia":ab:ti OR "cerebral infarction":ab:ti OR "brain infarction":ab:ti OR "brain hypoxia":ab:ti OR "cerebral hypoxia":ab:ti OR "cerebrovascular disease":ab:ti</p> <p>3) 1 AND 2</p>
Cochrane	<p>1) CT perfusion and synonyms "Perfusion CT":ti,ab,kw OR "CT perfusion":ti,ab,kw OR "perfusion computed tomography":ti,ab,kw OR "computed tomography perfusion":ti,ab,kw OR "dynamic CT":ti,ab,kw OR "dynamic computed tomography":ti,ab,kw OR "perfusion imaging":ti,ab,kw OR "perfusion parameter":ti,ab,kw OR "perfusion parameters":ti,ab,kw OR "cerebrovascular hemodynamics":ti,ab,kw OR (CT:ti,ab,kw AND "quantitative assessment":ti,ab,kw) OR (CT:ti,ab,kw AND "mean transit time":ti,ab,kw) OR (CT:ti,ab,kw AND "time to peak":ti,ab,kw) OR (CT:ti,ab,kw AND "cerebral blood volume":ti,ab,kw) OR (CT:ti,ab,kw AND "cerebral blood flow":ti,ab,kw)</p> <p>2) ischemic stroke and synonyms "stroke":ti,ab,kw OR "cerebral ischaemia":ti,ab,kw OR "cerebral ischemia":ti,ab,kw OR "brain ischaemia":ti,ab,kw OR "brain ischemia":ti,ab,kw OR "cerebral infarction":ti,ab,kw OR "brain infarction":ti,ab,kw OR "brain hypoxia":ti,ab,kw OR "cerebral hypoxia":ti,ab,kw OR "cerebrovascular disease":ti,ab,kw</p> <p>3) 1 AND 2</p>

Supplemental table 2: Methodological quality scoring

Quality Item	Positive Score
1 Was the spectrum of patients representative of the patients who will receive the test in practice?	Only patients suspected of ischemic stroke were included
2 Were selection criteria clearly described?	It was clear how patients were selected to undergo CTP scan
3 Is the reference standard likely to enable correct classification of the target condition?	Follow-up MRI/CT or early MRI DWI was used as the reference standard.
4 Is the time period between reference standard and Index test short enough to be reasonably sure that the target condition did not change between the two tests?	Time period between CTP and reference standard was short enough.
5 Did the whole sample or a random selection of the sample receive verification with a reference standard?	All patients or a random selection of the patients received verification with the reference standard.
6. Did patients receive the same reference standard regardless of the index test result?	All patients received the same reference standard regardless of the CTP result
7. Was the execution of the index test described in sufficient detail to permit replication of the test	The CTP scan protocol (scanner type, acquisition mode, reconstruction method, brain coverage, slice thickness) and interpreter(s) were described.
8 Was the execution of the reference standard described insufficient detail to permit its replication?	Sufficient details or citations were reported to permit replication of the reference standard.
9 Were the index test results interpreted without knowledge of the results of the reference standard?	Interpretation of CTP findings was performed without knowledge of MRI DWI findings.
10 Were the reference standard results interpreted without knowledge of the results of the index test?	Interpretation of the reference standard results was performed without knowledge of the CTP findings.
11 Were the same clinical data available when test results were interpreted as would be available when the test is used in practice?	The observer was aware that the patient was suspected of ischemic stroke and of the side of symptoms when CT results were interpreted.
12 Were uninterpretable and/or intermediate test results reported?	All CTP results, including uninterpretable and/ or intermediate results, were reported.
13 Were withdrawals from the study explained?	It was clear what happened to all patients who entered the study.

Supplemental table 3. Confirmed infarcts on follow-up that were not detected with perfusion CT.

Study	Number of FN (% of TP + FN)	Specification of false negatives			
		Infarct outside CTP coverage (n)	Infarct within CTP coverage		
			Motion artefacts	Lacunar infarcts (n (definition used))	Territorial infarcts (n)
Eckert	23 (30)	7	None	16 (NS)	None
Lin	23 (35)	10	None	13 (≤ 15 mm in size)	None
Youn	9 (18)	None	None	7 (NS)	2
Langer	6 (16)	None	None	6 (NS)	None
Wintermark	8 (31)	1	4	3 (NS)	None
Esteban	2 (7)	2	None	None	None
Kloska	9 (24)	5	None	4 (<3 cc)	None
Schramm	0 (0)	None	None	None	None
Eastwood	0 (0)	None	None	None	None
Roberts	1 (10)	None	None	1 (NS)	None
Rother	2 (10)	1	None	1 (NS)	None
Reichenbach	6 (40)	2	1	3 (<10 mm width)	None
Koenig	3 (11)	3	None	None	None
Subtotal	92	31	5	54	2
Rai	79 (50)	Not stated	Not stated	Not stated	Not stated
Suzuki	35 (32)	Not stated	Not stated	Not stated	Not stated

FN: false negatives; TP: true positives; CTP: computed tomography perfusion; NS: not specified.