**Supplementary Table 1.** Characteristics of ROSIER validation studies

| **Ref.** | **Publication year** | **Country** | **Study type** | **Assessment place** | **Inclusion criteria** | **Group size** | **Investigator** | **Reference diagnosis** | **ROSIER accuracy** | **Compared scales** | **Limitations specified in study** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [15] | 2005 | United Kingdom | Prospective | Emergency department | Patients > 18 years old referred from Emergency department to stroke team with suspected stroke or TIA | 343 | Emergency department physician | Opinion of consultant stroke physician based on clinical examination and neuro-imaging results | • Sen. 92% • Spec. 86% • PPV 88% • NPV 91% | – | – |
| [15] | 2005 | United Kingdom | Prospective | Emergency department | Patients > 18 years old referred from Emergency department to stroke team with suspected stroke or TIA | 160 | Emergency department physician | Opinion of consultant stroke physician based on clinical examination and neuro-imaging results | • Sen. 93% • Spec. 83% • PPV 90%  • NPV 88% | – | – |
| [50] | 2008 | Ireland | Prospective | Emergency department | Patients identified as having possible stroke during Emergency department initial triage | 50 | Registrars and senior house officers | Discharge diagnosis | • PPV 94% | – | – |
| [29] | 2011 | United Kingdom | Prospective | Stroke unit | Patients with suspected stroke or TIA referred by Emergency department or primary care doctor | 106 | Registered trained nurses | Opinion of two medical consultants for stroke | • Sen. 50% • Spec. 96% • PPV 83% • NPV 82% | – | • Patients with possible stroke diagnosis before evaluation • Nurses with specialised stroke knowledge and experience • Low number of non-stroke patients |
| [39] | 2011 | United Kingdom | Prospective | Emergency department | Patients assessed by Emergency department staff as suspected stroke with symptoms onset < 24 h before admission and symptomatic during assessment | 356 | Emergency department physician or nurse | Opinion of group of experts (Emergency department physicians, neurologists, neuroradiologists) based on clinical examination and neuro-imaging results | • Sen. 83% • Spec. 44% | **FAST** • Sen. 81% • Spec. 39% | • ROSIER and FAST have not been completely collected for all patients • Possible misclassification of reference diagnosis |
| [41] | 2011 | Australia | Retrospective | Emergency department | Children in age 1 month to 18 years old with AIS | 47 | Notes and medical records of Emergency department physicians and neurologists or neurosurgeons | – | • Sen. 81% | **FAST** • Sen. 76% | • Some notes have not documented all necessary symptoms and/or have not referred to initial presentation |
| [38] | 2012 | China | Prospective | Emergency department | Patients > 18 years old with symptoms suggestive of stroke or TIA seen by Emergency department physician in prehospital setting | 540 | Emergency department physician | Discharge diagnosis made by neurologists | • Sen. 89.97% • Spec. 83.23% • PPV 92.66% • NPV 77.91% | **CPSS** • Sen. 88.77% • Spec. 68.79% • PPV 87.40% • NPV 71.52% | • Small sample size • Single-center study |
| [30] | 2013 | United Kingdom | Prospective | Ambulance | Patients > 18 years old with symptoms suggestive of stroke | 295 | Ambulance physicians | Routine stroke recognition tests confirmed by senior stroke consultant | • Sen. 97% • Spec. 18% • PPV 64% • NPV 78% | **FAST** • Sen. 97% • Spec. 13% • PPV 62% • NPV 71% | • FAST assessment was based on data extracted from ROSIER |
| [51] | 2014 | China | Prospective | Emergency department | Patients ≥ 18 years old with symptoms suggestive of stroke | 715 | Specialist stroke nurse or Emergency medicine consultant | Opinion of stroke team (4 stroke nurses and 2 specialist doctors) based on clinical examination and neuro-imaging results | • Sen. 87% • Spec. 41% • PPV 62% • NPV 75% | – | • Single-centre study • Patients’ group mostly consisting of elderly people |
| [31] | 2015 | USA | Prospective | Stroke unit | Patients with suspected stroke referred by Emergency department or primary care doctor | 106 | Nurses | Opinion of stroke doctor based on neuro-imaging results | • Sen. 98% • PPV 83% | – | – |
| [35] | 2015 | Germany | Retrospective | Emergency department | Patients characterised in database as 'suspected central nervous system disorders' | 640 | Emergency department physician or paramedic | Discharge diagnosis letters | • Sen. 80% • Spec. 79% • PPV 59% • NPV 91% | **CPSS** • Sen. 83% • Spec. 69%• PPV 50% • NPV 91%  **FAST** • Sen. 85% • Spec. 68% • PPV 50% • NPV 92%  **LAPSS 1998** • Sen. 44% • Spec. 98% • PPV 87% • NPV 82%  **LAPSS 2000** • Sen. 49% • Spec. 97%  • PPV 87% • NPV 84%  **MASS** • Sen. 63% • Spec. 94% • PPV 79% • NPV 87%  **MedPACS** • Sen. 71% • Spec. 92% • PPV 76% • NPV 90% |  |
| [34] | 2016 | China | Prospective | Emergency department | Patients ≥ 18 years old with symptoms suggestive of stroke within 7 days | 416 | Emergency department physician with NIHSS certificate | Opinion of clinical stroke physician based on clinical examination and neuro-imaging results | • Sen. 77.7% • Spec. 70.7% • PPV 94.2% • NPV 33.9% | **FAST** • Sen. 76.0% • Spec. 63.8% • PPV 92.8% • NPV 30.1%  **LAPSS** • Sen. 56.4% • Spec. 87.9% • PPV 96.7% • NPV 24.6% | • Single-centre study |
| [32] | 2016 | Australia | Prospective and retrospective | Emergency department | Children in age 1 month to 18 years with AIS and HS or mimics | 380 | Emergency department physicians | Pediatric neurologist | • Sen. 67% • Spec. 70% • PPV 44% • NPV 85% | **CPSS** • Sen. 62% • Spec. 77% • PPV 50% • NPV 85% | • Retrospective abstraction of variables in many cases • Scale assessment not always performed by Emergency department physician • Reference diagnosis determined by one neurologist |
| [36] | 2017 | China | Prospective | Emergency medical service | Patients > 18 years old with symptoms suggestive of stroke or TIA | 468 | General practitioners trained by Emergency department physicians | Opinion of neurologist | • Sen. 83.13% • Spec. 80.88% • PPV 91.39% • NPV 66.27% | **CPSS** • Sen. 78.01% • Spec. 70.59% • PPV 86.62% • NPV 56.80% | • Small sample size • Localized recruitment • Assessment made by general practitioners |
| [44] | 2020 | Iran | Retrospective | Emergency department | Patients > 18 years old transferred to Emergency department with suspected AIS, who have undergone MRI | 356 | Medical records | Opinion of neurologist based on clinical examination and neuro-imaging results | • Sen. 85.4% • Spec. 65.8% • PPV 64.8% • NPV 86.0% | – | • No differentiation between AIS and HS • In some cases, all data about a patient could not be extracted |
| [37] | 2021 | Turkey | Prospective | Emergency department | Patients >18 years old with symptoms suggestive of stroke or TIA | 335 | Emergency medicine specialist or emergency medicine assistant | Opinion of Neurology department based on clinical examination and neuro-imaging results | • Sen. 68.5% • Spec. 79.0% • PPV 78.7% • NPV 68.9% | **FAST** • Sen. 63.5% • Spec. 88.5% • PPV 68.1% • NPV 75.2% | – |
| [33] | 2021 | Italy | Prospective | Emergency department | Patients ≥ 18 years old with neurological symptoms | 539 | Nurses | Discharge diagnosis made by neurologist | • Sen. 97.6% • Spec. 90.1% • PPV 97.5% • NPV 82.7% | – | • Single-center study • Low number of false positive cases |

TIA — Transient Ischemic Attack, Sen. — Sensitivity, Spec.- Specificity, PPV — Positive Predictive Value, NPV — Negative Predictive Value, AIS — Arterial Ischemic Stroke, NIHSS - National Institutes of Health Stroke Scale, HS- Hemorrhage Stroke, MRI — Magnetic Resonance Imaging, FAST — Face Arm Speech Time Test, CPSS — Cincinnati Prehospital Stroke Scale, LAPSS — Los Angeles Prehospital Stroke Scale, MASS — Melbourne Ambulance Stroke Scale, Med PACS — Medic Prehospital Assessment for Code Stroke, ROSIER — Recognition of Stroke in the Emergency Room Scale