**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